

Open Source Used In Cisco Meeting Server (formerly Acano Server) 3.5

Cisco Systems, Inc.
www.cisco.com

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco website at www.cisco.com/go/offices.

Text Part Number: 78EE117C99-1291431091

This document contains licenses and notices for open source software used in this product. With respect to the free/open source software listed in this document, if you have any questions or wish to receive a copy of any source code to which you may be entitled under the applicable free/open source license(s) (such as the GNU Lesser/General Public License), please submit this form.

In your requests please include the following reference number 78EE117C99-1291431091

Contents

1.1 gettext 0.16.1
1.1.1 Available under license
1.2 flex 2.5.35
1.2.1 Available under license
1.3 antlr 2.7.7
1.3.1 Available under license
1.4 libjpeg 6b
1.4.1 Notifications
1.4.2 Available under license
1.5 libiconv 1.14
1.5.1 Available under license
1.6 lua 5.1.5
1.6.1 Available under license
1.7 libpcap 1.2.1
1.7.1 Available under license
1.8 freefont-ttf 20100919
1.8.1 Available under license
1.9 pm-utils 1.4.1
1.9.1 Available under license
1.10 speex 1.2
1.10.1 Available under license
1.11 protobuf 2.4.1
1.11.1 Available under license
1.12 bzip2 1.0.6
1.12.1 Available under license
1.13 lua 5.1.4

1.13.1 Available under license
1.14 ethtool 3.2
1.14.1 Available under license
1.15 iptables 1.4.20
1.15.1 Available under license
1.16 libpcap 1.7.4
1.16.1 Available under license
1.17 free-type 2.5.5
1.17.1 Available under license
1.18 dhcp 4.1-ESV-R9
1.18.1 Available under license
1.19 libmnl 1.0.3
1.19.1 Available under license
1.20 libnfnetlink 1.0.1
1.20.1 Available under license
1.21 uclibc 0.9.33.2
1.21.1 Available under license
1.22 libxml2 2.9.4
1.22.1 Available under license
1.23 d-bus 1.10.8
1.23.1 Available under license
1.24 pxelinux 6.03
1.24.1 Available under license
1.25 util-linux 2.20
1.25.1 Available under license
1.26 sqlite 3.13.0
1.26.1 Available under license
1.27 kmod 23
1.27.1 Available under license
1.28 e2fsprogs 1.43.7
1.28.1 Available under license
1.29 apr-util 1.6.1
1.29.1 Available under license
1.30 pcre 8.42
1.30.1 Available under license
1.31 cairo 1.14.2
1.31.1 Available under license
1.32 boost 1.67.0
1.32.1 Available under license

1.33 latencyutils 2.0.3
1.34 python 3.7.3
1.34.1 Available under license
1.35 freerdp 2.0.0-rc4
1.35.1 Available under license
1.36 bzip2 1.0.8
1.37 ldns 1.7.1
1.37.1 Available under license
1.38 commons-collections 4.4
1.38.1 Available under license
1.39 zlib 1.2.8
1.39.1 Available under license
1.40 dmidecode 3.5
1.40.1 Available under license
1.41 speex 1.2beta3
1.41.1 Available under license
1.42 libevent 2.1.8
1.42.1 Available under license
1.43 pcre 8.39
1.43.1 Available under license
1.44 ethtool 4.6
1.44.1 Available under license
1.45 json-c 0.12.1
1.45.1 Available under license
1.46 glibc 2.23
1.46.1 Available under license
1.47 busybox 1.25.0
1.47.1 Available under license
1.48 sqlite 3.7.14.1
1.48.1 Available under license
1.49 c-ares 1.12.1-DEV
1.49.1 Available under license
1.50 hd-parm 9.48
1.50.1 Available under license
1.51 pixman 0.32.6
1.51.1 Available under license
1.52 c-ares 1.2.5
1.52.1 Available under license
1.53 libffi 3.2.1

1.53.1 Available under license
1.54 bridgeutils 1.5
1.54.1 Available under license
1.55 ipmi-tool 1.8.18
1.55.1 Available under license
1.56 apr 1.6.5
1.56.1 Available under license
1.57 rsyslog 7.6.7
1.57.1 Available under license
1.58 attr 2.4.48-4
1.58.1 Available under license
1.59 audit 2.8.4-3
1.59.1 Available under license
1.60 pcre 8.39-12
1.60.1 Available under license
1.61 coreutils 8.30-3
1.61.1 Available under license
1.62 lua 5.2.3
1.63 libvmtools 9.4.0.25793
1.63.1 Available under license
1.64 acpid 2.0.27
1.64.1 Available under license
1.65 swagger-annotations 1.5.22
1.65.1 Available under license
1.66 opus 1.1.2
1.66.1 Available under license
1.67 libvpx 1.4.0
1.67.1 Available under license
1.68 e2fsprogs 1.43.1
1.68.1 Available under license
1.69 jline 3.11.0
1.69.1 Available under license
1.70 cache-api 1.1.1
1.70.1 Available under license
1.71 jansi 1.18
1.71.1 Available under license
1.72 popt 1.16
1.72.1 Available under license
1.73 opencv 4.1.1

1.73.1 Available under license
1.74 cryptsetup 1.7.2
1.74.1 Available under license
1.75 bean-validation-api 2.0.1.Final
1.75.1 Available under license
1.76 nio-stream-storage 1.1.3
1.76.1 Available under license
1.77 nio-multipart-parser 1.1.0
1.77.1 Available under license
1.78 busybox 1.30.1
1.78.1 Available under license
1.79 berkeley-db 5.3.28+dfsg1-0.5
1.79.1 Available under license
1.80 glibc 2.27
1.80.1 Available under license
1.81 inotify-tools 3.14
1.81.1 Available under license
1.82 glib 2.28.8
1.83 libarchive 3.3.3
1.83.1 Available under license
1.84 coreutils 8.30-3ubuntu2
1.84.1 Available under license
1.85 libidn 2.2.0-2
1.85.1 Available under license
1.86 libbsd 0.10.0-1
1.86.1 Available under license
1.87 dash 0.5.10.2-6
1.87.1 Available under license
1.88 xz 5.2.2
1.88.1 Available under license
1.89 tcpdump 4.9.2
1.89.1 Available under license
1.90 json-c 0.12
1.90.1 Available under license
1.91 libpng 1.6.37
1.91.1 Available under license
1.92 jakarta-persistence-api 2.2.3
1.92.1 Available under license
1.93 jakarta-transaction-api 1.3.3

1.93.1 Available under license
1.94 jq 1.4
1.94.1 Available under license
1.95 giflib 5.2.1
1.95.1 Available under license
1.96 libcap 2.22
1.96.1 Available under license
1.97 jboss-logging 3.4.1.Final
1.97.1 Available under license
1.98 e2fsprogs 1.44.5-1+deb10u3
1.98.1 Available under license
1.99 lvm2 2.02.79
1.99.1 Available under license
1.100 acpid 2.0.11
1.100.1 Available under license
1.101 goprotobuf 2.4.1
1.101.1 Available under license
1.102 grpc 1.9.1
1.102.1 Available under license
1.103 slf4j-log4j 1.7.30
1.103.1 Available under license
1.104 opus 1.3.1
1.104.1 Available under license
1.105 ipmi-tool 1.8.16
1.105.1 Available under license
1.106 pam 1.1.5
1.106.1 Available under license
1.107 libusrsctp 1.0
1.107.1 Available under license
1.108 iproute 3.14.0
1.108.1 Available under license
1.109 lsof 4.85
1.109.1 Available under license
1.110 lm-sensors 3.3.1
1.110.1 Available under license
1.111 unbound 1.5.10
1.111.1 Available under license
1.112 fontconfig 2.6.0
1.112.1 Available under license

1.113 gvfs 1.28.2-1ubuntu1~16.04.2
1.113.1 Available under license
1.114 liblogging 1.0.3
1.114.1 Available under license
1.115 open-vm-tools 9.4.0
1.115.1 Available under license
1.116 libva 1.0.15
1.116.1 Available under license
1.117 libestr 0.1.9
1.117.1 Available under license
1.118 tftp-hpa 5.2
1.118.1 Available under license
1.119 tzdata 2016h
1.119.1 Available under license
1.120 slf4j 1.7.30
1.120.1 Available under license
1.121 libcap-ng 0.7.9-2.1build1
1.121.1 Available under license
1.122 rtmpdump 2.4+20151223.gitfa8646d.1-2build1
1.122.1 Available under license
1.123 zlib 1.2.11.dfsg-2ubuntu1
1.123.1 Available under license
1.124 e2fsprogs 1.45.5-2ubuntu1
1.124.1 Available under license
1.125 gzip 1.10-0ubuntu4
1.125.1 Available under license
1.126 libevent 2.1.11-stable-1
1.126.1 Available under license
1.127 cyrus-sasl 2.1.27+dfsg-2
1.127.1 Available under license
1.128 keyutils 1.6-6ubuntu1
1.128.1 Available under license
1.129 selinux 3.0-1build2
1.129.1 Available under license
1.130 heimdal 7.7.0+dfsg-1ubuntu1
1.130.1 Available under license
1.131 jakarta-mail 1.6.5
1.131.1 Available under license
1.132 openssl 1.1.1d

1.132.1 Available under license
1.133 stunnel 5.56
1.133.1 Available under license
1.134 icu 65
1.134.1 Available under license
1.135 glibc 2.31
1.135.1 Available under license
1.136 net-snmp 5.8.1.pre2
1.136.1 Available under license
1.137 iptables 1.6.0
1.137.1 Available under license
1.138 dom4j 2.1.3
1.138.1 Available under license
1.139 glibc 2.31-0ubuntu9
1.139.1 Available under license
1.140 jquery 3.5.1
1.140.1 Available under license
1.141 junixsocket-common 2.3.2
1.141.1 Available under license
1.142 junixsocket-native-common 2.3.2
1.142.1 Available under license
1.143 commons-fileupload 62
1.143.1 Available under license
1.144 libjpeg-turbo 2.0.3-0ubuntu1.20.04.1
1.144.1 Available under license
1.145 lvm2 2.02.162
1.145.1 Available under license
1.146 libbsd 0.4.1
1.146.1 Available under license
1.147 jandex 2.1.3.Final
1.147.1 Available under license
1.148 ntp 4.2.8p15
1.148.1 Available under license
1.149 dhcpcd 9.1.1
1.149.1 Available under license
1.150 docker 19.03.5-r1
1.150.1 Available under license
1.151 libatomic-ops 1.2
1.151.1 Available under license

1.152 postgre-sql 42.2.14
1.152.1 Available under license
1.153 nghttp2 1.40.0-1build1
1.153.1 Available under license
1.154 tomcat 9.0.37
1.154.1 Available under license
1.155 netty 4.1.51.Final
1.155.1 Available under license
1.156 netty-codec-http 4.1.51.Final
1.156.1 Available under license
1.157 netty-buffer 4.1.51.Final
1.157.1 Available under license
1.158 netty-handler 4.1.51.Final
1.158.1 Available under license
1.159 netty-resolver 4.1.51.Final
1.159.1 Available under license
1.160 netty-transport 4.1.51.Final
1.160.1 Available under license
1.161 netty-codec 4.1.51.Final
1.161.1 Available under license
1.162 coturn 4.5.1.3
1.162.1 Notifications
1.162.2 Available under license
1.163 libunistring 0.9.10-2
1.163.1 Available under license
1.164 libgpg-error 1.37-1
1.164.1 Available under license
1.165 acl 2.2.53-6
1.165.1 Available under license
1.166 libffi 3.3-4
1.166.1 Available under license
1.167 bzip2 1.0.8-2
1.167.1 Available under license
1.168 netty-transport-native-epoll 4.1.51.Final
1.168.1 Available under license
1.169 netty-transport-native-unix-common 4.1.51.Final
1.169.1 Available under license
1.170 jackson-annotations 2.11.2
1.170.1 Available under license

1.171 ffmpeg 4.3.1
1.171.1 Available under license
1.172 netty-handler-proxy 4.1.51.Final
1.172.1 Available under license
1.173 netty-codec-socks 4.1.51.Final
1.173.1 Available under license
1.174 jackson-datatype-jdk8 2.11.2
1.174.1 Available under license
1.175 jackson-datatype-jsr310 2.11.2
1.175.1 Available under license
1.176 jackson-module-parameter-names 2.11.2
1.176.1 Available under license
1.177 openssh 8.0-p1
1.177.1 Available under license
1.178 spring-security 2.3.3.RELEASE
1.178.1 Available under license
1.179 spring-security-web 5.3.4.RELEASE
1.179.1 Available under license
1.180 spring-security-core 5.3.4.RELEASE
1.180.1 Available under license
1.181 xz 5.2.4-1ubuntu1
1.181.1 Available under license
1.182 classgraph 4.8.69
1.182.1 Available under license
1.183 spring-data-commons 2.3.3.RELEASE
1.183.1 Available under license
1.184 ical4j 3.0.19
1.184.1 Available under license
1.185 oniguruma 6.9.4-1
1.185.1 Available under license
1.186 jq 1.6-1
1.186.1 Available under license
1.187 micrometer-core 1.5.4
1.187.1 Available under license
1.188 jaxb-core 2.3.3
1.188.1 Available under license
1.189 lcms 2.11
1.189.1 Available under license
1.190 libevent 2.1.12

1.190.1 Available under license
1.191 reactor-netty 0.9.11.RELEASE
1.191.1 Available under license
1.192 poco 1.9.2-3ubuntu3
1.192.1 Available under license
1.193 boost 1.71.0-6ubuntu6
1.193.1 Available under license
1.194 berkeley-db 5.3.28+dfsg1-0.6ubuntu2
1.194.1 Available under license
1.195 fdisk 1.1.0
1.195.1 Available under license
1.196 flyway-core 6.4.4
1.196.1 Available under license
1.197 brotli 1.0.7-6ubuntu0.1
1.197.1 Available under license
1.198 free-type 2.10.1-2ubuntu0.1
1.198.1 Available under license
1.199 nlohmann-json 3.9.1
1.199.1 Available under license
1.200 syslinux 4.07
1.200.1 Available under license
1.201 syslinux 6.03
1.201.1 Available under license
1.202 dav1d 0.6.0
1.202.1 Available under license
1.203 inja 3.1.0
1.203.1 Available under license
1.204 gnulib 2019-09-23
1.204.1 Available under license
1.205 hd-parm 9.38
1.205.1 Available under license
1.206 libjpeg 8d
1.206.1 Available under license
1.207 zlib 1.2.11.dfsg-2ubuntu1.2
1.207.1 Available under license
1.208 xmltooling 3.0.5-1build1
1.208.1 Available under license
1.209 xerces-c 3.2.2+debian-1build3
1.209.1 Available under license

1.210 pluggy 0.13.1
1.210.1 Available under license
1.211 linenoise 1.0
1.211.1 Available under license
1.212 hd-parm 9.38
1.212.1 Available under license
1.213 packaging 19.0
1.213.1 Available under license
1.214 mail 1.6.2
1.214.1 Available under license
1.215 mail 1.6.5
1.215.1 Available under license
1.216 aop-alliance 1.0
1.216.1 Available under license
1.217 webrtc m44
1.217.1 Available under license
1.218 linux-kernel 4.4.245
1.218.1 Available under license
1.219 atomicwrites 1.3.0
1.219.1 Available under license
1.220 jackson-databind 2.11.2
1.220.1 Available under license
1.221 jackson 2.11.2
1.221.1 Available under license
1.222 gmp 6.1.2+dfsg-4
1.222.1 Available under license
1.223 zlib 1.2.11.dfsg-1
1.223.1 Available under license
1.224 selinux 2.8-1+b1
1.224.1 Available under license
1.225 pam 1.3.1-5
1.225.1 Available under license
1.226 attr 2.4.48-5
1.226.1 Available under license
1.227 kerberos 1.17-6ubuntu4.1
1.227.1 Available under license
1.228 hibernate-validator 6.1.5.Final
1.228.1 Available under license
1.229 expat 2.2.5

1.229.1 Available under license
1.230 jq 1.6-1ubuntu0.20.04.1
1.230.1 Available under license
1.231 util-linux 2.20.0
1.231.1 Available under license
1.232 expat 2.2.4
1.232.1 Available under license
1.233 expat 2.2.0
1.233.1 Available under license
1.234 glibc 2.31-0ubuntu9.2
1.234.1 Available under license
1.235 libarchive 3.4.0-2ubuntu1
1.235.1 Available under license
1.236 gmp 6.2.0+dfsg-4
1.236.1 Available under license
1.237 curl 7.62.0-DEV
1.237.1 Available under license
1.238 junixsocket-core 2.3.2
1.238.1 Available under license
1.239 protobuf 3.6.1.3-2ubuntu5
1.239.1 Available under license
1.240 x264 0.155.2917+git0a84d98-2
1.240.1 Available under license
1.241 flyway-test 6.4.0
1.241.1 Available under license
1.242 flyway-spring5-test 6.4.0
1.242.1 Available under license
1.243 flyway-core 7.3.1
1.243.1 Available under license
1.244 opencore-amr 0.1.3
1.244.1 Available under license
1.245 ipmiutil 2.9.9
1.245.1 Available under license
1.246 curl 7.50.1
1.246.1 Available under license
1.247 lombok 1.18.12
1.247.1 Available under license
1.248 reactive-streams 1.0.3
1.248.1 Available under license

1.249 commons-dbcp 1.4
1.249.1 Available under license
1.250 jul-to-slf4j 1.7.30
1.250.1 Available under license
1.251 spring-retry 1.2.5.RELEASE
1.251.1 Available under license
1.252 aspect-j 1.9.6
1.252.1 Available under license
1.253 asm 5.0.4
1.253.1 Available under license
1.254 jakarta-annotation-api 1.3.5
1.254.1 Available under license
1.255 jakarta-el 3.0.3
1.255.1 Available under license
1.256 commons-codec 1.14
1.256.1 Available under license
1.257 ehcache 3.8.1
1.257.1 Available under license
1.258 classmate 1.5.1
1.258.1 Available under license
1.259 commons-lang3 3.10
1.259.1 Available under license
1.260 activation 1.2.2
1.260.1 Available under license
1.261 jakarta-validation-api 2.0.2
1.261.1 Available under license
1.262 hibernate-commons-annotations 5.1.0.Final
1.262.1 Available under license
1.263 log4j-to-slf4j 2.13.3
1.263.1 Available under license
1.264 javassist 3.24.0-GA
1.264.1 Available under license
1.265 spring-web-mvc 5.2.8.RELEASE
1.265.1 Available under license
1.266 spring-jdbc 5.2.8.RELEASE
1.266.1 Available under license
1.267 spring-aop 5.2.8.RELEASE
1.267.1 Available under license
1.268 spring-orm 5.2.8.RELEASE

1.268.1 Available under license
1.269 spring-jcl 5.2.8.RELEASE
1.269.1 Available under license
1.270 spring-aspects 5.2.8.RELEASE
1.270.1 Available under license
1.271 spring-data-jpa 2.3.3.RELEASE
1.271.1 Available under license
1.272 spring-expression 5.2.8.RELEASE
1.272.1 Available under license
1.273 spring-tx 5.2.8.RELEASE
1.273.1 Available under license
1.274 spring-security-config 5.3.4.RELEASE
1.274.1 Available under license
1.275 spring-framework 5.2.8.RELEASE
1.275.1 Available under license
1.276 spring-beans 5.2.8.RELEASE
1.276.1 Available under license
1.277 postgresql-jdbc 42.2.14
1.277.1 Available under license
1.278 spring-context 5.2.8.RELEASE
1.278.1 Available under license
1.279 tomcat-embed-websocket 9.0.37
1.279.1 Available under license
1.280 spring-web 5.2.8.RELEASE
1.280.1 Available under license
1.281 objenesis 3.1
1.281.1 Available under license
1.282 commons-pool 1.6
1.282.1 Available under license
1.283 mpdecimal 2.4.2
1.283.1 Available under license
1.284 txw2 2.3.3
1.284.1 Available under license
1.285 jaxb-runtime 2.3.3
1.285.1 Available under license
1.286 spring-context-support 5.2.8.RELEASE
1.286.1 Available under license
1.287 zstd 1.3.8+dfsg-3+deb10u2
1.287.1 Available under license

1.288 libpciaccess 0.11.0
1.288.1 Available under license
1.289 spring-webflux 5.2.8.RELEASE
1.289.1 Available under license
1.290 spring-test 5.2.8.RELEASE
1.290.1 Available under license
1.291 zstd 1.4.4+dfsg-3ubuntu0.1
1.291.1 Available under license
1.292 libtasn 4.16.0-2
1.292.1 Available under license
1.293 libestr 0.1.9
1.293.1 Available under license
1.294 grpc-go 1.9.1
1.294.1 Available under license
1.295 libdrm 2.4.45
1.295.1 Available under license
1.296 cryptsetup 1.7.5
1.296.1 Available under license
1.297 util-linux 2.28
1.297.1 Available under license
1.298 logback-core 1.2.3
1.298.1 Available under license
1.299 sqlite 3.31.1-4ubuntu0.2
1.299.1 Available under license
1.300 docker 1.9.1
1.300.1 Available under license
1.301 jackson-databind-nullable 0.2.1
1.301.1 Available under license
1.302 xorg-randr 1.5.0
1.302.1 Available under license
1.303 util-linux 2.33.1-0.1
1.303.1 Available under license
1.304 acl 2.2.53-4
1.304.1 Available under license
1.305 bzip2 1.0.6-9.2~deb10u1
1.305.1 Available under license
1.306 sqlite 3.27.2-3+deb10u1
1.306.1 Available under license
1.307 log4j-api 2.13.3

1.307.1 Available under license
1.308 openssl 1.1.1f-1ubuntu2.3
1.308.1 Notifications
1.308.2 Available under license
1.309 xmlsecurityforc++ 2.0.2-3build1
1.309.1 Available under license
1.310 freerdp 2.1.2
1.310.1 Available under license
1.311 luxon 1.25.1
1.311.1 Available under license
1.312 rrule 2.6.8
1.312.1 Available under license
1.313 react-zoom-pan-pinch 1.6.1
1.313.1 Available under license
1.314 react-day-picker 7.4.8
1.314.1 Available under license
1.315 openssl 1.1.1f-1ubuntu2.3
1.315.1 Notifications
1.315.2 Available under license
1.316 open-ldap 2.4.58
1.316.1 Available under license
1.317 open-ldap 2.4.49+dfsg-2ubuntu1.8
1.317.1 Available under license
1.318 runc 1.0.0-rc9
1.318.1 Available under license
1.319 berkeley-db 4.4.20
1.319.1 Available under license
1.320 importlib-metadata 0.18
1.320.1 Available under license
1.321 urllib3 1.25.3
1.321.1 Notifications
1.321.2 Available under license
1.322 python-requests 2.22.0
1.322.1 Available under license
1.323 attrs 19.1.0
1.323.1 Available under license
1.324 pytest 6.2.4
1.324.1 Available under license
1.325 swagger 2.1.9

1.325.1 Available under license
1.326 swagger-integration 2.1.9
1.326.1 Available under license
1.327 swagger-models 2.1.9
1.327.1 Available under license
1.328 lz4 1.8.3-1+deb10u1
1.328.1 Available under license
1.329 unbound 1.9.4-2ubuntu1.2
1.329.1 Available under license
1.330 lz4 1.9.2-2ubuntu0.20.04.1
1.330.1 Available under license
1.331 xalan-c 1.11-9build1
1.331.1 Available under license
1.332 hibernate 5.4.20.Final
1.332.1 Available under license
1.333 springdoc-openapi-webmvc-core 1.5.9
1.333.1 Available under license
1.334 springdoc-openapi-common 1.5.9
1.334.1 Available under license
1.335 springdoc-openapi-ui 1.5.9
1.335.1 Available under license
1.336 icu 69
1.336.1 Available under license
1.337 containerd 1.3.0
1.337.1 Available under license
1.338 libnettle6 3.5.1+really3.5.1-2ubuntu0.2
1.338.1 Available under license
1.339 libgcrypt 1.8.4-5+deb10u1
1.339.1 Available under license
1.340 activation-api 1.1
1.340.1 Available under license
1.341 swagger-core 2.1.9
1.341.1 Available under license
1.342 urllib3 1.26.6
1.342.1 Available under license
1.343 py 1.6.0-2.ph3
1.343.1 Available under license
1.344 gson 2.8.6
1.344.1 Available under license

1.345 jakarta xml bind api 2.3.3
1.345.1 Available under license
1.346 istack-commons 3.0.11
1.346.1 Available under license
1.347 python-multipart 0.0.5
1.347.1 Available under license
1.348 libxml 2.9.10+dfsg-5ubuntu0.20.04.1
1.348.1 Available under license
1.349 python-requests 2.26.0
1.349.1 Available under license
1.350 systemd 241-7~deb10u8
1.350.1 Available under license
1.351 gnutls 3.6.13-2ubuntu1.6
1.351.1 Available under license
1.352 libatomic 10.3.0-1ubuntu1~20.04
1.352.1 Available under license
1.353 pcre 10.34-7
1.353.1 Available under license
1.354 procps 3.2.8
1.354.1 Available under license
1.355 libtasn 4.13-3
1.355.1 Available under license
1.356 postgre-sql 12.4
1.356.1 Available under license
1.357 kerberos 1.17-6ubuntu4.1
1.357.1 Available under license
1.358 libssh 0.9.3-2ubuntu2.2
1.358.1 Available under license
1.359 servlet-api 4.0.1
1.359.1 Available under license
1.360 activation 1.1
1.360.1 Available under license
1.361 curl 7.68.0-1ubuntu2.7
1.361.1 Available under license
1.362 libgcrypt 1.8.5-5ubuntu1.1
1.362.1 Available under license
1.363 packaging 21.0
1.363.1 Available under license
1.364 pam 1.3.1-5ubuntu4.3

1.364.1 Available under license
1.365 urllib3 1.26.6-1.ph1
1.365.1 Available under license
1.366 pyjwt 2.3.0
1.366.1 Available under license
1.367 tdb 1.44.5
1.367.1 Available under license
1.368 tdb 1.45.5
1.368.1 Available under license
1.369 golang 1.8
1.369.1 Available under license
1.370 fastapi 0.68.2
1.370.1 Available under license
1.371 tzdata 2021.5
1.371.1 Available under license
1.372 golang 1.15.13
1.372.1 Available under license
1.373 tzdata 2021e-0ubuntu0.20.04
1.373.1 Available under license
1.374 golang 1.13.4
1.374.1 Available under license
1.375 zlib 1.2.11.dfsg-2ubuntu1.1
1.375.1 Available under license
1.376 nginx 1.18.0
1.376.1 Notifications
1.376.2 Available under license
1.377 docker 19.03.6
1.377.1 Available under license
1.378 python-dotenv 0.19.2
1.378.1 Available under license
1.379 spring-boot 2.3.3.RELEASE
1.379.1 Available under license
1.380 hibernate-core 5.4.20
1.380.1 Available under license
1.381 bridgeutils 1.5
1.381.1 Available under license
1.382 busybox 1.30.1
1.382.1 Available under license
1.383 ethtool 3.2

1.383.1 Available under license
1.384 hd-parm 9.38
1.384.1 Available under license
1.385 inotify-tools 3.14
1.385.1 Available under license
1.386 ipmi-tool 1.8.18
1.386.1 Available under license
1.387 libpcap 1.2.1
1.387.1 Available under license
1.388 docker v19.03.5
1.388.1 Available under license
1.389 dmidecode 2.12
1.389.1 Available under license
1.390 kubernetes-client 1.8.11
1.390.1 Available under license
1.391 kubernetes-apimachinery 1.8.11
1.391.1 Available under license
1.392 kubernetes-api 1.8.11
1.392.1 Available under license
1.393 icu 66.1-2ubuntu2.1
1.393.1 Available under license
1.394 bolt 1.2.1
1.394.1 Available under license
1.395 fileutil 1.13.0
1.395.1 Available under license
1.396 @tensorflow/tfjs 3.11.0
1.396.1 Available under license
1.397 @tensorflow/tfjs-core 3.11.0
1.397.1 Available under license
1.398 @tensorflow/tfjs-backend-wasm 3.11.0
1.398.1 Available under license
1.399 @tensorflow/tfjs-backend-webgl 3.11.0
1.399.1 Available under license
1.400 @tensorflow/tfjs-backend-cpu 3.11.0
1.400.1 Available under license
1.401 @tensorflow-models/body-pix 2.2
1.401.1 Available under license
1.402 openssl 1.1.1f-1ubuntu2.10
1.402.1 Available under license

1.403 pydantic 1.9.0
1.403.1 Available under license
1.404 pymongo 3.12.3
1.404.1 Available under license
1.405 expat 2.2.9-1build1
1.405.1 Available under license
1.406 systemd 245.4-4ubuntu3.15
1.406.1 Available under license
1.407 uvicorn 0.15.0
1.407.1 Available under license
1.408 chardet 3.0.4
1.408.1 Available under license
1.409 hdrhistogram 2.1.12
1.409.1 Available under license
1.410 hikaricp 3.4.5
1.410.1 Available under license
1.411 statistics 2.1
1.411.1 Available under license
1.412 jctools-core 3.0.0
1.412.1 Available under license
1.413 jansi-osx 1.8
1.413.1 Available under license
1.414 jansi 1.8
1.414.1 Available under license
1.415 hawtjni-runtime 1.17
1.415.1 Available under license
1.416 jansi-native 1.8
1.416.1 Available under license
1.417 ehcache-api 3.8.1
1.417.1 Available under license
1.418 sizeof 0.3.0
1.418.1 Available under license
1.419 sequence-generator 5.7.3
1.419.1 Available under license
1.420 ehcache-107 3.8.1
1.420.1 Available under license
1.421 ehcache-core 3.8.1
1.421.1 Available under license
1.422 management-model 5.7.3

1.422.1 Available under license
1.423 ehcache-xml 3.8.1
1.423.1 Available under license
1.424 offheap-store 2.4.3
1.424.1 Available under license
1.425 ehcache-impl 3.8.1
1.425.1 Available under license
1.426 webjars-locator-core 0.45
1.426.1 Available under license
1.427 byte-buddy 1.10.14
1.427.1 Available under license
1.428 apache-http-server 2.4.52
1.428.1 Available under license
1.429 golang 1.15.15
1.429.1 Available under license
1.430 openjdk-jre 11.0.11u9
1.430.1 Available under license
1.431 flyway-commandline 7.3.1
1.431.1 Available under license
1.432 cyrus-sasl 2.1.27+dfsg-2ubuntu0.1
1.432.1 Available under license
1.433 openssl 1.1.1f-1ubuntu2.11
1.433.1 Available under license
1.434 jackson-dataformat-yaml 2.11.2
1.434.1 Available under license
1.435 snake-yaml 1.26
1.435.1 Available under license
1.436 mongodb 5.0.6
1.436.1 Available under license
1.437 libnettle6 3.4.1-1+deb10u1
1.437.1 Available under license
1.438 gnutls 3.6.7-4+deb10u7
1.438.1 Available under license
1.439 openssl 1.1.1n
1.439.1 Available under license
1.440 openssl 1.1.1f-1ubuntu2.12
1.440.1 Notifications
1.440.2 Available under license
1.441 databases 0.5.5

1.441.1 Available under license

1.442 motor 2.5.1

1.442.1 Available under license

1.443 loguru 0.6.0

1.443.1 Available under license

1.444 systemd 231

1.444.1 Available under license

1.445 libnetfilter-conntrack 1.0.5

1.445.1 Available under license

1.446 apache-http-server 2.4.53

1.446.1 Available under license

1.447 fribidi v1.0.11

1.447.1 Available under license

1.448 openssl 1.1.1n

1.448.1 Available under license

1.449 pcre 8.39-12build1

1.449.1 Available under license

1.450 expat 2.2.6-2+deb10u3

1.450.1 Available under license

1.451 glibc 2.31-0ubuntu9.7

1.451.1 Available under license

1.452 activation 1.2.2

1.452.1 Available under license

1.453 activation-api 1.2.2

1.453.1 Available under license

1.454 zlib 1.2.11

1.454.1 Available under license

1.455 chardet 4.0.0

1.455.1 Available under license

1.456 packaging 20.4

1.456.1 Available under license

1.457 openssl 1.1.1l

1.457.1 Available under license

1.458 cglib 3.3.0

1.458.1 Available under license

1.459 audit 2.8.5-2ubuntu6

1.459.1 Available under license

1.460 util-linux 2.34-0.1ubuntu9.3

1.460.1 Available under license

1.461 libidn 2.0.5-1+deb10u1
1.461.1 Available under license
1.462 libunistring 0.9.10-1
1.462.1 Available under license
1.463 libpkit 0.23.15-2+deb10u1
1.463.1 Available under license
1.464 libgpg-error 1.35-1
1.464.1 Available under license
1.465 libffi 3.2.1-9
1.465.1 Available under license
1.466 xz 5.2.4-1
1.466.1 Available under license
1.467 libcap-ng 0.7.9-2
1.467.1 Available under license
1.468 dash 0.5.10.2-5
1.468.1 Available under license
1.469 gzip 1.9-3
1.469.1 Available under license
1.470 tzdata 2021a-0+deb10u3
1.470.1 Available under license
1.471 libpkit 0.23.20-1ubuntu0.1
1.471.1 Available under license
1.472 swagger-annotations 2.1.9
1.472.1 Available under license
1.473 libgpg-error 1.37-1
1.473.1 Available under license
1.474 zstd 1.4.4
1.474.1 Available under license
1.475 nettle 3.5.1+really3.5.1-2ubuntu0.2
1.475.1 Available under license

1.1 gettext 0.16.1

1.1.1 Available under license :

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer
you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any

patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS
FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating
that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices.
Many people have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of
the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.2 flex 2.5.35

1.2.1 Available under license :

/* Redistribution and use in source and binary forms, with or without */
/* modification, are permitted provided that the following conditions */
/* are met: */

/* 1. Redistributions of source code must retain the above copyright */
/*   notice, this list of conditions and the following disclaimer. */
/* 2. Redistributions in binary form must reproduce the above copyright */
/*   notice, this list of conditions and the following disclaimer in the */
/*   documentation and/or other materials provided with the distribution. */

/* Neither the name of the University nor the names of its contributors */
/* may be used to endorse or promote products derived from this software */
/* without specific prior written permission. */

/* THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR */
/* IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED */
/* WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR */
/* PURPOSE. */
?Flex carries the copyright used for BSD software, slightly modified
because it originated at the Lawrence Berkeley (not Livermore!) Laboratory,
which operates under a contract with the Department of Energy:

Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006, 2007 The Flex Project.

Copyright (c) 1990, 1997 The Regents of the University of California.
All rights reserved.

This code is derived from software contributed to Berkeley by
Vern Paxson.

The United States Government has rights in this work pursuant
to contract no. DE-AC03-76SF00098 between the United States
Department of Energy and the University of California.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the
 above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE.

This basically says "do whatever you please with this software except
remove this notice or take advantage of the University's (or the flex
authors') name".

Note that the "flex.skl" scanner skeleton carries no copyright notice.
You are free to do whatever you please with scanners generated using flex;
for them, you are not even bound by the above copyright.

1.3 antlr 2.7.7

1.3.1 Available under license :

SOFTWARE RIGHTS

ANTLR 1989-2006 Developed by Terence Parr
Partially supported by University of San Francisco & jGuru.com

We reserve no legal rights to the ANTLR--it is fully in the
public domain. An individual or company may do whatever
they wish with source code distributed with ANTLR or the
code generated by ANTLR, including the incorporation of
ANTLR, or its output, into commerical software.

We encourage users to develop software with ANTLR. However,

we do ask that credit is given to us for developing
ANTLR. By "credit", we mean that if you use ANTLR or
incorporate any source code into one of your programs
(commercial product, research project, or otherwise) that
you acknowledge this fact somewhere in the documentation,
research report, etc... If you like ANTLR and have
developed a nice tool with the output, please mention that
you developed it using ANTLR. In addition, we ask that the
headers remain intact in our source code.
As long as these
guidelines are kept, we expect to continue enhancing this
system and expect to make other tools available as they are
completed.

The primary ANTLR guy:

Terence Parr
parrt@cs.usfca.edu
parrt@antlr.org

1.4 libjpeg 6b

1.4.1 Notifications :

This software is based in part on the work of the Independent JPEG Group.

1.4.2 Available under license :

The Independent JPEG Group's JPEG software
==========

README for release 6b of 27-Mar-1998
==========

This distribution contains the sixth public release of the Independent JPEG
Group's free JPEG software. You are welcome to redistribute this software and
to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

Serious users of this software (particularly those incorporating it into
larger programs) should contact IJG at jpeg-info@uunet.uu.net to be added to
our electronic mailing list. Mailing list members are notified of updates
and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher,
Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi,
Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG
Group.

IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION
ROADMAP
==========

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.
LEGAL ISSUES Copyright, lack of warranty, terms of distribution.
REFERENCES Where to learn more about JPEG.
ARCHIVE LOCATIONS Where to find newer versions of this software.
RELATED SOFTWARE Other stuff you should get.
FILE FORMAT WARS Software *not* to get.
TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:
install.doc How to configure and install the IJG software.
usage.doc Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1 Unix-style man pages for programs (same info as usage.doc).
wizard.doc Advanced usage instructions for JPEG wizards only.
change.log Version-to-version change highlights.
Programmer and internal documentation:
libjpeg.doc How to use the JPEG library in your own programs.
example.c Sample code for calling the JPEG library.
structure.doc Overview of the JPEG library's internal structure.
filelist.doc Road map of IJG files.
coderules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW
========

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.

JPEG is intended for compressing
"real-world" scenes; line drawings, cartoons and other non-realistic images
are not its strong suit. JPEG is lossy, meaning that the output image is not
exactly identical to the input image. Hence you must not use JPEG if you
have to have identical output bits. However, on typical photographic images,
very good compression levels can be obtained with no visible change, and
remarkably high compression levels are possible if you can tolerate a
low-quality image. For more details, see the references, or just experiment
with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive
compression processes. Provision is made for supporting all variants of these
processes, although some uncommon parameter settings aren't implemented yet.
For legal reasons, we are not distributing code for the arithmetic-coding
variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting
the
hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files,
plus two sample applications "cjpeg" and "djpeg", which use the library to
perform conversion between JPEG and some other popular image file formats.
The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included
considerable functionality beyond the bare JPEG coding/decoding capability;
for example, the color quantization modules are not strictly part of JPEG
decoding, but they are essential for output to colormapped file formats or
colormapped displays. These extra functions can be compiled out of the
library if not required for a particular application. We have also included
"jpegtran", a utility for lossless transcoding between different JPEG
processes, and "rdjpgcom" and "wrjpgcom", two simple applications for
inserting and extracting textual comments
in JFIF files.

The emphasis in designing this software has been on achieving portability and
flexibility, while also making it fast enough to be useful. In particular,
the software is not intended to be read as a tutorial on JPEG. (See the
REFERENCES section for introductory material.) Rather, it is intended to
be reliable, portable, industrial-strength code. We do not claim to have
achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products.
No royalty is required, but we do ask for an acknowledgement in product
documentation, as described under LEGAL ISSUES.

LEGAL ISSUES
============

In plain English:

1. We don't promise that this software works. (But if you find any bugs,
please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a
program, you
must acknowledge somewhere in your documentation that
you've used the IJG code.

In legalese:

The authors make NO WARRANTY or representation, either express or implied,
with respect to this software, its quality, accuracy, merchantability, or
fitness for a particular purpose. This software is provided "AS IS", and you,
its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-1998, Thomas G. Lane.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this
software (or portions thereof) for any purpose, without fee, subject to these
conditions:
(1) If any part of the source code for this software is distributed, then this
README file must be included, with this copyright and no-warranty notice
unaltered; and any additions, deletions, or changes to the original files
must be clearly indicated in accompanying documentation.
(2) If only executable code is distributed,
then the accompanying
documentation must state that "this software is based in part on the work of
the Independent JPEG Group".
(3) Permission for use of this software is granted only if the user accepts
full responsibility for any undesirable consequences; the authors accept
NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code,
not just to the unmodified library. If you use our work, you ought to
acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name
in advertising or publicity relating to this software or products derived from
it. This software may be referred to only as "the Independent JPEG Group's
software".

We specifically permit and encourage the use of this software as the basis of
commercial products, provided that all warranty or liability claims are
assumed by the product vendor.

ansi2knr.c is included in this distribution by permission of
L. Peter Deutsch,
sole proprietor of its copyright holder, Aladdin Enterprises of Menlo Park, CA.
ansi2knr.c is NOT covered by the above copyright and conditions, but instead
by the usual distribution terms of the Free Software Foundation; principally,
that you must include source code if you redistribute it. (See the file
ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part
of any program generated from the IJG code, this does not limit you more than
the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltconfig, ltmain.sh). Another support script, install-sh, is copyright
by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by
patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic
coding cannot
legally be used without obtaining one or more licenses. For this reason,
support for arithmetic coding has been removed from the free JPEG software.
(Since arithmetic coding provides only a marginal gain over the unpatented
Huffman mode, it is unlikely that very many implementations will support it.)
So far as we are aware, there are no patent restrictions on the remaining
code.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent, GIF reading support has
been removed altogether, and the GIF writer has been simplified to produce
"uncompressed GIFs". This technique does not use the LZW algorithm; the
resulting GIF files are larger than usual, but are readable by all standard
GIF decoders.

We are required to state that
"The Graphics Interchange Format(c) is the Copyright property of
CompuServe Incorporated. GIF(sm) is a Service Mark property of
CompuServe Incorporated."

REFERENCES
==========

We
highly recommend reading one or more of these references before trying to
understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is
Wallace, Gregory K. "The JPEG Still Picture Compression Standard",
Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.
(Adjacent articles in that issue discuss MPEG motion picture compression,
applications of JPEG, and related topics.) If you don't have the CACM issue
handy, a PostScript file containing a revised version of Wallace's article is
available at ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz. The file (actually
a preprint for an article that appeared in IEEE Trans. Consumer Electronics)
omits the sample images that appeared in CACM, but it includes corrections
and some added material. Note: the Wallace article is copyright ACM and IEEE,
and it may not be used for commercial purposes.

A somewhat less technical, more
leisurely introduction to JPEG can be found in
"The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by
M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides
good explanations and example C code for a multitude of compression methods
including JPEG. It is an excellent source if you are comfortable reading C
code but don't know much about data compression in general. The book's JPEG
sample code is far from industrial-strength, but when you are ready to look
at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data
Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published
by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US$59.95, 638 pp.
The book includes the complete text of the ISO JPEG standards (DIS 10918-1
and draft DIS 10918-2). This is by far the most complete exposition of JPEG
in existence, and we highly recommend it.

The
JPEG standard itself is not available electronically; you must order a
paper copy through ISO or ITU. (Unless you feel a need to own a certified
official copy, we recommend buying the Pennebaker and Mitchell book instead;
it's much cheaper and includes a great deal of useful explanatory material.)
In the USA, copies of the standard may be ordered from ANSI Sales at (212)
642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI
doesn't take credit card orders, but Global does.) It's not cheap: as of
1992, ANSI was charging $95 for Part 1 and $47 for Part 2, plus 7%
shipping/handling. The standard is divided into two parts, Part 1 being the
actual specification, while Part 2 covers compliance testing methods. Part 1
is titled "Digital Compression and Coding of Continuous-tone Still Images,
Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS
10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of
Continuous-tone Still
Images, Part 2: Compliance testing" and has document
numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3,

a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:
Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314
A PostScript version of this document is available by FTP at ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz. There is also a plain text version at ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp://ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from ftp://ftp.sgi.com/graphics/tiff/.

ARCHIVE LOCATIONS
==========

The "official" archive site for this software is ftp.uu.net (Internet address 192.48.96.9). The most recent released version can always be found there in directory graphics/jpeg. This particular version will be archived as ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net

release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of
general information about JPEG. It is updated constantly and therefore is
not included in this distribution. The FAQ is posted every two weeks to
Usenet newsgroups comp.graphics.misc, news.answers, and other groups.
It is available on the World Wide Web at http://www.faqs.org/faqs/jpeg-faq/
and other news.answers
 archive sites, including the official news.answers
archive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/.
If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu
with body
 send usenet/news.answers/jpeg-faq/part1
 send usenet/news.answers/jpeg-faq/part2

RELATED SOFTWARE
================

Numerous viewing and image manipulation programs now support JPEG. (Quite a
few of them use this library to do so.) The JPEG FAQ described above lists
some of the more popular free and shareware viewers, and tells where to
obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free
PBMPLUS software, which provides many useful operations on PPM-format image
files. In particular, it can convert PPM images to and from a wide range of
other formats, thus making cjpeg/djpeg considerably more useful. The latest
version is distributed by the NetPBM group, and is available from numerous
sites,
 notably ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/.
Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is;
you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford,
is available from ftp://havefun.stanford.edu/pub/jpeg/. This program
is designed for research and experimentation rather than production use;
it is slower, harder to use, and less portable than the IJG code, but it
is easier to read and modify. Also, the PVRG code supports lossless JPEG,
which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS
================

Some JPEG programs produce files that are not compatible with our library.
The root of the problem is that the ISO JPEG committee failed to specify a
concrete file format. Some vendors "filled in the blanks" on their own,

creating proprietary formats that no one else could read.
(For example, none
of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether
SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO
=====

The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without
sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions --- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

1.5 libiconv 1.14

1.5.1 Available under license :

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some
specially designated Free Software Foundation software, and to any
other libraries whose authors decide to use it. You can use it for
your libraries, too.

When we speak
of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if
you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link a program with the library, you must provide
complete object files to
the recipients so that they can relink them
with the library, after making changes to the library and recompiling

it. And you must show them these terms so they know their rights.

 Our method of protecting your rights has two steps: (1) copyright
the library, and (2) offer you this license which gives you legal
permission to copy, distribute and/or modify the library.

 Also, for each distributor's protection, we want to make certain
that everyone understands that there is no warranty for this free
library. If the library is modified by someone else and passed on, we
want its recipients to know that what they have is not the original
version, so that any problems introduced by others will not reflect on
the original authors' reputations.

 Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that companies distributing free
software will individually obtain patent licenses, thus in effect
transforming
 the program into proprietary software. To prevent this,
we have made it clear that any patent must be licensed for everyone's
free use or not licensed at all.

 Most GNU software, including some libraries, is covered by the ordinary
GNU General Public License, which was designed for utility programs. This
license, the GNU Library General Public License, applies to certain
designated libraries. This license is quite different from the ordinary
one; be sure to read it in full, and don't assume that anything in it is
the same as in the ordinary license.

 The reason we have a separate public license for some libraries is that
they blur the distinction we usually make between modifying or adding to a
program and simply using it. Linking a program with a library, without
changing the library, is in some sense simply using the library, and is
analogous to running a utility program or application program. However, in
a textual and legal sense, the
 linked executable is a combined work, a
derivative of the original library, and the ordinary General Public License
treats it as such.

 Because of this blurred distinction, using the ordinary General
Public License for libraries did not effectively promote software
sharing, because most developers did not use the libraries. We
concluded that weaker conditions might promote sharing better.

 However, unrestricted linking of non-free programs would deprive the
users of those programs of all benefit from the free status of the
libraries themselves. This Library General Public License is intended to
permit developers of non-free programs to use free libraries, while
preserving your freedom as a user of such programs to change the free

libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this

will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared
so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification
are not
covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based

on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility
still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library,

and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions
for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU
General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent
access to copy the
source code from the same place satisfies the requirement to

distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference

directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under

Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined

library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent

license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain
entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence
of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the
terms and
conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free

programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER
PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or

modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free
Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston,
MA 02110-1301, USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne,
Inc., hereby disclaims all copyright interest in the
library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to

share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software,
we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers
that use the GNU GPL protect your rights with two steps:
(1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the
practice for those
products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a
work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the

extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for
you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to
limit operation or
modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and

appropriately publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,
and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to
produce it from the Program, in the form
of source code under the
terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified
it, and giving a relevant date.

b) The work must carry prominent notices stating that it is
released under this License and any conditions added under section
7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each
must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding

Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and

protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without
regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed
by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it
is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after

your receipt of the notice.

Termination of your rights under this section does not terminate the

licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives
a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty,
or other charge for exercise of
rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a

publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of

the covered work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered
work, unless you entered into that arrangement,
or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely
from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM,
TO THE EXTENT PERMITTED BY
APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES

SUSTAINED BY YOU OR THIRD
PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach
the following notices to the program. It is safest
to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU
GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
GNU LIBICONV - character set conversion library

This library provides an iconv() implementation, for use on systems which
don't have one, or whose implementation cannot convert from/to Unicode.

It provides support for the encodings:

European languages
ASCII, ISO-8859-{1,2,3,4,5,7,9,10,13,14,15,16},
KOI8-R, KOI8-U, KOI8-RU,
CP{1250,1251,1252,1253,1254,1257}, CP{850,866,1131},
Mac{Roman,CentralEurope,Iceland,Croatian,Romania},
Mac{Cyrillic,Ukraine,Greek,Turkish},
Macintosh
Semitic languages
ISO-8859-{6,8}, CP{1255,1256}, CP862, Mac{Hebrew,Arabic}
Japanese
EUC-JP, SHIFT_JIS, CP932, ISO-2022-JP, ISO-2022-JP-2, ISO-2022-JP-1
Chinese
EUC-CN, HZ, GBK, CP936, GB18030, EUC-TW, BIG5, CP950, BIG5-HKSCS,
BIG5-HKSCS:2004, BIG5-HKSCS:2001, BIG5-HKSCS:1999, ISO-2022-CN,
ISO-2022-CN-EXT
Korean
EUC-KR, CP949, ISO-2022-KR, JOHAB
Armenian

ARMSCII-8
Georgian
Georgian-Academy, Georgian-PS
Tajik
KOI8-T
Kazakh
PT154, RK1048
Thai
ISO-8859-11, TIS-620, CP874, MacThai
Laotian
MuleLao-1, CP1133
Vietnamese
VISCII, TCVN, CP1258
Platform specifics
HP-ROMAN8, NEXTSTEP
Full Unicode
UTF-8
UCS-2, UCS-2BE, UCS-2LE
UCS-4, UCS-4BE, UCS-4LE
UTF-16, UTF-16BE, UTF-16LE
UTF-32, UTF-32BE, UTF-32LE
UTF-7
C99, JAVA
Full Unicode, in terms of 'uint16_t' or 'uint32_t'
(with machine dependent endianness and alignment)
UCS-2-INTERNAL, UCS-4-INTERNAL
Locale dependent, in terms of 'char' or 'wchar_t'
(with machine dependent endianness and alignment, and with OS and
locale dependent semantics)
char, wchar_t
The empty encoding name "" is equivalent to "char": it denotes the
locale
dependent character encoding.

When configured with the option --enable-extra-encodings, it also provides
support for a few extra encodings:

European languages
CP{437,737,775,852,853,855,857,858,860,861,863,865,869,1125}
Semitic languages
CP864
Japanese
EUC-JISX0213, Shift_JISX0213, ISO-2022-JP-3
Chinese
BIG5-2003 (experimental)
Turkmen
TDS565

Platform specifics
ATARIST, RISCOS-LATIN1

It can convert from any of these encodings to any other, through Unicode conversion.

It has also some limited support for transliteration, i.e. when a character cannot be represented in the target character set, it can be approximated through one or several similarly looking characters. Transliteration is activated when "//TRANSLIT" is appended to the target encoding name.

libiconv is for you if your application needs to support multiple character encodings, but that support
lacks from your system.

Installation

As usual for GNU packages:

```
$ ./configure --prefix=/usr/local
$ make
$ make install
```

After installing GNU libiconv for the first time, it is recommended to recompile and reinstall GNU gettext, so that it can take advantage of libiconv.

On systems other than GNU/Linux, the iconv program will be internationalized only if GNU gettext has been built and installed before GNU libiconv. This means that the first time GNU libiconv is installed, we have a circular dependency between the GNU libiconv and GNU gettext packages, which can be resolved by building and installing either
- first libiconv, then gettext, then libiconv again,
or (on systems supporting shared libraries, excluding AIX)
- first gettext, then libiconv, then gettext again.
Recall that before building a package for the second time, you need to erase the traces of the first build by running "make distclean".

This library can be built and installed in two variants:

- The library mode. This works on all systems, and uses a library 'libiconv.so' and a header file '<iconv.h>'. (Both are installed through "make install".)

  To use it, simply #include <iconv.h> and use the functions.

To use it in an autoconfiguring package:
- If you don't use automake, append m4/iconv.m4 to your aclocal.m4 file.
- If you do use automake, add m4/iconv.m4 to your m4 macro repository.
- Add to the link command line of libraries and executables that use the functions the placeholder @LIBICONV@ (or, if using libtool for the link, @LTLIBICONV@). If you use automake, the right place for these additions are the *_LDADD variables.

Note that 'iconv.m4' is also part of the GNU gettext package, which installs it in /usr/local/share/aclocal/iconv.m4.

- The libc plug/override mode. This works on GNU/Linux, Solaris and OSF/1 systems only. It is a way to get good iconv support without having glibc-2.1.

It installs a library 'preloadable_libiconv.so'. This library can be used with LD_PRELOAD, to override the iconv* functions present in the C library.

On GNU/Linux and Solaris:

```
$ export LD_PRELOAD=/usr/local/lib/preloadable_libiconv.so
```

On OSF/1:

```
$ export _RLD_LIST=/usr/local/lib/preloadable_libiconv.so:DEFAULT
```

A program's source need not be modified, the program need not even be recompiled. Just set the LD_PRELOAD environment variable, that's it!

Copyright

The libiconv and libcharset _libraries_ and their header files are under LGPL, see file COPYING.LIB.

The iconv _program_ and the documentation are under GPL, see file COPYING.

Download
---

http://ftp.gnu.org/gnu/libiconv/libiconv-1.14.tar.gz

Homepage
---

http://www.gnu.org/software/libiconv/

Bug
reports to

<bug-gnu-libiconv@gnu.org>

Bruno Haible <bruno@clisp.org>

1.6 lua 5.1.5

1.6.1 Available under license :

Lua License

Lua is licensed under the terms of the MIT license reproduced below.
This means that Lua is free software and can be used for both academic
and commercial purposes at absolutely no cost.

For details and rationale, see http://www.lua.org/license.html .

==========

Copyright (C) 1994-2012 Lua.org, PUC-Rio.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT
WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

==========

(end of COPYRIGHT)

1.7 libpcap 1.2.1

1.7.1 Available under license :

License: BSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.
3. The names of the authors may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
/*
* Copyright (c) 1994, 1995, 1996, 1997, 1998
* The Regents of the University of California. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
* This product includes software developed by the Computer Systems
* Engineering Group at Lawrence Berkeley Laboratory.
* 4. Neither the name of the University nor of the Laboratory may be used
*   to endorse or promote products
 derived from this software without
*   specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

```
* ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
/*
* Copyright (c) 1992, 1993, 1994, 1995, 1996
* The Regents of the University of California.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that: (1) source code distributions
* retain the above copyright notice and this paragraph in its entirety, (2)
* distributions including binary code include the above copyright notice and
* this paragraph in its entirety in the documentation or other materials
* provided with the distribution, and (3) all advertising materials mentioning
* features or use of this software display the following acknowledgement:
* ``This product includes software developed by the University of California,
* Lawrence Berkeley Laboratory and its contributors." Neither the name of
* the University nor the names of its contributors may be used to endorse
* or promote products derived from this software without specific prior
* written permission.
* THIS
 SOFTWARE IS PROVIDED ``AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
*/
/*-
* Copyright (c) 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997
* The Regents of the University of California.  All rights reserved.
*
* This code is derived from the Stanford/CMU enet packet filter,
* (net/enet.c) distributed as part of 4.3BSD, and code contributed
* to Berkeley by Steven McCanne and Van Jacobson both of Lawrence
* Berkeley Laboratory.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
```

* must display the following
acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
* may be used to endorse or promote products derived from this software
* without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.8 freefont-ttf 20100919

1.8.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not

price.
  Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

 To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

 For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they
know their rights.

 Developers that use the GNU GPL protect your rights with two steps:
(1) assert copyright
 on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

 For the developers' and authors' protection, the GPL clearly explains
that there is no warranty for this free software. For both users' and
authors' sake, the GPL requires that modified versions be marked as
changed, so that their problems will not be attributed erroneously to
authors of previous versions.

 Some devices are designed to deny users access to install or run
modified versions of the software inside them, although the manufacturer
can do so. This is fundamentally incompatible with the aim of
protecting users' freedom to change the software. The systematic
pattern of such abuse occurs in the area of products for individuals to
use, which is precisely where it is most unacceptable. Therefore, we
have designed this version of the GPL to prohibit the practice for those
products. If such problems arise substantially in other domains, we
stand ready to extend
 this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

 Finally, every program is threatened constantly by software patents.
States should not allow patents to restrict development and use of
software on general-purpose computers, but in those that do, we wish to
avoid the special danger that patents applied to a free program could
make it effectively proprietary. To prevent this, the GPL assures that
patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may
be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of
an executable work include anything, other
than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs
which are used unmodified in performing those activities but
which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a

covered work is covered by this License
only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes
it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each
copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be
treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability
differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and
authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted

by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered

work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or that patent
license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding
any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the

Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of
following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF
ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of
Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms,

reviewing courts shall apply local law that most closely approximates
an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright
(C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.9 pm-utils 1.4.1

1.9.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights.

These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program).

Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the

entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering

equivalent
access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program),
you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your
obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other

circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL
OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name
and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the

GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive
mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public
License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.10 speex 1.2

1.10.1 Available under license :

Copyright 2002-2008 Xiph.org Foundation
Copyright 2002-2008 Jean-Marc Valin
Copyright 2005-2007 Analog Devices Inc.
Copyright 2005-2008 Commonwealth Scientific and Industrial Research

Organisation (CSIRO)
Copyright 1993, 2002, 2006 David Rowe
Copyright 2003 EpicGames
Copyright 1992-1994 Jutta Degener, Carsten Bormann

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

- Neither the name of the Xiph.org Foundation nor the names of its
contributors may be used to endorse or promote products derived from
this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.11 protobuf 2.4.1

1.11.1 Available under license :

Copyright 2008, Google Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer

in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner
of the input file used when generating it. This code is not
standalone and requires a support library to be linked with it. This
support library is itself covered by the above license.
Copyright 2008, Google Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,

DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.12 bzip2 1.0.6

1.12.1 Available under license :

This program, "bzip2" and associated library "libbzip2", are
copyright (C) 1996-2002 Julian R Seward. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must
  not claim that you wrote the original software. If you use this
  software in a product, an acknowledgment in the product
  documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must
  not be misrepresented as being the original software.

4. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior written
  permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR
 "AS IS" AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, Cambridge, UK.
jseward@acm.org
bzip2/libbzip2 version 1.0.2 of 30 December 2001

%%CreationDate: Wed Dec 22 1999
% Copyright (URW)++,Copyright 1999 by (URW)++ Design & Development
% (URW)++,Copyright 1999 by (URW)++ Design & Development
% See the file COPYING (GNU General Public License) for license conditions.
% As a special exception, permission is granted to include this font
% program in a Postscript or PDF file that consists of a document that
% contains text to be displayed or printed using this font, regardless
% of the conditions or license applying to the document itself.

/Notice ((URW)++,Copyright 1999 by (URW)++ Design & Development. See the file COPYING (GNU General Public License) for license conditions. As a special exception, permission is granted to include this font program in a Postscript or PDF file that consists of a document that contains text to be displayed or printed using this font, regardless of the conditions or license applying to the document itself.) readonly def
/Copyright (Copyright (URW)++,Copyright 1999 by (URW)++ Design
 & Development) readonly def
/*
  minibz2
    libbz2.dll test program.
    by Yoshioka Tsuneo (tsuneo@rr.iij4u.or.jp)
    This file is Public Domain. Welcome any email to me.

  usage: minibz2 [-d] [-{1,2,..9}] [[srcfilename] destfilename]
*/

1.13 lua 5.1.4

1.13.1 Available under license :

Lua License

Lua is licensed under the terms of the MIT license reproduced below.
This means that Lua is free software and can be used for both academic
and commercial purposes at absolutely no cost.

For details and rationale, see http://www.lua.org/license.html .

===

Copyright (C) 1994-2008 Lua.org, PUC-Rio.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE
 IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

==========

(end of COPYRIGHT)

1.14 ethtool 3.2

1.14.1 Available under license :

ethtool is available under the terms of the GNU Public License version 2.

See COPYING for details.
      GNU GENERAL PUBLIC LICENSE
        Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
    59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

       Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

 When we speak of free software, we are referring to freedom, not
price. Our General Public
 Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for

this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives
you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program,

and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution
medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding
source code. (This alternative is
allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary

form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous
contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time
to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free

Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status
of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL
OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's
name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by

the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive
mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General
Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.15 iptables 1.4.20

1.15.1 Available under license :

```
# SYN signatures. Those signatures work for SYN packets only (duh!).
#
# (C) Copyright 2000-2003 by Michal Zalewski <lcamtuf@coredump.cx>
# (C) Copyright 2003 by Mike Frantzen <frantzen@w4g.org>
#
#  Permission to use, copy, modify, and distribute this software for any
#  purpose with or without fee is hereby granted, provided that the above
#  copyright notice and this permission notice appear in all copies.
#
#  THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
#  WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
#  MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
#  ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
#  WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
#  ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
#  OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
#
                GNU GENERAL PUBLIC LICENSE
                  Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

                        Preamble

 The licenses for most software are designed to take away your
freedom to share and change it.  By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users.  This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it.  (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.)  You can apply it to
your programs, too.

 When we speak of free software, we are referring
 to freedom, not
price.  Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
```

in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having
been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent
notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an
announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in

themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the

operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to

refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by
public license practices. Many people have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised
and/or new versions
of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes

make exceptions for this. Our decision will
be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED
ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright"
line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or

(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If
the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written
by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.16 libpcap 1.7.4

1.16.1 Available under license :

License: BSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.
3. The names of the authors may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
License: BSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.
3. The names of the authors may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

1.17 free-type 2.5.5

1.17.1 Available under license :

The FreeType 2 font engine is copyrighted work and cannot be used
legally without a software license. In order to make this project
usable to a vast majority of developers, we distribute it under two

mutually exclusive open-source licenses.

This means that *you* must choose *one* of the two licenses described below, then obey all its terms and conditions when using FreeType 2 in any of your projects or products.

- The FreeType License, found in the file `FTL.TXT', which is similar to the original BSD license *with* an advertising clause that forces you to explicitly cite the FreeType project in your product's documentation. All details are in the license file. This license is suited to products which don't use the GNU General Public License.

  Note that this license is compatible to the GNU General Public License version 3, but not version 2.

- The GNU General Public License version 2, found in `GPLv2.TXT' (any later version can be used also), for programs which already use the GPL. Note that the FTL is incompatible with GPLv2 due to its advertisement clause.

The contributed BDF and PCF drivers come with a license similar to that of the X Window System. It is compatible to the above two licenses (see file src/bdf/README and src/pcf/README).

The gzip module uses the zlib license (see src/gzip/zlib.h) which too is compatible to the above two licenses.

The MD5 checksum support (only used for debugging in development builds) is in the public domain.

--- end of LICENSE.TXT ---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This

General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an

announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based
on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you

received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program

specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

The FreeType Project LICENSE

2006-Jan-27

Copyright 1996-2002, 2006 by
David Turner, Robert Wilhelm, and Werner Lemberg

Introduction

==========

The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its
main points are that:

- We don't promise that this software works. However, we will be interested in any kind of bug reports. (`as is' distribution)

- You can use this software for whatever you want, in parts or full form, without having to pay us. (`royalty-free' usage)

- You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you have used the FreeType code. (`credits')

We specifically permit and encourage the inclusion of this

software, with or without modifications, in commercial products.
We disclaim all warranties covering The FreeType Project and
assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a
credit/disclaimer to use in compliance with this license. We thus
encourage you to use the following text:

```
 """
  Portions
of this software are copyright  <year> The FreeType
  Project (www.freetype.org).  All rights reserved.
 """
```

Please replace <year> with the value from the FreeType version you
actually use.

Legal Terms
===========

0. Definitions

Throughout this license, the terms `package', `FreeType Project',
and `FreeType archive' refer to the set of files originally
distributed by the authors (David Turner, Robert Wilhelm, and
Werner Lemberg) as the `FreeType Project', be they named as alpha,
beta or final release.

`You' refers to the licensee, or person using the project, where
`using' is a generic term including compiling the project's source
code as well as linking it to form a `program' or `executable'.
This program is referred to as `a program using the FreeType
engine'.

This license applies to all files distributed in the original
FreeType Project, including all source code, binaries and
documentation,
unless otherwise stated in the file in its
original, unmodified form as distributed in the original archive.
If you are unsure whether or not a particular file is covered by
this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner,
Robert Wilhelm, and Werner Lemberg. All rights reserved except as
specified below.

1. No Warranty

THE FREETYPE PROJECT IS PROVIDED `AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

2. Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display,
copy, create derivative works of, distribute and sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

- o Redistribution of source code must retain this license file (`FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.

- o Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

3. Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission.

We suggest, but do not require, that you use one or more of the
following phrases to refer to this software in your documentation
or advertising materials: `FreeType Project', `FreeType Engine',
`FreeType library', or `FreeType Distribution'.

As you have not signed this license, you are not required to
accept it. However, as the FreeType Project is copyrighted
material, only this license, or another one contracted with the
authors, grants you the right to use, distribute, and modify it.
Therefore, by using,
distributing, or modifying the FreeType
Project, you indicate that you understand and accept all the terms
of this license.

4. Contacts

There are two mailing lists related to FreeType:

o freetype@nongnu.org

Discusses general use and applications of FreeType, as well as
future and wanted additions to the library and distribution.
If you are looking for support, start in this list if you
haven't found anything to help you in the documentation.

o freetype-devel@nongnu.org

Discusses bugs, as well as engine internals, design issues,
specific licenses, porting, etc.

Our home page can be found at

http://www.freetype.org

--- end of FTL.TXT ---

1.18 dhcp 4.1-ESV-R9

1.18.1 Available under license :

Copyright (c) 2004-2014 by Internet Systems Consortium, Inc. ("ISC")
Copyright (c) 1995-2003 by Internet Software Consortium
#
Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

#
THE SOFTWARE IS PROVIDED "AS IS" AND ISC DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ISC BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT
OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
#
Internet Systems Consortium, Inc.
950 Charter Street
Redwood City, CA 94063
<info@isc.org>
https://www.isc.org/

See the specific source files for
 any additional copyright or
license statements.

1.19 libmnl 1.0.3

1.19.1 Available under license :

30 atime=1337191922.583566431
30 ctime=1338052482.808834269
                GNU LESSER GENERAL PUBLIC LICENSE
                  Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

                    Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

 This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who

decide to use it. You
can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser

General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order

to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy,

and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application

to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any

other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

11. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision

will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or

modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.20 libnfnetlink 1.0.1

1.20.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to

using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public
Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives
you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such

an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any

later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively

convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the
program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License

does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.21 uclibc 0.9.33.2

1.21.1 Available under license :

```
/*
* Copyright (c) 1994-2000 Eric Youngdale, Peter MacDonald, David Engel,
* Hongjiu Lu and Mitch D'Souza
*
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. The name of the above contributors may not be
*    used to endorse or promote products derived from this software
*    without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/


/* Notice of general intent:
*
* The linux operating system generally contains large amounts of code
* that fall under the GNU General Public License, or GPL for short.
* This file contains source code that by it's very nature would always
* be linked with an application program, and because of this a GPL
* type of copyright on this file would place restrictions upon the
* distribution of binary-only commercial software.  Since the goal of
* the Linux project as a whole is not to discourage the development and
```

* distribution of commercial software for Linux, this file has been
* placed under a more relaxed BSD-style of copyright.
 *
* It is the general understanding of the above contributors that a
* program executable linked to a library containing code that falls
* under the GPL or GLPL style of license is not subject to the terms of
* the GPL or GLPL license if the program executable(s) that are supplied
* are linked to a shared library form of the GPL or GLPL library, and as
* long as the form of the shared library is such that it is possible for
* the end user to modify and rebuild the library and use it in
* conjunction with the program executable.
*/

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid

distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves,
then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever
changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user
installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of
all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should

also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
From gsf@research.att.com Wed Mar 1 20:30:54 2006
Return-Path: <gsf@research.att.com>
X-Original-To: mps@bridge.intra
Delivered-To: mps@bridge.intra
Received: from localhost (localhost [127.0.0.1])
 by localhost (Postfix) with ESMTP id B8C814E4F
 for <mps@bridge.intra>; Wed, 1 Mar 2006 20:30:53 +0100 (CET)
Received: from mail.bridge.intra ([127.0.0.1])
by localhost (lnx.bridge.intra [127.0.0.1]) (amavisd-new, port 10024)
with LMTP id 05987-03 for <mps@bridge.intra>;
Wed, 1 Mar 2006 20:30:42 +0100 (CET)
Received: from pop.gmx.net (localhost [127.0.0.1])
 by mail.bridge.intra (Postfix) with ESMTP id C8C73794D
 for <mps@bridge.intra>; Wed, 1 Mar 2006 20:30:38 +0100 (CET)
X-Flags: 0000
Delivered-To: GMX delivery to ps.m@gmx.net
Received: (qmail invoked by alias); 01 Mar 2006 19:23:46 -0000
Received: from mail-red.research.att.com (EHLO mail-white.research.att.com) [192.20.225.110]
 by mx0.gmx.net (mx085) with SMTP; 01 Mar 2006 20:23:46 +0100
Received: from raptor.research.att.com (raptor.research.att.com
 [135.207.23.32])
 by mail-blue.research.att.com (Postfix) with ESMTP id B7929147CBB
 for <ps.m@gmx.net>; Wed, 1 Mar 2006 14:23:45 -0500 (EST)
Received: (from gsf@localhost)
 by raptor.research.att.com (SGI-8.9.3p2/8.8.7) id OAA86112
 for ps.m@gmx.net; Wed, 1 Mar 2006 14:23:45 -0500 (EST)
Date: Wed, 1 Mar 2006 14:23:45 -0500 (EST)
From: Glenn Fowler <gsf@research.att.com>
Message-Id: <200603011923.OAA86112@raptor.research.att.com>
Organization: AT&T Research
X-Mailer: mailx (AT&T/BSD) 9.9 2005-04-21
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
References: <Pine.LNX.4.44.0603012011250.6386-100000@lnx.bridge.intra>
To: mps@bridge.intra
Subject: Re: testregex licensing question

X-GMX-Antivirus: -1 (not scanned, may not use virus scanner)
X-GMX-Antispam: 0 (Mail was not recognized as spam)
X-GMX-UID: lJF3ZO9DeSEkJ2TcbHQhaXN1IGRvb0Ca
X-Virus-Scanned: by amavisd-new at localhost
Status: RO
X-Status:
X-Keywords:

X-UID: 44736

you may include it directly
retain the testregex.c header comment
it uses a very free license to maximize distribution
you can copy that .c comment to any test data files you use
using # comment style to be complete

let me know how it works with your libc
also pass on any new tests you cook up

On Wed, 1 Mar 2006 20:15:02 +0100 (CET) Peter S. Mazinger wrote:
> Hello Glenn!

> I would want to add testregex.c and the related *.dat files to the uClibc
> testsuite. uClibc is licensed under LGPL v2.1. I haven't found any
> licensing related info on testregex.

> Is it allowed to use the code there, or should I accomodate the testsuite
> to download the needed files from the original site each time it is ran?

> Thanks, Peter

> --
> Peter S. Mazinger <ps dot m at gmx dot net> ID: 0xA5F059F2
> Key fingerprint = 92A4 31E1 56BC 3D5A 2D08 BB6E C389 975E A5F0 59F2
Licensed under the LGPL v2.1, see the file COPYING.LIB in this tarball.

1.22 libxml2 2.9.4

1.22.1 Available under license :

Except where otherwise noted in the source code (e.g. the files hash.c,
list.c and the trio files, which are covered by a similar licence but
with different Copyright notices) all the files are:

Copyright (C) 1998-2012 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy

of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is fur-
nished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

```
/*
* hash.c: chained hash tables
*
* Reference: Your favorite introductory book on algorithms
*
* Copyright (C) 2000,2012 Bjorn Reese and Daniel Veillard.
*
* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF
* MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND
* CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.
*
* Author: breese@users.sourceforge.net
*/
/************************************************************************
*
* $Id$
*
* Copyright (C) 1998 Bjorn Reese and Daniel Stenberg.
*
* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF
* MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND
```

* CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.
*
****
*

1.23 d-bus 1.10.8

1.23.1 Available under license :

D-Bus is licensed to you under your choice of the Academic Free
License version 2.1, or the GNU General Public License version 2
(or, at your option any later version).

Both licenses are included here. Some of the standalone binaries are
under the GPL only; in particular, but not limited to,
tools/dbus-cleanup-sockets.c and test/decode-gcov.c. Each source code
file is marked with the proper copyright information - if you find a
file that isn't marked please bring it to our attention.

The Academic Free License
v. 2.1

This Academic Free License (the "License") applies to any original work of authorship (the "Original Work") whose owner (the "Licensor") has placed the following notice immediately following the copyright notice for the Original Work:

Licensed under the Academic Free License version 2.1

1) Grant of Copyright License. Licensor hereby grants You a
world-wide, royalty-free, non-exclusive, perpetual, sublicenseable
license to do the following:

a) to reproduce the Original
Work in copies;

b) to prepare derivative works ("Derivative Works") based upon the Original Work;

c) to distribute copies of the Original Work and Derivative Works to the public;

d) to perform the Original Work publicly; and

e) to display the Original Work publicly.

2) Grant of Patent License. Licensor hereby grants You a world-wide,
royalty-free, non-exclusive, perpetual, sublicenseable license, under
patent claims owned or controlled by the Licensor that are embodied in
the Original Work as furnished by the Licensor, to make, use, sell and
offer for sale the Original Work and Derivative Works.

3) Grant of Source Code License. The term "Source Code" means the preferred form of the Original Work for making modifications to it and all available documentation describing how to modify the Original Work. Licensor hereby agrees to provide a machine-readable copy of the Source Code of the Original Work along with each copy of the Original Work that Licensor distributes. Licensor reserves
the right to satisfy
this obligation by placing a machine-readable copy of the Source Code in an information repository reasonably calculated to permit inexpensive and convenient access by You for as long as Licensor continues to distribute the Original Work, and by publishing the address of that information repository in a notice immediately following the copyright notice that applies to the Original Work.

4) Exclusions From License Grant. Neither the names of Licensor, nor the names of any contributors to the Original Work, nor any of their trademarks or service marks, may be used to endorse or promote products derived from this Original Work without express prior written permission of the Licensor. Nothing in this License shall be deemed to grant any rights to trademarks, copyrights, patents, trade secrets or any other intellectual property of Licensor except as expressly stated herein. No patent license is granted to make, use, sell or offer to sell embodiments of any patent claims
other than the licensed claims
defined in Section 2. No right is granted to the trademarks of Licensor even if such marks are included in the Original Work. Nothing in this License shall be interpreted to prohibit Licensor from licensing under different terms from this License any Original Work that Licensor otherwise would have a right to license.

5) This section intentionally omitted.

6) Attribution Rights. You must retain, in the Source Code of any Derivative Works that You create, all copyright, patent or trademark notices from the Source Code of the Original Work, as well as any notices of licensing and any descriptive text identified therein as an "Attribution Notice." You must cause the Source Code for any Derivative Works that You create to carry a prominent Attribution Notice reasonably calculated to inform recipients that You have modified the Original Work.

7) Warranty of Provenance and Disclaimer of Warranty. Licensor warrants that the copyright in and to the Original
Work and the patent
rights granted herein by Licensor are owned by the Licensor or are sublicensed to You under the terms of this License with the permission of the contributor(s) of those copyrights and patent rights. Except as

expressly stated in the immediately proceeding sentence, the Original Work is provided under this License on an "AS IS" BASIS and WITHOUT WARRANTY, either express or implied, including, without limitation, the warranties of NON-INFRINGEMENT, MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY OF THE ORIGINAL WORK IS WITH YOU. This DISCLAIMER OF WARRANTY constitutes an essential part of this License. No license to Original Work is granted hereunder except under this disclaimer.

8) Limitation of Liability. Under no circumstances and under no legal theory, whether in tort (including negligence), contract, or otherwise, shall the Licensor be liable to any person for any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or the use of the Original Work including, without limitation, damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses. This limitation of liability shall not apply to liability for death or personal injury resulting from Licensor's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

9) Acceptance and Termination. If You distribute copies of the Original Work or a Derivative Work, You must make a reasonable effort under the circumstances to obtain the express assent of recipients to the terms of this License. Nothing else but this License (or another written agreement between Licensor and You) grants You permission to create Derivative Works based upon the Original Work or to exercise any of the rights granted in Section 1 herein, and any attempt to do so except under the terms of this License (or another written agreement between Licensor and You) is expressly prohibited by U.S. copyright law, the equivalent laws of other countries, and by international treaty. Therefore, by exercising any of the rights granted to You in Section 1 herein, You indicate Your acceptance of this License and all of its terms and conditions.

10) Termination for Patent Action. This License shall terminate automatically and You may no longer exercise any of the rights granted to You by this License as of the date You commence an action, including a cross-claim or counterclaim, against Licensor or any licensee alleging that the Original Work infringes a patent. This termination provision shall not apply for an action alleging patent infringement by combinations of the Original Work with other software or hardware.

11) Jurisdiction, Venue and Governing Law. Any action or suit relating to this
License may be brought only in the courts of a jurisdiction wherein the Licensor resides or in which Licensor conducts its primary business, and under the laws of that jurisdiction excluding its conflict-of-law provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any use of the Original Work outside the scope of this License or after its termination shall be subject to the requirements and penalties of the U.S. Copyright Act, 17 U.S.C. 101 et seq., the equivalent laws of other countries, and international treaty. This section shall survive the termination of this License.

12) Attorneys Fees. In any action to enforce the terms of this License or seeking damages relating thereto, the prevailing party shall be entitled to recover its costs and expenses, including, without limitation, reasonable attorneys' fees and costs incurred in connection with such action, including any appeal of such action. This section
shall survive the termination of this License.

13) Miscellaneous. This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable.

14) Definition of "You" in This License. "You" throughout this License, whether in upper or lower case, means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with you. For purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

15) Right to Use. You may use the Original Work in all ways not otherwise
restricted or conditioned by this License or by law, and Licensor promises not to interfere with or be responsible for such uses by You.

This license is Copyright (C) 2003-2004 Lawrence E. Rosen. All rights reserved. Permission is hereby granted to copy and distribute this license without modification. This license may not be modified without the express written permission of its copyright owner.

--
END OF ACADEMIC FREE LICENSE. The following is intended to describe the essential differences between the Academic Free License (AFL) version 1.0 and other open source licenses:

The Academic Free License is similar to the BSD, MIT, UoI/NCSA and Apache licenses in many respects but it is intended to solve a few problems with those licenses.

* The AFL is written so as to make it clear what software is being licensed (by the inclusion of a statement following the copyright notice in the software). This way, the license functions better than a template license. The BSD,
MIT and UoI/NCSA licenses apply to unidentified software.

* The AFL contains a complete copyright grant to the software. The BSD and Apache licenses are vague and incomplete in that respect.

* The AFL contains a complete patent grant to the software. The BSD, MIT, UoI/NCSA and Apache licenses rely on an implied patent license and contain no explicit patent grant.

* The AFL makes it clear that no trademark rights are granted to the licensor's trademarks. The Apache license contains such a provision, but the BSD, MIT and UoI/NCSA licenses do not.

* The AFL includes the warranty by the licensor that it either owns the copyright or that it is distributing the software under a license. None of the other licenses contain that warranty. All other warranties are disclaimed, as is the case for the other licenses.

* The AFL is itself copyrighted (with the right granted to copy and distribute without modification). This ensures that the owner of the copyright to the

license will control changes. The Apache license contains a copyright notice, but the BSD, MIT and UoI/NCSA licenses do not.
--
START OF GNU GENERAL PUBLIC LICENSE
--

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the

program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print
an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program)
on a volume of
a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your

cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place,
then offering equivalent
access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program),
you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License
and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through
that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software;
you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details
type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your

school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful
 to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.24 pxelinux 6.03

1.24.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free

program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three

years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program
in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based

on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit
royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding

those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),

EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may

be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
The Syslinux logo is licensed under the Creative Commons
Attribution-ShareAlike 3.0 Unported License. To view a copy of this
license, visit http://creativecommons.org/licenses/by-sa/3.0/ or send
a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain
View, California, 94041, USA.
/*
* Copyright (c) 2001, 2002 Swedish Institute of Computer Science.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without modification,
* are permitted provided that the following conditions are met:
*
* 1. Redistributions of source code must retain the above copyright notice,
*   this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright notice,
*   this list of conditions and the following disclaimer in the documentation
*   and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote products
*   derived from this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT

* SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
* EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING

* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
* OF SUCH DAMAGE.
*
* This file is part of the lwIP TCP/IP stack.
*
* Author: Adam Dunkels <adam@sics.se>
*
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and

(2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License

along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably
considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of

a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.

However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that

system; it is up to the author/donor to decide if he or she is willing
to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE

PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this

when it starts in an interactive mode:

```
  Gnomovision version 69, Copyright (C) 19yy name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c'
 should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

```
 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
libcom32 and libutil are licensed under the MIT license:

```
## ----------------------------------------------------------------------
##
##   Copyright 2004-2009 H. Peter Anvin - All Rights Reserved
##   Portions Copyright 2009 Intel Corporation; author: H. Peter Anvin
##
##   Permission is hereby granted, free of charge, to any person
##   obtaining a copy of this software and associated documentation
##   files (the "Software"), to deal in the Software without
##   restriction, including without limitation the rights to use,
##   copy, modify, merge, publish, distribute, sublicense, and/or
##   sell copies of the Software, and to permit persons to whom
##   the Software is furnished to do so, subject to the following
##   conditions:
##
##   The above copyright notice and this permission notice shall
##   be included in all copies or substantial portions of the Software.
##
##   THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
```

EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED
TO THE WARRANTIES
OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.
##
--

The files in the sample, modules and libgpl directories are mostly under the
GNU GPL (see the file COPYING in the directory above.)

In general gPXE files are licensed under the GPL. GPLed files are in
general either from Linux or have been explicitly put under GPL by the
authors. The license for a file is usually documented at the top of
the file.

A few files are inherited from FreeBSD netboot and therefore can be
used under BSD or GPL. Documented in this file are some of the
non-GPL'ed files. If the internal documentation for a file disagrees
with what is documented in this file, the internal documentation for
the file shall be override this file.

File Copyright status

src/core/misc.c BSD
src/drivers/net/3c509.c BSD
src/drivers/net/3c509.h BSD
src/drivers/net/3c595.c BSD
src/drivers/net/3c595.h BSD
src/drivers/net/3c90x.c Open Source
src/drivers/net/epic100.c None
src/drivers/net/epic100.h None
src/drivers/net/ns8390.c BSD
src/drivers/net/ns8390.h BSD
src/arch/i386/include/bits/string.h None

This copy of the libpng notices is provided for your convenience. In case of
any discrepancy between this copy and the notices in the file png.h that is
included in the libpng distribution, the latter shall prevail.

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE:

If you modify libpng you may insert additional notices immediately following
this sentence.

This code is released under the libpng license.

libpng versions 1.2.6, August 15, 2004, through 1.2.44, June 26, 2010, are
Copyright (c) 2004, 2006-2009 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.2.5
with the following individual added to the list of Contributing Authors

Cosmin Truta

libpng versions 1.0.7, July 1, 2000, through 1.2.5 - October 3, 2002, are
Copyright (c) 2000-2002 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.0.6
with the following individuals added to the list of Contributing Authors

Simon-Pierre Cadieux
Eric S. Raymond
Gilles Vollant

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the
library or against infringement. There is no warranty that our
efforts or the library will fulfill any of your particular purposes
or needs. This library is provided with all faults, and the entire
risk of satisfactory quality, performance, accuracy, and effort is with
the user.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are
Copyright (c) 1998, 1999 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-0.96,
with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are
Copyright (c) 1996, 1997 Andreas Dilger
Distributed according to the same disclaimer and license as libpng-0.88,
with the following individuals
added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing Authors
and Group 42, Inc. disclaim all warranties, expressed or implied,
including, without limitation, the warranties of merchantability and of
fitness for any purpose. The Contributing Authors and Group 42, Inc.
assume no liability for direct, indirect, incidental, special, exemplary,
or consequential damages, which may result from the use of the PNG
Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to
use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without
fee, and encourage the use of this source code as a component to
supporting the PNG file format in commercial products. If you use this
source code in a product, acknowledgment is not required but would be
appreciated.

A "png_get_copyright" function is available, for convenient use in "about"
boxes and the like:

```
printf("%s",png_get_copyright(NULL));
```

Also, the PNG logo (in PNG format, of course) is supplied in the
files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

Libpng
is OSI Certified Open Source Software. OSI Certified Open Source is a certification mark of the Open Source Initiative.

Glenn Randers-Pehrson
glennrp at users.sourceforge.net
June 26, 2010
The EFI headers contained herein are copied from the EFI Development Kit, available from http://www.tianocore.org and published under the following licence:

BSD License from Intel
Copyright (c) 2004, Intel Corporation
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This licence applies only to files that are part of the EFI Development Kit. Other files may contain their own licence terms, or may fall under the standard gPXE GPL licence.

This package was debianized by Nigel Croxon <nigel.croxon@hp.com> using sources
obtained from

http://sourceforge.net/projects/gnu-efi

Copyright:

Copyright (c) 1999-2007 Hewlett-Packard Development Company, L.P.
Contributed by David Mosberger <davidm@hpl.hp.com>
Contributed by Stephane Eranian <eranian@hpl.hp.com>

GNU-EFI is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2, or (at your option)
any later version.

GNU-EFI is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with GNU-EFI; see the file COPYING. If not, write to the
Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston,
MA 02110-1301, USA.

On a Debian system, the GPL can be found in /usr/share/common-licenses/GPL.

The files in the "lib" and "inc" subdirectories are using the EFI Application
Toolkit distributed by Intel at http://developer.intel.com/technology/efi

This code is covered by the following agreement:

Copyright (c) 1999-2007 Intel Corporation

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND

FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE. THE EFI SPECIFICATION AND ALL OTHER INFORMATION
ON THIS WEB SITE ARE PROVIDED "AS IS" WITH NO WARRANTIES, AND ARE SUBJECT
TO CHANGE WITHOUT NOTICE.

1.25 util-linux 2.20

1.25.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably
considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your

freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.

You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest

possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of
the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c'
should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

```
/*
* Copyright (c) 1989 The Regents of the University of California.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*    must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
*    may be used to endorse or promote products derived from this software
*
 without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
/*
* Copyright (c) 2000-2001 Gunnar Ritter. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
```

* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. [deleted]
* 4. Neither the name of Gunnar Ritter nor the names of his contributors
*   may be used to endorse or promote products derived from this software
*   without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY GUNNAR RITTER AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
 A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL GUNNAR RITTER OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.26 sqlite 3.13.0

1.26.1 Available under license :

The author disclaims copyright to this source code. In place of
a legal notice, here is a blessing:

  May you do good and not evil.
  May you find forgiveness for yourself and forgive others.
  May you share freely, never taking more than you give.

1.27 kmod 23

1.27.1 Available under license :

  GNU LESSER GENERAL PUBLIC LICENSE
    Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
  51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts

as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original

author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU

operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does

and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot

use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and

conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and

modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further

restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will

be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program

`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
LGPL
LGPL
LGPL

1.28 e2fsprogs 1.43.7

1.28.1 Available under license :

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2001 by Andries Brouwer
Copyright (C) 1999, 2000, 2003 by Theodore Ts'o

You are free to distribute this software under the terms of the GNU
Lesser (Library) General Public License.

On Debian systems, the complete text of the GNU Lesser (Library)
General Public License can be found in /usr/share/common-licenses/LGPL-2.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior

written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 by
Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from
this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR

CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
/*

Copyright 1987 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

*/
This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
        Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
    Copyright (c) 2001 Alcove <http://www.alcove.com/>
    Copyright (c) 1997 Klee Dienes
    Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
Public License.

 Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
+   Copyright (C) Andrew Tridgell   1999-2005
+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

    ** NOTE! The following LGPL license applies to the tdb
    ** library. This does NOT imply that all of Samba is released
EXT2ED is hereby placed under the terms of the GNU General Public License.
Follows the GNU license.

Gadi Oxman, August 1995

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the

GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents
constitute a work based on the
Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You
must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access
to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free

Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting
the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY
TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY;
for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider

it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
This is the Debian GNU/Linux prepackaged version of the EXT2 file
system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2007 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, are made available under
the GNU General Public License version 2, with the exception of the
lib/ext2fs and lib/e2p libraries, which are made available under the
GNU Library General Public License Version 2, the lib/uuid library
which is made available under a BSD-style license and the lib/et and
lib/ss libraries
which are made available under an MIT-style license.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General Public
License can be found in `/usr/share/common-licenses/GPL-2'. The
complete text of the GNU Library General Public License can be found
in '/usr/share/common-licenses/LGPL-2'.

The license used for lib/et and lib/ss libraries is:

Copyright 1987 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose is hereby granted, provided that
the names of M.I.T. and the M.I.T. S.I.P.B. not be used in
advertising or publicity pertaining to distribution of the software
without specific, written prior permission. M.I.T. and the
M.I.T. S.I.P.B. make no representations about the suitability of
this

software for any purpose. It is provided "as is" without
express or implied warranty.

The license used for lib/uuid is:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, and the entire permission notice in its entirety,
   including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2003, 2004 by Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright

```
 notice, and the entire permission notice in its entirety,
 including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
 products derived from this software without specific
prior
 written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
#
# This is a Makefile stub which handles the creation of BSD shared
# libraries.
#
# In order to use this stub, the following makefile variables must be defined.
#
# BSDLIB_VERSION = 1.0
# BSDLIB_IMAGE = libce
# BSDLIB_MYDIR = et
# BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image:  $(BSD_LIB)

$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
```

```
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
This is the Debian GNU/Linux prepackaged version of the ss
command-line interface parsing library. It is currently
distributed together with the EXT2 file system utilities, which are
otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and
 the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose.  It is
provided "as is" without express or implied warranty.
```

This package, the EXT2 filesystem utilities, are made available under
the GNU Public License version 2, with the exception of the lib/ext2fs
and lib/e2p libraries, which are made available under the GNU Library
General Public License Version 2, the lib/uuid library which is made
available under a BSD-style license and the lib/et and lib/ss
libraries which are made available under an MIT-style license. Please
see lib/uuid/COPYING for more details for the license for the files
comprising the libuuid library, and the source file headers of the
libet and libss libraries for more information.

The most recent officially distributed version can be found at
http://e2fsprogs.sourceforge.net. If you need to make a distribution,
that's the one you should use. If there is some reason why you'd like
a more recent version that is still in ALPHA testing (i.e., either
using the "WIP" test distributions or one from the hg or git
repository from the development branch, please contact me
(tytso@mit.edu)
 before you ship. The release schedules for this
package are flexible, if you give me enough lead time.

    Theodore Ts'o
    23-June-2007

     GNU GENERAL PUBLIC LICENSE
       Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
   59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

      Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software
 is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

 When we speak of free software, we are referring to freedom, not

price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source
code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and
conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it,

either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered
only if its contents constitute a work based on the
Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based
on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the
Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with
the information you received as to the offer
to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a

special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access
to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy
simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent

license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free

programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software
and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE
OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name
of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes
with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine
library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some
specially designated Free Software Foundation software, and to any
other libraries whose authors decide to use it. You can use it for
your libraries, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if
you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must
give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link a program with the library, you must provide
complete object files to the recipients so that they can relink them
with the library, after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright
the library, and (2) offer you this license which gives you legal

permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this

will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than
copying, distribution and modification are not
covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's

complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2.
You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the

entire whole, and thus to each and every
part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change
in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to
copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a

work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under

Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library

facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the
Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise)
that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any

particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing

and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start
of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either

version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 59 Temple
Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
This is the Debian GNU/Linux prepackaged version of the Common Error
Description library. It is currently distributed together with the EXT2 file
system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T.

S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

1.29 apr-util 1.6.1

1.29.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE PORTABLE RUNTIME SUBCOMPONENTS:

The Apache Portable Runtime includes a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for the these subcomponents is subject to the terms and
conditions of the following licenses.

For the include\apr_md5.h component:

```
/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* Copyright (C) 1991-2, RSA Data Security,
 Inc. Created 1991. All
 rights reserved.
```

License to copy and use this software is granted provided that it
is identified as the "RSA Data Security, Inc. MD5 Message-Digest
Algorithm" in all material mentioning or referencing this software
or this function.

License is also granted to make and use derivative works provided
that such works are identified as "derived from the RSA Data
Security, Inc. MD5 Message-Digest Algorithm" in all material
mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either
the merchantability of this software or the suitability of this
software for any particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.
*/

For the passwd\apr_md5.c component:

/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* MD5C.C - RSA Data Security, Inc., MD5 message-digest algorithm
*/

/* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
rights reserved.

License to copy and use this software is granted provided that it
is identified as the "RSA Data Security, Inc. MD5 Message-Digest
Algorithm" in all material mentioning or referencing this software
or this function.

License is also granted to make and use derivative works provided
that such works are identified as "derived from the RSA Data
Security, Inc. MD5 Message-Digest Algorithm" in all material
mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either
the merchantability of this software or the suitability of this
software for any

particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.
*/
/*
* The apr_md5_encode() routine uses much code obtained from the FreeBSD 3.0
* MD5 crypt() function, which is licenced as follows:
* --
* "THE BEER-WARE LICENSE" (Revision 42):
* <phk@login.dknet.dk> wrote this file. As long as you retain this notice you
* can do whatever you want with this stuff. If we meet some day, and you think
* this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp
* --
*/

For the crypto\apr_md4.c component:

* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created
1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it
* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm" in all material mentioning or referencing this software
* or this function.
*
* License is also granted to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the crypto\crypt_blowfish.c(.h) component:

* Written by Solar Designer <solar at openwall.com> in 1998-2011.

* No copyright
 is claimed, and the software is hereby placed in the public
* domain. In case this attempt to disclaim copyright and place the software
* in the public domain is deemed null and void, then the software is
* Copyright (c) 1998-2011 Solar Designer and it is hereby released to the
* general public under the following terms:
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted.
*
* There's ABSOLUTELY NO WARRANTY, express or implied.

See crypto/crypt_blowfish.c for more information.

For the include\apr_md4.h component:

*
* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it
* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm" in all material mentioning or referencing this
 software
* or this function.
*
* License is also granted to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the test\testmd4.c component:

*
* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.

*
* Copyright (C) 1990-2, RSA Data Security, Inc. Created 1990. All
* rights reserved.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software
 or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the xml\expat\conftools\install-sh component:

#
install - install a program, script, or datafile
This comes from X11R5 (mit/util/scripts/install.sh).
#
Copyright 1991 by the Massachusetts Institute of Technology
#
Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that
copyright notice and this permission notice appear in supporting
documentation, and that the name of M.I.T. not be used in advertising or
publicity pertaining to distribution of the software without specific,
written prior permission. M.I.T. makes no representations about the
suitability
 of this software for any purpose. It is provided "as is"
without express or implied warranty.
#

For the expat xml parser component:

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd
and Clark Cooper

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included

in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE
AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

For the ldap/apr_ldap_url.c component:

```
/* Portions Copyright 1998-2002 The OpenLDAP Foundation
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted only as authorized by the OpenLDAP
* Public License.  A copy of this license is available at
* http://www.OpenLDAP.org/license.html or in file LICENSE in the
* top-level directory of the distribution.
*
* OpenLDAP is a registered trademark of the OpenLDAP Foundation.
*
* Individual files and/or contributed packages may be copyright by
* other parties and subject to additional restrictions.
*
* This work is
 derived from the University of Michigan LDAP v3.3
* distribution.  Information concerning this software is available
* at: http://www.umich.edu/~dirsvcs/ldap/
*
* This work also contains materials derived from public sources.
*
* Additional information about OpenLDAP can be obtained at:
*     http://www.openldap.org/
*/

/*
* Portions Copyright (c) 1992-1996 Regents of the University of Michigan.
* All rights reserved.
*
* Redistribution and use in source and binary forms are permitted
* provided that this notice is preserved and that due credit is given
* to the University of Michigan at Ann Arbor. The name of the University
* may not be used to endorse or promote products derived from this
```

* software without specific prior written permission. This software
* is provided ``as is" without express or implied warranty.
*/
Apache Portable Runtime Utility Library
Copyright (c) 2000-2016 The Apache Software Foundation.

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Portions of this software were developed at the National Center
for Supercomputing Applications (NCSA) at the University of
Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security
Inc. MD5 Message-Digest Algorithm, including various
modifications by Spyglass Inc., Carnegie Mellon University, and
Bell Communications Research, Inc (Bellcore).

1.30 pcre 8.42

1.30.1 Available under license :

PCRE LICENCE

Please see the file LICENCE in the PCRE distribution for licensing details.

End
PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax
and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as
specified below. The documentation for PCRE, supplied in the "doc"
directory, is distributed under the same terms as the software itself. The data
in the testdata directory is not copyrighted and is in the public domain.

The basic library functions are written in C and are freestanding. Also
included in the distribution is a set of C++ wrapper functions, and a
just-in-time compiler that can be used to optimize pattern matching. These
are both optional features that can be omitted when the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel

Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

Copyright (c) 1997-2018 University
of Cambridge
All rights reserved.

PCRE JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Emain domain: freemail.hu

Copyright(c) 2010-2018 Zoltan Herczeg
All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Emain domain: freemail.hu

Copyright(c) 2009-2018 Zoltan Herczeg
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2012, Google Inc.
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce
the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the name of Google
Inc. nor the names of their contributors may be used to endorse or
promote products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

End
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.31 cairo 1.14.2

1.31.1 Available under license :

Cairo is free software.

cairo-trace is released under the terms of the GNU General Public License (GPL) version 3. Please see COPYING-GPL-3 for the precise terms and conditions.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the

source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you

conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or

collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution
of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the

integrity of the free software distribution system, which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES

PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands `show
w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Suite 500, Boston, MA 02110-1335, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software

patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it
becomes a de-facto standard. To achieve this, non-free programs must
be allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the

users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
"work based on the library" and a "work that uses the library". The
former contains code derived from the library, whereas the latter must
be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other
program which contains a notice placed by the copyright holder or
other authorized party saying it may be distributed under the terms of
this Lesser General Public License (also called "this License").
Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data
prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work
which has been distributed under these terms. A "work based on the
Library" means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated
straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for
making modifications to it. For a library, complete source code means
all the source code for all modules it contains, plus any associated
interface definition files, plus the scripts used to control
compilation and installation of the library.

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running a program using the Library is not restricted, and output from
such a program is covered only if its contents constitute a work based
on the Library (independent of the use of the Library in a tool for
writing it). Whether that is true depends on what the Library does
and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's

complete source code as you receive it, in any
medium, provided that
you conspicuously and appropriately publish on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact
all the notices that refer to this License and to the absence of any
warranty; and distribute a copy of this License along with the
Library.

You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices
stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no
charge to all third parties under the
terms of this License.

d) If a facility in the modified Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and can
be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based

on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or

linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany

the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if
the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under
any particular circumstance, the balance of the section is intended to
apply, and the section as a whole is intended to apply in other
circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system
which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License
may add an explicit geographical distribution limitation excluding those
countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by

the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library.
It is safest to attach them to the start of each source file to most
effectively
convey the exclusion of warranty; and each file should
have at least the "copyright" line and a pointer to where the full
notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Suite 500, Boston, MA 02110-1335,
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or
your school, if any, to sign a "copyright disclaimer" for the library,
if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James
Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Cairo is free software.

These tests are mainly available under a liberal MIT license to simplify
any use of the code for reference purposes. Please check the opening comment
of each file for copyright and licensing information.

The test suite also bundles some fonts for use by the test suite. The
fonts included, their licenses, and why we use them in the test suite

are as follows:

Font	License	Distinguishing feature
6x13.pcf	Public Domain	Bitmap font

The test suite also bundles some images for use by the test suite. The images included, their licenses, and why we use them in the test suite are as follows:

Image	License	Distinguishing feature
romedalen.jpg	Public Domain	Bitmap image (image/jpeg)
romedalen.png	Public Domain	Bitmap image (image/png)

The kind contributors of the bundled files are (in alphabetical order):
yvind Kols <pippin@freedesktop.org> Author of the original
romedalen shot.
Cairo is free software.

Every source file in the implementation of cairo is available to be redistributed and/or modified under the terms of either the GNU Lesser General Public License (LGPL) version 2.1 or the Mozilla Public License (MPL) version 1.1. Some files are available under more liberal terms, but we believe that in all cases, each file may be used under either the LGPL or the MPL.

See the following files in this directory for the precise terms and conditions of either license:

COPYING-LGPL-2.1
COPYING-MPL-1.1

Please see each file in the implementation for copyright and licensing information, (in the opening comment of each file).

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand

ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices"

to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users

beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for

the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the

violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for

sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a

covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the

combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF

DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short

notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
Cairo is free software.

These utilities are all free software, please see the licensing conditions
in the opening comments of each file.
Cairo is free software.

Every source file in the implementation[*] of cairo is available to be
redistributed and/or modified under the terms of either the GNU Lesser
General Public License (LGPL) version 2.1 or the Mozilla Public
License (MPL) version 1.1. Some files are available under more
liberal terms, but we believe that in all cases, each file may be used
under either the LGPL or the MPL.

See the following files in this directory for the precise terms and
conditions of either license:

COPYING-LGPL-2.1
COPYING-MPL-1.1

Please see each file in the implementation for copyright and licensing
information, (in the opening comment of each file).

[*] The implementation of cairo is contained entirely within the "src"
directory of the cairo source distribution. There are other components

of the cairo source distribution (such as the "test", "util", and "perf")
that are auxiliary to the library itself. None of the source code in these
directories contributes to a build of the cairo library
itself, (libcairo.so
or cairo.dll or similar).

These auxiliary components are also free software, but may be under
different license terms than cairo itself. For example, most of the
test cases in the perf and test directories are made available under
an MIT license to simplify any use of this code for reference purposes
in using cairo itself. Other files might be available under the GNU
General Public License (GPL), for example. Again, please see the COPYING
file under each directory and the opening comment of each file for copyright
and licensing information.
Cairo is free software.

These tests are mainly available under a liberal MIT license to simplify
any use of the code for reference purposes. Please check the opening comment
of each file for copyright and licensing information.

MOZILLA PUBLIC LICENSE
Version 1.1

---

1. Definitions.

1.0.1. "Commercial Use" means distribution or otherwise making the
Covered Code available to a third party.

1.1. "Contributor" means each entity that creates or contributes to
the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original
Code, prior Modifications used by a Contributor, and the Modifications
made by that particular Contributor.

1.3. "Covered Code" means the Original Code or Modifications or the
combination of the Original Code and Modifications, in each case
including portions thereof.

1.4. "Electronic Distribution Mechanism" means a mechanism generally
accepted in the software development community for the electronic
transfer of data.

1.5. "Executable" means Covered Code in any form other than Source
Code.

1.6. "Initial Developer" means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. "Larger Work" means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. "License" means this document.

1.8.1. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of

this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant.
The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property

claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements

caused

by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

2.2. Contributor Grant.
Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone

and/or in combination with its Contributor Version (or portions of such combination), to make,
use, sell, offer for sale, have
made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Application of License.
The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code.
Any Modification which You create or to which You contribute must be
made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for

ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.
You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that
the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters
(a) Third Party Claims.
If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.
If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations.
Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

3.5. Required Notices.
You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a

location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered

Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger

Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions.
Netscape Communications Corporation ("Netscape") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.
Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.
If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename
Your license so that
the phrases "Mozilla", "MOZILLAPL", "MOZPL", "Netscape", "MPL", "NPL" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declatory judgment actions) against Initial Developer or
a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as "Participant") alleging that:

(a) such Participant's Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant's Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used, sold, distributed, or had made, Modifications made by that

Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.

The Covered Code is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" and "commercial computer software documentation," as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

11. MISCELLANEOUS.

This License represents the complete agreement concerning subject

matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the NPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

EXHIBIT A -Mozilla Public License.

``The contents of this file are subject to the Mozilla Public License Version 1.1 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.mozilla.org/MPL/

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations

under the License.

The Original Code is _____.

The Initial Developer of the Original Code is _____.
Portions created by _____ are Copyright (C) _____
_____. All Rights Reserved.

Contributor(s): _____.

Alternatively, the contents of this file may be used under the terms
of the _____ license (the "[___] License"), in which case the
provisions of [_____] License are applicable instead of those
above. If
you wish to allow use of your version of this file only
under the terms of the [____] License and not to allow others to use
your version of this file under the MPL, indicate your decision by
deleting the provisions above and replace them with the notice and
other provisions required by the [___] License. If you do not delete
the provisions above, a recipient may use your version of this file
under either the MPL or the [___] License."

[NOTE: The text of this Exhibit A may differ slightly from the text of
the notices in the Source Code files of the Original Code. You should
use the text of this Exhibit A rather than the text found in the
Original Code Source Code for Your Modifications.]

1.32 boost 1.67.0

1.32.1 Available under license :

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE
FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

1.33 latencyutils 2.0.3

1.34 python 3.7.3

1.34.1 Available under license :

****
Copyright
****

Python and this documentation is:

Copyright 2001-2019 Python Software Foundation. All rights reserved.

Copyright 2000 BeOpen.com. All rights reserved.

Copyright 1995-2000 Corporation for National Research Initiatives. All rights
reserved.

Copyright 1991-1995 Stichting Mathematisch Centrum. All rights reserved.

See :ref:`history-and-license` for complete license and permissions information.
Copyright (c) 2002 Jorge Acereda <jacereda@users.sourceforge.net> &
Peter O'Gorman <ogorman@users.sourceforge.net>

Portions may be copyright others, see the AUTHORS file included with this
distribution.

Maintained by Peter O'Gorman <ogorman@users.sourceforge.net>

Bug Reports and other queries should go to <ogorman@users.sourceforge.net>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including

without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
A. HISTORY OF THE SOFTWARE
==========

Python was created in the early 1990s by Guido van Rossum at Stichting
Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands
as a successor of a language called ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)
in Reston, Virginia where he released several versions of the
software.

In May 2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
year, the PythonLabs team moved to Digital Creations, which became
Zope Corporation. In 2001, the Python Software Foundation (PSF, see
https://www.python.org/psf/) was formed, a non-profit organization
created specifically to own Python-related Intellectual Property.
Zope Corporation was a sponsoring member of the PSF.

All
Python releases are Open Source (see http://www.opensource.org for
the Open Source Definition). Historically, most, but not all, Python
releases have also been GPL-compatible; the table below summarizes
the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes

1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

Footnotes:

(1) GPL-compatible doesn't mean that we're distributing Python under the GPL. All Python licenses, unlike the GPL, let you distribute a modified version without making your changes open source. The GPL-compatible licenses make it possible to combine Python with other software that is released under the GPL; the others don't.

(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

B. TERMS AND CONDITIONS FOR ACCESSING OR OTHERWISE USING PYTHON
==========

PYTHON SOFTWARE FOUNDATION LICENSE VERSION 2
---

1. This LICENSE AGREEMENT is between the
Python Software Foundation
("PSF"), and the Individual or Organization ("Licensee") accessing and otherwise using this software ("Python") in source or binary form and its associated documentation.

2. Subject to the terms and conditions of this License Agreement, PSF hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python alone or in any derivative version, provided, however, that PSF's License Agreement and PSF's notice of copyright, i.e., "Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019 Python Software Foundation; All Rights Reserved" are retained in Python alone or in any derivative version

prepared by Licensee.

3. In the event Licensee prepares a derivative work that is based on
or incorporates Python or any part thereof, and wants to make
the derivative work available
to others as provided herein, then
Licensee hereby agrees to include in any such work a brief summary of
the changes made to Python.

4. PSF is making Python available to Licensee on an "AS IS"
basis. PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR
IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND
DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS
FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON WILL NOT
INFRINGE ANY THIRD PARTY RIGHTS.

5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON
FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS
A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON,
OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material
breach of its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any
relationship of agency, partnership, or joint venture between
PSF and
Licensee. This License Agreement does not grant permission to use PSF
trademarks or trade name in a trademark sense to endorse or promote
products or services of Licensee, or any third party.

8. By copying, installing or otherwise using Python, Licensee
agrees to be bound by the terms and conditions of this License
Agreement.

BEOPEN.COM LICENSE AGREEMENT FOR PYTHON 2.0

BEOPEN PYTHON OPEN SOURCE LICENSE AGREEMENT VERSION 1

1. This LICENSE AGREEMENT is between BeOpen.com ("BeOpen"), having an
office at 160 Saratoga Avenue, Santa Clara, CA 95051, and the
Individual or Organization ("Licensee") accessing and otherwise using
this software in source or binary form and its associated
documentation ("the Software").

2. Subject to the terms and conditions of this BeOpen Python License

Agreement, BeOpen hereby grants Licensee a non-exclusive,
royalty-free, world-wide license to reproduce, analyze, test, perform
and/or display publicly,
prepare derivative works, distribute, and
otherwise use the Software alone or in any derivative version,
provided, however, that the BeOpen Python License is retained in the
Software, alone or in any derivative version prepared by Licensee.

3. BeOpen is making the Software available to Licensee on an "AS IS"
basis. BEOPEN MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR
IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, BEOPEN MAKES NO AND
DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS
FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE WILL NOT
INFRINGE ANY THIRD PARTY RIGHTS.

4. BEOPEN SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF THE
SOFTWARE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS
AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THE SOFTWARE, OR ANY
DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

5. This License Agreement will automatically terminate upon a material
breach of its terms and conditions.

6.
This License Agreement shall be governed by and interpreted in all
respects by the law of the State of California, excluding conflict of
law provisions. Nothing in this License Agreement shall be deemed to
create any relationship of agency, partnership, or joint venture
between BeOpen and Licensee. This License Agreement does not grant
permission to use BeOpen trademarks or trade names in a trademark
sense to endorse or promote products or services of Licensee, or any
third party. As an exception, the "BeOpen Python" logos available at
http://www.pythonlabs.com/logos.html may be used according to the
permissions granted on that web page.

7. By copying, installing or otherwise using the software, Licensee
agrees to be bound by the terms and conditions of this License
Agreement.

CNRI LICENSE AGREEMENT FOR PYTHON 1.6.1
---

1. This LICENSE AGREEMENT is between the Corporation for National
Research Initiatives, having an office at 1895 Preston
White Drive,
Reston, VA 20191 ("CNRI"), and the Individual or Organization
("Licensee") accessing and otherwise using Python 1.6.1 software in

source or binary form and its associated documentation.

2. Subject to the terms and conditions of this License Agreement, CNRI hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python 1.6.1 alone or in any derivative version, provided, however, that CNRI's License Agreement and CNRI's notice of copyright, i.e., "Copyright (c) 1995-2001 Corporation for National Research Initiatives; All Rights Reserved" are retained in Python 1.6.1 alone or in any derivative version prepared by Licensee. Alternately, in lieu of CNRI's License Agreement, Licensee may substitute the following text (omitting the quotes): "Python 1.6.1 is made available subject to the terms and conditions in CNRI's License Agreement. This Agreement
together with
Python 1.6.1 may be located on the Internet using the following unique, persistent identifier (known as a handle): 1895.22/1013. This Agreement may also be obtained from a proxy server on the Internet using the following URL: http://hdl.handle.net/1895.22/1013".

3. In the event Licensee prepares a derivative work that is based on or incorporates Python 1.6.1 or any part thereof, and wants to make the derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python 1.6.1.

4. CNRI is making Python 1.6.1 available to Licensee on an "AS IS" basis. CNRI MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, CNRI MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON 1.6.1 WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

5. CNRI SHALL NOT BE LIABLE TO LICENSEE
OR ANY OTHER USERS OF PYTHON
1.6.1 FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON 1.6.1, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

7. This License Agreement shall be governed by the federal intellectual property law of the United States, including without limitation the federal copyright law, and, to the extent such U.S. federal law does not apply, by the law of the Commonwealth of Virginia, excluding Virginia's conflict of law provisions. Notwithstanding the foregoing, with regard to derivative works based

on Python 1.6.1 that incorporate non-separable material that was previously distributed under the GNU General Public License (GPL), the law of the Commonwealth of Virginia shall govern this License Agreement only as to issues arising under or with respect to Paragraphs
4, 5, and 7 of this License Agreement. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between CNRI and Licensee. This License Agreement does not grant permission to use CNRI trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

8. By clicking on the "ACCEPT" button where indicated, or by copying, installing or otherwise using Python 1.6.1, Licensee agrees to be bound by the terms and conditions of this License Agreement.

ACCEPT

CWI LICENSE AGREEMENT FOR PYTHON 0.9.0 THROUGH 1.2

Copyright (c) 1991 - 1995, Stichting Mathematisch Centrum Amsterdam, The Netherlands. All rights reserved.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies
and that
both that copyright notice and this permission notice appear in supporting documentation, and that the name of Stichting Mathematisch Centrum or CWI not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

STICHTING MATHEMATISCH CENTRUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL STICHTING MATHEMATISCH CENTRUM BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
libffi - Copyright (c) 1996-2003 Red Hat, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the ``Software''), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish,

distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ``AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL CYGNUS SOLUTIONS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.
X Window System License - X11R6.4

Copyright (c) 1998 The Open Group

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE OPEN GROUP BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of The Open Group shall
not be used in advertising or otherwise to promote the sale, use or
other dealings in this Software without prior written authorization
from The Open Group.

X Window System is a trademark of The Open Group

Additional Conditions for this Windows binary build

This program is linked with and uses Microsoft Distributable Code,
copyrighted by Microsoft Corporation. The Microsoft Distributable Code
is embedded in each .exe, .dll and .pyd file as a result of running
the code through a linker.

If you further distribute programs that include the Microsoft
Distributable Code, you must comply with the restrictions on
distribution specified by Microsoft. In particular, you must require
distributors and external end users to agree to terms that protect the
Microsoft Distributable Code at least as much as Microsoft's own
requirements for the Distributable Code. See Microsoft's documentation
(included in its developer tools and on its website at microsoft.com)
for specific details.

Redistribution of the Windows binary build of the Python interpreter
complies with this agreement, provided that you do not:

- alter any copyright, trademark or patent
 notice in Microsoft's
Distributable Code;

- use Microsoft's trademarks in your programs' names or in a way that
suggests your programs come from or are endorsed by Microsoft;

- distribute Microsoft's Distributable Code to run on a platform other
than Microsoft operating systems, run-time technologies or application
platforms; or

- include Microsoft Distributable Code in malicious, deceptive or
unlawful programs.

These restrictions apply only to the Microsoft Distributable Code as
defined above, not to Python itself or any programs running on the
Python interpreter. The redistribution of the Python interpreter and
libraries is governed by the Python Software License included with this
file, or by other licenses as marked.
Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2017 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
This license applies to the bootstrapper application that is embedded within the installer. It has no impact on the licensing for the rest of the installer or Python itself, as no code covered by this license exists in any other part of the product.

Microsoft Reciprocal License (MS-RL)

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

1. Definitions
The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law.
A "contribution" is the original software, or any additions or changes to the software.
A "contributor" is any person that distributes its contribution under this license.
"Licensed patents" are a contributor's patent claims that read directly on its contribution.

2. Grant of Rights
(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations
in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.
(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

3. Conditions and Limitations
(A) Reciprocal Grants- For any file you distribute that contains code from the software (in source code or binary format), you must provide recipients the source code to that file along with a copy of this license, which license will govern that file. You may license other files that are entirely your own work and
do not contain code from the software under any terms you choose.
(B) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.
(C) If you bring a patent claim against any contributor over patents that you claim are infringed by the software,

your patent license from such contributor to the software ends automatically.
(D) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.
(E) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.
(F) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees or conditions.
You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.
.. highlightlang:: none

.. _history-and-license:

****
History and License
****

History of the software
==========

Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see https://www.cwi.nl/) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see https://www.cnri.reston.va.us/) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation; see http://www.zope.com/). In 2001, the Python Software Foundation (PSF, see https://www.python.org/psf/) was formed, a non-profit organization created
specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see https://opensource.org/ for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

+---------------+-------------+-----------+-----------+-----------------+
| Release | Derived from | Year | Owner | GPL compatible? |
+===============+=============+===========+===========+=================+

| 0.9.0 thru 1.2 | n/a | 1991-1995 | CWI | yes |
+---+---+---+---+---+
| 1.3 thru 1.5.2 | 1.2 | 1995-1999 | CNRI | yes |
+---+---+---+---+---+
| 1.6 | 1.5.2 | 2000 | CNRI | no |
+---+---+---+---+---+
|
2.0 | 1.6 | 2000 | BeOpen.com | no |
+---+---+---+---+---+
| 1.6.1 | 1.6 | 2001 | CNRI | no |
+---+---+---+---+---+
| 2.1 | 2.0+1.6.1 | 2001 | PSF | no |
+---+---+---+---+---+
| 2.0.1 | 2.0+1.6.1 | 2001 | PSF | yes |
+---+---+---+---+---+
| 2.1.1 | 2.1+2.0.1 | 2001 | PSF | yes |
+---+---+---+---+---+
| 2.1.2 | 2.1.1 | 2002 | PSF | yes |
+---+---+---+---+---+
| 2.1.3
| 2.1.2 | 2002 | PSF | yes |
+---+---+---+---+---+
| 2.2 and above | 2.1.1 | 2001-now | PSF | yes |
+---+---+---+---+---+

.. note::

GPL-compatible doesn't mean that we're distributing Python under the GPL. All Python licenses, unlike the GPL, let you distribute a modified version without making your changes open source. The GPL-compatible licenses make it possible to combine Python with other software that is released under the GPL; the others don't.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

Terms and conditions for accessing or otherwise using Python
==========

PSF LICENSE AGREEMENT FOR PYTHON |release|

.. parsed-literal::

1. This LICENSE AGREEMENT is between the Python Software Foundation ("PSF"), and the Individual or Organization ("Licensee") accessing and otherwise using Python

|release| software in source or binary form and its associated documentation.

2. Subject to the terms and conditions of this License Agreement, PSF hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python |release| alone or in any derivative version, provided, however, that PSF's License Agreement and PSF's notice of copyright, i.e., "Copyright 2001-2019 Python Software Foundation; All Rights Reserved" are retained in Python |release| alone or in any derivative version prepared by Licensee.

3. In the event Licensee prepares a derivative work that is based on or incorporates Python |release| or any part thereof, and
wants to make the
derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python |release|.

4. PSF is making Python |release| available to Licensee on an "AS IS" basis. PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON |release| WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON |release| FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON |release|, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach
of
its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between PSF and Licensee. This License Agreement does not grant permission to use PSF trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

8. By copying, installing or otherwise using Python |release|, Licensee agrees to be bound by the terms and conditions of this License Agreement.

BEOPEN.COM LICENSE AGREEMENT FOR PYTHON 2.0

BEOPEN PYTHON OPEN SOURCE LICENSE AGREEMENT VERSION 1

.. parsed-literal::

1. This LICENSE AGREEMENT is between BeOpen.com ("BeOpen"), having an office at 160 Saratoga Avenue, Santa Clara, CA 95051, and the Individual or Organization ("Licensee") accessing and otherwise using this software in source or binary form and its associated documentation ("the Software").

2. Subject to the terms and conditions of this BeOpen Python License Agreement, BeOpen hereby grants Licensee a non-exclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use the Software alone or in any derivative version, provided, however, that the BeOpen Python License is retained in the Software, alone or in any derivative version prepared by Licensee.

3. BeOpen is making the Software available to Licensee on an "AS IS" basis. BEOPEN MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, BEOPEN MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

4. BEOPEN SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF THE SOFTWARE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THE SOFTWARE, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

5. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

6. This License Agreement shall be governed by and interpreted in all respects by the law of the State of California, excluding conflict of law provisions. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between BeOpen and Licensee. This License Agreement does not grant permission to use BeOpen trademarks or trade names in a trademark sense to endorse or promote products or services of Licensee, or any third party. As an exception, the "BeOpen Python" logos available at http://www.pythonlabs.com/logos.html may be used according to the permissions granted on that web page.

7. By copying, installing or otherwise using the software, Licensee agrees to be bound by the terms and conditions of this License Agreement.

CNRI LICENSE AGREEMENT FOR PYTHON 1.6.1

.. parsed-literal::

1. This LICENSE AGREEMENT is between the Corporation for National Research Initiatives, having an office at 1895 Preston White Drive, Reston, VA 20191 ("CNRI"), and the Individual or Organization ("Licensee") accessing and otherwise using Python 1.6.1 software in source or binary form and its associated documentation.

2. Subject to the terms and conditions of this License Agreement, CNRI hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python 1.6.1 alone or in any derivative version, provided, however,
that CNRI's License Agreement and CNRI's notice of copyright, i.e., "Copyright 1995-2001 Corporation for National Research Initiatives; All Rights Reserved" are retained in Python 1.6.1 alone or in any derivative version prepared by Licensee. Alternately, in lieu of CNRI's License Agreement, Licensee may substitute the following text (omitting the quotes): "Python 1.6.1 is made available subject to the terms and conditions in CNRI's License Agreement. This Agreement together with Python 1.6.1 may be located on the Internet using the following unique, persistent identifier (known as a handle): 1895.22/1013. This Agreement may also be obtained from a proxy server on the Internet using the following URL: http://hdl.handle.net/1895.22/1013."

3. In the event Licensee prepares a derivative work that is based on or incorporates Python 1.6.1 or any part thereof, and wants to make the derivative work available to others
as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python 1.6.1.

4. CNRI is making Python 1.6.1 available to Licensee on an "AS IS" basis. CNRI MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, CNRI MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY
OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON 1.6.1 WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

5. CNRI SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON 1.6.1 FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON 1.6.1, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

7. This License Agreement shall be governed

by the federal intellectual property
law of the United States, including without limitation the federal copyright law, and, to the extent such U.S. federal law does not apply, by the law of the Commonwealth of Virginia, excluding Virginia's conflict of law provisions. Notwithstanding the foregoing, with regard to derivative works based on Python 1.6.1 that incorporate non-separable material that was previously distributed under the GNU General Public License (GPL), the law of the Commonwealth of Virginia shall govern this License Agreement only as to issues arising under or with respect to Paragraphs 4, 5, and 7 of this License Agreement. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between CNRI and Licensee. This License Agreement does not grant permission to use CNRI trademarks or trade name in a trademark sense to endorse or promote products
or services of Licensee, or any third
party.

8. By clicking on the "ACCEPT" button where indicated, or by copying, installing or otherwise using Python 1.6.1, Licensee agrees to be bound by the terms and conditions of this License Agreement.

CWI LICENSE AGREEMENT FOR PYTHON 0.9.0 THROUGH 1.2

.. parsed-literal::

Copyright 1991 - 1995, Stichting Mathematisch Centrum Amsterdam, The Netherlands. All rights reserved.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Stichting Mathematisch Centrum or CWI not be used in advertising or publicity pertaining to distribution of the software without specific, written
prior
permission.

STICHTING MATHEMATISCH CENTRUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL STICHTING MATHEMATISCH CENTRUM BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Licenses and Acknowledgements for Incorporated Software
==========

This section is an incomplete, but growing list of licenses and acknowledgements
for third-party software incorporated in the Python distribution.

Mersenne Twister

The :mod:`_random` module includes code based on a download from
http://www.math.sci.hiroshima-u.ac.jp/~m-mat/MT/MT2002/emt19937ar.html. The following are
the verbatim comments from the
original code::

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using init_genrand(seed)
or init_by_array(init_key, key_length).

Copyright (C) 1997 - 2002, Makoto Matsumoto and Takuji Nishimura,
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. The names of its contributors may not be used to endorse or promote
products derived from this software without specific prior
written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Any feedback is very welcome.
http://www.math.sci.hiroshima-u.ac.jp/~m-mat/MT/emt.html
email: m-mat @ math.sci.hiroshima-u.ac.jp (remove space)

Sockets

The :mod:`socket`
module uses the functions, :func:`getaddrinfo`, and
:func:`getnameinfo`, which are coded in separate source files from the WIDE
Project, http://www.wide.ad.jp/. ::

Copyright (C) 1995, 1996, 1997, and 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the project nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE
PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Asynchronous socket services

The :mod:`asynchat` and :mod:`asyncore` modules contain the following notice::

Copyright 1996 by Sam Rushing

All Rights Reserved

Permission to use, copy, modify, and
distribute this software and
its documentation for any purpose and without fee is hereby
granted, provided that the above copyright notice appear in all
copies and that both that copyright notice and this permission
notice appear in supporting documentation, and that the name of Sam
Rushing not be used in advertising or publicity pertaining to
distribution of the software without specific, written prior
permission.

SAM RUSHING DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN
NO EVENT SHALL SAM RUSHING BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS
OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Cookie management

The :mod:`http.cookies` module contains the following
notice::

Copyright 2000 by Timothy O'Malley <timo@alum.mit.edu>

All Rights Reserved

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is hereby
granted, provided that the above copyright notice appear in all
copies and that both that copyright notice and this permission
notice appear in supporting documentation, and that the name of
Timothy O'Malley not be used in advertising or publicity
pertaining to distribution of the software without specific, written
prior permission.

Timothy O'Malley DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS
SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY

AND FITNESS, IN NO EVENT SHALL Timothy O'Malley BE LIABLE FOR
ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING OUT
OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

Execution tracing

The :mod:`trace` module contains the following notice::

portions copyright 2001, Autonomous Zones Industries, Inc., all rights...
err... reserved and offered to the public under the terms of the
Python 2.2 license.
Author: Zooko O'Whielacronx
http://zooko.com/
mailto:zooko@zooko.com

Copyright 2000, Mojam Media, Inc., all rights reserved.
Author: Skip Montanaro

Copyright 1999, Bioreason, Inc., all rights reserved.
Author: Andrew Dalke

Copyright 1995-1997, Automatrix, Inc., all rights reserved.
Author: Skip Montanaro

Copyright 1991-1995, Stichting Mathematisch Centrum, all rights reserved.

Permission to use, copy, modify, and distribute this Python software and
its associated documentation for any purpose without fee is hereby
granted, provided that the above copyright notice appears in all copies,
and that both that copyright
notice and this permission notice appear in
supporting documentation, and that the name of neither Automatrix,
Bioreason or Mojam Media be used in advertising or publicity pertaining to
distribution of the software without specific, written prior permission.

UUencode and UUdecode functions

The :mod:`uu` module contains the following notice::

Copyright 1994 by Lance Ellinghouse
Cathedral City, California Republic, United States of America.
All Rights Reserved
Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of Lance Ellinghouse
not be used in advertising or publicity pertaining to distribution
of the software without specific,
written prior permission.
LANCE ELLINGHOUSE DISCLAIMS ALL WARRANTIES WITH REGARD TO
THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS, IN NO EVENT SHALL LANCE ELLINGHOUSE CENTRUM BE LIABLE
FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT
OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Modified by Jack Jansen, CWI, July 1995:
- Use binascii module to do the actual line-by-line conversion
between ascii and binary. This results in a 1000-fold speedup. The C
version is still 5 times faster, though.
- Arguments more compliant with Python standard

XML Remote Procedure Calls

The :mod:`xmlrpc.client` module contains the following notice::

The XML-RPC client interface is

Copyright (c) 1999-2002 by Secret Labs
AB
Copyright (c) 1999-2002 by Fredrik Lundh

By obtaining, using, and/or copying this software and/or its
associated documentation, you agree that you have read, understood,
and will comply with the following terms and conditions:

Permission to use, copy, modify, and distribute this software and
its associated documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice appears in
all copies, and that both that copyright notice and this permission
notice appear in supporting documentation, and that the name of
Secret Labs AB or the author not be used in advertising or publicity
pertaining to distribution of the software without specific, written

prior permission.

SECRET LABS AB AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD
TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANT-
ABILITY AND FITNESS. IN NO EVENT SHALL SECRET LABS AB OR THE AUTHOR
BE LIABLE FOR ANY SPECIAL, INDIRECT
OR CONSEQUENTIAL DAMAGES OR ANY
DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE
OF THIS SOFTWARE.

test_epoll

The :mod:`test_epoll` module contains the following notice::

Copyright (c) 2001-2006 Twisted Matrix Laboratories.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS
PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Select kqueue

The :mod:`select` module contains the following notice for the kqueue
interface::

Copyright (c) 2000 Doug White, 2006 James Knight, 2007 Christian Heimes
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce
the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

SipHash24

The file :file:`Python/pyhash.c` contains Marek
 Majkowski' implementation of
Dan Bernstein's SipHash24 algorithm. The contains the following note::

 <MIT License>
 Copyright (c) 2013 Marek Majkowski <marek@popcount.org>

 Permission is hereby granted, free of charge, to any person obtaining a copy
 of this software and associated documentation files (the "Software"), to deal
 in the Software without restriction, including without limitation the rights
 to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
 copies of the Software, and to permit persons to whom the Software is
 furnished to do so, subject to the following conditions:

 The above copyright notice and this permission notice shall be included in
 all copies or substantial portions of the Software.
 </MIT License>

 Original location:
   https://github.com/majek/csiphash/

Solution inspired by code from:
Samuel Neves (supercop/crypto_auth/siphash24/little)
djb (supercop/crypto_auth/siphash24/little2)
Jean-Philippe Aumasson
(https://131002.net/siphash/siphash24.c)

strtod and dtoa

The file :file:`Python/dtoa.c`, which supplies C functions dtoa and
strtod for conversion of C doubles to and from strings, is derived
from the file of the same name by David M. Gay, currently available
from http://www.netlib.org/fp/. The original file, as retrieved on
March 16, 2009, contains the following copyright and licensing
notice::

```
 /****************************************************************
  *
  * The author of this software is David M. Gay.
  *
  * Copyright (c) 1991, 2000, 2001 by Lucent Technologies.
  *
  * Permission to use, copy, modify, and distribute this software for any
  * purpose without fee is hereby granted, provided that this entire notice
  * is included in all copies of any software which is or includes a copy
  * or modification of this software and in all copies of the supporting
  * documentation for such software.
  *
  * THIS SOFTWARE IS BEING
PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED
  * WARRANTY.  IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY
  * REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY
  * OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.
  *
  ***************************************************************/
```

OpenSSL

The modules :mod:`hashlib`, :mod:`posix`, :mod:`ssl`, :mod:`crypt` use
the OpenSSL library for added performance if made available by the
operating system. Additionally, the Windows and Mac OS X installers for
Python may include a copy of the OpenSSL libraries, so we include a copy
of the OpenSSL license here::

LICENSE ISSUES
==============

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts. Actually both licenses are BSD-style
Open Source licenses. In case of any license issues related
to OpenSSL
please contact openssl-core@openssl.org.

OpenSSL License

```
 /* ====================================================================
  * Copyright (c) 1998-2008 The OpenSSL Project.  All rights reserved.
  *
  * Redistribution and use in source and binary forms, with or without
  * modification, are permitted provided that the following conditions
  * are met:
  *
  * 1. Redistributions of source code must retain the above copyright
  *    notice, this list of conditions and the following disclaimer.
  *
  * 2. Redistributions in binary form must reproduce the above copyright
  *    notice, this list of conditions and the following disclaimer in
  *    the documentation and/or other materials provided with the
  *    distribution.
  *
  * 3. All advertising materials mentioning features or use of this
  *    software must display the following acknowledgment:
  *    "This product includes software
developed by the OpenSSL Project
  *    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
  *
  * 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
  *    endorse or promote products derived from this software without
  *    prior written permission. For written permission, please contact
  *    openssl-core@openssl.org.
  *
  * 5. Products derived from this software may not be called "OpenSSL"
  *    nor may "OpenSSL" appear in their names without prior written
  *    permission of the OpenSSL Project.
  *
  * 6. Redistributions of any form whatsoever must retain the following
  *    acknowledgment:
  *    "This product includes software developed by the OpenSSL Project
  *    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
  *
```

```
   * THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
   * EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
   * IMPLIED WARRANTIES
 OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
   * PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
   * ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
   * SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
   * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
   * LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
   * OF THE POSSIBILITY OF SUCH DAMAGE.
   * ====================================================================
   *
   * This product includes cryptographic software written by Eric Young
   * (eay@cryptsoft.com).  This product includes software written by Tim
   * Hudson (tjh@cryptsoft.com).
   *
   */

Original SSLeay License
-----------------------


 /* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
   * All rights reserved.
   *
   * This package is an SSL implementation written
   * by Eric Young (eay@cryptsoft.com).
   * The implementation was written so as to conform with Netscapes SSL.
   *
   * This library is free for commercial and non-commercial use as long as
   * the following conditions are aheared to.  The following conditions
   * apply to all code found in this distribution, be it the RC4, RSA,
   * lhash, DES, etc., code; not just the SSL code.  The SSL documentation
   * included with this distribution is covered by the same copyright terms
   * except that the holder is Tim Hudson (tjh@cryptsoft.com).
   *
   * Copyright remains Eric Young's, and as such any Copyright notices in
   * the code are not to be removed.
   * If this package is used in a product, Eric Young should be given attribution
   * as the author of the parts of the library used.
   * This can be in the
 form of a textual message at program startup or
   * in documentation (online or textual) provided with the package.
   *
   * Redistribution and use in source and binary forms, with or without
```

```
   * modification, are permitted provided that the following conditions
   * are met:
   * 1. Redistributions of source code must retain the copyright
   *    notice, this list of conditions and the following disclaimer.
   * 2. Redistributions in binary form must reproduce the above copyright
   *    notice, this list of conditions and the following disclaimer in the
   *    documentation and/or other materials provided with the distribution.
   * 3. All advertising materials mentioning features or use of this software
   *    must display the following acknowledgement:
   *    "This product includes cryptographic software written by
   *     Eric Young (eay@cryptsoft.com)"
   *    The word 'cryptographic' can be left out if the rouines from the library
   *
being used are not cryptographic related :-).
   * 4. If you include any Windows specific code (or a derivative thereof) from
   *    the apps directory (application code) you must include an acknowledgement:
   *    "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
   *
   * THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
   * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
   * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
   * ARE DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
   * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
   * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
   * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
   * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY
WAY
   * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
   * SUCH DAMAGE.
   *
   * The licence and distribution terms for any publically available version or
   * derivative of this code cannot be changed.  i.e. this code cannot simply be
   * copied and put under another distribution licence
   * [including the GNU Public Licence.]
   */
```

expat

The :mod:`pyexpat` extension is built using an included copy of the expat
sources unless the build is configured ``--with-system-expat``::

```
 Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd
                        and Clark Cooper

 Permission is hereby granted, free of charge, to any person obtaining
```

a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and
to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

libffi

The :mod:`_ctypes` extension is built using an included copy of the libffi
sources unless the build is configured ``--with-system-libffi``::

Copyright (c) 1996-2008 Red Hat, Inc and others.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
``Software''), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ``AS IS'', WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

zlib

The
 :mod:`zlib` extension is built using an included copy of the zlib
sources if the zlib version found on the system is too old to be
used for the build::

 Copyright (C) 1995-2011 Jean-loup Gailly and Mark Adler

 This software is provided 'as-is', without any express or implied
 warranty. In no event will the authors be held liable for any damages
 arising from the use of this software.

 Permission is granted to anyone to use this software for any purpose,
 including commercial applications, and to alter it and redistribute it
 freely, subject to the following restrictions:

 1. The origin of this software must not be misrepresented; you must not
    claim that you wrote the original software. If you use this software
    in a product, an acknowledgment in the product documentation would be
    appreciated but is not required.

 2. Altered source versions must be plainly marked as such, and must not be
    misrepresented as being the original software.

 3. This notice may not be removed or altered from any source distribution.

 Jean-loup Gailly   Mark Adler
 jloup@gzip.org   madler@alumni.caltech.edu

cfuhash

The implementation of the hash table used by the :mod:`tracemalloc` is based
on the cfuhash project::

  Copyright (c) 2005 Don Owens
  All rights reserved.

  This code is released under the BSD license:

  Redistribution and use in source and binary forms, with or without
  modification, are permitted provided that the following conditions
  are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

* Neither the name of the author nor the names of its
contributors
may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

libmpdec

The :mod:`_decimal` module is built using an included copy of the
libmpdec
library unless the build is configured ``--with-system-libmpdec``::

Copyright (c) 2008-2016 Stefan Krah. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS "AS IS" AND

ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

1.35 freerdp 2.0.0-rc4

1.35.1 Available under license :

Copyright (C) 2016 The Android Open Source Project

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.36 bzip2 1.0.8

1.37 ldns 1.7.1

1.37.1 Available under license :

Copyright (C) 2013 by UNINETT Norid AS

This library is free software; you can redistribute it and/or modify
it under the same terms as Perl itself, either Perl version 5.8.8 or,
at your option, any later version of Perl 5 you may have available.
Copyright (c) 2005,2006, NLnetLabs
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
* Neither the name of NLnetLabs nor the names of its
  contributors may be used to endorse or promote products derived from this
  software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO
 EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
#! /bin/sh
DO NOT EDIT - This file generated from ./build-aux/ltmain.in
by inline-source v2014-01-03.01

libtool (GNU libtool) 2.4.6
Provide generalized library-building support services.
Written by Gordon Matzigkeit <gord@gnu.ai.mit.edu>, 1996

Copyright (C) 1996-2015 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

GNU Libtool is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.
#
As a special exception to the GNU General Public License,
if you distribute this file as part of a program or library that
is built using GNU Libtool, you may include this file under the
same distribution terms that you use for the rest of that program.
#
GNU
 Libtool is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
General Public License for more details.
#
You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
This software is copyright (c) 2013 by UNINETT Norid AS. No
license is granted to other entities.

All rights reserved.
/* From openssh 4.3p2 filename openbsd-compat/fake-rfc2553.h */
/*
* Copyright (C) 2000-2003 Damien Miller. All rights reserved.
* Copyright (C) 1999 WIDE Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the project nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*   without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED
 WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

* ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
Copyright (c) 2011, Xelerance
Author: Christopher Olah <chris@xelerance.com>

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

  * Redistributions of source code must retain the above copyright notice,
    this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above copyright
    notice, this list of conditions and the following disclaimer in the
    documentation and/or other materials provided with the distribution.
  * Neither the name of Xelerance nor the names of its
    contributors may be used to endorse or promote products derived from this
    software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
 A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
/*
* FILE: sha2.c
* AUTHOR: Aaron D. Gifford - http://www.aarongifford.com/
*
* Copyright (c) 2000-2001, Aaron D. Gifford
* All rights reserved.
*
* Modified by Jelte Jansen to fit in ldns, and not clash with any
* system-defined SHA code.
* Changes:

* - Renamed (external) functions and constants to fit ldns style
* - Removed _End and _Data functions
* - Added ldns_shaX(data, len, digest) convenience functions
* - Removed prototypes of _Transform functions and made those static
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
 * 3. Neither the name of the copyright holder nor the names of contributors
*   may be used to endorse or promote products derived from this software
*   without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTOR(S) ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTOR(S) BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* $Id:
 sha2.c,v 1.1 2001/11/08 00:01:51 adg Exp adg $
*/
Copyright (c) 2005,2006, NLnetLabs
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

  * Redistributions of source code must retain the above copyright notice,
    this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above copyright
    notice, this list of conditions and the following disclaimer in the
    documentation and/or other materials provided with the distribution.
  * Neither the name of NLnetLabs nor the names of its
    contributors may be used to endorse or promote products derived from this
    software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"

AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
/* from openssh 4.3p2 compat/strlcpy.c */
/*
* Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>
*
* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
* WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
* ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
* ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
* OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
*/
Copyright (c) 2011, Xelerance
Author: Christopher Olah <chris@xelerance.com>

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
* Neither the name of Xelerance nor the names of its
  contributors may be used to endorse or promote products derived from this
  software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

/* From openssh4.3p2 compat/inet_aton.c */

/*

* Copyright (c) 1983, 1990, 1993

* The Regents of the University of California. All rights reserved.

*

* Redistribution and use in source and binary forms, with or without

* modification, are permitted provided that the following conditions

* are met:

* 1. Redistributions of source code must retain the above copyright

* notice, this list of conditions and the following disclaimer.

* 2. Redistributions in binary form must reproduce the above copyright

* notice, this list of conditions and the following disclaimer in the

* documentation and/or other materials provided with the distribution.

* 3. Neither the name of the University nor the names of its contributors

* may be used to endorse or promote products derived from this software

* without specific prior written permission.

*

* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND

* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE

* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE

* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL

* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS

* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)

* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT

* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY

* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF

* SUCH DAMAGE.

* -

* Portions Copyright (c) 1993 by Digital Equipment Corporation.

*

* Permission to use, copy, modify, and distribute this software for any

* purpose with or without fee is hereby granted, provided that the above

* copyright notice and this permission notice appear in all copies, and that

* the name of Digital Equipment Corporation not be used in

advertising or

* publicity pertaining to distribution of the document or software without

* specific, written prior permission.

*
* THE SOFTWARE IS PROVIDED "AS IS" AND DIGITAL EQUIPMENT CORP. DISCLAIMS ALL
* WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL DIGITAL EQUIPMENT
* CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
* DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
* PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
* ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
* SOFTWARE.
* -
* --Copyright--
*/
Copyright (c) 2009, Zdenek Vasicek (vasicek AT fit.vutbr.cz)
Karel Slany (slany AT fit.vutbr.cz)
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
* Neither the name of the organization nor the names of its
contributors may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

1.38 commons-collections 4.4

1.38.1 Available under license :

Apache Commons Collections
Copyright 2001-2019 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute

copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following

boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.39 zlib 1.2.8

1.39.1 Available under license :

/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.11, January 15th, 2017

Copyright (C) 1995-2017 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software
in a product, an acknowledgment in the product documentation would be
appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
misrepresented as being the original software.
3. This notice may not be removed or altered from any source
distribution.

Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

*/

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.40 dmidecode 3.5

1.40.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software

Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution
and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or

otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions

either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least

the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may

consider it more useful to permit linking proprietary applications with the
library. If this
 is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.41 speex 1.2beta3

1.41.1 Available under license :

Copyright 2002-2008 Xiph.org Foundation
Copyright 2002-2008 Jean-Marc Valin
Copyright 2005-2007 Analog Devices Inc.
Copyright 2005-2008 Commonwealth Scientific and Industrial Research
                    Organisation (CSIRO)
Copyright 1993, 2002, 2006 David Rowe
Copyright 2003   EpicGames
Copyright 1992-1994 Jutta Degener, Carsten Bormann

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

- Neither the name of the Xiph.org Foundation nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written
 permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.42 libevent 2.1.8

1.42.1 Available under license :

Libevent is available for use under the following license, commonly known
as the 3-clause (or "modified") BSD license:

==========

Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu>
Copyright (c) 2007-2012 Niels Provos and Nick Mathewson

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING,
 BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
==========

Portions of Libevent are based on works by others, also made available by
them under the three-clause BSD license above. The copyright notices are
available in the corresponding source files; the license is as above. Here's
a list:

log.c:
  Copyright (c) 2000 Dug Song <dugsong@monkey.org>
  Copyright (c) 1993 The Regents of the University of California.

strlcpy.c:
   Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>

win32select.c:

Copyright (c) 2003 Michael A. Davis <mike@datanerds.net>

evport.c:
Copyright (c) 2007 Sun Microsystems

ht-internal.h:
Copyright (c) 2002 Christopher Clark

minheap-internal.h:
Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com>

==========

The arc4module is available under the following, sometimes called the
"OpenBSD" license:

Copyright (c) 1996, David Mazieres <dm@uun.org>
Copyright (c) 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR
BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

==========

The Windows timer code is based on code from libutp, which is
distributed under this license, sometimes called the "MIT" license.

Copyright (c) 2010 BitTorrent, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be

included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CMake - Cross Platform Makefile Generator
Copyright 2000-2013 Kitware, Inc.
Copyright 2000-2011 Insight Software Consortium
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the names of Kitware, Inc., the Insight Software Consortium,
nor the names of their contributors may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The above copyright and license notice applies to distributions of
CMake in source and binary form. Some source files contain additional

notices of original copyright by their contributors; see each source
for details. Third-party software packages supplied with CMake under
compatible licenses provide their
 own copyright notices documented in
corresponding subdirectories.

CMake was initially developed by Kitware with the following sponsorship:

* National Library of Medicine at the National Institutes of Health
  as part of the Insight Segmentation and Registration Toolkit (ITK).

* US National Labs (Los Alamos, Livermore, Sandia) ASC Parallel
  Visualization Initiative.

* National Alliance for Medical Image Computing (NAMIC) is funded by the
  National Institutes of Health through the NIH Roadmap for Medical Research,
  Grant U54 EB005149.

* Kitware, Inc.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.43 pcre 8.39

1.43.1 Available under license :

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as specified below. The documentation for PCRE, supplied in the "doc" directory, is distributed under the same terms as the software itself. The data in the testdata directory is not copyrighted and is in the public domain.

The basic library functions are written in C and are freestanding. Also included in the distribution is a set of C++ wrapper functions, and a just-in-time compiler that can be used to optimize pattern matching. These are both optional features that can be omitted when the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

Copyright (c) 1997-2019 University
of Cambridge
All rights reserved.

PCRE JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2010-2019 Zoltan Herczeg
All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2009-2019 Zoltan Herczeg
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2012, Google Inc.
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce
the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the name of Google
Inc. nor the names of their contributors may be used to endorse or
promote products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT,

STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

End
PCRE LICENCE

Please see the file LICENCE in the PCRE distribution for licensing details.

End
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.44 ethtool 4.6

1.44.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.)
You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients
all the rights that
you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger
that redistributors of a free
program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third

parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be

distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a

special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate
your rights under this License.
However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license

from the
original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license
would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software
distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author

to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'. This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than 'show w' and 'show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your

school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program 'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General
Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

1.45 json-c 0.12.1

1.45.1 Available under license :

Copyright (c) 2009-2012 Eric Haszlakiewicz

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2004, 2005 Metaparadigm Pte Ltd

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE

FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.46 glibc 2.23

1.46.1 Available under license :

@c The GNU Lesser General Public License.
@center Version 2.1, February 1999

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence the
version number 2.1.]
@end display

@subheading Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software---to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software---typically
libraries---of the Free
Software Foundation and other authors who decide to use it. You can use
it too, but we suggest you first think carefully about whether this
license or the ordinary General Public License is the better strategy to
use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of it
in new free programs; and that you are informed that you can do these

things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General

Public License permits more lax criteria for linking other code with
the library.

We call this license the @dfn{Lesser} General Public License because it
does @emph{Less} to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the
same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
``work based on the library'' and a ``work that uses the library''. The
former
contains code derived from the library, whereas the latter must
be combined with the library in order to run.

@subheading TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0
@item
This License Agreement applies to any software library or other program
which contains a notice placed by the copyright holder or other
authorized party saying it may be distributed under the terms of this
Lesser General Public License (also called ``this License''). Each
licensee is addressed as ``you''.

A ``library'' means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The ``Library'', below, refers to any such software library or work which has been distributed under these terms. A ``work based on the Library'' means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it,
either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term ``modification''.)

``Source code'' for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

@item
You may copy and distribute
verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

@item
You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

@enumerate a
@item
The modified work must itself be a software library.

@item
You must cause the files modified to carry prominent notices
stating that you changed the files and the date of any change.

@item
You must
 cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

@item
If a facility in the modified Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)
@end enumerate

These requirements apply to the modified work as a whole. If
identifiable sections
 of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library

with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this
License.

@item
You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

@item
You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and
2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

@item
A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a ``work that uses the Library''. Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a ``work that uses the Library'' with the Library
creates an executable that is a derivative of the Library (because
it
contains portions of the Library), rather than a ``work that uses the

library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a ``work that uses the Library'' uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise,
if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

@item
As an exception to the Sections above, you may also combine or
link a ``work that uses the Library'' with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of
this License. Also, you must do one
of these things:

@enumerate a
@item
Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable ``work that
uses the Library'', as object code and/or source code, so that the

user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

@item
Use a suitable shared library mechanism for linking with the Library. A
suitable mechanism is one that (1) uses at run time a copy of the
library already present on the user's computer system, rather than
copying library functions into the executable,
 and (2) will operate
properly with a modified version of the library, if the user installs
one, as long as the modified version is interface-compatible with the
version that the work was made with.

@item
Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

@item
If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

@item
Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.
@end enumerate

 For an executable, the required form of the ``work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that
 is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies the
executable.

 It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

@item
You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

@enumerate a
@item
Accompany the combined library with a copy of the same work
based on the Library,
 uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

@item
Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.
@end enumerate

@item
You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

@item
You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited
 by law if you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

@item
Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.

You are not responsible for enforcing compliance by third parties with
this License.

@item
If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License,
 they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software
 distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

@item
If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

@item
The Free Software Foundation

may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
``any later version'', you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

@item
If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

@center @b{NO WARRANTY}

@item
BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY ``AS IS'' WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

@item
IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH

DAMAGES.
@end enumerate

@subheading END OF TERMS AND CONDITIONS

@page
@subheading How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source
file to most effectively
convey the exclusion of warranty; and each file should have at least the
``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}

This library is free software; you can redistribute it and/or modify it
under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1 of the License, or (at
your option) any later version.

This library is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301,
USA.
@end
smallexample

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a ``copyright disclaimer'' for the library, if
necessary. Here is a sample; alter the names:

@smallexample

Yoyodyne, Inc., hereby disclaims all copyright interest in the library
`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample

That's all there is to it!
Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.
GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some

specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The

former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to

exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that

uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood

that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to

refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our

decision
will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law:

that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to

control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For

example, if a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to
decide if he or she is willing
to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

@c The GNU Free Documentation License.
@center Version 1.3, 3 November 2008

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
@uref{http://fsf.org/}

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@enumerate 0
@item
PREAMBLE

The purpose of this License is to make a manual, textbook, or other
functional and useful document @dfn{free} in the sense of freedom: to
assure everyone the effective freedom to copy and redistribute it,
with or without modifying it, either commercially or noncommercially.
Secondarily, this License preserves for the author and publisher a way
to get credit for their work, while not being considered responsible
for modifications made by others.

This License is a kind of ``copyleft'', which means that derivative
works of the document
 must themselves be free in the same sense. It
complements the GNU General Public License, which is a copyleft
license designed for free software.

We have designed this License in order to use it for manuals for free
software, because free software needs free documentation: a free
program should come with manuals providing the same freedoms that the
software does. But this License is not limited to software manuals;
it can be used for any textual work, regardless of subject matter or
whether it is published as a printed book. We recommend this License
principally for works whose purpose is instruction or reference.

@item
APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that
contains a notice placed by the copyright holder saying it can be
distributed under the terms of this License. Such a notice grants a
world-wide, royalty-free license, unlimited in duration, to use that
work under the conditions stated herein. The ``Document'', below,

refers
to any such manual or work. Any member of the public is a
licensee, and is addressed as ``you''. You accept the license if you
copy, modify or distribute the work in a way requiring permission
under copyright law.

A ``Modified Version'' of the Document means any work containing the
Document or a portion of it, either copied verbatim, or with
modifications and/or translated into another language.

A ``Secondary Section'' is a named appendix or a front-matter section
of the Document that deals exclusively with the relationship of the
publishers or authors of the Document to the Document's overall
subject (or to related matters) and contains nothing that could fall
directly within that overall subject. (Thus, if the Document is in
part a textbook of mathematics, a Secondary Section may not explain
any mathematics.) The relationship could be a matter of historical
connection with the subject or with related matters, or of legal,
commercial, philosophical, ethical or political
position regarding
them.

The ``Invariant Sections'' are certain Secondary Sections whose titles
are designated, as being those of Invariant Sections, in the notice
that says that the Document is released under this License. If a
section does not fit the above definition of Secondary then it is not
allowed to be designated as Invariant. The Document may contain zero
Invariant Sections. If the Document does not identify any Invariant
Sections then there are none.

The ``Cover Texts'' are certain short passages of text that are listed,
as Front-Cover Texts or Back-Cover Texts, in the notice that says that
the Document is released under this License. A Front-Cover Text may
be at most 5 words, and a Back-Cover Text may be at most 25 words.

A ``Transparent'' copy of the Document means a machine-readable copy,
represented in a format whose specification is available to the
general public, that is suitable for revising the document
straightforwardly with generic text editors or (for
images composed of
pixels) generic paint programs or (for drawings) some widely available
drawing editor, and that is suitable for input to text formatters or
for automatic translation to a variety of formats suitable for input
to text formatters. A copy made in an otherwise Transparent file
format whose markup, or absence of markup, has been arranged to thwart
or discourage subsequent modification by readers is not Transparent.
An image format is not Transparent if used for any substantial amount
of text. A copy that is not ``Transparent'' is called ``Opaque''.

Examples of suitable formats for Transparent copies include plain
ASCII without markup, Texinfo input format, La@TeX{} input
format, SGML or XML using a publicly available
DTD, and standard-conforming simple HTML,
PostScript or PDF designed for human modification. Examples
of transparent image formats include PNG, XCF and
JPG. Opaque formats include proprietary formats that can be
read and edited only by proprietary word
 processors, SGML or
XML for which the DTD and/or processing tools are
not generally available, and the machine-generated HTML,
PostScript or PDF produced by some word processors for
output purposes only.

The ``Title Page'' means, for a printed book, the title page itself,
plus such following pages as are needed to hold, legibly, the material
this License requires to appear in the title page. For works in
formats which do not have any title page as such, ``Title Page'' means
the text near the most prominent appearance of the work's title,
preceding the beginning of the body of the text.

The ``publisher'' means any person or entity that distributes copies
of the Document to the public.

A section ``Entitled XYZ'' means a named subunit of the Document whose
title either is precisely XYZ or contains XYZ in parentheses following
text that translates XYZ in another language. (Here XYZ stands for a
specific section name mentioned below, such as ``Acknowledgements'',
``Dedications'', ``Endorsements'',
 or ``History''.)  To ``Preserve the Title''
of such a section when you modify the Document means that it remains a
section ``Entitled XYZ'' according to this definition.

The Document may include Warranty Disclaimers next to the notice which
states that this License applies to the Document. These Warranty
Disclaimers are considered to be included by reference in this
License, but only as regards disclaiming warranties: any other
implication that these Warranty Disclaimers may have is void and has
no effect on the meaning of this License.

@item
VERBATIM COPYING

You may copy and distribute the Document in any medium, either
commercially or noncommercially, provided that this License, the
copyright notices, and the license notice saying this License applies
to the Document are reproduced in all copies, and that you add no other

conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

@item
COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give

them a chance to provide you with an updated version of the Document.

@item
MODIFICATIONS

You may copy and distribute a Modified Version of the Document under
the conditions of sections 2 and 3 above, provided that you release
the Modified Version under precisely this License, with the Modified
Version filling the role of the Document, thus licensing distribution
and modification of the Modified Version to whoever possesses a copy
of it. In addition, you must do these things in the Modified Version:

@enumerate A
@item
Use in the Title Page (and on the covers, if any) a title distinct
from that of the Document, and from those of previous versions
(which should, if there were any, be listed in the History section
of the Document). You may use the same
 title as a previous version
if the original publisher of that version gives permission.

@item
List on the Title Page, as authors, one or more persons or entities
responsible for authorship of the modifications in the Modified
Version, together with at least five of the principal authors of the
Document (all of its principal authors, if it has fewer than five),
unless they release you from this requirement.

@item
State on the Title page the name of the publisher of the
Modified Version, as the publisher.

@item
Preserve all the copyright notices of the Document.

@item
Add an appropriate copyright notice for your modifications
adjacent to the other copyright notices.

@item
Include, immediately after the copyright notices, a license notice
giving the public permission to use the Modified Version under the
terms of this License, in the form shown in the Addendum below.

@item
Preserve in that license notice the full lists of Invariant Sections
and required Cover Texts given in the Document's

license notice.

@item
Include an unaltered copy of this License.

@item
Preserve the section Entitled ``History'', Preserve its Title, and add
to it an item stating at least the title, year, new authors, and
publisher of the Modified Version as given on the Title Page. If
there is no section Entitled ``History'' in the Document, create one
stating the title, year, authors, and publisher of the Document as
given on its Title Page, then add an item describing the Modified
Version as stated in the previous sentence.

@item
Preserve the network location, if any, given in the Document for
public access to a Transparent copy of the Document, and likewise
the network locations given in the Document for previous versions
it was based on. These may be placed in the ``History'' section.
You may omit a network location for a work that was published at
least four years before the Document itself, or if the original
publisher of the version it refers to gives permission.

@item
For any
section Entitled ``Acknowledgements'' or ``Dedications'', Preserve
the Title of the section, and preserve in the section all the
substance and tone of each of the contributor acknowledgements and/or
dedications given therein.

@item
Preserve all the Invariant Sections of the Document,
unaltered in their text and in their titles. Section numbers
or the equivalent are not considered part of the section titles.

@item
Delete any section Entitled ``Endorsements''. Such a section
may not be included in the Modified Version.

@item
Do not retitle any existing section to be Entitled ``Endorsements'' or
to conflict in title with any Invariant Section.

@item
Preserve any Warranty Disclaimers.
@end enumerate

If the Modified Version includes new front-matter sections or

appendices that qualify as Secondary Sections and contain no material
copied from the Document, you may at your option designate some or all
of these sections as invariant. To do this, add their titles to the
list of Invariant
 Sections in the Modified Version's license notice.
These titles must be distinct from any other section titles.

You may add a section Entitled ``Endorsements", provided it contains
nothing but endorsements of your Modified Version by various
parties---for example, statements of peer review or that the text has
been approved by an organization as the authoritative definition of a
standard.

You may add a passage of up to five words as a Front-Cover Text, and a
passage of up to 25 words as a Back-Cover Text, to the end of the list
of Cover Texts in the Modified Version. Only one passage of
Front-Cover Text and one of Back-Cover Text may be added by (or
through arrangements made by) any one entity. If the Document already
includes a cover text for the same cover, previously added by you or
by arrangement made by the same entity you are acting on behalf of,
you may not add another; but you may replace the old one, on explicit
permission from the previous publisher that added the old
 one.

The author(s) and publisher(s) of the Document do not by this License
give permission to use their names for publicity for or to assert or
imply endorsement of any Modified Version.

@item
COMBINING DOCUMENTS

You may combine the Document with other documents released under this
License, under the terms defined in section 4 above for modified
versions, provided that you include in the combination all of the
Invariant Sections of all of the original documents, unmodified, and
list them all as Invariant Sections of your combined work in its
license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and
multiple identical Invariant Sections may be replaced with a single
copy. If there are multiple Invariant Sections with the same name but
different contents, make the title of each such section unique by
adding at the end of it, in parentheses, the name of the original
author or publisher of that section if known,
 or else a unique number.
Make the same adjustment to the section titles in the list of
Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled ``History''
in the various original documents, forming one section Entitled
``History''; likewise combine any sections Entitled ``Acknowledgements'',
and any sections Entitled ``Dedications''. You must delete all
sections Entitled ``Endorsements.''

@item
COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents
released under this License, and replace the individual copies of this
License in the various documents with a single copy that is included in
the collection, provided that you follow the rules of this License for
verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute
it individually under this License, provided you insert a copy of this
License
 into the extracted document, and follow this License in all
other respects regarding verbatim copying of that document.

@item
AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate
and independent documents or works, in or on a volume of a storage or
distribution medium, is called an ``aggregate'' if the copyright
resulting from the compilation is not used to limit the legal rights
of the compilation's users beyond what the individual works permit.
When the Document is included in an aggregate, this License does not
apply to the other works in the aggregate which are not themselves
derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these
copies of the Document, then if the Document is less than one half of
the entire aggregate, the Document's Cover Texts may be placed on
covers that bracket the Document within the aggregate, or the
electronic equivalent of covers if the Document is in electronic
 form.
Otherwise they must appear on printed covers that bracket the whole
aggregate.

@item
TRANSLATION

Translation is considered a kind of modification, so you may
distribute translations of the Document under the terms of section 4.
Replacing Invariant Sections with translations requires special

permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled ``Acknowledgements'', ``Dedications'', or ``History'', the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

@item
TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, or distribute it is void, and will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, receipt of a copy of some or all of the same material does not give you any rights to use it.

@item
FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions
of the GNU Free Documentation License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns. See
@uref{http://www.gnu.org/copyleft/}.

Each version of the License is given a distinguishing version number.
If the Document specifies that a particular numbered version of this
License ``or any later version'' applies to it, you have the option of
following the terms and
 conditions either of that specified version or
of any later version that has been published (not as a draft) by the
Free Software Foundation. If the Document does not specify a version
number of this License, you may choose any version ever published (not
as a draft) by the Free Software Foundation. If the Document
specifies that a proxy can decide which future versions of this
License can be used, that proxy's public statement of acceptance of a
version permanently authorizes you to choose that version for the
Document.

@item
RELICENSING

``Massive Multiauthor Collaboration Site'' (or ``MMC Site'') means any
World Wide Web server that publishes copyrightable works and also
provides prominent facilities for anybody to edit those works. A
public wiki that anybody can edit is an example of such a server. A
``Massive Multiauthor Collaboration'' (or ``MMC'') contained in the
site means any set of copyrightable works thus published on the MMC
site.

``CC-BY-SA'' means the Creative Commons
 Attribution-Share Alike 3.0
license published by Creative Commons Corporation, a not-for-profit
corporation with a principal place of business in San Francisco,
California, as well as future copyleft versions of that license
published by that same organization.

``Incorporate'' means to publish or republish a Document, in whole or
in part, as part of another Document.

An MMC is ``eligible for relicensing'' if it is licensed under this
License, and if all works that were first published under this License
somewhere other than this MMC, and subsequently incorporated in whole
or in part into the MMC, (1) had no cover texts or invariant sections,
and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site

under CC-BY-SA on the same site at any time before August 1, 2009,
provided the MMC is eligible for relicensing.

@end enumerate

@page
@heading ADDENDUM: How to use this License for your documents

To use this License
 in a document you have written, include a copy of
the License in the document and put the following copyright and
license notices just after the title page:

@smallexample
@group
 Copyright (C) @var{year} @var{your name}.
 Permission is granted to copy, distribute and/or modify this document
 under the terms of the GNU Free Documentation License, Version 1.3
 or any later version published by the Free Software Foundation;
 with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
 Texts. A copy of the license is included in the section entitled ``GNU
 Free Documentation License".
@end group
@end smallexample

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts."@: line with this:

@smallexample
@group
   with the Invariant Sections being @var{list their titles}, with
   the Front-Cover Texts being @var{list}, and with the Back-Cover Texts
   being @var{list}.
@end group
@end smallexample

If you have Invariant
 Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"

@c End:
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories http://www.unicode.org/Public/, http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF online code charts under the directory http://www.unicode.org/Public/. Software includes any source code published in the Unicode Standard or under the directories http://www.unicode.org/Public/, http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode, Inc. All rights reserved. Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that (a) the above copyright notice(s) and this permission notice appear with all copies of the Data Files or Software, (b) both the above copyright notice(s) and this permission notice appear in associated documentation, and (c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

This file contains the copying permission notices for various files in the GNU C Library distribution that have copyright owners other than the Free Software Foundation. These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC

Berkeley, by Digital Equipment Corporation and by Internet Software Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies, and that the name of Digital Equipment Corporation not be used in advertising or publicity pertaining to distribution of the document or software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS" AND DIGITAL EQUIPMENT CORP. DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES
OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials
  provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
 both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science

Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the
 above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER
IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized
Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse
 or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright
(C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
 Version 2.00

 The author(s) grant permission for redistribution and use in source and
binary forms, with or without modification, of the software and documentation
provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled
  as not being for redistribution (check the version message and/or README),
  you are not permitted to redistribute that version of the software in any
  way or form.
1. All terms of the all other applicable copyrights and licenses must be
  followed.
2. Redistributions of source code must retain the authors' copyright
  notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright
  notice(s), this list of conditions, and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s)

of the author(s) nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young
Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please
see <http://www.gnu.org/licenses/> to obtain a copy.

The libidn code is copyright Simon Josefsson, with portions copyright
The Internet Society, Tom Tromey and Red Hat, Inc.:

Copyright (C) 2002, 2003, 2004, 2011 Simon Josefsson

This file is part of GNU Libidn.

GNU Libidn is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

GNU Libidn is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY
or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with GNU Libidn; if not, see <http://www.gnu.org/licenses/>.

The following notice applies to portions of libidn/nfkc.c:

This file contains functions from GLIB, including gutf8.c and
gunidecomp.c, all licensed under LGPL and copyright hold by:

Copyright (C) 1999, 2000 Tom Tromey
Copyright 2000 Red Hat, Inc.

The following applies to portions of libidn/punycode.c and
libidn/punycode.h:

This file is derived from RFC 3492bis written by Adam M. Costello.

Disclaimer and license: Regarding this entire document or any
portion of it (including the pseudocode and C code), the author
makes no guarantees and is not responsible for any damage resulting
from its use. The author grants irrevocable permission to anyone
to use, modify, and distribute it in any way that does not diminish
the rights of anyone else
to use, modify, and distribute it,
provided that redistributed derivative works do not contain
misleading author or version information. Derivative works need
not be licensed under similar terms.

Copyright (C) The Internet Society (2003). All Rights Reserved.

This document and translations of it may be copied and furnished to
others, and derivative works that comment on or otherwise explain it
or assist in its implementation may be prepared, copied, published
and distributed, in whole or in part, without restriction of any
kind, provided that the above copyright notice and this paragraph are
included on all such copies and derivative works. However, this
document itself may not be modified in any way, such as by removing
the copyright notice or references to the Internet Society or other
Internet organizations, except as needed for the purpose of
developing Internet standards in which case the procedures for
copyrights defined in the Internet Standards process must be
followed,
or as required to translate it into languages other than
English.

The limited permissions granted above are perpetual and will not be
revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an
"AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING
TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING
BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION

HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright 1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of the copyright holder not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented
as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any
computer system, and to redistribute it freely, subject to the following
restrictions:

1. This software is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. In practice, this means that if you use
PCRE in software that you distribute to others, commercially or

otherwise, you must put a sentence like this

Regular expression support is provided by the PCRE library package,
which is open source software,
written by Philip Hazel, and copyright
by the University of Cambridge, England.

somewhere reasonably visible in your documentation and in any relevant
files or online help data or similar. A reference to the ftp site for
the source, that is, to

ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

should also be given in the documentation. However, this condition is not
intended to apply to whole chains of software. If package A includes PCRE,
it must acknowledge it, but if package B is software that includes package
A, the condition is not imposed on package B (unless it uses PCRE
independently).

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU
General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL),
then the terms of that licence shall supersede any condition above with
which it is incompatible.

Files
from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems, Inc. business.
Permission to use, copy, modify, and distribute this
software is freely granted, provided that this notice
is preserved.

Part of stdio-common/tst-printf.c is copyright C E Chew:

(C) Copyright C E Chew

Feel free to copy, use and distribute this software provided:

1. you do not pretend that you wrote it
2. you leave this copyright notice intact.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be
 useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<http://www.gnu.org/licenses/>. */

1.47 busybox 1.25.0

1.47.1 Available under license :

bzip2 applet in busybox is based on lightly-modified source
of bzip2 version 1.0.4. bzip2 source is distributed
under the following conditions (copied verbatim from LICENSE file)
==

This program, "bzip2", the associated library "libbzip2", and all
documentation, are copyright (C) 1996-2006 Julian R Seward. All
rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must
  not claim that you wrote the original software. If you use this
  software in a product, an acknowledgment in the product
  documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must
  not be misrepresented
 as being the original software.

4. The name of the author may not be used to endorse or promote

products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, Cambridge, UK.
jseward@bzip.org
bzip2/libbzip2 version 1.0.4 of 20 December 2006
--- A note on GPL versions

BusyBox is distributed under version 2 of the General Public License (included
in its entirety, below). Version 2 is the only version of this license which
this version of BusyBox (or modified versions derived from this one) may be
distributed under.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's
software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not

price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it,

either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a

special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent

license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity
of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author

to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make
exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED
ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify

it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice
like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of
Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.48 sqlite 3.7.14.1

1.48.1 Available under license :

The author disclaims copyright to this source code. In place of
a legal notice, here is a blessing:

May you do good and not evil.
May you find forgiveness for yourself and forgive others.
May you share freely, never taking more than you give.

1.49 c-ares 1.12.1-DEV

1.49.1 Available under license :

c-ares license

Copyright (c) 2007 - 2018, Daniel Stenberg with many contributors, see AUTHORS file.

Copyright 1998 by the Massachusetts Institute of Technology.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T. makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

1.50 hd-parm 9.48

1.50.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public

License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public
Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish,
that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively

when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can
be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program
(or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer

to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to

this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY
OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it

free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical
commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
BSD-Style Open Source License:

You may freely use, modify, and redistribute the hdparm program,
as either binary or source, or both.

The only condition is that my name and copyright notice
remain in the source code as-is.

Mark Lord (mlord@pobox.com)
This package was debianized by Christopher L Cheney <ccheney@debian.org> on
Wed, 21 Nov 2001 15:51:14 -0600.

It was downloaded from http://www.ibiblio.org/pub/Linux/system/hardware

Upstream Author: Mark S. Lord <mlord@pobox.com>

Copyright:

/* hdparm.c - Command line interface to get/set hard disk parameters */
/*   - by Mark Lord 1994-2008 -- freely distributable */

You are free to distribute this software under the terms of the BSD License.
On Debian systems, the complete text of the BSD License can be found in
/usr/share/common-licenses/BSD

1.51 pixman 0.32.6

1.51.1 Available under license :

The following is the MIT license, agreed upon by most contributors.
Copyright holders of new code should use this license statement where
possible. They may also add themselves to the list below.

/*
* Copyright 1987, 1988, 1989, 1998 The Open Group
* Copyright 1987, 1988, 1989 Digital Equipment Corporation
* Copyright 1999, 2004, 2008 Keith Packard
* Copyright 2000 SuSE, Inc.
* Copyright 2000 Keith Packard, member of The XFree86 Project, Inc.

* Copyright 2004, 2005, 2007, 2008, 2009, 2010 Red Hat, Inc.
* Copyright 2004 Nicholas Miell
* Copyright 2005 Lars Knoll & Zack Rusin, Trolltech
* Copyright 2005 Trolltech AS
* Copyright 2007 Luca Barbato
* Copyright 2008 Aaron Plattner, NVIDIA Corporation
* Copyright 2008 Rodrigo Kumpera
* Copyright 2008 Andr Tupinamb
* Copyright 2008 Mozilla Corporation
* Copyright 2008 Frederic Plourde
* Copyright 2009, Oracle and/or its affiliates. All rights reserved.
* Copyright 2009, 2010 Nokia Corporation
*
* Permission is hereby granted,
 free of charge, to any person obtaining a
* copy of this software and associated documentation files (the "Software"),
* to deal in the Software without restriction, including without limitation
* the rights to use, copy, modify, merge, publish, distribute, sublicense,
* and/or sell copies of the Software, and to permit persons to whom the
* Software is furnished to do so, subject to the following conditions:
*
* The above copyright notice and this permission notice (including the next
* paragraph) shall be included in all copies or substantial portions of the
* Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
* IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
* FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL
* THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
* LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
* FROM, OUT OF OR IN
 CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
* DEALINGS IN THE SOFTWARE.
*/

1.52 c-ares 1.2.5

1.52.1 Available under license :

c-ares license

Copyright (c) 2007 - 2018, Daniel Stenberg with many contributors, see AUTHORS
file.

Copyright 1998 by the Massachusetts Institute of Technology.

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted, provided that

the above copyright notice appear in all copies and that both that copyright
notice and this permission notice appear in supporting documentation, and that
the name of M.I.T. not be used in advertising or publicity pertaining to
distribution of the software without specific, written prior permission.
M.I.T. makes no representations about the suitability of this software for any
purpose. It is provided "as is" without express or implied warranty.

1.53 libffi 3.2.1

1.53.1 Available under license :

libffi - Copyright (c) 1996-2014 Anthony Green, Red Hat, Inc and others.
See source files for details.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
``Software''), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ``AS IS'', WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF
 CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.54 bridgeutils 1.5

1.54.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and

modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole or
in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further

restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will

be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show
c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program

`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

1.55 ipmi-tool 1.8.18

1.55.1 Available under license :

Copyright (c) 2003 Sun Microsystems, Inc. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistribution of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistribution in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of Sun Microsystems, Inc. or the names of contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided "AS IS," without a warranty of any kind.
ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE HEREBY EXCLUDED.
SUN MICROSYSTEMS,
INC. ("SUN") AND ITS LICENSORS SHALL NOT BE LIABLE
FOR ANY DAMAGES SUFFERED BY LICENSEE AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THIS SOFTWARE OR ITS DERIVATIVES. IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF THE USE OF OR INABILITY TO USE THIS SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

1.56 apr 1.6.5

1.56.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE PORTABLE RUNTIME SUBCOMPONENTS:

The Apache Portable Runtime includes a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for these subcomponents is subject to the terms and conditions
of the following licenses.

From strings/apr_fnmatch.c, include/apr_fnmatch.h, misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

/*
* Copyright (c) 1987, 1993, 1994
* The Regents of the University of California. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software

* must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
* may be used to endorse or promote products derived from this software
* without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.

From network_io/unix/inet_ntop.c, network_io/unix/inet_pton.c:

/* Copyright (c) 1996 by Internet Software Consortium.
*
* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE
CONSORTIUM DISCLAIMS
* ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
* CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
* DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
* PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
* ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
* SOFTWARE.

From dso/aix/dso.c:

* Based on libdl (dlfcn.c/dlfcn.h) which is
* Copyright (c) 1992,1993,1995,1996,1997,1988
* Jens-Uwe Mager, Helios Software GmbH, Hannover, Germany.
*
* Not derived from licensed software.
*
* Permission is granted to freely use, copy, modify, and redistribute
* this software, provided that the author is not construed to be liable

* for any results of using the software, alterations are clearly marked
* as such, and this notice is not modified.

From strings/apr_strnatcmp.c,
include/apr_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.
Copyright (C) 2000 by Martin Pool <mbp@humbug.org.au>

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not
   claim that you wrote the original software. If you use this software
   in a product, an acknowledgment in the product documentation would be
   appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
   misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

From
strings/apr_snprintf.c:

*
* cvt - IEEE floating point formatting routines.
* Derived from UNIX V7, Copyright(C) Caldera International Inc.
*

Copyright(C) Caldera International Inc. 2001-2002. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

Redistributions of source code and documentation must retain the above
copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

All advertising materials mentioning features or use of this software
must display the following acknowledgement:

This product includes software developed or owned by Caldera
International, Inc.

Neither the name of Caldera International,
Inc. nor the names of other
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

USE OF THE SOFTWARE PROVIDED FOR UNDER THIS LICENSE BY CALDERA
INTERNATIONAL, INC. AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN
NO EVENT SHALL CALDERA INTERNATIONAL, INC. BE LIABLE FOR ANY DIRECT,
INDIRECT INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
Apache Portable Runtime
Copyright (c) 2000-2019 The Apache Software Foundation.

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Portions of this software were developed at the National Center
for Supercomputing Applications (NCSA) at the University of
Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security
Inc. MD5 Message-Digest Algorithm.

This software contains code derived from UNIX V7, Copyright(C)
Caldera International Inc.

1.57 rsyslog 7.6.7

1.57.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new

free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official

standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product,

doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire

Program shall
be treated as though they were included in this License, to the extent
that they are valid under applicable law. If additional permissions
apply only to part of the Program, that part may be used separately
under those permissions, but the entire Program remains governed by
this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option
remove any additional permissions from that copy, or from any part of
it. (Additional permissions may be written to require their own
removal in certain cases when you modify the work.) You may place
additional permissions on material, added by you to a covered work,
for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you
add to a covered work, you may (if authorized by the copyright holders of
that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on
those
licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains

a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work

occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10.
Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted
or affirmed under this License. For example, you may
not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor
version. For
purposes of this definition, "control" includes the right to grant

patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory

patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General
Public License "or any later version" applies to it, you
have the
option of following the terms and conditions either of that numbered
version or of any later version published by the Free Software
Foundation. If the Program does not specify a version number of the

GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert
copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready
to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients"
may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work

in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of
an executable work include anything, other
than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to

produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs
which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only
if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7

additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate"
if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you
offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This

alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because

modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you

add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms
of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive
additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to
30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each
time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an

organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license,

and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a

covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING,
BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty
and limitation of liability provided
above cannot be given local legal effect according to their terms,
reviewing courts shall apply local law that most closely approximates
an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a
brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with
ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License. But first,
please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean
the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such

Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
2. You must cause any modified files to carry prominent notices stating that You changed the files; and
3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright,
patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text
from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks,
service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR

PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

1.58 attr 2.4.48-4

1.58.1 Available under license :

Most components of the "attr" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see below).
below.

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see COPYING).

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public

Licenses are intended to guarantee your
freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions
that forbid
distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free
library. Also, if the library is
modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a

restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries
into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a
certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions
for copying, distribution and
modification follow. Pay close attention to the difference between a
"work based on the library" and a "work that uses the library". The
former contains code derived from the library, whereas the latter must
be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other
program which contains a notice placed by the copyright holder or
other authorized party saying it may be distributed under the terms of
this Lesser General Public License (also called "this License").
Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data
prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work
which has been distributed
under these terms. A "work based on the
Library" means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated
straightforwardly into another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for
making modifications to it. For a library, complete source code means
all the source code for all modules it contains, plus any associated
interface definition files, plus the scripts used to control compilation
and installation of the library.

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running a program using the Library is not restricted, and output from
such a program is covered only if its contents constitute a work based
on the Library (independent of the use
of the Library in a tool for
writing it). Whether that is true depends on what the Library does
and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that
you conspicuously and appropriately publish on each copy an

appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote

it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere
aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library
into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of

the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file
is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of
this License. If the work
during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under

Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined

library, provided that the separate
distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work
based on the Library, uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such
parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited by law if you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

11. If, as a
consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you

may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free

programs
whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE
COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these
terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License
for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Most components of the "attr" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see COPYING.LGPL).

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see below),

---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software
and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients
all the rights that
you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that

any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its
scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications
or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if
the Program itself is interactive but
does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works
based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections
1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions
are
prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation
may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision
will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License
does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.59 audit 2.8.4-3

1.59.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors
who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.
^L
Finally,
software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.
^L

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly
into another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control
compilation
and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it,
in any medium, provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and
can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of

a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

^L

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file

that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the

Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2)

will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License,
they do not
excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other

circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software
distribution system which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation
may publish revised and/or new
versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS
PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source
file to most
effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or

modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor,
Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper
mail.

You should also get your employer (if you work as a programmer) or
your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James
Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to

your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free

Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may

consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

1.60 pcre 8.39-12

1.60.1 Available under license :

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as specified below. The documentation for PCRE, supplied in the "doc" directory, is distributed under the same terms as the software itself. The data in the testdata directory is not copyrighted and is in the public domain.

The basic library functions are written in C and are freestanding. Also included in the distribution is a set of C++ wrapper functions, and a just-in-time compiler that can be used to optimize pattern matching. These are both optional features that can be omitted when the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

Copyright (c) 1997-2019 University
 of Cambridge
All rights reserved.

PCRE JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2010-2019 Zoltan Herczeg

All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2009-2019 Zoltan Herczeg
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2012, Google Inc.
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce
the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the name of Google
Inc. nor the names of their contributors may be used to endorse or
promote products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF

SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

End
PCRE LICENCE

Please see the file LICENCE in the PCRE distribution for licensing details.

End
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.61 coreutils 8.30-3

1.61.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic

pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other

parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those

subprograms and other parts of the work.

The Corresponding Source need not include anything that users
can regenerate automatically from other parts of the Corresponding
Source.

The Corresponding Source for a work in source code form is that
same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of
copyright on the Program, and are irrevocable provided the stated
conditions are met. This License explicitly affirms your unlimited
permission to run the unmodified Program. The output from running a
covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your
rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not
convey, without conditions so long as your license otherwise remains
in force. You may convey covered works to others for the sole purpose
of having them make modifications exclusively for you, or provide you
with facilities for running those works, provided that you comply with
the terms of this License in conveying all material for which you do
not control copyright. Those thus making or running the covered works
for you must do so exclusively on your behalf, under your direction
and control, on terms that prohibit them from making any copies of
your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under
the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological
measure under any applicable law fulfilling obligations under article
11 of the WIPO copyright treaty adopted on 20 December 1996, or
similar laws prohibiting or restricting circumvention of such
measures.

When you convey a covered work, you waive any legal power to forbid
circumvention of technological measures to the extent such circumvention
is effected by exercising rights under this License with respect to
the covered work, and you disclaim any intention to limit operation or

modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work,

and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the
written offer to provide the Corresponding Source. This
alternative is allowed only occasionally and noncommercially, and
only if you received the object code with such an offer, in accord
with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the
Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)

that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in

ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or

requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright

holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights

granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work

in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed

under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License

along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

 If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

  <program> Copyright (C) <year> <name of author>
  This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

 You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

 The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
 do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.62 lua 5.2.3

1.63 libvmtools 9.4.0.25793

1.63.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence

the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be

introduced by others.

Finally, software patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits
its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating

system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot

use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and

conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.64 acpid 2.0.27

1.64.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free

program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably
considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work
based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three

years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code
or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among

countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

1.65 swagger-annotations 1.5.22

1.65.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as

indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute

must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS
/**
* Copyright 2016 SmartBear Software
* <p>

```
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* http://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

package io.swagger.annotations;

import java.lang.annotation.ElementType;
import java.lang.annotation.Retention;
import java.lang.annotation.RetentionPolicy;
import java.lang.annotation.Target;

/**
* License metadata available within the info section of a Swagger definition, see
* https://github.com/OAI/OpenAPI-Specification/blob/master/versions/2.0.md#licenseObject
*
* @since 1.5.0
 */

@Target(ElementType.ANNOTATION_TYPE)
@Retention(RetentionPolicy.RUNTIME)
public @interface License {

  /**
   * The name of the license.
   *
   * @return the name of the license
   */
  String name();

  /**
   * An optional URL for the license.
   *
   * @return an optional URL for the license.
   */
  String url() default "";
}
```

1.66 opus 1.1.2

1.66.1 Available under license :

Copyright 2001-2011 Xiph.Org, Skype Limited, Octasic,
Jean-Marc Valin, Timothy B. Terriberry,
CSIRO, Gregory Maxwell, Mark Borgerding,
Erik de Castro Lopo

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

- Neither the name of Internet Society, IETF or IETF Trust, nor the
names of specific contributors, may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Opus is subject to the royalty-free patent licenses which are
specified at:

Xiph.Org Foundation:
https://datatracker.ietf.org/ipr/1524/

Microsoft Corporation:
https://datatracker.ietf.org/ipr/1914/

Broadcom Corporation:

https://datatracker.ietf.org/ipr/1526/
Contributions to the collaboration shall not be considered confidential.

Each contributor represents and warrants that it has the right and
authority to license copyright in its contributions to the collaboration.

Each contributor agrees to license the copyright in the contributions
under the Modified (2-clause or 3-clause) BSD License or the Clear BSD License.

Please see the IPR statements submitted to the IETF for the complete
patent licensing details:

Xiph.Org Foundation:
https://datatracker.ietf.org/ipr/1524/

Microsoft Corporation:
https://datatracker.ietf.org/ipr/1914/

Skype Limited:
https://datatracker.ietf.org/ipr/1602/

Broadcom Corporation:
https://datatracker.ietf.org/ipr/1526/

1.67 libvpx 1.4.0

1.67.1 Available under license :

Copyright 2008, Google Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (C) 2005-2012 x264 project

Authors: Loren Merritt <lorenm@u.washington.edu>
Anton Mitrofanov <BugMaster@narod.ru>
Jason Garrett-Glaser <darkshikari@gmail.com>
Henrik Gramner <hengar-6@student.ltu.se>

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
Copyright (c) 2010, The WebM Project authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google, nor the WebM Project, nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This file contains a list of people who've made non-trivial
contribution to the Google C++ Testing Framework project. People
who commit code to the project are encouraged to add their names
here. Please keep the list sorted by first names.

Ajay Joshi <jaj@google.com>
Balzs Dn <balazs.dan@gmail.com>
Bharat Mediratta <bharat@menalto.com>
Chandler Carruth <chandlerc@google.com>
Chris Prince <cprince@google.com>
Chris Taylor <taylorc@google.com>
Dan Egnor <egnor@google.com>
Eric Roman <eroman@chromium.org>
Hady Zalek <hady.zalek@gmail.com>
Jeffrey Yasskin <jyasskin@google.com>
Ji Sigursson <joi@google.com>
Keir Mierle <mierle@gmail.com>
Keith Ray <keith.ray@gmail.com>
Kenton Varda <kenton@google.com>
Manuel Klimek <klimek@google.com>
Markus Heule <markus.heule@gmail.com>
Mika Raento <mikie@iki.fi>
Mikls Fazekas <mfazekas@szemafor.com>
Pasi Valminen <pasi.valminen@gmail.com>
Patrick Hanna <phanna@google.com>
Patrick Riley <pfr@google.com>
Peter Kaminski <piotrk@google.com>
Preston
Jackson <preston.a.jackson@gmail.com>
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>
Russ Cox <rsc@google.com>
Russ Rufer <russ@pentad.com>
Sean Mcafee <eefacm@gmail.com>
Sigurur sgeirsson <siggi@google.com>
Tracy Bialik <tracy@pentad.com>
Vadim Berman <vadimb@google.com>
Vlad Losev <vladl@google.com>
Zhanyong Wan <wan@google.com>

Copyright (c) 2010, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

 * Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

 * Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.

 * Neither the name of Google nor the names of its contributors may
   be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2011 The LibYuv Project Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

 * Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

 * Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.

 * Neither the name of Google nor the names of its contributors may
   be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.68 e2fsprogs 1.43.1

1.68.1 Available under license :

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2001 by Andries Brouwer
Copyright (C) 1999, 2000, 2003 by Theodore Ts'o

You are free to distribute this software under the terms of the GNU
Lesser (Library) General Public License.

On Debian systems, the complete text of the GNU Lesser (Library)
General Public License can be found in /usr/share/common-licenses/LGPL-2.
This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This is the Debian GNU/Linux prepackaged version of the translation
files of the EXT2 file system utilities. The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>

Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 by
Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from
this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE

LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
/*

Copyright 1987 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

*/
Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
+   Copyright (C) Andrew Tridgell   1999-2005
+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

     ** NOTE! The following LGPL license applies to the tdb
     ** library. This does NOT imply that all of Samba is released
EXT2ED is hereby placed under the terms of the GNU General Public License.
Follows the GNU license.

Gadi Oxman, August 1995

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for
copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents
constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and

you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously
your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to
the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot

impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be
similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting
the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY
TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY;

for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider
 it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
This package, the EXT2 filesystem utilities, are made available under
the GNU Public License version 2, with the exception of the lib/ext2fs
and lib/e2p libraries, which are made available under the GNU Library
General Public License Version 2, the lib/uuid library which is made
available under a BSD-style license and the lib/et and lib/ss
libraries which are made available under an MIT-style license. Please
see lib/uuid/COPYING for more details for the license for the files
comprising the libuuid library, and the source file headers of the
libet and libss libraries for more information.

The most recent officially distributed version can be found at
http://e2fsprogs.sourceforge.net. If you need to make a distribution,
that's the one you should use. If there is some reason why you'd like
a more recent version that is still in ALPHA testing (i.e., either
using the "WIP" test distributions or one from the hg or git
repository from the development branch, please contact me
(tytso@mit.edu)
 before you ship. The release schedules for this
package are flexible, if you give me enough lead time.

    Theodore Ts'o
    23-June-2007

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain

that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms
and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered
only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of

Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy
simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous
contributions to the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,

INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE
USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision

comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a
subroutine library, you may
consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for
all its users.

This license, the Library General Public License, applies to some

specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a
fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program
is threatened constantly by software
patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary

one; be sure to read it in full, and don't assume that anything in it is
the same as in the ordinary license.

The reason we have a separate public license for some libraries is that
they blur the distinction we usually make between modifying or adding to a
program and simply using it. Linking a program with a library, without
changing the library, is
in some sense simply using the library, and is
analogous to running a utility program or application program. However, in
a textual and legal sense, the linked executable is a combined work, a
derivative of the original library, and the ordinary General Public License
treats it as such.

Because of this blurred distinction, using the ordinary General
Public License for libraries did not effectively promote software
sharing, because most developers did not use the libraries. We
concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the
users of those programs of all benefit from the free status of the
libraries themselves. This Library General Public License is intended to
permit developers of non-free programs to use free libraries, while
preserving your freedom as a user of such programs to change the free
libraries that are incorporated in them. (We have not seen how to achieve
this as regards changes in
header files, but we have achieved it as regards
changes in the actual functions of the Library.) The hope is that this
will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
"work based on the library" and a "work that uses the library". The
former contains code derived from the library, while the latter only
works together with the library.

Note that it is possible for a library to be covered by the ordinary
General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which
contains a notice placed by the copyright holder or other authorized
party saying it may be distributed under the terms of this Library
General Public License (also called "this License"). Each licensee is
addressed
as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities
other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices

stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the

ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make
 any other change in
these notices.

 Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

 This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

 4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

 If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled
 to copy the source along with the object code.

 5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

 However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

 When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library,
 or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

 If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline

functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that
the terms permit
modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then
relink to produce a modified
executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as
a special exception,
the source code distributed need not include anything that is normally
distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined
library with a copy of the same work
based on the Library, uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute

the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as
if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Library General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write
to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO
MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU

FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them
to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free Software
Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
This is the Debian GNU/Linux prepackaged version of the EXT2 file
system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2007 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, are made available under
the GNU General Public License version 2, with the exception of the
lib/ext2fs and lib/e2p libraries, which are made available under the
GNU Library General Public License Version 2, the lib/uuid library
which is made available under a BSD-style license and the lib/et and
lib/ss libraries
which are made available under an MIT-style license.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General Public
License can be found in `/usr/share/common-licenses/GPL-2'. The
complete text of the GNU Library General Public License can be found
in '/usr/share/common-licenses/LGPL-2'.

The license used for lib/et and lib/ss libraries is:

Copyright 1987 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose is hereby granted, provided that
the names of M.I.T. and the M.I.T. S.I.P.B. not be used in

advertising or publicity pertaining to distribution of the software
without specific, written prior permission. M.I.T. and the
M.I.T. S.I.P.B. make no representations about the suitability of
this
software for any purpose. It is provided "as is" without
express or implied warranty.

The license used for lib/uuid is:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2003, 2004 by Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific
 prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
#
This is a Makefile stub which handles the creation of BSD shared
libraries.
#
In order to use this stub, the following makefile variables must be defined.
#
BSDLIB_VERSION = 1.0
BSDLIB_IMAGE = libce
BSDLIB_MYDIR = et
BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image: $(BSD_LIB)

```
$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
```

This is the Debian GNU/Linux prepackaged version of the ss
command-line interface parsing library. It is currently
distributed together with the EXT2 file system utilities, which are
otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.

M.I.T. and
 the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.
This is the Debian GNU/Linux prepackaged version of the Common Error
Description library. It is currently distributed together with the EXT2 file
system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T.
 S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

1.69 jline 3.11.0

1.69.1 Available under license :

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.70 cache-api 1.1.1

1.70.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that

remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an

addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.71 jansi 1.18

1.71.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce,

prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR

CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.72 popt 1.16

1.72.1 Available under license :

Copyright (c) 1998 Red Hat Software

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR
THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not be
used in advertising or otherwise to promote the sale, use or other dealings

in this Software without prior written authorization from the X Consortium.

1.73 opencv 4.1.1

1.73.1 Available under license :

Copyright (c) 2011-2014 Idiap Research Institute (Ronan Collobert)
Copyright (c) 2012-2014 Deepmind Technologies (Koray Kavukcuoglu)
Copyright (c) 2011-2012 NEC Laboratories America (Koray Kavukcuoglu)
Copyright (c) 2011-2013 NYU (Clement Farabet)
Copyright (c) 2006-2010 NEC Laboratories America (Ronan Collobert, Leon Bottou, Iain Melvin, Jason Weston)
Copyright (c) 2006 Idiap Research Institute (Samy Bengio)
Copyright (c) 2001-2004 Idiap Research Institute (Ronan Collobert, Samy Bengio, Johnny Mariethoz)

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided
with the distribution.

3. Neither the names of Deepmind Technologies, NYU, NEC Laboratories America
and IDIAP Research Institute nor the names of its contributors may be
used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
Copyright (C) 2016 The Android Open Source Project

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright (c) 2008-2015 The Khronos Group Inc.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and/or associated documentation files (the
"Materials"), to deal in the Materials without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Materials, and to
permit persons to whom the Materials are furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Materials.

MODIFICATIONS TO THIS FILE MAY MEAN IT NO LONGER ACCURATELY REFLECTS
KHRONOS STANDARDS. THE UNMODIFIED, NORMATIVE VERSIONS OF KHRONOS
SPECIFICATIONS AND HEADER INFORMATION ARE LOCATED AT
https://www.khronos.org/registry/

THE MATERIALS ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
MATERIALS OR THE USE OR OTHER DEALINGS IN THE MATERIALS.
BSD License

Copyright (c) 2000-2006, www.hamcrest.org
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of
conditions and the following disclaimer. Redistributions in binary form must reproduce
the above copyright notice, this list of conditions and the following disclaimer in
the documentation and/or other materials provided with the distribution.

Neither the name of Hamcrest nor the names of its contributors may be used to endorse
or promote products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL
THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY
WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 1988-1997 Sam Leffler
Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and
its documentation for any purpose is hereby granted without fee, provided
that (i) the above copyright notices and this permission notice appear in
all copies of the software and related documentation, and (ii) the names of
Sam Leffler and Silicon Graphics may not be used in any advertising or
publicity relating to the software without the specific, prior written
permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND,
EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY
WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR
ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND,
OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS,
WHETHER OR NOT ADVISED
OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF
LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE
OF THIS SOFTWARE.

Copyright (C) 2001 Fabrice Bellard

FFmpeg is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

FFmpeg is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with FFmpeg; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

==========

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software
Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public
License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library
in non-free
programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This
License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs

(which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify

that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used
for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the

Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they
are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the
work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible
with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more

than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which
the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with
the combined library of the fact
that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses

terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your
acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License
and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through
that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot

impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the
present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and
reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as
a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
SCALA LICENSE

Copyright (c) 2002-2008 EPFL, Lausanne, unless otherwise specified.
All rights reserved.

This software was developed by the Programming Methods Laboratory of the
Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland.

Permission to use, copy, modify, and distribute this software in source
or binary form for any purpose with or without fee is hereby granted,
provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

3. Neither the name of the EPFL nor the names of its contributors
   may be used to endorse or promote products derived from this
   software without specific prior written permission.

THIS SOFTWARE
IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Copyright (c) 2008, 2009, 2010 Steven Blundy, Josh Cough, Mark Harrah, Stuart Roebuck, Tony Sloane, Vesa Vilhonen, Jason Zaugg
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
 EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Simple Build Tool Launcher
Copyright 2008, 2009, 2010 Mark Harrah, David MacIver
Licensed under BSD-style license (see LICENSE)

Classes from the Scala library are distributed with the launcher.
Copyright 2002-2008 EPFL, Lausanne
Licensed under BSD-style license (see licenses/LICENSE_Scala)

JLine is distributed with the launcher.
It is licensed under a BSD-style license (see licenses/LICENSE_JLine)

Classes from Apache Ivy, licensed under the Apache License, Version 2.0
(see licenses/LICENSE_Apache) are distributed with the launcher.
It requires the following notice:

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

Portions of Ivy were originally developed by
Jayasoft SARL (http://www.jayasoft.fr/)
and are licensed to the Apache Software Foundation under the
"Software Grant License Agreement"

THIS SOFTWARE IS PROVIDED BY THE AUTHORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2006, Industrial Light & Magic, a division of Lucasfilm Entertainment Company Ltd. Portions contributed and copyright held by others as indicated. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Industrial Light & Magic nor the names of any other contributors to this software may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

quirc -- QR-code recognition library
Copyright (C) 2010-2012 Daniel Beer <dlbeer@gmail.com>

Permission to use, copy, modify, and/or distribute this software for
any purpose with or without fee is hereby granted, provided that the
above copyright notice and this permission notice appear in all
copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL
WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE
AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.
The GNU General Public License (GPL)
Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
Preamble
The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.
When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom
to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.
To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.
For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.
We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.
Also, for each
author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.
Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To

prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.
The precise terms and conditions for copying, distribution and modification follow.
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION
0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms
of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".
Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.
1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.
You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.
2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties
under the terms of this License.
c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)
These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute
the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.
Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.
In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.
3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding
machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)
The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for
all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.
If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.
4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically
terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions
on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.
If any portion of this section is held invalid or
unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.
It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other

system and a licensee cannot impose that choice.
This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.
8. If the distribution and/or use of the Program is restricted in certain countries either by patents
or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.
Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may
choose any version ever published by the Free Software Foundation.
10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.
NO WARRANTY
11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
END OF TERMS AND CONDITIONS
How to Apply These Terms to Your New Programs
If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software
which everyone can redistribute and change under these terms.
To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.
One line to give the program's name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.
This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.
You should have received a copy of the GNU General Public License along with
this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Also add information on how to contact you by electronic and paper mail.
If the program is interactive, make it output a short notice like this when it starts in an interactive mode:
Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.
The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.
You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample;
alter the names:
Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.
signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice
This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.
This license applies to all parts of Protocol Buffers except the following:

- Atomicops support for generic gcc, located in
  src/google/protobuf/stubs/atomicops_internals_generic_gcc.h.
  This file is copyrighted by Red Hat Inc.

- Atomicops support for AIX/POWER, located in
  src/google/protobuf/stubs/atomicops_internals_power.h.
  This file is copyrighted by Bloomberg Finance LP.

Copyright 2014, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors
 may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner
of the input file used when generating it. This code is
 not
standalone and requires a support library to be linked with it. This
support library is itself covered by the above license.
By downloading, copying, installing or using the software you agree to this license.
If you do not agree to this license, do not download, install,
copy or use the software.

License Agreement
For Open Source Computer Vision Library
(3-clause BSD License)

Copyright (C) 2000-2019, Intel Corporation, all rights reserved.
Copyright (C) 2009-2011, Willow Garage Inc., all rights reserved.
Copyright (C) 2009-2016, NVIDIA Corporation, all rights reserved.
Copyright (C) 2010-2013, Advanced Micro Devices, Inc., all rights reserved.
Copyright (C) 2015-2016, OpenCV Foundation, all rights reserved.
Copyright (C) 2015-2016, Itseez Inc., all rights reserved.
Third party copyrights are property of their respective owners.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

 * Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.

 * Redistributions in binary form must reproduce the above copyright notice,
   this list of conditions and the following disclaimer in the documentation

and/or other materials provided with the distribution.

* Neither the names of the copyright holders nor the names of the contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and
any express or implied warranties, including, but not limited to, the implied
warranties of merchantability and fitness for a particular purpose are disclaimed.
In no event shall copyright holders or contributors be liable for any direct,
indirect, incidental, special, exemplary, or consequential damages
(including, but not limited to, procurement of substitute goods or services;
loss of use, data, or profits; or business interruption)
however caused
and on any theory of liability, whether in contract, strict liability,
or tort (including negligence or otherwise) arising in any way out of
the use of this software, even if advised of the possibility of such damage.
libjpeg-turbo Licenses
==========

libjpeg-turbo is covered by three compatible BSD-style open source licenses:

- The IJG (Independent JPEG Group) License, which is listed in
README.ijg

This license applies to the libjpeg API library and associated programs
(any code inherited from libjpeg, and any modifications to that code.)

- The Modified (3-clause) BSD License, which is listed below

This license covers the TurboJPEG API library and associated programs, as
well as the build system.

- The [zlib License](https://opensource.org/licenses/Zlib)

This license is a subset of the other two, and it covers the libjpeg-turbo
SIMD extensions.

Complying with the libjpeg-turbo Licenses
==========

This section provides a roll-up of the libjpeg-turbo licensing terms, to the
best of our understanding.

1. If you are distributing a modified version of the libjpeg-turbo source,
then:

1. You cannot alter or remove
any existing copyright or license notices
from the source.

Origin
- Clause 1 of the IJG License
- Clause 1 of the Modified BSD License
- Clauses 1 and 3 of the zlib License

2. You must add your own copyright notice to the header of each source
file you modified, so others can tell that you modified that file (if
there is not an existing copyright header in that file, then you can
simply add a notice stating that you modified the file.)

Origin
- Clause 1 of the IJG License
- Clause 2 of the zlib License

3. You must include the IJG README file, and you must not alter any of the
copyright or license text in that file.

Origin
- Clause 1 of the IJG License

2. If you are distributing only libjpeg-turbo binaries without the source, or
if you are distributing an application that statically links with
libjpeg-turbo, then:

1. Your product documentation
must include a message stating:

This software is based in part on the work of the Independent JPEG
Group.

Origin
- Clause 2 of the IJG license

2. If your binary distribution includes or uses the TurboJPEG API, then
your product documentation must include the text of the Modified BSD
License (see below.)

Origin
- Clause 2 of the Modified BSD License

3. You cannot use the name of the IJG or The libjpeg-turbo Project or the
contributors thereof in advertising, publicity, etc.

Origin

- IJG License
- Clause 3 of the Modified BSD License

4. The IJG and The libjpeg-turbo Project do not warrant libjpeg-turbo to be
free of defects, nor do we accept any liability for undesirable
consequences resulting from your use of the software.

Origin
- IJG License
- Modified BSD License
- zlib License

The Modified (3-clause) BSD License
==========

Copyright
(C)2009-2019 D. R. Commander. All Rights Reserved.
Copyright (C)2015 Viktor Szathmry. All Rights Reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
- Neither the name of the libjpeg-turbo Project nor the names of its
contributors may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS",
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

Why Three Licenses?
==========

The zlib License could have been used instead of the Modified (3-clause) BSD
License, and since the IJG License effectively subsumes the distribution
conditions of the zlib License, this would have effectively placed
libjpeg-turbo binary distributions under the IJG License. However, the IJG
License specifically refers to the Independent JPEG Group and does not extend
attribution and
endorsement protections to other entities. Thus, it was
desirable to choose a license that granted us the same protections for new code
that were granted to the IJG for code derived from their software.
JasPer License Version 2.0

Copyright (c) 2001-2006 Michael David Adams
Copyright (c) 1999-2000 Image Power, Inc.
Copyright (c) 1999-2000 The University of British Columbia

All rights reserved.

Permission is hereby granted, free of charge, to any person (the
"User") obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without restriction,
including without limitation the rights to use, copy, modify, merge,
publish, distribute, and/or sell copies of the Software, and to permit
persons to whom the Software is furnished to do so, subject to the
following conditions:

1. The above copyright notices and this permission notice (which
includes the disclaimer below) shall be included in all copies or
substantial portions of the Software.

2. The name of a copyright holder shall not be used to endorse or
promote products derived from the Software without specific prior
written permission.

THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL
PART OF THIS
LICENSE. NO USE OF THE SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER
THIS DISCLAIMER. THE SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS
"AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING
BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A
PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO
EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL
INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE. NO ASSURANCES ARE
PROVIDED BY THE COPYRIGHT HOLDERS THAT THE SOFTWARE DOES NOT INFRINGE
THE PATENT OR OTHER INTELLECTUAL PROPERTY RIGHTS OF ANY OTHER ENTITY.

EACH COPYRIGHT HOLDER DISCLAIMS ANY LIABILITY TO THE USER FOR CLAIMS BROUGHT BY ANY OTHER ENTITY BASED ON INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS
OR OTHERWISE. AS A CONDITION TO EXERCISING THE RIGHTS GRANTED HEREUNDER, EACH USER HEREBY ASSUMES SOLE RESPONSIBILITY TO SECURE ANY OTHER INTELLECTUAL PROPERTY RIGHTS NEEDED, IF ANY. THE SOFTWARE IS NOT FAULT-TOLERANT AND IS NOT INTENDED FOR USE IN MISSION-CRITICAL SYSTEMS, SUCH AS THOSE USED IN THE OPERATION OF NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL SYSTEMS, DIRECT LIFE SUPPORT MACHINES, OR WEAPONS SYSTEMS, IN WHICH THE FAILURE OF THE SOFTWARE OR SYSTEM COULD LEAD DIRECTLY TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE ("HIGH RISK ACTIVITIES"). THE COPYRIGHT HOLDERS SPECIFICALLY DISCLAIM ANY EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR HIGH RISK ACTIVITIES.
Copyright (c) 2011, Intel Corporation
All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License for Berkeley SoftFloat Release 3c

John R. Hauser
2017 February 10

The following applies to the whole of SoftFloat Release 3c as well as to each source file individually.

Copyright 2011, 2012, 2013, 2014, 2015, 2016, 2017 The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions, and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions, and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors
   may be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE
 IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS", AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE
DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
PNG

IHDR=IDATx1@^uG&%Y%Y%Y

```
      <_>
        32 2 8 6 -1.</_>
      <_>
        32 4 8 2 3.</_></rects>
      <tilted>0</tilted></feature>
    <threshold>1.6915600746870041e-002</threshold>
    <left_val>-9.5547717809677124e-001</left_val>
    <right_val>8.9129137992858887e-001</right_val></_></_>
  <_>
    <!-- tree 1 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            0 4 6 10 -1.</_>
          <_>
            3 4 3 10 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>2.4228349328041077e-002</threshold>
      <left_val>-9.2089319229125977e-001</left_val>
      <right_val>8.8723921775817871e-001</right_val></_></_>
  <_>
    <!-- tree 2 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            55 0 8 6 -1.</_>
          <_>
            55 0 4 3 2.</_>
          <_>
            59 3 4 3 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>-1.0168660432100296e-002</threshold>
      <left_val>8.8940089941024780e-001</left_val>
      <right_val>-7.7847331762313843e-001</right_val></_></_>
  <_>
    <!-- tree 3 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            44 7 4 9 -1.</_>
          <_>
```

```
      44 10 4 3 3.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>2.0863260142505169e-003</threshold>
      <left_val>-8.7998157739639282e-001</left_val>
      <right_val>5.8651781082153320e-001</right_val></_></_></trees>
  <stage_threshold>-2.0683259963989258e+000</stage_threshold>
  <parent>-1</parent>
  <next>-1</next></_>
 <_>
  <!-- stage 1 -->
  <trees>
   <_>
    <!-- tree 0 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        29 1 16 4 -1.</_>
       <_>
        29 3 16 2 2.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>2.9062159359455109e-002</threshold>
     <left_val>-8.7765061855316162e-001</left_val>
     <right_val>8.5373121500015259e-001</right_val></_></_>
   <_>
    <!-- tree 1 -->
    <_>
     <!--
root node -->
     <feature>
      <rects>
       <_>
        0 5 9 8 -1.</_>
       <_>
        3 5 3 8 3.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>2.3903399705886841e-002</threshold>
     <left_val>-9.2079448699951172e-001</left_val>
     <right_val>7.5155001878738403e-001</right_val></_></_>
   <_>
    <!-- tree 2 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        44 0 20 14 -1.</_>
```

<_>
44 0 10 7 2.</_>
<_>
54 7 10 7 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-3.5404648631811142e-002</threshold>
<left_val>6.7834627628326416e-001</left_val>
<right_val>-9.0937072038650513e-001</right_val></_></_>
<_>
<!-- tree 3 -->

<_>
<!-- root node -->
<feature>
<rects>
<_>
41 7 6 9 -1.</_>
<_>
43 7 2 9 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>6.2988721765577793e-003</threshold>
<left_val>-8.1054258346557617e-001</left_val>
<right_val>5.8985030651092529e-001</right_val></_></_>
<_>
<!-- tree 4 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
0 4 21 4 -1.</_>
<_>
7 4 7 4 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>3.4959490876644850e-003</threshold>
<left_val>-9.7632282972335815e-001</left_val>
<right_val>4.5473039150238037e-001</right_val></_></_></trees>
<stage_threshold>-1.6632349491119385e+000</stage_threshold>
<parent>0</parent>
<next>-1</next></_>
<_>
<!-- stage 2 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>

```
      <rects>
        <_>
          31 2 11 6 -1.</_>
        <_>
          31 4 11 2 3.</_></rects>
      <tilted>0</tilted></feature>
    <threshold>2.3864099755883217e-002</threshold>
    <left_val>-9.3137168884277344e-001</left_val>
    <right_val>8.2478952407836914e-001</right_val></_></_>
  <_>
    <!-- tree 1 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            56 3 6 11 -1.</_>
          <_>
            59 3 3 11 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>-2.5775209069252014e-002</threshold>
      <left_val>8.5526448488235474e-001</left_val>
      <right_val>-8.7574672698974609e-001</right_val></_></_>
  <_>
    <!-- tree 2 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            32 14 32 2 -1.</_>
          <_>
            32 15 32 1 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>-1.0646049864590168e-002</threshold>
      <left_val>8.5167151689529419e-001</left_val>
      <right_val>-6.7789041996002197e-001</right_val></_></_>
  <_>
    <!-- tree 3 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            0 2 8 14 -1.</_>
          <_>
            4 2 4 14 2.</_></rects>
        <tilted>0</tilted></feature>
```

```
      <threshold>2.7000989764928818e-002</threshold>
      <left_val>-8.0041092634201050e-001</left_val>
      <right_val>6.4893317222595215e-001</right_val></_></_>
    <_>
     <!-- tree 4 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         19 0 22 6 -1.</_>
        <_>
         19 0 11 3 2.</_>
        <_>
         30 3 11 3 2.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>5.2989721298217773e-003</threshold>
      <left_val>-9.5342522859573364e-001</left_val>
      <right_val>5.0140267610549927e-001</right_val></_></_></trees>
  <stage_threshold>-1.3346730470657349e+000</stage_threshold>
  <parent>1</parent>
  <next>-1</next></_>
<_>
  <!-- stage 3 -->
  <trees>
   <_>
    <!-- tree 0 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        56 0 6 6 -1.</_>
       <_>

56 0 3 3 2.</_>
       <_>
        59 3 3 3 2.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>-6.9233630783855915e-003</threshold>
     <left_val>8.2654470205307007e-001</left_val>
     <right_val>-8.5396027565002441e-001</right_val></_></_>
   <_>
    <!-- tree 1 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
```

<_>
32 0 14 12 -1.</_>
<_>
32 0 7 6 2.</_>
<_>
39 6 7 6 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>1.2539249658584595e-001</threshold>
<left_val>-1.2996139936149120e-002</left_val>
<right_val>-3.2377028808593750e+003</right_val></_></_>
<_>
<!-- tree 2 -->
<_>
<!-- root node -->
<feature>
<rects>

<_>
2 1 43 4 -1.</_>
<_>
2 3 43 2 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>6.3474893569946289e-002</threshold>
<left_val>-6.4648061990737915e-001</left_val>
<right_val>8.2302427291870117e-001</right_val></_></_>
<_>
<!-- tree 3 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
34 10 30 5 -1.</_>
<_>
44 10 10 5 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>4.2217150330543518e-002</threshold>
<left_val>-7.5190877914428711e-001</left_val>
<right_val>6.3705182075500488e-001</right_val></_></_>
<_>
<!-- tree 4 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>

```
    0 9 9 5 -1.</_>
          <_>
            3 9 3 5 3.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>2.0000640302896500e-002</threshold>
        <left_val>-6.2077498435974121e-001</left_val>
        <right_val>6.1317932605743408e-001</right_val></_></_></trees>
    <stage_threshold>-1.6521669626235962e+000</stage_threshold>
    <parent>2</parent>
    <next>-1</next></_>
  <_>
    <!-- stage 4 -->
    <trees>
      <_>
        <!-- tree 0 -->
        <_>
          <!-- root node -->
          <feature>
            <rects>
              <_>
                2 1 43 6 -1.</_>
              <_>
                2 3 43 2 3.</_></rects>
            <tilted>0</tilted></feature>
          <threshold>9.2297486960887909e-002</threshold>
          <left_val>-7.2764229774475098e-001</left_val>
          <right_val>8.0554759502410889e-001</right_val></_></_>
      <_>

<!-- tree 1 -->
        <_>
          <!-- root node -->
          <feature>
            <rects>
              <_>
                53 4 9 8 -1.</_>
              <_>
                56 4 3 8 3.</_></rects>
            <tilted>0</tilted></feature>
          <threshold>2.7613969519734383e-002</threshold>
          <left_val>-7.0769268274307251e-001</left_val>
          <right_val>7.3315787315368652e-001</right_val></_></_>
      <_>
        <!-- tree 2 -->
        <_>
          <!-- root node -->
          <feature>
            <rects>
```

<_>
36 4 14 8 -1.</_>
<_>
36 4 7 4 2.</_>
<_>
43 8 7 4 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>1.2465449981391430e-002</threshold>
<left_val>-8.4359270334243774e-001</left_val>
<right_val>5.7046437263488770e-001</right_val></_></_>
<_>
<!-- tree 3 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
14 14 49 2 -1.</_>
<_>
14 15 49 1 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-2.3886829614639282e-002</threshold>
<left_val>8.2656508684158325e-001</left_val>
<right_val>-5.2783298492431641e-001</right_val></_></_></trees>
<stage_threshold>-1.4523630142211914e+000</stage_threshold>
<parent>3</parent>
<next>-1</next></_>
<_>
<!-- stage 5 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
0 5 4 9 -1.</_>
<_>
2 5 2 9 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>1.8821349367499352e-002</threshold>
<left_val>-8.1122857332229614e-001</left_val>
<right_val>6.9127470254898071e-001</right_val></_></_>
<_>
<!-- tree 1 -->
<_>
<!-- root node -->

```
    <feature>
     <rects>
      <_>
       21 1 38 4 -1.</_>
      <_>
       21 3 38 2 2.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>6.1703320592641830e-002</threshold>
    <left_val>-7.6482647657394409e-001</left_val>
    <right_val>6.4212161302566528e-001</right_val></_></_>
  <_>
   <!-- tree 2 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       44 12 18 3 -1.</_>
      <_>
       53 12 9 3 2.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>-1.6298670321702957e-002</threshold>
    <left_val>5.0207728147506714e-001</left_val>
    <right_val>-8.4020161628723145e-001</right_val></_></_>
  <_>
   <!-- tree 3 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       10 4 9 3 -1.</_>
      <_>
       13 4 3 3 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>-4.9458951689302921e-003</threshold>
    <left_val>6.1991941928863525e-001</left_val>
    <right_val>-6.1633539199829102e-001</right_val></_></_>
  <_>
   <!-- tree 4 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       40 4 10 4 -1.</_>
      <_>
       45 4 5 4 2.</_></rects>
```

<tilted>0</tilted></feature>
<threshold>-5.1894597709178925e-003</threshold>
<left_val>4.4975179433822632e-001</left_val>
<right_val>-8.0651968717575073e-001</right_val></_></_>
<_>
<!-- tree 5 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
17 14 47 2 -1.</_>
<_>
17 15 47 1 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-1.8824130296707153e-002</threshold>
<left_val>6.1992841958999634e-001</left_val>
<right_val>-5.5643159151077271e-001</right_val></_></_>
<_>
<!-- tree 6 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
8 5 4 7 -1.</_>
<_>
10 5 2 7 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>5.6571601890027523e-003</threshold>
<left_val>-4.8346561193466187e-001</left_val>
<right_val>6.8647360801696777e-001</right_val></_></_></trees>
<stage_threshold>-2.2358059883117676e+000</stage_threshold>
<parent>4</parent>
<next>-1</next></_>
<_>
<!-- stage 6 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
56 0 6 6 -1.</_>
<_>
56 0 3 3 2.</_>

<_>
59 3 3 3 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-9.1503243893384933e-003</threshold>
<left_val>6.8174481391906738e-001</left_val>
<right_val>-7.7866071462631226e-001</right_val></_></_>
<_>
<!-- tree 1 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
0 0 6 6 -1.</_>
<_>
0 0 3 3 2.</_>
<_>
3 3 3 3 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>7.4933180585503578e-003</threshold>
<left_val>-6.8696027994155884e-001</left_val>
<right_val>6.6913938522338867e-001</right_val></_></_>
<_>
<!-- tree 2 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
13 4 48 2 -1.</_>
<_>
29 4 16 2 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>4.5296419411897659e-002</threshold>
<left_val>-7.3576509952545166e-001</left_val>
<right_val>5.9453499317169189e-001</right_val></_></_>
<_>
<!-- tree 3 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
42 1 6 15
-1.</_>
<_>
42 6 6 5 3.</_></rects>
<tilted>0</tilted></feature>

```
      <threshold>1.1669679544866085e-002</threshold>
      <left_val>-8.4733831882476807e-001</left_val>
      <right_val>4.5461329817771912e-001</right_val></_></_>
    <_>
     <!-- tree 4 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         30 8 3 5 -1.</_>
        <_>
         31 8 1 5 3.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>2.5769430212676525e-003</threshold>
      <left_val>-5.8270388841629028e-001</left_val>
      <right_val>7.7900522947311401e-001</right_val></_></_>
    <_>
     <!-- tree 5 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         55 10 8 6 -1.</_>
        <_>
          55 13 8 3 2.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>-1.4139170525595546e-003</threshold>
      <left_val>4.5126929879188538e-001</left_val>
      <right_val>-9.0696328878402710e-001</right_val></_></_></trees>
   <stage_threshold>-1.8782069683074951e+000</stage_threshold>
   <parent>5</parent>
   <next>-1</next></_>
  <_>
   <!-- stage 7 -->
   <trees>
    <_>
     <!-- tree 0 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         4 6 4 7 -1.</_>
        <_>
         6 6 2 7 2.</_></rects>
       <tilted>0</tilted></feature>
```

```
    <threshold>-5.3149578161537647e-003</threshold>
    <left_val>6.5218788385391235e-001</left_val>
    <right_val>-7.9464268684387207e-001</right_val></_></_>
  <_>
   <!-- tree 1 -->
   <_>

 <!-- root node -->
     <feature>
      <rects>
       <_>
        56 3 6 8 -1.</_>
       <_>
        59 3 3 8 2.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>-2.2906960919499397e-002</threshold>
     <left_val>6.6433382034301758e-001</left_val>
     <right_val>-7.3633247613906860e-001</right_val></_></_>
  <_>
   <!-- tree 2 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       37 2 4 6 -1.</_>
      <_>
       37 4 4 2 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>9.4887977465987206e-003</threshold>
    <left_val>-8.2612031698226929e-001</left_val>
    <right_val>4.9333500862121582e-001</right_val></_></_>
  <_>
   <!-- tree 3 -->
   <_>
    <!-- root node -->

   <feature>
     <rects>
      <_>
       0 10 30 6 -1.</_>
      <_>
       0 12 30 2 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>4.5138411223888397e-002</threshold>
    <left_val>-5.4704028367996216e-001</left_val>
    <right_val>7.6927912235260010e-001</right_val></_></_>
  <_>
```

```
    <!-- tree 4 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            0 4 21 12 -1.</_>
          <_>
            7 4 7 12 3.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>2.5049019604921341e-002</threshold>
      <left_val>-8.6739641427993774e-001</left_val>
      <right_val>5.2807968854904175e-001</right_val></_></_></trees>
  <stage_threshold>-1.0597369670867920e+000</stage_threshold>
  <parent>6</parent>
  <next>-1</next></_>
 <_>
  <!-- stage 8 -->
  <trees>
    <_>
      <!-- tree 0 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              44 0 1 14 -1.</_>
            <_>
              44 7 1 7 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>6.6414438188076019e-003</threshold>
        <left_val>-7.7290147542953491e-001</left_val>
        <right_val>6.9723731279373169e-001</right_val></_></_>
    <_>
      <!-- tree 1 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              54 3 4 3 -1.</_>
            <_>
              56 3 2 3 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>2.4703629314899445e-003</threshold>
        <left_val>-7.4289917945861816e-001</left_val>
        <right_val>6.6825848817825317e-001</right_val></_></_>
```

```
      <_>
       <!-- tree 2 -->
       <_>
        <!-- root node -->
        <feature>
         <rects>
          <_>
           32 0 30 6 -1.</_>
          <_>
           32 0 15 3 2.</_>
          <_>
           47 3 15 3 2.</_></rects>
         <tilted>0</tilted></feature>
        <threshold>-2.2910499945282936e-002</threshold>
        <left_val>4.3986389040946960e-001</left_val>
        <right_val>-9.0588808059692383e-001</right_val></_></_>
      <_>
       <!-- tree 3 -->
       <_>
        <!-- root node -->
        <feature>
         <rects>
          <_>
           0 8 9 7 -1.</_>
          <_>
           3 8 3 7 3.</_></rects>
         <tilted>0</tilted></feature>
        <threshold>3.4193221479654312e-002</threshold>
        <left_val>-6.9507479667663574e-001</left_val>

<right_val>6.2501090764999390e-001</right_val></_></_>
      <_>
       <!-- tree 4 -->
       <_>
        <!-- root node -->
        <feature>
         <rects>
          <_>
           30 10 3 3 -1.</_>
          <_>
           31 10 1 3 3.</_></rects>
         <tilted>0</tilted></feature>
        <threshold>1.5060020377859473e-003</threshold>
        <left_val>-6.8670761585235596e-001</left_val>
        <right_val>8.2241541147232056e-001</right_val></_></_>
      <_>
       <!-- tree 5 -->
       <_>
```

```
      <!-- root node -->
      <feature>
        <rects>
          <_>
            21 3 24 4 -1.</_>
          <_>
            29 3 8 4 3.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>1.9838380467263050e-005</threshold>
      <left_val>-9.2727631330490112e-001</left_val>
      <right_val>6.4723730087280273e-001</right_val></_></_>
    <_>
     <!-- tree 6 -->
     <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            42 3 12 6 -1.</_>
          <_>
            46 3 4 6 3.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>-2.2170299416757189e-005</threshold>
      <left_val>5.6555831432342529e-001</left_val>
      <right_val>-9.6788132190704346e-001</right_val></_></_></trees>
  <stage_threshold>-1.4993519783020020e+000</stage_threshold>
  <parent>7</parent>
  <next>-1</next></_>
<_>
  <!-- stage 9 -->
  <trees>
    <_>
      <!-- tree 0 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              56 9 6 6 -1.</_>
            <_>
              59 9 3 6 2.</_></rects>
          <tilted>0</tilted></feature>

 <threshold>-1.1395259760320187e-002</threshold>
        <left_val>7.1383631229400635e-001</left_val>
        <right_val>-8.7429678440093994e-001</right_val></_></_>
    <_>
      <!-- tree 1 -->
```

```
  <_>
    <!-- root node -->
    <feature>
      <rects>
        <_>
          6 4 1 6 -1.</_>
        <_>
          6 7 1 3 2.</_></rects>
      <tilted>0</tilted></feature>
    <threshold>-2.1864590235054493e-003</threshold>
    <left_val>8.5311782360076904e-001</left_val>
    <right_val>-6.4777731895446777e-001</right_val></_></_>
  <_>
    <!-- tree 2 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            0 0 12 4 -1.</_>
          <_>
            0 0 6 2 2.</_>
          <_>
            6 2 6 2 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>2.3193720262497663e-003</threshold>
    <left_val>-7.6411879062652588e-001</left_val>
    <right_val>7.1867972612380981e-001</right_val></_></_>
  <_>
    <!-- tree 3 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
          <_>
            43 12 18 2 -1.</_>
          <_>
            52 12 9 2 2.</_></rects>
        <tilted>0</tilted></feature>
    <threshold>-7.9916073009371758e-003</threshold>
    <left_val>6.6442942619323730e-001</left_val>
    <right_val>-7.9540950059890747e-001</right_val></_></_>
  <_>
    <!-- tree 4 -->
    <_>
      <!-- root node -->
      <feature>
        <rects>
```

<_>
9 5 2 8 -1.</_>
<_>
10 5 1 8 2.</_></rects>
<tilted>0</tilted></feature>

<threshold>1.4212740352377295e-003</threshold>
<left_val>-6.3904231786727905e-001</left_val>
<right_val>7.5050598382949829e-001</right_val></_></_></trees>
<stage_threshold>-8.4829801321029663e-001</stage_threshold>
<parent>8</parent>
<next>-1</next></_>
<_>
<!-- stage 10 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
1 9 6 3 -1.</_>
<_>
3 9 2 3 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>6.4091659151017666e-003</threshold>
<left_val>-8.8425230979919434e-001</left_val>
<right_val>9.9953681230545044e-001</right_val></_></_>
<_>
<!-- tree 1 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>

56 8 2 8 -1.</_>
<_>
56 12 2 4 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-6.3316390151157975e-004</threshold>
<left_val>8.3822172880172729e-001</left_val>
<right_val>-9.8322170972824097e-001</right_val></_></_>
<_>
<!-- tree 2 -->
<_>
<!-- root node -->

```
      <feature>
       <rects>
        <_>
         24 2 6 13 -1.</_>
        <_>
         26 2 2 13 3.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>-6.4947169448714703e-005</threshold>
      <left_val>1.</left_val>
      <right_val>-9.1822808980941772e-001</right_val></_></_>
    <_>
     <!-- tree 3 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         33 7 24 4 -1.</_>
        <_>
          41 7 8 4 3.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>5.3404141217470169e-003</threshold>
      <left_val>-9.4317251443862915e-001</left_val>
      <right_val>9.0425151586532593e-001</right_val></_></_></trees>
  <stage_threshold>-6.0007210820913315e-002</stage_threshold>
  <parent>9</parent>
  <next>-1</next></_>
 <_>
  <!-- stage 11 -->
  <trees>
   <_>
    <!-- tree 0 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        1 1 57 4 -1.</_>
       <_>
        1 3 57 2 2.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>1.0755469650030136e-001</threshold>
     <left_val>-7.1647202968597412e-001</left_val>
     <right_val>8.7827038764953613e-001</right_val></_></_>
   <_>
    <!-- tree 1 -->
    <_>
```

```
<!-- root node -->
      <feature>
        <rects>
          <_>
            0 2 6 14 -1.</_>
          <_>
            3 2 3 14 2.</_></rects>
        <tilted>0</tilted></feature>
      <threshold>3.1668949872255325e-002</threshold>
      <left_val>-8.7051069736480713e-001</left_val>
      <right_val>5.8807212114334106e-001</right_val></_></_>
    <_>
      <!-- tree 2 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              52 3 6 10 -1.</_>
            <_>
              54 3 2 10 3.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>-1.0572380386292934e-002</threshold>
        <left_val>6.2438100576400757e-001</left_val>
        <right_val>-7.4027371406555176e-001</right_val></_></_>
    <_>
      <!-- tree 3 -->
      <_>
        <!-- root node -->

       <feature>
          <rects>
            <_>
              1 14 61 2 -1.</_>
            <_>
              1 15 61 1 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>-2.7396259829401970e-002</threshold>
        <left_val>8.9776748418807983e-001</left_val>
        <right_val>-5.2986758947372437e-001</right_val></_></_>
    <_>
      <!-- tree 4 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              28 0 11 12 -1.</_>
```

<_>
28 4 11 4 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>2.5918649509549141e-002</threshold>
<left_val>-8.6482518911361694e-001</left_val>
<right_val>5.3121817111968994e-001</right_val></_></_></trees>
<stage_threshold>-9.6125108003616333e-001</stage_threshold>
<parent>10</parent>
<next>-1</next></_>
<_>
<!-- stage 12 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
22 1 41 4 -1.</_>
<_>
22 3 41 2 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>7.1039132773876190e-002</threshold>
<left_val>-7.5719678401947021e-001</left_val>
<right_val>7.5645631551742554e-001</right_val></_></_>
<_>
<!-- tree 1 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
41 6 6 8 -1.</_>
<_>
43 6 2 8 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>7.6241148635745049e-003</threshold>
<left_val>-7.9783838987350464e-001</left_val>
<right_val>7.1733069419860840e-001</right_val></_></_>
<_>
<!-- tree 2 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
50 9 14 5 -1.</_>

<_>
57 9 7 5 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-2.7092639356851578e-002</threshold>
<left_val>6.0071170330047607e-001</left_val>
<right_val>-8.4794402122497559e-001</right_val></_></_>
<_>
<!-- tree 3 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
4 1 12 5 -1.</_>
<_>
10 1 6 5 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-8.1267888890579343e-004</threshold>
<left_val>5.9364068508148193e-001</left_val>
<right_val>-8.9295238256454468e-001</right_val></_></_>
<_>
<!-- tree 4 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
37 9 3 3 -1.</_>
<_>
38 9 1 3 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>8.3705072756856680e-004</threshold>
<left_val>-6.4887362718582153e-001</left_val>
<right_val>7.8537952899932861e-001</right_val></_></_></trees>
<stage_threshold>-1.0618970394134521e+000</stage_threshold>
<parent>11</parent>
<next>-1</next></_>
<_>
<!-- stage 13 -->
<trees>
<_>
<!-- tree 0 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
54 0 10 6 -1.</_>

<_>
54 0 5 3 2.</_>
<_>
59 3 5 3 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>-9.7556859254837036e-003</threshold>
<left_val>7.6982218027114868e-001</left_val>
<right_val>-8.5293501615524292e-001</right_val></_></_>
<_>
<!-- tree 1 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
47 0 6 11 -1.</_>
<_>
49 0 2 11 3.</_></rects>
<tilted>0</tilted></feature>
<threshold>-8.6617246270179749e-003</threshold>
<left_val>8.4029090404510498e-001</left_val>
<right_val>-7.1949690580368042e-001</right_val></_></_>
<_>
<!-- tree 2 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
19 2 20 2 -1.</_>
<_>
19 3 20 1 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>1.6897840425372124e-002</threshold>
<left_val>-5.3601992130279541e-001</left_val>
<right_val>9.5484441518783569e-001</right_val></_></_>
<_>
<!-- tree 3 -->
<_>
<!-- root node -->
<feature>
<rects>
<_>
14 4 6 11 -1.</_>
<_>
17 4 3 11 2.</_></rects>
<tilted>0</tilted></feature>
<threshold>4.7526158596156165e-005</threshold>

```
      <left_val>-7.6412862539291382e-001</left_val>
      <right_val>7.5398761034011841e-001</right_val></_></_>
    <_>
     <!-- tree 4 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         31 9 33 2 -1.</_>
        <_>
         42 9 11 2 3.</_></rects>
       <tilted>0</tilted></feature>
      <threshold>6.5607670694589615e-003</threshold>
       <left_val>-9.9346441030502319e-001</left_val>
      <right_val>6.4864277839660645e-001</right_val></_></_></trees>
  <stage_threshold>-7.3307347297668457e-001</stage_threshold>
  <parent>12</parent>
  <next>-1</next></_>
 <_>
  <!-- stage 14 -->
  <trees>
   <_>
    <!-- tree 0 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        6 1 53 6 -1.</_>
       <_>
        6 3 53 2 3.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>1.0103269666433334e-001</threshold>
     <left_val>-7.3275578022003174e-001</left_val>
     <right_val>8.4619927406311035e-001</right_val></_></_>
    <_>
     <!-- tree 1 -->
     <_>
      <!-- root node -->
      <feature>
       <rects>
        <_>
         49
9 4 6 -1.</_>
        <_>
         49 9 2 3 2.</_>
        <_>
```

```
        51 12 2 3 2.</_></rects>
      <tilted>0</tilted></feature>
    <threshold>-2.8920811018906534e-004</threshold>
    <left_val>7.1564781665802002e-001</left_val>
    <right_val>-8.8221758604049683e-001</right_val></_></_>
  <_>
   <!-- tree 2 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       0 9 30 7 -1.</_>
      <_>
       10 9 10 7 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>1.0838840156793594e-002</threshold>
    <left_val>-8.7420248985290527e-001</left_val>
    <right_val>6.0648679733276367e-001</right_val></_></_>
  <_>
   <!-- tree 3 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>

 <_>
        40 4 6 2 -1.</_>
       <_>
        42 4 2 2 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>5.0803890917450190e-004</threshold>
    <left_val>-9.0554022789001465e-001</left_val>
    <right_val>6.4213967323303223e-001</right_val></_></_>
  <_>
   <!-- tree 4 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       1 9 6 1 -1.</_>
      <_>
       3 9 2 1 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>2.3357039317488670e-003</threshold>
    <left_val>-9.2574918270111084e-001</left_val>
    <right_val>8.6384928226470947e-001</right_val></_></_>
```

```
    <_>
      <!-- tree 5 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              47 3
4 10 -1.</_>
            <_>
              47 8 4 5 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>8.0239427916239947e-005</threshold>
        <left_val>-9.9618428945541382e-001</left_val>
        <right_val>9.5355111360549927e-001</right_val></_></_>
    <_>
      <!-- tree 6 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              31 5 30 11 -1.</_>
            <_>
              41 5 10 11 3.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>3.2030208967626095e-003</threshold>
        <left_val>-1.</left_val>
        <right_val>1.0001050233840942e+000</right_val></_></_>
    <_>
      <!-- tree 7 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              0 0 2 1 -1.</_>
            <_>

1 0 1 1 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>0.</threshold>
        <left_val>0.</left_val>
        <right_val>-1.</right_val></_></_>
    <_>
      <!-- tree 8 -->
      <_>
        <!-- root node -->
```

```
    <feature>
     <rects>
      <_>
       21 3 42 5 -1.</_>
      <_>
       35 3 14 5 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>2.6143440045416355e-003</threshold>
    <left_val>-1.</left_val>
    <right_val>1.0002139806747437e+000</right_val></_></_>
  <_>
   <!-- tree 9 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       0 0 2 1 -1.</_>
      <_>
       1 0 1 1 2.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>0.</threshold>
     <left_val>0.</left_val>
    <right_val>-1.</right_val></_></_>
  <_>
   <!-- tree 10 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       8 5 30 9 -1.</_>
      <_>
       8 8 30 3 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>-7.0475979009643197e-004</threshold>
    <left_val>1.</left_val>
    <right_val>-9.9976968765258789e-001</right_val></_></_>
  <_>
   <!-- tree 11 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       3 12 33 3 -1.</_>
      <_>
       14 12 11 3 3.</_></rects>
```

```
      <tilted>0</tilted></feature>
     <threshold>2.1271279547363520e-003</threshold>
     <left_val>-9.9694627523422241e-001</left_val>
     <right_val>1.0002720355987549e+000</right_val></_></_>
   <_>
    <!-- tree 12 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        0 0 3 2 -1.</_>
       <_>
        1 0 1 2 3.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>-2.4224430671893060e-004</threshold>
     <left_val>1.</left_val>
     <right_val>-1.</right_val></_></_>
   <_>
    <!-- tree 13 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        46 4 3 8 -1.</_>
       <_>
        47 4 1 8 3.</_></rects>
      <tilted>0</tilted></feature>
     <threshold>7.4700301047414541e-004</threshold>
     <left_val>-9.9108231067657471e-001</left_val>
     <right_val>9.9941182136535645e-001</right_val></_></_></trees>
  <stage_threshold>-1.0991690158843994e+000</stage_threshold>
   <parent>13</parent>
  <next>-1</next></_>
 <_>
  <!-- stage 15 -->
  <trees>
   <_>
    <!-- tree 0 -->
    <_>
     <!-- root node -->
     <feature>
      <rects>
       <_>
        1 2 6 5 -1.</_>
       <_>
        3 2 2 5 3.</_></rects>
```

```
      <tilted>0</tilted></feature>
    <threshold>1.7227890202775598e-003</threshold>
    <left_val>-9.3608891963958740e-001</left_val>
    <right_val>8.7251222133636475e-001</right_val></_></_>
  <_>
   <!-- tree 1 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       0 3 18 5 -1.</_>
      <_>
       6 3 6 5 3.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>2.7599320746958256e-003</threshold>
    <left_val>-9.9757021665573120e-001</left_val>
     <right_val>1.0000289678573608e+000</right_val></_></_>
  <_>
   <!-- tree 2 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       3 1 6 14 -1.</_>
      <_>
       6 1 3 14 2.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>-8.9444358309265226e-005</threshold>
    <left_val>1.</left_val>
    <right_val>-9.9264812469482422e-001</right_val></_></_>
  <_>
   <!-- tree 3 -->
   <_>
    <!-- root node -->
    <feature>
     <rects>
      <_>
       3 6 2 10 -1.</_>
      <_>
       3 11 2 5 2.</_></rects>
     <tilted>0</tilted></feature>
    <threshold>-2.7962020249105990e-004</threshold>
    <left_val>8.2833290100097656e-001</left_val>

   <right_val>-9.8444151878356934e-001</right_val></_></_>
  <_>
```

```
      <!-- tree 4 -->
      <_>
        <!-- root node -->
        <feature>
          <rects>
            <_>
              42 0 4 6 -1.</_>
            <_>
              42 0 2 3 2.</_>
            <_>
              44 3 2 3 2.</_></rects>
          <tilted>0</tilted></feature>
        <threshold>-2.7560539820115082e-005</threshold>
        <left_val>1.</left_val>
        <right_val>-9.9543339014053345e-001</right_val></_></_></trees>
    <stage_threshold>-9.1314977407455444e-001</stage_threshold>
    <parent>14</parent>
    <next>-1</next></_></stages></haarcascade_pltzzz64x16_16STG>
</opencv_storage>
```


This package was debianized by Christopher L Cheney <ccheney@debian.org> on
Fri, 22 Aug 2003 01:33:34 -0500.

The current maintainer is Roland Stigge <stigge@antcom.de>

It was downloaded from http://www.ece.uvic.ca/~mdadams/jasper/

Upstream Author: Michael Adams <mdadams@ece.uvic.ca>

License:

JasPer License Version 2.0

Copyright (c) 1999-2000 Image Power, Inc.
Copyright (c) 1999-2000 The University of British Columbia
Copyright (c) 2001-2003 Michael David Adams

All rights reserved.

Permission is hereby granted, free of charge, to any person (the
"User") obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without restriction,
including without limitation the rights to use, copy, modify, merge,
publish, distribute, and/or sell copies of the Software, and to permit
persons to whom the Software is furnished to do so, subject to the
following conditions:

1. The above copyright notices and this permission notice (which
includes

the disclaimer below) shall be included in all copies or
substantial portions of the Software.

2. The name of a copyright holder shall not be used to endorse or
promote products derived from the Software without specific prior
written permission.

THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS
LICENSE. NO USE OF THE SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER
THIS DISCLAIMER. THE SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS
"AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING
BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A
PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO
EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL
INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE. NO ASSURANCES
ARE
PROVIDED BY THE COPYRIGHT HOLDERS THAT THE SOFTWARE DOES NOT INFRINGE
THE PATENT OR OTHER INTELLECTUAL PROPERTY RIGHTS OF ANY OTHER ENTITY.
EACH COPYRIGHT HOLDER DISCLAIMS ANY LIABILITY TO THE USER FOR CLAIMS
BROUGHT BY ANY OTHER ENTITY BASED ON INFRINGEMENT OF INTELLECTUAL
PROPERTY RIGHTS OR OTHERWISE. AS A CONDITION TO EXERCISING THE RIGHTS
GRANTED HEREUNDER, EACH USER HEREBY ASSUMES SOLE RESPONSIBILITY TO SECURE
ANY OTHER INTELLECTUAL PROPERTY RIGHTS NEEDED, IF ANY. THE SOFTWARE
IS NOT FAULT-TOLERANT AND IS NOT INTENDED FOR USE IN MISSION-CRITICAL
SYSTEMS, SUCH AS THOSE USED IN THE OPERATION OF NUCLEAR FACILITIES,
AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL
SYSTEMS, DIRECT LIFE SUPPORT MACHINES, OR WEAPONS SYSTEMS, IN WHICH
THE FAILURE OF THE SOFTWARE OR SYSTEM COULD LEAD DIRECTLY TO DEATH,
PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE ("HIGH
RISK ACTIVITIES"). THE COPYRIGHT HOLDERS SPECIFICALLY DISCLAIM ANY
EXPRESS OR IMPLIED WARRANTY
OF FITNESS FOR HIGH RISK ACTIVITIES.
Copyright (c) 2002-2006, Marc Prud'hommeaux <mwp1@cornell.edu>
All rights reserved.

Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the following
conditions are met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with

the distribution.

Neither the name of JLine nor the names of its contributors
may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,

including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this
License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
04 ,-./1

!'((0%23%()Ljava/lang/String;()V,(Ljava/lang/Object;)Ljava/lang/StringBuffer;(Ljava/lang/Object;)Z,(Ljava/lang/String;)Ljava/lang/StringBuffer;'(Ljava/lang/String;Ljava/lang/String;)VE([Lorg/apache/ivy/core/module/id/ModuleRevisionId;)Ljava/lang/String;->...<init>CircularDependencyHelper.javaCodeLineNumberTableLjava/lang/String;SourceFileaddappend

formatMessagegetNamegetUrljava/lang/Objectjava/lang/StringBufferjava/util/HashSet
java/util/Setname-org/apache/ivy/core/module/descriptor/LicensetoStringurl0%3%!#3*
+, $ *#*$+#* $#!#!*
$
!)#]YLYYM*2W+*2W>*1,
W+*2,*2W
,
W ,$2+,-."/*011=2H4O5R/X8&"
COPYRIGHT NOTICE, DISCLAIMER, and LICENSE
===

PNG Reference Library License version 2
----

* Copyright (c) 1995-2018 The PNG Reference Library Authors.
* Copyright (c) 2018 Cosmin Truta.
* Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson.
* Copyright (c) 1996-1997 Andreas Dilger.
* Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

The software is supplied "as is", without warranty of any kind,
express or implied, including, without limitation, the warranties
of merchantability, fitness for a particular purpose, title, and
non-infringement. In no even shall the Copyright owners, or
anyone distributing the software, be liable for any damages or
other liability, whether in contract, tort or otherwise, arising
from, out of, or in connection with the software, or the use or
other dealings in the software, even if advised of the possibility
of such damage.

Permission is hereby granted to use,
 copy, modify, and distribute
this software, or portions hereof, for any purpose, without fee,
subject to the following restrictions:

1. The origin of this software must not be misrepresented; you
   must not claim that you wrote the original software. If you
   use this software in a product, an acknowledgment in the product
   documentation would be appreciated, but is not required.

2. Altered source versions must be plainly marked as such, and must
   not be misrepresented as being the original software.

3. This Copyright notice may not be removed or altered from any
   source or altered source distribution.

PNG Reference Library License version 1 (for libpng 0.5 through 1.6.35)

---

libpng versions 1.0.7, July 1, 2000 through 1.6.35, July 15, 2018 are
Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson, are
derived from libpng-1.0.6, and are distributed according to the same
disclaimer and
license as libpng-1.0.6 with the following individuals
added to the list of Contributing Authors:

Simon-Pierre Cadieux
Eric S. Raymond
Mans Rullgard
Cosmin Truta
Gilles Vollant
James Yu
Mandar Sahastrabuddhe
Google Inc.
Vadim Barkov

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of
the library or against infringement. There is no warranty that our
efforts or the library will fulfill any of your particular purposes
or needs. This library is provided with all faults, and the entire
risk of satisfactory quality, performance, accuracy, and effort is
with the user.

Some files in the "contrib" directory and some configure-generated
files that are distributed with libpng have other copyright owners, and
are released under other open source licenses.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are
Copyright (c) 1998-2000 Glenn Randers-Pehrson,
are derived from
libpng-0.96, and are distributed according to the same disclaimer and
license as libpng-0.96, with the following individuals added to the
list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are
Copyright (c) 1996-1997 Andreas Dilger, are derived from libpng-0.88,
and are distributed according to the same disclaimer and license as
libpng-0.88, with the following individuals added to the list of
Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

Some files in the "scripts" directory have other copyright owners,
but are released under this license.

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

Andreas
Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing
Authors and Group 42, Inc. disclaim all warranties, expressed or
implied, including, without limitation, the warranties of
merchantability and of fitness for any purpose. The Contributing
Authors and Group 42, Inc. assume no liability for direct, indirect,
incidental, special, exemplary, or consequential damages, which may
result from the use of the PNG Reference Library, even if advised of
the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit,
without fee, and encourage the use of this source code as a component
to supporting the PNG file format in commercial products. If you use

this source code in a product, acknowledgment is not required but would be appreciated.

1.74 cryptsetup 1.7.2

1.74.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which

gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the
Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot

impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

In addition, as a special exception, the copyright holders give
permission to link the code of portions of this program with the
OpenSSL library under certain conditions as described in each
individual source file, and distribute linked combinations
including the two.

You must obey the GNU General Public License in all respects
for all of the code used other than OpenSSL. If you modify
file(s) with this exception, you may extend this exception to your
version of the file(s), but you are not obligated to do so. If you
do not wish to do so, delete this exception statement from your
version. If you delete this exception statement from all source
files in the program, then also delete it here.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is

modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of

free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from

such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Library, and can be
reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the

source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the

copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that

everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

 To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey
 the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

  <one line to give the library's name and a brief idea of what it does.>
  Copyright (C) <year> <name of author>

  This library is free software; you can redistribute it and/or
  modify it under the terms of the GNU Lesser General Public
  License as published by the Free Software Foundation; either
  version 2.1 of the License, or (at your option) any later version.

  This library is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
  Lesser General Public License for more details.

  You should have received a copy of the GNU Lesser General Public
  License along with this library; if not, write to the Free Software
  Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the
 library `Frob' (a library for tweaking knobs) written by James Random Hacker.

 <signature of Ty Coon>, 1 April 1990
 Ty Coon, President of Vice

That's all there is to it!

In addition, as a special exception, the copyright holders give
permission to link the code of portions of this program with the
OpenSSL library under certain conditions as described in each
individual source file, and distribute linked combinations
including the two.

You must obey the GNU Lesser General Public License in all respects
for all of the code used other than OpenSSL. If you modify
file(s) with this exception, you may extend this exception to your
version
 of the file(s), but you are not obligated to do so. If you
do not wish to do so, delete this exception statement from your
version. If you delete this exception statement from all source
files in the program, then also delete it here.

1.75 bean-validation-api 2.0.1.Final

1.75.1 Available under license :

Bean Validation API

License: Apache License, Version 2.0
See the license.txt file in the root directory or <http://www.apache.org/licenses/LICENSE-2.0>.

1.76 nio-stream-storage 1.1.3

1.76.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
 preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form,

including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and

attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that

such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any

Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims

asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.77 nio-multipart-parser 1.1.0

1.77.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the

Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any

additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.78 busybox 1.30.1

1.78.1 Available under license :

bzip2 applet in busybox is based on lightly-modified source
of bzip2 version 1.0.4. bzip2 source is distributed
under the following conditions (copied verbatim from LICENSE file)
==========

This program, "bzip2", the associated library "libbzip2", and all
documentation, are copyright (C) 1996-2006 Julian R Seward. All
rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must
not claim that you wrote the original software. If you use this
software in a product, an acknowledgment in the product
documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must
not be misrepresented
as being the original software.

4. The name of the author may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, Cambridge, UK.
jseward@bzip.org
bzip2/libbzip2 version 1.0.4 of 20 December 2006
--- A note on GPL versions

BusyBox is distributed under version 2 of the General Public License (included
in its entirety, below). Version 2 is the only version of this license which
this version of BusyBox (or modified versions derived from this one) may be
distributed under.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's
software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for
a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent

this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this
License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and
copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be

distributed
under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the
executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

5. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Program or
its derivative works. These actions are
prohibited by law if you do not accept this License. Therefore, by
modifying or distributing the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the
Program), the recipient automatically receives a license from the

original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict
the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity
of the free software distribution system, which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make
exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED
ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice
like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of
Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.79 berkeley-db 5.3.28+dfsg1-0.5

1.79.1 Available under license :

Copyright (c) 1995, 1996
The President and Fellows of Harvard University. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors may be
  used to endorse or promote products derived from this software without
  specific prior written permission.

THIS SOFTWARE IS PROVIDED BY HARVARD AND ITS CONTRIBUTORS ``AS IS'' AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED.
  IN NO EVENT SHALL HARVARD OR ITS CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 1990, 2011 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

3. Redistributions in any form must be accompanied by information on how to
  obtain complete source code for the DB software and any accompanying
  software that uses the DB software. The source code must either be included
  in the distribution or be available for no more than the cost of
  distribution plus a nominal fee, and must be freely redistributable under
  reasonable conditions. For an executable file, complete source
 code means
  the source code for all modules it contains. It does not include source
  code for modules or files that typically accompany the major components of
  the operating system on which the executable file runs.

THIS SOFTWARE IS PROVIDED BY ORACLE "AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, ARE
DISCLAIMED. IN NO EVENT SHALL ORACLE BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
ASM: a very small and fast Java bytecode manipulation framework
Copyright (c) 2000-2005 INRIA, France Telecom
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this document.

1.8. "Licensable" means
having the right to grant, to the maximum extent
possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of

the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software

available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must

include a copy of this License
with every copy of the Source Code form of the
Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4.
Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license
of Your choice, which may
contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by

You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled
for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute
or otherwise make
the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT

WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE
DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL
DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original
Software where the Participant
is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER
TORT (INCLUDING
NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER

FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R.
2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent
applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial
Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization

of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.
Legal Notices:

Information related to copyright, licensing, patents and trademarks. The author of this file is not a lawyer and the opinions herein are not legal council. If you have legal questions, contact a lawyer.

Copyright:

The body of work that comprises the `libdb database library` has multiple copyright holders including, but not limited to:

* Oracle Corporation
* The President and Fellows of Harvard University
* The Regents of the University of California
* Free Software Foundation
* X Consortium
* INRIA, France Telecom
* Gary V. Vaughan
* Makoto Matsumoto
* Takuji Nishimura
* Asim Jalis
* Keith Bostic
* Margo Seltzer
* Gregory Burd

Licensing:

Oracle Corporation licenses their copyrighted portions under the terms of the Sleepyat License (docs/legal/SPL.txt http://www.opensource.org/licenses/Sleepycat). The Sleepyat License's first two conditions are identical to that of the BSD 3-Clause license. Only the third condition differs by adding a copyleft-like requirement.
Oracle can be
contacted at berkeleydb-info_us@oracle.com.

The President and Fellows of Harvard University licenses their copyrighted portions under the terms of a BSD 3-Clause license (docs/legal/HARVARD.txt http://www.opensource.org/licenses/BSD-3-Clause).

The Regents of the University of California licenses their copyrighted portions under the terms of a BSD 3-Clause license (docs/legal/BSD.txt http://www.opensource.org/licenses/BSD-3-Clause).

INRIA, France Telecom licenses their copyrighted portions under the terms of a BSD 3-Clause license (docs/legal/ASM.txt

http://www.opensource.org/licenses/BSD-3-Clause).

Gregory Burd licenses his contributions to this combined work under the terms
of the Common Development and Distribution License version 1.0
(docs/legal/CDDL.txt http://www.opensource.org/licenses/cddl1.php).

Patents:

There are no known patent infringements at this time.

Trademarks:

There are no known trademarks infringements at this time.
NOTE

The license is based on the zlib/libpng license. For more details see
http://www.opensource.org/licenses/zlib-license.html. The intent of the
license is to:

- keep the license as simple as possible
- encourage the use of CuTest in both free and commercial applications
 and libraries
- keep the source code together
- give credit to the CuTest contributors for their work

If you ship CuTest in source form with your source distribution, the
following license document must be included with it in unaltered form.
If you find CuTest useful we would like to hear about it.

LICENSE

Copyright (c) 2003 Asim Jalis

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin
 of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software in
a product, an acknowledgment in the product documentation would be
appreciated but is not required.

2. Altered source versions must be plainly marked as such, and must not
be misrepresented as being the original software.

3. This notice may not be removed or altered from any source
distribution.
Copyright (c) 1990, 1993, 1994, 1995
The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors may be
  used to endorse or promote products derived from this software without
  specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 ARE
DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.80 glibc 2.27

1.80.1 Available under license :

@c The GNU Lesser General Public License.
@center Version 2.1, February 1999

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence the
version number 2.1.]
@end display

@subheading Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software---to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software---typically
libraries---of the Free
Software Foundation and other authors who decide to use it. You can use
it too, but we suggest you first think carefully about whether this
license or the ordinary General Public License is the better strategy to
use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of it
in new free programs; and that you are informed that you can do these
things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library
or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal

permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation
will not be affected by problems that might be
introduced by others.

Finally, software patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative
of the original library. The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the @dfn{Lesser} General Public License because it
does @emph{Less} to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the
same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free

software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a ``work based on the library'' and a ``work that uses the library''. The former
contains code derived from the library, whereas the latter must be combined with the library in order to run.

@subheading TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0
@item
This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called ``this License''). Each licensee is addressed as ``you''.

A ``library'' means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The ``Library'', below, refers to any such software library or work which has been distributed under these terms. A ``work based on the Library'' means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it,
either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term ``modification''.)

``Source code'' for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation

and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

@item
You may copy and distribute
verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

@item
You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

@enumerate a
@item
The modified work must itself be a software library.

@item
You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

@item
You must
cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

@item
If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that,

in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)
@end enumerate

These requirements apply to the modified work as a whole. If
identifiable sections
 of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this
 License.

@item
You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

 Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

@item
You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and
2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

@item
A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a ``work that uses the Library''. Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a ``work that uses the Library'' with the Library
creates an executable that is a derivative of the Library (because
it
contains portions of the Library), rather than a ``work that uses the
library''. The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a ``work that uses the Library'' uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise,

if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

@item
As an exception to the Sections above, you may also combine or
link a ``work that uses the Library'' with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of
this License. Also, you must do one
of these things:

@enumerate a
@item
Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable ``work that
uses the Library'', as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

@item
Use a suitable shared library mechanism for linking with the Library. A
suitable mechanism is one that (1) uses at run time a copy of the
library already present on the user's computer system, rather than
copying library functions into the executable,
and (2) will operate
properly with a modified version of the library, if the user installs
one, as long as the modified version is interface-compatible with the
version that the work was made with.

@item
Accompany the work with a written offer, valid for at

least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

@item
If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

@item
Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.
@end enumerate

For an executable, the required form of the ``work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that
is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies the
executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

@item
You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

@enumerate a
@item
Accompany the combined library with a copy of the same work
based on the Library,
uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

@item
Give prominent notice with the combined library of the fact

that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.
@end enumerate

@item
You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

@item
You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited
by law if you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

@item
Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

@item
If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License,
they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software
 distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

@item
If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

@item
The Free Software Foundation
 may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
``any later version'', you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

@item
If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free

Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

@center @b{NO WARRANTY}

@item
BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY ``AS IS'' WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

@item
IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.
@end enumerate

@subheading END OF TERMS AND CONDITIONS

@page
@subheading How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source
file to most effectively
convey the exclusion of warranty; and each file should have at least the

``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}

This library is free software; you can redistribute it and/or modify it
under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1 of the License, or (at
your option) any later version.

This library is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301,
USA.
@end
 smallexample

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a ``copyright disclaimer'' for the library, if
necessary. Here is a sample; alter the names:

@smallexample
Yoyodyne, Inc., hereby disclaims all copyright interest in the library
`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample

That's all there is to it!
Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
  software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty;

and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program

with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.

However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that

system; it is up to the author/donor to
decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE

PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this

when it starts in an interactive mode:

```
  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute
it
  under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a

"work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the

Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it

contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified

executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free

Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
@c The GNU Free Documentation License.
@center Version 1.3, 3 November 2008

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
@uref{http://fsf.org/}

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@enumerate 0
@item
PREAMBLE

The purpose of this License is to make a manual, textbook, or other

functional and useful document @dfn{free} in the sense of freedom: to
assure everyone the effective freedom to copy and redistribute it,
with or without modifying it, either commercially or noncommercially.
Secondarily, this License preserves for the author and publisher a way
to get credit for their work, while not being considered responsible
for modifications made by others.

This License is a kind of ``copyleft'', which means that derivative
works of the document
 must themselves be free in the same sense. It
complements the GNU General Public License, which is a copyleft
license designed for free software.

We have designed this License in order to use it for manuals for free
software, because free software needs free documentation: a free
program should come with manuals providing the same freedoms that the
software does. But this License is not limited to software manuals;
it can be used for any textual work, regardless of subject matter or
whether it is published as a printed book. We recommend this License
principally for works whose purpose is instruction or reference.

@item
APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that
contains a notice placed by the copyright holder saying it can be
distributed under the terms of this License. Such a notice grants a
world-wide, royalty-free license, unlimited in duration, to use that
work under the conditions stated herein. The ``Document'', below,
refers
 to any such manual or work. Any member of the public is a
licensee, and is addressed as ``you''. You accept the license if you
copy, modify or distribute the work in a way requiring permission
under copyright law.

A ``Modified Version'' of the Document means any work containing the
Document or a portion of it, either copied verbatim, or with
modifications and/or translated into another language.

A ``Secondary Section'' is a named appendix or a front-matter section
of the Document that deals exclusively with the relationship of the
publishers or authors of the Document to the Document's overall
subject (or to related matters) and contains nothing that could fall
directly within that overall subject. (Thus, if the Document is in
part a textbook of mathematics, a Secondary Section may not explain
any mathematics.) The relationship could be a matter of historical
connection with the subject or with related matters, or of legal,
commercial, philosophical, ethical or political

position regarding
them.

The ``Invariant Sections'' are certain Secondary Sections whose titles
are designated, as being those of Invariant Sections, in the notice
that says that the Document is released under this License. If a
section does not fit the above definition of Secondary then it is not
allowed to be designated as Invariant. The Document may contain zero
Invariant Sections. If the Document does not identify any Invariant
Sections then there are none.

The ``Cover Texts'' are certain short passages of text that are listed,
as Front-Cover Texts or Back-Cover Texts, in the notice that says that
the Document is released under this License. A Front-Cover Text may
be at most 5 words, and a Back-Cover Text may be at most 25 words.

A ``Transparent'' copy of the Document means a machine-readable copy,
represented in a format whose specification is available to the
general public, that is suitable for revising the document
straightforwardly with generic text editors or (for
images composed of
pixels) generic paint programs or (for drawings) some widely available
drawing editor, and that is suitable for input to text formatters or
for automatic translation to a variety of formats suitable for input
to text formatters. A copy made in an otherwise Transparent file
format whose markup, or absence of markup, has been arranged to thwart
or discourage subsequent modification by readers is not Transparent.
An image format is not Transparent if used for any substantial amount
of text. A copy that is not ``Transparent'' is called ``Opaque''.

Examples of suitable formats for Transparent copies include plain
ASCII without markup, Texinfo input format, La@TeX{} input
format, SGML or XML using a publicly available
DTD, and standard-conforming simple HTML,
PostScript or PDF designed for human modification. Examples
of transparent image formats include PNG, XCF and
JPG. Opaque formats include proprietary formats that can be
read and edited only by proprietary word
processors, SGML or
XML for which the DTD and/or processing tools are
not generally available, and the machine-generated HTML,
PostScript or PDF produced by some word processors for
output purposes only.

The ``Title Page'' means, for a printed book, the title page itself,
plus such following pages as are needed to hold, legibly, the material
this License requires to appear in the title page. For works in
formats which do not have any title page as such, ``Title Page'' means

the text near the most prominent appearance of the work's title,
preceding the beginning of the body of the text.

The ``publisher'' means any person or entity that distributes copies
of the Document to the public.

A section ``Entitled XYZ'' means a named subunit of the Document whose
title either is precisely XYZ or contains XYZ in parentheses following
text that translates XYZ in another language. (Here XYZ stands for a
specific section name mentioned below, such as ``Acknowledgements'',
``Dedications'', ``Endorsements'',
 or ``History''.)  To ``Preserve the Title''
of such a section when you modify the Document means that it remains a
section ``Entitled XYZ'' according to this definition.

The Document may include Warranty Disclaimers next to the notice which
states that this License applies to the Document. These Warranty
Disclaimers are considered to be included by reference in this
License, but only as regards disclaiming warranties: any other
implication that these Warranty Disclaimers may have is void and has
no effect on the meaning of this License.

@item
VERBATIM COPYING

You may copy and distribute the Document in any medium, either
commercially or noncommercially, provided that this License, the
copyright notices, and the license notice saying this License applies
to the Document are reproduced in all copies, and that you add no other
conditions whatsoever to those of this License. You may not use
technical measures to obstruct or control the reading or further
copying of the copies
 you make or distribute. However, you may accept
compensation in exchange for copies. If you distribute a large enough
number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and
you may publicly display copies.

@item
COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have
printed covers) of the Document, numbering more than 100, and the
Document's license notice requires Cover Texts, you must enclose the
copies in covers that carry, clearly and legibly, all these Cover
Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on
the back cover. Both covers must also clearly and legibly identify

you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the
title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute
an
Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

@item
MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

@enumerate A
@item
Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same

title as a previous version
if the original publisher of that version gives permission.

@item
List on the Title Page, as authors, one or more persons or entities
responsible for authorship of the modifications in the Modified
Version, together with at least five of the principal authors of the
Document (all of its principal authors, if it has fewer than five),
unless they release you from this requirement.

@item
State on the Title page the name of the publisher of the
Modified Version, as the publisher.

@item
Preserve all the copyright notices of the Document.

@item
Add an appropriate copyright notice for your modifications
adjacent to the other copyright notices.

@item
Include, immediately after the copyright notices, a license notice
giving the public permission to use the Modified Version under the
terms of this License, in the form shown in the Addendum below.

@item
Preserve in that license notice the full lists of Invariant Sections
and required Cover Texts given in the Document's
license notice.

@item
Include an unaltered copy of this License.

@item
Preserve the section Entitled ``History'', Preserve its Title, and add
to it an item stating at least the title, year, new authors, and
publisher of the Modified Version as given on the Title Page. If
there is no section Entitled ``History'' in the Document, create one
stating the title, year, authors, and publisher of the Document as
given on its Title Page, then add an item describing the Modified
Version as stated in the previous sentence.

@item
Preserve the network location, if any, given in the Document for
public access to a Transparent copy of the Document, and likewise
the network locations given in the Document for previous versions
it was based on. These may be placed in the ``History'' section.

You may omit a network location for a work that was published at
least four years before the Document itself, or if the original
publisher of the version it refers to gives permission.

@item
For any
section Entitled ``Acknowledgements'' or ``Dedications'', Preserve
the Title of the section, and preserve in the section all the
substance and tone of each of the contributor acknowledgements and/or
dedications given therein.

@item
Preserve all the Invariant Sections of the Document,
unaltered in their text and in their titles. Section numbers
or the equivalent are not considered part of the section titles.

@item
Delete any section Entitled ``Endorsements''. Such a section
may not be included in the Modified Version.

@item
Do not retitle any existing section to be Entitled ``Endorsements'' or
to conflict in title with any Invariant Section.

@item
Preserve any Warranty Disclaimers.
@end enumerate

If the Modified Version includes new front-matter sections or
appendices that qualify as Secondary Sections and contain no material
copied from the Document, you may at your option designate some or all
of these sections as invariant. To do this, add their titles to the
list of Invariant
Sections in the Modified Version's license notice.
These titles must be distinct from any other section titles.

You may add a section Entitled ``Endorsements'', provided it contains
nothing but endorsements of your Modified Version by various
parties---for example, statements of peer review or that the text has
been approved by an organization as the authoritative definition of a
standard.

You may add a passage of up to five words as a Front-Cover Text, and a
passage of up to 25 words as a Back-Cover Text, to the end of the list
of Cover Texts in the Modified Version. Only one passage of
Front-Cover Text and one of Back-Cover Text may be added by (or
through arrangements made by) any one entity. If the Document already
includes a cover text for the same cover, previously added by you or

by arrangement made by the same entity you are acting on behalf of,
you may not add another; but you may replace the old one, on explicit
permission from the previous publisher that added the old
one.

The author(s) and publisher(s) of the Document do not by this License
give permission to use their names for publicity for or to assert or
imply endorsement of any Modified Version.

@item
COMBINING DOCUMENTS

You may combine the Document with other documents released under this
License, under the terms defined in section 4 above for modified
versions, provided that you include in the combination all of the
Invariant Sections of all of the original documents, unmodified, and
list them all as Invariant Sections of your combined work in its
license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and
multiple identical Invariant Sections may be replaced with a single
copy. If there are multiple Invariant Sections with the same name but
different contents, make the title of each such section unique by
adding at the end of it, in parentheses, the name of the original
author or publisher of that section if known,
or else a unique number.
Make the same adjustment to the section titles in the list of
Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled ``History''
in the various original documents, forming one section Entitled
``History''; likewise combine any sections Entitled ``Acknowledgements'',
and any sections Entitled ``Dedications''. You must delete all
sections Entitled ``Endorsements.''

@item
COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents
released under this License, and replace the individual copies of this
License in the various documents with a single copy that is included in
the collection, provided that you follow the rules of this License for
verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute
it individually under this License, provided you insert a copy of this
License

into the extracted document, and follow this License in all
other respects regarding verbatim copying of that document.

@item
AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate
and independent documents or works, in or on a volume of a storage or
distribution medium, is called an ``aggregate'' if the copyright
resulting from the compilation is not used to limit the legal rights
of the compilation's users beyond what the individual works permit.
When the Document is included in an aggregate, this License does not
apply to the other works in the aggregate which are not themselves
derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these
copies of the Document, then if the Document is less than one half of
the entire aggregate, the Document's Cover Texts may be placed on
covers that bracket the Document within the aggregate, or the
electronic equivalent of covers if the Document is in electronic
form.
Otherwise they must appear on printed covers that bracket the whole
aggregate.

@item
TRANSLATION

Translation is considered a kind of modification, so you may
distribute translations of the Document under the terms of section 4.
Replacing Invariant Sections with translations requires special
permission from their copyright holders, but you may include
translations of some or all Invariant Sections in addition to the
original versions of these Invariant Sections. You may include a
translation of this License, and all the license notices in the
Document, and any Warranty Disclaimers, provided that you also include
the original English version of this License and the original versions
of those notices and disclaimers. In case of a disagreement between
the translation and the original version of this License or a notice
or disclaimer, the original version will prevail.

If a section in the Document is Entitled ``Acknowledgements'',
``Dedications'', or ``History'', the requirement
(section 4) to Preserve
its Title (section 1) will typically require changing the actual
title.

@item
TERMINATION

You may not copy, modify, sublicense, or distribute the Document
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense, or distribute it is void, and
will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license
from a particular copyright holder is reinstated (a) provisionally,
unless and until the copyright holder explicitly and finally
terminates your license, and (b) permanently, if the copyright holder
fails to notify you of the violation by some reasonable means prior to
60 days after the cessation.

Moreover, your license from a particular copyright holder is
reinstated permanently if the copyright holder notifies you of the
violation by some reasonable means, this is the first time you have
received notice of violation of this License (for any
 work) from that
copyright holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the
licenses of parties who have received copies or rights from you under
this License. If your rights have been terminated and not permanently
reinstated, receipt of a copy of some or all of the same material does
not give you any rights to use it.

@item
FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions
of the GNU Free Documentation License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns. See
@uref{http://www.gnu.org/copyleft/}.

Each version of the License is given a distinguishing version number.
If the Document specifies that a particular numbered version of this
License ``or any later version'' applies to it, you have the option of
following the terms and
 conditions either of that specified version or
of any later version that has been published (not as a draft) by the
Free Software Foundation. If the Document does not specify a version
number of this License, you may choose any version ever published (not
as a draft) by the Free Software Foundation. If the Document
specifies that a proxy can decide which future versions of this
License can be used, that proxy's public statement of acceptance of a
version permanently authorizes you to choose that version for the

Document.

@item
RELICENSING

``Massive Multiauthor Collaboration Site'' (or ``MMC Site'') means any
World Wide Web server that publishes copyrightable works and also
provides prominent facilities for anybody to edit those works. A
public wiki that anybody can edit is an example of such a server. A
``Massive Multiauthor Collaboration'' (or ``MMC'') contained in the
site means any set of copyrightable works thus published on the MMC
site.

``CC-BY-SA'' means the Creative Commons
 Attribution-Share Alike 3.0
license published by Creative Commons Corporation, a not-for-profit
corporation with a principal place of business in San Francisco,
California, as well as future copyleft versions of that license
published by that same organization.

``Incorporate'' means to publish or republish a Document, in whole or
in part, as part of another Document.

An MMC is ``eligible for relicensing'' if it is licensed under this
License, and if all works that were first published under this License
somewhere other than this MMC, and subsequently incorporated in whole
or in part into the MMC, (1) had no cover texts or invariant sections,
and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site
under CC-BY-SA on the same site at any time before August 1, 2009,
provided the MMC is eligible for relicensing.

@end enumerate

@page
@heading ADDENDUM: How to use this License for your documents

To use this License
 in a document you have written, include a copy of
the License in the document and put the following copyright and
license notices just after the title page:

@smallexample
@group
 Copyright (C) @var{year} @var{your name}.
 Permission is granted to copy, distribute and/or modify this document
 under the terms of the GNU Free Documentation License, Version 1.3

or any later version published by the Free Software Foundation;
with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
Texts. A copy of the license is included in the section entitled ``GNU
Free Documentation License".
@end group
@end smallexample

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts."@: line with this:

@smallexample
@group
  with the Invariant Sections being @var{list their titles}, with
  the Front-Cover Texts being @var{list}, and with the Back-Cover Texts
  being @var{list}.
@end group
@end smallexample

If you have Invariant
Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
@c End:
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/, and
http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF
online code charts under the directory http://www.unicode.org/Public/.
Software includes any source code published in the Unicode Standard or under
the directories http://www.unicode.org/Public/,
http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY
DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES
("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND
AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF
YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA
FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode,
Inc. All rights reserved. Distributed under
the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a
copy of the Unicode data files and any associated documentation (the "Data
Files") or Unicode software and any associated documentation (the "Software")
to deal in the Data Files or Software without restriction, including without
limitation the rights to use, copy, modify, merge, publish, distribute, and/or
sell copies of the Data Files or Software, and to permit persons to whom the
Data Files or Software are furnished to do so, provided that (a) the above
copyright notice(s) and this permission notice appear with all copies of the
Data Files or Software, (b) both the above copyright notice(s) and this
permission notice appear in associated documentation, and (c) there is clear
notice in each modified Data File or in the Software as well as in the
documentation associated with the Data File(s) or Software
that the data or
software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall
not be used in advertising or otherwise to promote the sale, use or other
dealings in these Data Files or Software without prior written authorization
of the copyright holder.

This file contains the copying permission notices for various files in the
GNU C Library distribution that have copyright owners other than the Free
Software Foundation. These notices all require that a copy of the notice
be included in the accompanying documentation and be distributed with
binary distributions of the code, so be sure to include this file along
with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following
license:

Copyright (C) 1991 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in
 the
  documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
 OF THE POSSIBILITY OF
SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC
Berkeley, by Digital Equipment Corporation and by Internet Software
Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies, and
that the name of Digital Equipment Corporation not be used in
advertising or publicity pertaining to distribution of the document or
software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS'' AND DIGITAL EQUIPMENT CORP.
DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL
DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES

OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following
license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials
  provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,

INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science
Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the
above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER
IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized
Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse
or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR

CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright
(C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
Version 2.00

The author(s) grant permission for redistribution and use in source and
binary forms, with or without modification, of the software and documentation
provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled
as not being for redistribution (check the version message and/or README),
you are not permitted to redistribute that version of the software in any
way or form.
1. All terms of the all other applicable copyrights and licenses must be
followed.
2. Redistributions of source code must retain the authors' copyright
notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright
notice(s), this list of conditions, and the following disclaimer in the
documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s)
of the author(s) nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young
Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please
see <http://www.gnu.org/licenses/> to obtain a copy.

The libidn code is copyright Simon Josefsson, with portions copyright
The Internet Society, Tom Tromey and Red Hat, Inc.:

Copyright (C) 2002, 2003, 2004, 2011 Simon Josefsson

This file is part of GNU Libidn.

GNU Libidn is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

GNU Libidn is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY
or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with GNU Libidn; if not, see <http://www.gnu.org/licenses/>.

The following notice applies to portions of libidn/nfkc.c:

This file contains functions from GLIB, including gutf8.c and
gunidecomp.c, all licensed under LGPL and copyright hold by:

Copyright (C) 1999, 2000 Tom Tromey
Copyright 2000 Red Hat, Inc.

The following applies to portions of libidn/punycode.c and
libidn/punycode.h:

This file is derived from RFC 3492bis written by Adam M. Costello.

Disclaimer and license: Regarding this entire document or any
portion of it (including the pseudocode and C code), the author
makes no guarantees and is not responsible for any damage resulting
from its use. The author grants irrevocable permission to anyone

to use, modify, and distribute it in any way that does not diminish
the rights of anyone else
 to use, modify, and distribute it,
provided that redistributed derivative works do not contain
misleading author or version information. Derivative works need
not be licensed under similar terms.

Copyright (C) The Internet Society (2003). All Rights Reserved.

This document and translations of it may be copied and furnished to
others, and derivative works that comment on or otherwise explain it
or assist in its implementation may be prepared, copied, published
and distributed, in whole or in part, without restriction of any
kind, provided that the above copyright notice and this paragraph are
included on all such copies and derivative works. However, this
document itself may not be modified in any way, such as by removing
the copyright notice or references to the Internet Society or other
Internet organizations, except as needed for the purpose of
developing Internet standards in which case the procedures for
copyrights defined in the Internet Standards process must be
followed,
 or as required to translate it into languages other than
English.

The limited permissions granted above are perpetual and will not be
revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an
"AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING
TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING
BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION
HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF
MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions
 in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

3. Neither the name of the project nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright 1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of the copyright holder not be
used in advertising or publicity pertaining to distribution of the
software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject

to the following restrictions:

1. The author is not responsible for the consequences of use of this
 software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
 explicit claim or by omission. Since few users ever read sources,
 credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
 misrepresented
 as being the original software. Since few users
 ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any
computer system, and to redistribute it freely, subject to the following
restrictions:

1. This software is distributed in the hope that it will be useful,
 but WITHOUT ANY WARRANTY; without even the implied warranty of
 MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by
 explicit claim or by omission. In practice, this means that if you use
 PCRE in software that you distribute to others, commercially or
 otherwise, you must put a sentence like this

 Regular expression support is provided by the PCRE library package,
 which is open source software,
 written by Philip Hazel, and copyright
 by the University of Cambridge, England.

 somewhere reasonably visible in your documentation and in any relevant
 files or online help data or similar. A reference to the ftp site for
 the source, that is, to

 ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

 should also be given in the documentation. However, this condition is not
 intended to apply to whole chains of software. If package A includes PCRE,
 it must acknowledge it, but if package B is software that includes package
 A, the condition is not imposed on package B (unless it uses PCRE

independently).

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU
General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL),
then the terms of that licence shall supersede any condition above with
which it is incompatible.

Files
from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems, Inc. business.
Permission to use, copy, modify, and distribute this
software is freely granted, provided that this notice
is preserved.

Part of stdio-common/tst-printf.c is copyright C E Chew:

(C) Copyright C E Chew

Feel free to copy, use and distribute this software provided:

1. you do not pretend that you wrote it
2. you leave this copyright notice intact.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be
useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<http://www.gnu.org/licenses/>. */

1.81 inotify-tools 3.14

1.81.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute

and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably
considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through

any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version
number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.82 glib 2.28.8

1.83 libarchive 3.3.3

1.83.1 Available under license :

The libarchive distribution as a whole is Copyright by Tim Kientzle
and is subject to the copyright notice reproduced at the bottom of
this file.

Each individual file in this distribution should have a clear
copyright/licensing statement at the beginning of the file. If any do
not, please let me know and I will rectify it. The following is
intended to summarize the copyright status of the individual files;
the actual statements in the files are controlling.

* Except as listed below, all C sources (including .c and .h files)
and documentation files are subject to the copyright notice reproduced

at the bottom of this file.

* The following source files are also subject in whole or in part to
 a 3-clause UC Regents copyright; please read the individual source
 files for details:
  libarchive/archive_entry.c
  libarchive/archive_read_support_filter_compress.c
  libarchive/archive_write_add_filter_compress.c
  libarchive/mtree.5

* The following source files are in the public domain:
   libarchive/archive_getdate.c

* The following source files are triple-licensed with the ability to choose
 from CC0 1.0 Universal, OpenSSL or Apache 2.0 licenses:
  libarchive/archive_blake2.h
  libarchive/archive_blake2_impl.h
  libarchive/archive_blake2s_ref.c
  libarchive/archive_blake2sp_ref.c

* The build files---including Makefiles, configure scripts,
 and auxiliary scripts used as part of the compile process---have
 widely varying licensing terms. Please check individual files before
 distributing them to see if those restrictions apply to you.

I intend for all new source code to use the license below and hope over
time to replace code with other licenses with new implementations that
do use the license below. The varying licensing of the build scripts
seems to be an unavoidable mess.

Copyright (c) 2003-2018 <author(s)>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following
 conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer
  in this position and unchanged.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR(S) ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.

IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.84 coreutils 8.30-3ubuntu2

1.84.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether

gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this

License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major

Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction

and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is

released under this License and any conditions added under section
7. This requirement modifies the requirement in section
4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the

product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the

additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read

<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.85 libidn 2.2.0-2

1.85.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by
the Library is deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a
facility refers to a function or data to be supplied by an Application
that uses the facility (other than as an argument passed when the
facility is invoked), then you may convey a copy of the modified
version:

a) under this License, provided that you make a good faith effort to
ensure that, in the event an Application does not supply the
function or data, the facility still operates, and performs
whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of
this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from
a header file that is part of the Library. You may convey such object
code under terms of your choice, provided that, if the incorporated
material is not limited to numerical parameters,
data structure
layouts and accessors, or small macros, inline functions and templates
(ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the
Library is used in it and that the Library and its use are
covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license
document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that,
taken together, effectively do not restrict modification of the
portions of the Library contained in the Combined Work and reverse
engineering for debugging such modifications, if you also do each of
the following:

a) Give prominent notice with each copy of the Combined Work that
the Library is used in it and that the Library and its use are

covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined

library under terms of your
choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option
of following the terms and
conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This

General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a

notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution
and only if you
received the program in object code or executable form with such

an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any

later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively

convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

  <one line to give the program's name and a brief idea of what it does.>
  Copyright (C) <year> <name of author>

  This program is free software; you can redistribute it and/or modify
  it under the terms of the GNU
General Public License as published by
  the Free Software Foundation; either version 2 of the License, or
  (at your option) any later version.

  This program is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
  GNU General Public License for more details.

  You should have received a copy of the GNU General Public License along
  with this program; if not, write to the Free Software Foundation, Inc.,
  51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute
it
  under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into

proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
 is what you want to do, use the GNU Lesser General
Public License instead of this License.
Libidn2 COPYING -- Licensing information.   -*- outline -*-
Copyright (C) 2011-2016 Simon Josefsson
See the end for copying conditions.

The source code for the C library (libidn2.a or libidn.so) are
licensed under the terms of either the GNU General Public License
version 2.0 or later (see the file COPYINGv2) or the GNU Lesser
General Public License version 3.0 or later (see the file
COPYING.LESSERv3), or both in parallel as here.

The command line tool, self tests, examples, and other auxiliary
files, are licensed under the GNU General Public License version 3.0
or later.

The license of the Unicode character data files (which are parsed into
static storage in the library) are documented in COPYING.unicode.

Other files are licensed as indicated in each file.

There may be exceptions to these general rules, see each file for
precise information.

This file is free software: you can redistribute
 it and/or modify it
under the terms of the GNU General Public License as published by the
Free Software Foundation, either version 3 of the License, or (at your
option) any later version.

This file is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
General Public License for more details.

You should have received a copy of the GNU General Public License
along with this file. If not, see <http://www.gnu.org/licenses/>.
A. Unicode Copyright.

Copyright 1991-2016 Unicode, Inc. All rights reserved.

Certain documents and files on this website contain a legend indicating that "Modification is permitted." Any person is hereby authorized, without fee, to modify such documents and files to create derivative works conforming to the Unicode Standard, subject to Terms and Conditions herein.

Any person is hereby authorized, without fee, to view, use, reproduce, and distribute all documents and files solely

for informational purposes and in the creation of products supporting the Unicode Standard, subject to the Terms and Conditions herein.

Further specifications of rights and restrictions pertaining to the use of the particular set of data files known as the "Unicode Character Database" can be found in the License.

Each version of the Unicode Standard has further specifications of rights and restrictions of use. For the book editions (Unicode 5.0 and earlier), these are found on the back of the
title page. The online code charts carry specific restrictions. All other files, including online documentation of the core specification for Unicode 6.0 and later, are covered under these general Terms of Use.

No license is granted to "mirror" the Unicode website where a fee is charged for access to the "mirror" site.

Modification is not permitted with respect to this document. All copies of this document must be verbatim.

B. Restricted Rights Legend.

Any technical data or software which is licensed to the United States of America, its agencies and/or instrumentalities under this Agreement is commercial technical data or commercial computer software developed exclusively at private expense as defined in FAR 2.101, or DFARS 252.227-7014 (June 1995), as applicable. For technical data, use, duplication, or disclosure by the Government is subject to restrictions as set forth in DFARS 202.227-7015 Technical Data, Commercial and Items (Nov 1995) and this Agreement. For Software,
in accordance with FAR 12-212 or DFARS 227-7202, as applicable, use, duplication or disclosure by the Government is subject to the restrictions set forth in this Agreement.

C. Warranties and Disclaimers.

This publication and/or website may include technical or typographical errors or other inaccuracies . Changes are periodically added to the information herein; these changes will be incorporated in new editions of the publication and/or website. Unicode may make improvements and/or changes in the product(s) and/or program(s) described in this publication and/or website at any time.

If this file has been purchased on magnetic or optical media from Unicode, Inc. the sole and exclusive remedy for any claim will be exchange of the defective media within ninety (90) days of original purchase.

EXCEPT AS PROVIDED IN SECTION C.2, THIS PUBLICATION AND/OR SOFTWARE IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND EITHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO,
ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. UNICODE AND ITS LICENSORS ASSUME NO RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THIS PUBLICATION AND/OR SOFTWARE OR OTHER DOCUMENTS WHICH ARE REFERENCED BY OR LINKED TO THIS PUBLICATION OR THE UNICODE WEBSITE.

D. Waiver of Damages.

In no event shall Unicode or its licensors be liable for any special, incidental, indirect or consequential damages of any kind, or any damages whatsoever, whether or not Unicode was advised of the possibility of the damage, including, without limitation, those resulting from the following: loss of use, data or profits, in connection with the use, modification or distribution of this information or its derivatives.

E. Trademarks & Logos.

The Unicode Word Mark and the Unicode Logo are trademarks of Unicode, Inc. The Unicode Consortium and Unicode, Inc. are trade names of Unicode, Inc. Use of the information and materials found on this website indicates your acknowledgement
of Unicode, Inc.s exclusive worldwide rights in the Unicode Word Mark, the Unicode Logo, and the Unicode trade names.

The Unicode Consortium Name and Trademark Usage Policy (Trademark Policy) are incorporated herein by

reference and you agree to abide by the provisions of the Trademark Policy, which may be changed from time to time in the sole discretion of Unicode, Inc.

All third party trademarks referenced herein are the property of their respective owners.

F. Miscellaneous.

Jurisdiction and Venue. This server is operated from a location in the State of California, United States of America. Unicode makes no representation that the materials are appropriate for use in other locations. If you access this server from other locations, you are responsible for compliance with local laws. This Agreement, all use of this site and any claims and damages resulting from use of this site are governed solely by the laws of the State of California without regard to any principles

which would apply the laws of a different jurisdiction. The user agrees that any disputes regarding this site shall be resolved solely in the courts located in Santa Clara County, California. The user agrees said courts have personal jurisdiction and agree to waive any right to transfer the dispute to any other forum.

Modification by Unicode Unicode shall have the right to modify this Agreement at any time by posting it to this site. The user may not assign any part of this Agreement without Unicodes prior written consent.

Taxes. The user agrees to pay any taxes arising from access to this website or use of the information herein, except for those based on Unicodes net income.

Severability. If any provision of this Agreement is declared invalid or unenforceable, the remaining provisions of this Agreement shall remain in effect.

Entire Agreement. This Agreement constitutes the entire agreement between the parties.

EXHIBIT 1
Unicode Data Files include all data files
under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/, http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

Unicode Data Files do not include PDF online code charts under the
directory http://www.unicode.org/Public/.

Software includes any source code published in the Unicode Standard
or under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/, http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

NOTICE TO USER: Carefully read the following legal agreement.
BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S
DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"),
YOU UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE
TERMS AND CONDITIONS OF THIS AGREEMENT.
IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE
THE DATA FILES OR SOFTWARE.

COPYRIGHT

AND PERMISSION NOTICE

Copyright 1991-2016 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED
TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

1.86 libbsd 0.10.0-1

1.86.1 Available under license :

Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/

Files:
*
Copyright:
Copyright 2004-2006, 2008-2018 Guillem Jover <guillem@hadrons.org>
License: BSD-3-clause

Files:

man/arc4random.3bsd
man/tree.3bsd
Copyright:
Copyright 1997 Niels Provos <provos@physnet.uni-hamburg.de>
All rights reserved.
License: BSD-4-clause-Niels-Provos
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
must display the following acknowledgement:
This product includes
software developed by Niels Provos.
4. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Files:
man/getprogname.3bsd
Copyright:
Copyright 2001 Christopher G. Demetriou
All rights
reserved.
License: BSD-4-clause-Christopher-G-Demetriou
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software

must display the following acknowledgement:
This product includes software developed for the
NetBSD Project. See http://www.netbsd.org/ for
information about NetBSD.
4. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED
BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Files:
include/bsd/err.h
include/bsd/stdlib.h
include/bsd/sys/param.h
include/bsd/unistd.h
src/bsd_getopt.c
src/err.c
src/fgetln.c
src/progname.c
Copyright:
Copyright 2005, 2008-2012, 2019 Guillem Jover <guillem@hadrons.org>
Copyright 2005 Hector Garcia Alvarez
Copyright 2005 Aurelien Jarno
Copyright
2006 Robert Millan
Copyright 2018 Facebook, Inc.
License: BSD-3-clause

Files:
include/bsd/netinet/ip_icmp.h
include/bsd/sys/bitstring.h
include/bsd/sys/queue.h
include/bsd/sys/time.h
include/bsd/timeconv.h
include/bsd/vis.h
man/bitstring.3bsd
man/errc.3bsd
man/explicit_bzero.3bsd
man/fgetln.3bsd

man/fgetwln.3bsd
man/fpurge.3bsd
man/funopen.3bsd
man/getbsize.3bsd
man/heapsort.3bsd
man/nlist.3bsd
man/queue.3bsd
man/radixsort.3bsd
man/reallocarray.3bsd
man/reallocf.3bsd
man/setmode.3bsd
man/strmode.3bsd
man/strnstr.3bsd
man/strtoi.3bsd
man/strtou.3bsd
man/unvis.3bsd
man/vis.3bsd
man/wcslcpy.3bsd
src/getbsize.c
src/heapsort.c
src/merge.c
src/nlist.c
src/radixsort.c
src/setmode.c
src/strmode.c
src/strnstr.c
src/strtoi.c
src/strtou.c
src/unvis.c
Copyright:
Copyright 1980, 1982, 1986, 1989-1994
The Regents of the University of California. All rights reserved.
Copyright 2001 Mike Barcroft <mike@FreeBSD.org>
.
Some code is derived from
software contributed to Berkeley by
the American National Standards Committee X3, on Information
Processing Systems.
.
Some code is derived from software contributed to Berkeley by
Peter McIlroy.
.
Some code is derived from software contributed to Berkeley by
Ronnie Kon at Mindcraft Inc., Kevin Lew and Elmer Yglesias.
.
Some code is derived from software contributed to Berkeley by
Dave Borman at Cray Research, Inc.
.

Some code is derived from software contributed to Berkeley by
Paul Vixie.
.
Some code is derived from software contributed to Berkeley by
Chris Torek.
.
Copyright UNIX System Laboratories, Inc.
All or some portions of this file are derived from material licensed
to the University of California by American Telephone and Telegraph
Co. or Unix System Laboratories, Inc. and are reproduced herein with
the permission of UNIX System Laboratories, Inc.
License: BSD-3-clause-Regents

Files:
src/vis.c
Copyright:
Copyright 1989, 1993
    The Regents of
 the University of California. All rights reserved.
.
Copyright 1999, 2005 The NetBSD Foundation, Inc.
All rights reserved.
License: BSD-3-clause-Regents and BSD-2-clause-NetBSD

Files:
include/bsd/libutil.h
Copyright:
Copyright 1996 Peter Wemm <peter@FreeBSD.org>.
All rights reserved.
Copyright 2002 Networks Associates Technology, Inc.
All rights reserved.
License: BSD-3-clause-author

Files:
man/timeradd.3bsd
Copyright:
Copyright 2009 Jukka Ruohonen <jruohonen@iki.fi>
Copyright 1999 Kelly Yancey <kbyanc@posi.net>
All rights reserved.
License: BSD-3-clause-John-Birrell
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer

in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the author nor the names of any co-contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED BY JOHN BIRRELL AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF
SUCH DAMAGE.

Files:
man/setproctitle.3bsd
Copyright:
Copyright 1995 Peter Wemm <peter@FreeBSD.org>
All rights reserved.
License: BSD-5-clause-Peter-Wemm
Redistribution and use in source and binary forms, with or without
modification, is permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice immediately at the beginning of the file, without modification,
this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. This work was done expressly for inclusion into FreeBSD. Other use
is permitted provided this notation is included.
4. Absolutely no warranty of function or purpose is made by the author
Peter Wemm.
5. Modifications may be freely made to this
file providing the above
conditions are met.

Files:
include/bsd/stringlist.h
man/fmtcheck.3bsd
man/humanize_number.3bsd
man/stringlist.3bsd
man/timeval.3bsd

src/fmtcheck.c
src/humanize_number.c
src/stringlist.c
src/strtonum.c
Copyright:
Copyright 1994, 1997-2000, 2002, 2008, 2010, 2014
The NetBSD Foundation, Inc.
Copyright 2013 John-Mark Gurney <jmg@FreeBSD.org>
All rights reserved.
.
Some code was contributed to The NetBSD Foundation by Allen Briggs.
.
Some code was contributed to The NetBSD Foundation by Luke Mewburn.
.
Some code is derived from software contributed to The NetBSD Foundation
by Jason R. Thorpe of the Numerical Aerospace Simulation Facility,
NASA Ames Research Center, by Luke Mewburn and by Tomas Svensson.
.
Some code is derived from software contributed to The NetBSD Foundation
by Julio M. Merino Vidal, developed as part of Google's Summer of Code
2005 program.
.
Some code is derived from software contributed to The NetBSD Foundation
by Christos Zoulas.
.
Some code is derived from software contributed to The NetBSD Foundation
by Jukka Ruohonen.
License: BSD-2-clause-NetBSD

Files:
include/bsd/sys/endian.h
man/byteorder.3bsd
man/closefrom.3bsd
man/expand_number.3bsd
man/flopen.3bsd
man/getpeereid.3bsd
man/pidfile.3bsd
src/expand_number.c
src/hash/sha512.h
src/hash/sha512c.c
src/pidfile.c
src/reallocf.c
src/timeconv.c
Copyright:
Copyright 1998, M. Warner Losh <imp@freebsd.org>
All rights reserved.
.
Copyright 2001 Dima Dorfman.

All rights reserved.
.
Copyright 2001 FreeBSD Inc.
All rights reserved.
.
Copyright 2002 Thomas Moestl <tmm@FreeBSD.org>
All rights reserved.
.
Copyright 2002 Mike Barcroft <mike@FreeBSD.org>
All rights reserved.
.
Copyright 2005 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.
.
Copyright 2005 Colin Percival
All rights reserved.
.
Copyright 2007 Eric Anderson <anderson@FreeBSD.org>
Copyright 2007 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.
.
Copyright 2007 Dag-Erling Codan Smrgrav
All rights reserved.
.
Copyright 2009 Advanced Computing Technologies LLC
Written by: John H. Baldwin <jhb@FreeBSD.org>
All rights reserved.
.
Copyright 2011 Guillem Jover <guillem@hadrons.org>
License: BSD-2-clause

Files:
src/flopen.c
Copyright:
Copyright 2007-2009 Dag-Erling Codan Smrgrav
All rights reserved.
License: BSD-2-clause-verbatim
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer
   in this position and unchanged.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
.
THIS SOFTWARE IS PROVIDED BY THE AUTHOR

AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Files:
include/bsd/sys/tree.h
man/fparseln.3bsd
src/fparseln.c
Copyright:
Copyright 1997 Christos Zoulas.
All rights reserved.
.
Copyright 2002 Niels Provos <provos@citi.umich.edu>
All rights reserved.
License: BSD-2-clause-author

Files:
include/bsd/readpassphrase.h
man/readpassphrase.3bsd
man/strlcpy.3bsd
man/strtonum.3bsd
src/arc4random.c
src/arc4random_linux.h
src/arc4random_openbsd.h
src/arc4random_uniform.c
src/arc4random_unix.h
src/arc4random_win.h
src/closefrom.c
src/getentropy_aix.c
src/getentropy_bsd.c
src/getentropy_hpux.c
src/getentropy_hurd.c
src/getentropy_linux.c
src/getentropy_osx.c
src/getentropy_solaris.c
src/getentropy_win.c
src/readpassphrase.c
src/reallocarray.c
src/strlcat.c
src/strlcpy.c

Copyright:
Copyright 2004 Ted Unangst and Todd Miller
All rights reserved.
.
Copyright 1996 David Mazieres <dm@uun.org>
Copyright 1998, 2000-2002, 2004-2005, 2007, 2010, 2012-2015
Todd C. Miller <Todd.Miller@courtesan.com>
Copyright 2004 Ted Unangst
Copyright 2008 Damien Miller <djm@openbsd.org>
Copyright 2008 Otto Moerbeek <otto@drijf.net>
Copyright 2013 Markus Friedl <markus@openbsd.org>
Copyright 2014 Bob Beck <beck@obtuse.com>
Copyright 2014 Brent Cook <bcook@openbsd.org>
Copyright 2014 Pawel Jakub
Dawidek <pjd@FreeBSD.org>
Copyright 2014 Theo de Raadt <deraadt@openbsd.org>
Copyright 2015 Michael Felt <aixtools@gmail.com>
Copyright 2015 Guillem Jover <guillem@hadrons.org>
License: ISC
Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.
.
THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Files:
src/inet_net_pton.c
Copyright:
Copyright 1996 by Internet Software Consortium.
License:
ISC-Original
Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.
.
THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS

SOFTWARE.

Files:
src/setproctitle.c
Copyright:
Copyright 2010 William Ahern
Copyright 2012 Guillem Jover <guillem@hadrons.org>
License: Expat
Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated
 documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to permit
persons to whom the Software is furnished to do so, subject to the
following conditions:
.
The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.
.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN
NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,
DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE
USE OR OTHER DEALINGS IN THE SOFTWARE.

Files:
include/bsd/md5.h
src/hash/md5.c
Copyright:
None
License:
 public-domain-Colin-Plumb
This code implements the MD5 message-digest algorithm.
The algorithm is due to Ron Rivest. This code was
written by Colin Plumb in 1993, no copyright is claimed.
This code is in the public domain; do with it what you wish.

Files:
src/explicit_bzero.c
src/chacha_private.h
Copyright:
None
License: public-domain
Public domain.

Files:
man/mdX.3bsd
src/hash/md5hl.c
src/hash/helper.c
Copyright:
None
License: Beerware
"THE BEER-WARE LICENSE" (Revision 42):
<phk@login.dkuug.dk> wrote this file. As long as you retain this notice you
can do whatever you want with this stuff. If we meet some day, and you think
this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp

License: BSD-3-clause-Regents
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list
of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

License: BSD-3-clause-author
Redistribution and use in source and binary forms, with or without
modification, is permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior written
permission.

.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

License: BSD-3-clause

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License:
BSD-2-clause-NetBSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright

notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

License: BSD-2-clause-author
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License: BSD-2-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation

and/or other materials provided with the distribution.

.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

1.87 dash 0.5.10.2-6

1.87.1 Available under license :

Copyright (c) 1989-1994
The Regents of the University of California. All rights reserved.
Copyright (c) 1997 Christos Zoulas. All rights reserved.
Copyright (c) 1997-2005
Herbert Xu <herbert@gondor.apana.org.au>. All rights reserved.

This code is derived from software contributed to Berkeley by Kenneth Almquist.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS
SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT

LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

mksignames.c:

This file is not directly linked with dash. However, its output is.

Copyright (C) 1992 Free Software Foundation, Inc.

This file is part of GNU Bash, the Bourne Again SHell.

Bash is free software; you can redistribute it and/or modify it under the
terms of the GNU General Public License as published by the Free Software Foundation; either version 2, or (at your option) any later version.

Bash is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License with your Debian GNU/Linux system, in /usr/share/common-licenses/GPL, or with the Debian GNU/Linux hello source package as the file COPYING. If not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111 USA.

1.88 xz 5.2.2

1.88.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software

Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or

otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions

either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least

the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may

consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they
know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)
assert copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all

the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts,

regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and

only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of

that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains
a further restriction but permits relicensing or conveying under this
License, you may add to a covered work material governed by the terms
of that license document, provided that the further restriction does
not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you
must place, in the relevant source files, a statement of the
additional terms that apply to those files, or a notice indicating
where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the
form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an

organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license,

and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a

covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY

APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS"
WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

XZ Utils Licensing
==========

Different licenses apply to different files in this package. Here
is a rough summary of which licenses apply to which parts of this
package (but check the individual files to be sure!):

- liblzma is in the public domain.

- xz, xzdec, and lzmadec command line tools are in the public
  domain unless GNU getopt_long had to be compiled and linked
  in from the lib directory. The getopt_long code is under
  GNU LGPLv2.1+.

- The scripts to grep, diff, and view compressed files have been
  adapted from gzip. These scripts and their documentation are
  under GNU GPLv2+.

- All the documentation in the doc directory and most of the
  XZ Utils specific documentation files in other directories
  are in the public domain.

- Translated messages are in the public domain.

- The build system contains public domain files, and files that
  are under GNU GPLv2+ or GNU
GPLv3+. None of these files end up
  in the binaries being built.

- Test files and test code in the tests directory, and debugging
  utilities in the debug directory are in the public domain.

- The extra directory may contain public domain files, and files
  that are under various free software licenses.

You can do whatever you want with the files that have been put into
the public domain. If you find public domain legally problematic,
take the previous sentence as a license grant. If you still find
the lack of copyright legally problematic, you have too many
lawyers.

As usual, this software is provided "as is", without any warranty.

If you copy significant amounts of public domain code from XZ Utils
into your project, acknowledging this somewhere in your software is
polite (especially if it is proprietary, non-free software), but
naturally it is not legally required. Here is an example of a good
notice to
put into "about box" or into documentation:

    This software includes code from XZ Utils <https://tukaani.org/xz/>.

The following license texts are included in the following files:
- COPYING.LGPLv2.1: GNU Lesser General Public License version 2.1
- COPYING.GPLv2: GNU General Public License version 2

- COPYING.GPLv3: GNU General Public License version 3

Note that the toolchain (compiler, linker etc.) may add some code
pieces that are copyrighted. Thus, it is possible that e.g. liblzma
binary wouldn't actually be in the public domain in its entirety
even though it contains no copyrighted code from the XZ Utils source
package.

If you have questions, don't hesitate to ask the author(s) for more
information.

1.89 tcpdump 4.9.2

1.89.1 Available under license :

License: BSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.
3. The names of the authors may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

1.90 json-c 0.12

1.90.1 Available under license :

Copyright (c) 2009-2012 Eric Haszlakiewicz

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright (c) 2004, 2005 Metaparadigm Pte Ltd

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE
FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.91 libpng 1.6.37

1.91.1 Available under license :

Copyright (c) 1998-2008 Greg Roelofs. All rights reserved.

This software is provided "as is," without warranty of any kind,
express or implied. In no event shall the author or contributors
be held liable for any damages arising in any way from the use of
this software.

The contents of this file are DUAL-LICENSED. You may modify and/or
redistribute this software according to the terms of one of the
following two licenses (at your option):

LICENSE 1 ("BSD-like with advertising clause"):

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute
it freely, subject to the following restrictions:

1. Redistributions of source code must retain the above copyright
notice, disclaimer, and this list of conditions.
2. Redistributions in binary
form must reproduce the above copyright
notice, disclaimer, and this list of conditions in the documenta-
tion and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this
software must display the following acknowledgment:

This product includes software developed by Greg Roelofs
and contributors for the book, "PNG: The Definitive Guide,"
published by O'Reilly and Associates.

LICENSE 2 (GNU GPL v2 or later):

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software Foundation,
Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

---

pnm2png / png2pnm --- conversion from PBM/PGM/PPM-file to PNG-file

copyright (C) 1999-2019 by Willem van Schaik <willem at schaik dot com>

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

The software is provided "as is", without warranty of any kind, express or
implied, including but not limited to the warranties of merchantability,
fitness for a particular purpose and noninfringement. In no event shall the
authors or copyright holders be liable for any claim, damages or other
liability,
 whether in an action of contract, tort or otherwise, arising from,
out of or in connection with the software or the use or other dealings in the
software.

/* intel_init.c - SSE2 optimized filter functions
*
* Copyright (c) 2018 Cosmin Truta
* Copyright (c) 2016-2017 Glenn Randers-Pehrson
* Written by Mike Klein and Matt Sarett, Google, Inc.
* Derived from arm/arm_init.c
*
* This code is released under the libpng license.
* For conditions of distribution and use, see the disclaimer
* and license in png.h
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by

the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution
and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for

making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot

distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of

this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the
GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the

library. If this is
what you want to do, use the GNU Library General
Public License instead of this License.
COPYRIGHT NOTICE, DISCLAIMER, and LICENSE
==========

PNG Reference Library License version 2
---

* Copyright (c) 1995-2019 The PNG Reference Library Authors.
* Copyright (c) 2018-2019 Cosmin Truta.
* Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson.
* Copyright (c) 1996-1997 Andreas Dilger.
* Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

The software is supplied "as is", without warranty of any kind,
express or implied, including, without limitation, the warranties
of merchantability, fitness for a particular purpose, title, and
non-infringement. In no event shall the Copyright owners, or
anyone distributing the software, be liable for any damages or
other liability, whether in contract, tort or otherwise, arising
from, out of, or in connection with the software, or the use or
other dealings in the software, even if advised of the possibility
of such damage.

Permission is hereby granted
to use, copy, modify, and distribute
this software, or portions hereof, for any purpose, without fee,
subject to the following restrictions:

1. The origin of this software must not be misrepresented; you
   must not claim that you wrote the original software. If you
   use this software in a product, an acknowledgment in the product
   documentation would be appreciated, but is not required.

2. Altered source versions must be plainly marked as such, and must
   not be misrepresented as being the original software.

3. This Copyright notice may not be removed or altered from any
   source or altered source distribution.

PNG Reference Library License version 1 (for libpng 0.5 through 1.6.35)
---

libpng versions 1.0.7, July 1, 2000, through 1.6.35, July 15, 2018 are
Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson, are
derived from libpng-1.0.6, and are distributed according to the same

disclaimer
and license as libpng-1.0.6 with the following individuals
added to the list of Contributing Authors:

Simon-Pierre Cadieux
Eric S. Raymond
Mans Rullgard
Cosmin Truta
Gilles Vollant
James Yu
Mandar Sahastrabuddhe
Google Inc.
Vadim Barkov

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the library or against infringement. There is no warranty that our efforts or the library will fulfill any of your particular purposes or needs. This library is provided with all faults, and the entire risk of satisfactory quality, performance, accuracy, and effort is with the user.

Some files in the "contrib" directory and some configure-generated files that are distributed with libpng have other copyright owners, and are released under other open source licenses.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are Copyright (c) 1998-2000 Glenn Randers-Pehrson,
are derived from
libpng-0.96, and are distributed according to the same disclaimer and license as libpng-0.96, with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are Copyright (c) 1996-1997 Andreas Dilger, are derived from libpng-0.88, and are distributed according to the same disclaimer and license as libpng-0.88, with the following individuals added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren

Greg Roelofs
Tom Tanner

Some files in the "scripts" directory have other copyright owners,
but are released under this license.

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing
Authors and Group 42, Inc. disclaim all warranties, expressed or
implied, including, without limitation, the warranties of
merchantability and of fitness for any purpose. The Contributing
Authors and Group 42, Inc. assume no liability for direct, indirect,
incidental, special, exemplary, or consequential damages, which may
result from the use of the PNG Reference Library, even if advised of
the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from
any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit,
without fee, and encourage the use of this source code as a component
to supporting the PNG file format in commercial products. If you use
this source code in a product, acknowledgment is not required but would
be appreciated.

1.92 jakarta-persistence-api 2.2.3

1.92.1 Available under license :

Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2006, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2017, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2013, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2011, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2008, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at Copyright (c) 2008, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2018, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at <name>Eclipse Public License v. 2.0</name> <name>Eclipse Distribution License v. 1.0</name> <comments>Standard Eclipse Distribution License</comments> Copyright © 2019 Eclipse Foundation. All rights reserved.
'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2008, 2019 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at or the Eclipse Distribution License v. 1.0 which is available at'

1.93 jakarta-transaction-api 1.3.3

1.93.1 Available under license :

Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2012, 2018 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0, which is available at Eclipse Public License v. 2.0 are satisfied: GNU General Public License, <![CDATA[Copyright © 2019 Eclipse Foundation. All Rights Reserved.'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2013, 2018 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0, which is available at Eclipse Public License v. 2.0 are satisfied: GNU General Public License,'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 2010, 2018 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0, which is available at Eclipse Public License v. 2.0 are satisfied: GNU General Public License,'
Found license 'Eclipse Public License 1.0' in 'Copyright (c) 1997, 2018 Oracle and/or its affiliates. All rights reserved. This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0, which is available at Eclipse Public License v. 2.0 are satisfied: GNU General Public License,'

1.94 jq 1.4

1.94.1 Available under license :

Oniguruma LICENSE

/*-
* Copyright (c) 2002-2015 K.Kosako <kkosako0@gmail.com>
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
 OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
jq is copyright (C) 2012 Stephen Dolan

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,

EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

jq's documentation (everything found under the docs/ subdirectory in the source tree) is licensed under the Creative Commons CC BY 3.0 license, which can be found at:

https://creativecommons.org/licenses/by/3.0/

The documentation website includes a copy of Twitter's Boostrap and relies on Bonsai, Liquid templates and various other projects, look them up for detailed licensing conditions.

jq incorporates David M. Gay's dtoa.c and g_fmt.c, which bear the following notices:

dtoa.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 2000, 2001 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any purpose without fee is hereby granted, provided that this entire notice is included in all copies of any software which is or includes a copy or modification of this software and in all copies of the supporting documentation for such software.

THIS SOFTWARE IS BEING
PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

g_fmt.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 1996 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any

purpose without fee is hereby granted, provided that this entire notice
is included in all copies of any software which is or includes a copy
or modification of this software and in all copies of the supporting
documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED
WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY
REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY
OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

1.95 giflib 5.2.1

1.95.1 Available under license :

The GIFLIB distribution is Copyright (c) 1997 Eric S. Raymond

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
 OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.96 libcap 2.22

1.96.1 Available under license :

Unless otherwise *explicitly* stated the following text describes the
licensed conditions under which the contents of this module release
may be distributed:

Redistribution and use in source and binary forms of this module, with
or without modification, are permitted provided that the following
conditions are met:

1. Redistributions of source code must retain any existing copyright
notice, and this entire permission notice in its entirety,
including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
copyright notices, this list of conditions, and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

3. The name of any author may not be used to endorse or promote
products derived from this software without their specific prior
written permission.

ALTERNATIVELY, this product may be distributed under
the terms of the
GNU Library General Public License, in which case the provisions of
the GNU LGPL are required INSTEAD OF the above restrictions. (This
clause is necessary due to a potential conflict between the GNU LGPL
and the restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

Unless otherwise *explicitly* stated, the following text describes the
licensed conditions under which the contents of this libcap release
may be used and distributed:

Redistribution and use in source and binary forms of libcap, with
or without modification, are permitted provided that the following
conditions are met:

1. Redistributions of source code must retain any existing copyright
notice, and this entire permission notice in its entirety,
including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
copyright notices, this list of conditions, and the following
disclaimer in the documentation and/or other materials provided

with the distribution.

3. The name of any author may not be used to endorse or promote
products derived from this software without their specific prior
written permission.

ALTERNATIVELY, this product may be distributed
under the terms of the
GNU General Public License (v2.0 - see below), in which case the
provisions of the GNU GPL are required INSTEAD OF the above
restrictions. (This clause is necessary due to a potential conflict
between the GNU GPL and the restrictions contained in a BSD-style
copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

Full
text of gpl-2.0.txt:

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to

using it. (Some other Free Software Foundation software is covered by the GNU
Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show
them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying,
distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its
contents constitute a work based on the
Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a)
You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the
Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program
(or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information
you received as to the offer
to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such

an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access
to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously
your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions
to the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions
will
be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any

later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively

convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year
name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs.

If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

1.97 jboss-logging 3.4.1.Final

1.97.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work

or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.98 e2fsprogs 1.44.5-1+deb10u3

1.98.1 Available under license :

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2001 by Andries Brouwer
Copyright (C) 1999, 2000, 2003 by Theodore Ts'o

You are free to distribute this software under the terms of the GNU
Lesser (Library) General Public License.

On Debian systems, the complete text of the GNU Lesser (Library)
General Public License can be found in /usr/share/common-licenses/LGPL-2.
Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
+   Copyright (C) Andrew Tridgell   1999-2005
+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

    ** NOTE! The following LGPL license applies to the tdb
    ** library. This does NOT imply that all of Samba is released
EXT2ED is hereby placed under the terms of the GNU General Public License.
Follows the GNU license.

Gadi Oxman, August 1995

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the

GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents
constitute a work based on the
Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You
must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program
is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or
with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information
you received as to the offer
to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access
to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free

Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting
the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY
TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY;
for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider

it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
This is the Debian GNU/Linux prepackaged version of the EXT2 file
system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2007 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, are made available under
the GNU General Public License version 2, with the exception of the
lib/ext2fs and lib/e2p libraries, which are made available under the
GNU Library General Public License Version 2, the lib/uuid library

which is made available under a BSD-style license and the lib/et and lib/ss libraries
which are made available under an MIT-style license.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General Public License can be found in `/usr/share/common-licenses/GPL-2'. The complete text of the GNU Library General Public License can be found in '/usr/share/common-licenses/LGPL-2'.

The license used for lib/et and lib/ss libraries is:

Copyright 1987 by the Student Information Processing Board of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software and its documentation for any purpose is hereby granted, provided that the names of M.I.T. and the M.I.T. S.I.P.B. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T. and the M.I.T. S.I.P.B. make no representations about the suitability of this
software for any purpose. It is provided "as is" without express or implied warranty.

The license used for lib/uuid is:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, and the entire permission notice in its entirety, including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE

LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2003, 2004 by Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific
prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

```
#
# This is a Makefile stub which handles the creation of BSD shared
# libraries.
#
# In order to use this stub, the following makefile variables must be defined.
#
# BSDLIB_VERSION = 1.0
# BSDLIB_IMAGE = libce
# BSDLIB_MYDIR = et
# BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image:  $(BSD_LIB)

$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
```

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
 DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This is the Debian GNU/Linux prepackaged version of the ss
command-line interface parsing library. It is currently
distributed together with the EXT2 file system utilities, which are
otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.

M.I.T. and
 the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.
This is the Debian GNU/Linux prepackaged version of the Common Error
Description library. It is currently distributed together with the EXT2 file
system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T.
 S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.
This is the Debian GNU/Linux prepackaged version of the translation
files of the EXT2 file system utilities. The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
        Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
    Copyright (c) 2001 Alcove <http://www.alcove.com/>
    Copyright (c) 1997 Klee Dienes
    Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 by
Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from
this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

1.99 lvm2 2.02.79

1.99.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source

code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without

limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or

table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.
Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing

the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the

original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL

DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the

library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute

and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through

any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.100 acpid 2.0.11

1.100.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to

using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work

which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code

or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent

infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number

of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest

to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of
the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c'
should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

1.101 goprotobuf 2.4.1

1.101.1 Available under license :

This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at http://tip.golang.org/CONTRIBUTORS.
Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.102 grpc 1.9.1

1.102.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form
shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely
link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously

marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean
Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices stating that You changed the files; and

You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum
to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for

inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use
the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor
harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.103 slf4j-log4j 1.7.30

1.103.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.104 opus 1.3.1

1.104.1 Available under license :

Copyright 2001-2011 Xiph.Org, Skype Limited, Octasic,
Jean-Marc Valin, Timothy B. Terriberry,
CSIRO, Gregory Maxwell, Mark Borgerding,
Erik de Castro Lopo

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

- Neither the name of Internet Society, IETF or IETF Trust, nor the
names of specific contributors, may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Opus is subject to the royalty-free patent licenses which are
specified at:

Xiph.Org Foundation:
https://datatracker.ietf.org/ipr/1524/

Microsoft Corporation:
https://datatracker.ietf.org/ipr/1914/

Broadcom Corporation:
https://datatracker.ietf.org/ipr/1526/

1.105 ipmi-tool 1.8.16

1.105.1 Available under license :

Copyright (c) 2003 Sun Microsystems, Inc. All Rights Reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistribution of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistribution in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

Neither the name of Sun Microsystems, Inc. or the names of
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

This software is provided "AS IS," without a warranty of any kind.
ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES,
INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A
PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE HEREBY EXCLUDED.
SUN MICROSYSTEMS,
 INC. ("SUN") AND ITS LICENSORS SHALL NOT BE LIABLE
FOR ANY DAMAGES SUFFERED BY LICENSEE AS A RESULT OF USING, MODIFYING
OR DISTRIBUTING THIS SOFTWARE OR ITS DERIVATIVES. IN NO EVENT WILL
SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA,
OR FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR
PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF
LIABILITY, ARISING OUT OF THE USE OF OR INABILITY TO USE THIS SOFTWARE,
EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

1.106 pam 1.1.5

1.106.1 Available under license :

Unless otherwise *explicitly* stated the following text describes the licensed conditions under which the contents of this Linux-PAM release may be distributed:

Redistribution and use in source and binary forms of Linux-PAM, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain any existing copyright notice, and this entire permission notice in its entirety, including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current copyright notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of any author may not be used to endorse or promote products derived from this software without their specific prior written permission.

ALTERNATIVELY, this product may be distributed
 under the terms of the
GNU General Public License, in which case the provisions of the GNU GPL are required INSTEAD OF the above restrictions. (This clause is necessary due to a potential conflict between the GNU GPL and the restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Unless otherwise *explicitly* stated the following text describes the licensed conditions under which the contents of this libpamc release may be distributed:

Redistribution and use in source and binary forms of libpamc,
with or without modification, are permitted provided that the
following conditions are met:

1. Redistributions of source code must retain any existing copyright
  notice, and this entire permission notice in its entirety,
  including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
  copyright notices, this list of conditions, and the following
  disclaimer in the documentation and/or other materials provided
  with the distribution.

3. The name of any author may not be used to endorse or promote
  products derived from this software without their specific prior
  written permission.

ALTERNATIVELY, this product may be distributed under
 the terms of the
GNU Library General Public License (LGPL), in which case the
provisions of the GNU LGPL are required INSTEAD OF the above
restrictions. (This clause is necessary due to a potential conflict
between the GNU LGPL and the restrictions contained in a BSD-style
copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

1.107 libusrsctp 1.0

1.107.1 Available under license :

Copyright (c) 2015, Randall Stewart and Michael Tuexen
All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

* Neither the name of usrsctp nor the names of its
 contributors may be used to endorse or promote products derived from
 this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL
 THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.108 iproute 3.14.0

1.108.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below,

refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish,
that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but

does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for

making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based
on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot

distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit
royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of

this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical
commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the

library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.109 lsof 4.85

1.109.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.110 lm-sensors 3.3.1

1.110.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those

sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)
will operate
properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

e) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally
distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you

distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or

otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system
which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by

the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your

freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.

You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest

possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
Here is a list of the main contributors to lm-sensors version 3.

* Frodo Looijaard
 Original author of libsensors, sensors-detect, sensors and isadump.
* Merlin Hughes
 Original author of sensord.
* Bob Schlaermann
 Dynamic chip feature detection (a.k.a. generic chip support) in
 libsensors and sensors.
* Mark M. Hoffman
 Many improvements to the libsensors configuration file scanner.
* Jean Delvare
 New libsensors API, and migration of sensors and sensord thereto.
 Many optimizations in libsensors and sensors.
 Configuration file converter.
 Rewrite of sensors-detect.
 Support for multiple configuration files in libsensors.

1.111 unbound 1.5.10

1.111.1 Available under license :

Copyright (c) 2009, Zdenek Vasicek (vasicek AT fit.vutbr.cz)
Marek Vavrusa (xvavru00 AT stud.fit.vutbr.cz)

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
* Neither the name of the organization nor the names of its
  contributors may be used to endorse or promote products derived from this
  software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2007, NLnet Labs. All rights reserved.

This software is open source.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the NLNET LABS nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009, Dmitriy Demidov aka terminus. All rights reserved.

This software is open source.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

Neither the name of the Dmitriy Demidov nor the names of its contributors may
be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

1.112 fontconfig 2.6.0

1.112.1 Available under license :

fontconfig/COPYING

Copyright 2000,2001,2002,2003,2004,2006,2007 Keith Packard
Copyright 2005 Patrick Lam
Copyright 2009 Roozbeh Pournader
Copyright 2008,2009 Red Hat, Inc.
Copyright 2008 Danilo egan
Copyright 2012 Google, Inc.

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that
copyright notice and this permission notice appear in supporting
documentation, and that the name of the author(s) not be used in
advertising or publicity pertaining to distribution of the software without
specific, written prior permission. The authors make no

representations about the suitability of this software for any purpose. It
is provided "as is" without express or implied warranty.

THE AUTHOR(S) DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL
 THE AUTHOR(S) BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

1.113 gvfs 1.28.2-1ubuntu1~16.04.2

1.113.1 Available under license :

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some
specially designated Free Software Foundation software, and to any
other libraries whose authors decide to use it. You can use it for
your libraries, too.

When we speak of free software, we are referring
to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if
you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link a program with the library, you must provide
complete object files to the recipients so that they can relink them
with the library, after
making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright
the library, and (2) offer you this license which gives you legal
permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain
that everyone understands that there is no warranty for this free
library. If the library is modified by someone else and passed on, we
want its recipients to know that what they have is not the original
version, so that any problems introduced by others will not reflect on
the original authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that companies distributing free
software will individually obtain patent licenses, thus in effect
transforming the program into proprietary software. To prevent this,
we have made it clear that any patent
must be licensed for everyone's
free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary
GNU General Public License, which was designed for utility programs. This
license, the GNU Library General Public License, applies to certain
designated libraries. This license is quite different from the ordinary
one; be sure to read it in full, and don't assume that anything in it is
the same as in the ordinary license.

The reason we have a separate public license for some libraries is that
they blur the distinction we usually make between modifying or adding to a
program and simply using it. Linking a program with a library, without
changing the library, is in some sense simply using the library, and is
analogous to running a utility program or application program. However, in
a textual and legal sense, the linked executable is a combined work, a
derivative of the original library, and the ordinary General Public License
treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for

making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or

derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not
a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then
the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work

under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may
not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system;
it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems
or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE
LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE
OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that

everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C)
<year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the
Free Software Foundation, Inc., 51 Franklin Street - Fifth Floor,
Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary.
Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of

protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require,

such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to

the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent

works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source

may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has

been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains
a further restriction but permits relicensing or conveying under this
License, you may add to a covered work material governed by the terms
of that license document, provided that the further restriction does
not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you
must place, in the relevant source files, a statement of the
additional terms that apply to those files, or a notice indicating
where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the
form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly
provided under this License. Any attempt otherwise to propagate or
modify it is void, and will automatically terminate your rights under
this License (including any patent licenses granted under the third
paragraph of section 11).

However, if you cease all violation of this License, then your
license from a particular copyright holder is reinstated (a)
provisionally, unless and until the copyright holder explicitly and

finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the

rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the

covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.114 liblogging 1.0.3

1.114.1 Available under license :

Copyright 2002-2014
Rainer Gerhards and Adiscon GmbH. All Rights Reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in

the documentation and/or other materials provided with the
distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.115 open-vm-tools 9.4.0

1.115.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,

not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using

a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits
its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or

other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public

License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The

threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever
changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if

the user
installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

e) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the
major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work
based on the Library, uncombined with any other library
facilities. This must be distributed under
the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the

integrity of the free software distribution system which is
implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of
all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.

EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program

is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of VMware Inc. nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission of VMware Inc.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. "Contributor" means each individual or entity that creates
or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original
Software, prior Modifications used by a Contributor (if any),
and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b)
Modifications, or (c) the combination of files containing
Original Software with files containing Modifications, in
each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other
than Source Code.

1.5. "Initial Developer" means the individual or entity that first
makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or
portions thereof with code
not governed by the terms of this
License.

1.7. "License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum
extent possible, whether at the time of the initial grant or

subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modifications; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this
License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the
outstanding shares or beneficial
ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial

Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell,

offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or

otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include
a copy of this
License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled

for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE

INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER

COMMERCIAL
DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is
responsible for claims and damages arising, directly or
indirectly, out of its utilization of rights under this License
and You agree to work with Initial Developer and Contributors to
distribute such responsibility
on an equitable basis. Nothing
herein is intended or shall be deemed to constitute any admission
of liability.

1.116 libva 1.0.15

1.116.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sub license, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice (including the
next paragraph) shall be included in all copies or substantial portions
of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.
IN NO EVENT SHALL PRECISION INSIGHT AND/OR ITS SUPPLIERS BE LIABLE FOR
ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

This package was debianized by Waldo Bastian <waldo.bastian@intel.com> on
Mon, 18 Jun 2007 21:35:31 -0700.

It was downloaded from <url://example.com>

Upstream Author(s):

Waldo Bastian <waldo.bastian@intel.com>
Jonathan Bian <jonathan.bian@intel.com>

Copyright:

(C) Copyright IBM Corporation 2004

Copyright 1998-1999 Precision Insight, Inc., Cedar Park, Texas.
Copyright 2000 VA Linux Systems, Inc.
Copyright 2007 Intel Corportation

License:

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sub license, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice (including the next paragraph) shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL PRECISION INSIGHT AND/OR ITS SUPPLIERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The Debian packaging is (C) 2007, Intel Corporation and
is licensed under the GPL, see `/usr/share/common-licenses/GPL'.

Please also look if there are files or directories which have a
different copyright/license attached and list them here.

1.117 libestr 0.1.9

1.117.1 Available under license :

libestr is available under the terms of the GNU LGPL v2.1 or above (full text below).

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know

that what they have
is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library,
the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the
library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in

non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the
library" and a "work that uses the library". The
former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright
law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based

on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what
the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that
you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute
square roots.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to

distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice

for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally

accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted,
and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed
it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent

infringement or for any other reason (not limited to
patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property
right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not
thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and

"any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission.
For software which is
copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED
BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the

ordinary General Public
License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

liblognorm, a fast samples-based log normalization library
Copyright (C) 2010 Rainer Gerhards

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

1.118 tftp-hpa 5.2

1.118.1 Available under license :

<OWNER> = Regents of the University of California
<ORGANIZATION> = University of California, Berkeley
<YEAR> = 1998

In the original BSD license, both occurrences of the phrase "COPYRIGHT HOLDERS AND CONTRIBUTORS" in the disclaimer read "REGENTS AND CONTRIBUTORS".

Here is the license template:

Copyright (c) <YEAR>, <OWNER>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following

disclaimer in the documentation and/or other materials provided with the distribution.
Neither the name of the <ORGANIZATION> nor the names of its contributors may be used to endorse or promote products derived from this
software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.119 tzdata 2016h

1.119.1 Available under license :

With a few exceptions, all files in the tz code and data (including
this one) are in the public domain. The exceptions are date.c,
newstrftime.3, and strftime.c, which contain material derived from BSD
and which use the BSD 3-clause license.

1.120 slf4j 1.7.30

1.120.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.121 libcap-ng 0.7.9-2.1build1

1.121.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors
who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,

whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.
^L
Finally,
software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore
permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many

libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library
in order to run.
^L

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under

copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly
into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation
and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it,
in any medium, provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and
can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms
of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.
^L
Once this change is made in a given copy, it is irreversible for

that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the
complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a
"work that uses the
library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may

distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

a) Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)

will operate properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy

from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not

signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License,
they do not
excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software
distribution system which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License
may add an explicit geographical distribution limitation excluding those
countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

13. The Free Software Foundation
may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN

WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS
PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source
file to most
effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor,
Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution
of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.122 rtmpdump 2.4+20151223.gitfa8646d.1-2build1

1.122.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide
to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether
gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another
language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square

root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be
reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the

Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly
with a modified version of the library, if
the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on

which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further

restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.

Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE
LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software

patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution
of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding

those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN

IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be

mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

1.123 zlib 1.2.11.dfsg-2ubuntu1

1.123.1 Available under license :

/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.11, January 15th, 2017

Copyright (C) 1995-2017 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for
Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950
(zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).
*/
Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE
FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

1.124 e2fsprogs 1.45.5-2ubuntu1

1.124.1 Available under license :

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2001 by Andries Brouwer
Copyright (C) 1999, 2000, 2003 by Theodore Ts'o

You are free to distribute this software under the terms of the GNU

Lesser (Library) General Public License.

On Debian systems, the complete text of the GNU Lesser (Library)
General Public License can be found in /usr/share/common-licenses/LGPL-2.
This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
        Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
    Copyright (c) 2001 Alcove <http://www.alcove.com/>
    Copyright (c) 1997 Klee Dienes
    Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

 Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
#
This is a Makefile stub which handles the creation of BSD shared
libraries.
#
In order to use this stub, the following makefile variables must be defined.
#
BSDLIB_VERSION = 1.0
BSDLIB_IMAGE = libce
BSDLIB_MYDIR = et
BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)

```
BSDLIB_PIC_FLAG = -fpic

image:  $(BSD_LIB)

$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip:: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
```

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, and the entire permission notice in its entirety,
   including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL

DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This is the Debian GNU/Linux prepackaged version of the translation
files of the EXT2 file system utilities. The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 by
Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions

are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from
 this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
+   Copyright (C) Andrew Tridgell   1999-2005
+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

     ** NOTE! The following LGPL license applies to the tdb
     ** library. This does NOT imply that all of Samba is released
EXT2ED is hereby placed under the terms of the GNU General Public License.
Follows the GNU license.

Gadi Oxman, August 1995

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain

that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for
copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents
constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,

under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not

signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously
your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to
the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR

REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY
TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY;
for details type `show w'.
This is free software, and you are welcome to redistribute it

under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider
it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.
This package, the EXT2 filesystem utilities, are made available under the GNU Public License version 2, with the exception of the lib/ext2fs and lib/e2p libraries, which are made available under the GNU Library General Public License Version 2, the lib/uuid library which is made available under a BSD-style license and the lib/et and lib/ss libraries which are made available under an MIT-style license. Please see lib/uuid/COPYING for more details for the license for the files comprising the libuuid library, and the source file headers of the libet and libss libraries for more information.

The most recent officially distributed version can be found at http://e2fsprogs.sourceforge.net. If you need to make a distribution, that's the one you should use. If there is some reason why you'd like a more recent version that is still in ALPHA testing (i.e., either using the "WIP" test distributions or one from the hg or git repository from the development branch, please contact me (tytso@mit.edu)
before you ship. The release schedules for this package are flexible, if you give me enough lead time.

Theodore Ts'o
23-June-2007

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we

want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and

distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with
the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by

modifying or distributing
the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy
simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous
contributions to the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such
new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software
and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE

USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a
fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program
is threatened constantly by software
patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities
other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no

charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make

any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled
to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library,
or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative

work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that
the terms permit
modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then
relink to produce a modified
executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the

Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add

an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING

RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them
to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free Software
Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
This is the Debian GNU/Linux prepackaged version of the EXT2 file
system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2007 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, are made available under
the GNU General Public License version 2, with the exception of the
lib/ext2fs and lib/e2p libraries, which are made available under the
GNU Library General Public License Version 2, the lib/uuid library
which is made available under a BSD-style license and the lib/et and
lib/ss libraries
which are made available under an MIT-style license.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General Public
License can be found in `/usr/share/common-licenses/GPL-2'. The
complete text of the GNU Library General Public License can be found
in '/usr/share/common-licenses/LGPL-2'.

The license used for lib/et and lib/ss libraries is:

Copyright 1987 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose is hereby granted, provided that
the names of M.I.T. and the M.I.T. S.I.P.B. not be used in
advertising or publicity pertaining to distribution of the software
without specific, written prior permission. M.I.T. and the
M.I.T. S.I.P.B. make no representations about the suitability of

this
software for any purpose. It is provided "as is" without
express or implied warranty.

The license used for lib/uuid is:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2003, 2004 by Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific
prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This is the Debian GNU/Linux prepackaged version of the ss
command-line interface parsing library. It is currently
distributed together with the EXT2 file system utilities, which are
otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and
the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is

provided "as is" without express or implied warranty.
This is the Debian GNU/Linux prepackaged version of the Common Error
Description library. It is currently distributed together with the EXT2 file
system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T.
 S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

1.125 gzip 1.10-0ubuntu4

1.125.1 Available under license :

This package is maintained for Debian by Bdale Garbee <bdale@gag.com>, and
was built from the sources found at:

    ftp://ftp.gnu.org/gnu/gzip/

Copyright (C) 1999, 2001-2002, 2006-2007, 2009-2010 Free Software Foundation,
 Inc.
Copyright (C) 1992-1993 Jean-loup Gailly

 This program is free software; you can redistribute it and/or modify
 it under the terms of the GNU General Public License as published by
 the Free Software Foundation; either version 3, or (at your option)
 any later version.

 This program is distributed in the hope that it will be useful,
 but WITHOUT ANY WARRANTY; without even the implied warranty of
 MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the

GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software Foundation,
Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA. */

On Debian GNU/Linux
systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL'.

1.126 libevent 2.1.11-stable-1

1.126.1 Available under license :

Libevent is available for use under the following license, commonly known
as the 3-clause (or "modified") BSD license:

==========
Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu>
Copyright (c) 2007-2012 Niels Provos and Nick Mathewson

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
==========

Portions of Libevent are based on works by others, also made available by
them under the three-clause BSD license above. The copyright notices are
available in the corresponding source files; the license is as above. Here's

a list:

log.c:
  Copyright (c) 2000 Dug Song <dugsong@monkey.org>
  Copyright (c) 1993 The Regents of the University of California.

strlcpy.c:
   Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>

win32select.c:
  Copyright (c) 2003 Michael A. Davis <mike@datanerds.net>

evport.c:
  Copyright (c) 2007 Sun Microsystems

ht-internal.h:
  Copyright (c) 2002 Christopher Clark

minheap-internal.h:
  Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com>

==============================

The arc4module is available under the following, sometimes called the
"OpenBSD" license:

  Copyright (c) 1996, David Mazieres <dm@uun.org>
  Copyright (c) 2008, Damien Miller <djm@openbsd.org>

  Permission to use, copy, modify, and distribute this software for any
  purpose with or without fee is hereby granted, provided that the above
  copyright notice and this permission notice appear in all copies.

  THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
  WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
  MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR
 BE LIABLE FOR
  ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
  WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
  ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
  OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

==============================

The Windows timer code is based on code from libutp, which is
distributed under this license, sometimes called the "MIT" license.

Copyright (c) 2010 BitTorrent, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
CMake - Cross Platform Makefile Generator
Copyright 2000-2013 Kitware, Inc.
Copyright 2000-2011 Insight Software Consortium
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the names of Kitware, Inc., the Insight Software Consortium,
nor the names of their contributors may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The above copyright and license notice applies to distributions of
CMake in source and binary form. Some source files contain additional
notices of original copyright by their contributors; see each source
for details. Third-party software packages supplied with CMake under
compatible licenses provide their
 own copyright notices documented in
corresponding subdirectories.

CMake was initially developed by Kitware with the following sponsorship:

* National Library of Medicine at the National Institutes of Health
  as part of the Insight Segmentation and Registration Toolkit (ITK).

* US National Labs (Los Alamos, Livermore, Sandia) ASC Parallel
  Visualization Initiative.

* National Alliance for Medical Image Computing (NAMIC) is funded by the
  National Institutes of Health through the NIH Roadmap for Medical Research,
  Grant U54 EB005149.

* Kitware, Inc.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT

NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.127 cyrus-sasl 2.1.27+dfsg-2

1.127.1 Available under license :

* Copyright (c) 1998-2003 Carnegie Mellon University. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. The name "Carnegie Mellon University" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For permission or any other legal
*   details, please contact
*   Office of Technology Transfer
*   Carnegie Mellon University
*   5000 Forbes Avenue
*   Pittsburgh, PA 15213-3890
*   (412) 268-4387, fax: (412)
 268-7395
*   tech-transfer@andrew.cmu.edu
*
* 4. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by Computing Services
*   at Carnegie Mellon University (http://www.cmu.edu/computing/)."
*
* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
* THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
* AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
* FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
* AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING

* OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
*/

1.128 keyutils 1.6-6ubuntu1

1.128.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. <http://fsf.org/>
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission

to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under

the scope of this License.

3. You may copy and distribute the Program
(or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program
in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under

this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing

to distribute
software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies
a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either
version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show
w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc. <http://fsf.org/>
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the

Free Software Foundation and other authors who decide to use it. You can use
it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you
must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat
to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the

ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire
combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software
only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must

be combined with the library in order to run.

GNU LESSER GENERAL
PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or

collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore

covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application

to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library

facilities. This must
be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited by law if you do not accept this License. Therefore,
by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

11. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License.
If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices.
Many people have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser
General Public License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving

the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL
OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright"
line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or

modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper
mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.129 selinux 3.0-1build2

1.129.1 Available under license :

This library (libselinux) is public domain software, i.e. not copyrighted.

Warranty Exclusion

You agree that this software is a
non-commercially developed program that may contain "bugs" (as that
term is used in the industry) and that it may not function as intended.
The software is licensed "as is". NSA makes no, and hereby expressly
disclaims all, warranties, express, implied, statutory, or otherwise
with respect to the software, including noninfringement and the implied
warranties of merchantability and fitness for a particular purpose.

Limitation of Liability

In no event will NSA be liable for any damages, including loss of data,
lost profits, cost of cover, or other special, incidental,

consequential, direct or indirect damages arising from the software or
the use thereof, however caused and on any theory of liability. This
limitation will apply even if NSA has been advised of the possibility
of such damage. You acknowledge that this is
 a reasonable allocation of
risk.

1.130 heimdal 7.7.0+dfsg-1ubuntu1

1.130.1 Available under license :

Copyright (c) 1995 - 2014 Kungliga Tekniska Hgskolan
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

3. Neither the name of the Institute nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE INSTITUTE AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY
 AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE INSTITUTE OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Please see info documentation for the complete list of licenses.
Copyright (c) 1995 - 2014 Kungliga Tekniska HÃ¶gskolan
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

3. Neither the name of the Institute nor the names of its contributors
   may be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE INSTITUTE AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY
 AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE INSTITUTE OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Please see info documentation for the complete list of licenses.
Copyright (c) 1992, 1993
The Regents of the University of California. All rights reserved.

This code is derived from software contributed to Berkeley by
Christos Zoulas of Cornell University.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
   may be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
 TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@macro copynext{}
@vskip 20pt plus 1fil
@end macro

@macro copyrightstart{}
@end macro

@macro copyrightend{}
@end macro

@node Copyrights and Licenses, , Acknowledgments, Top
@comment node-name, next, previous, up
@appendix Copyrights and Licenses

@heading Kungliga Tekniska Hgskolan

@copyrightstart
@verbatim

Copyright (c) 1997-2011 Kungliga Tekniska Hgskolan
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Portions Copyright (c) 2009 Apple Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright

notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3.
Neither the name of the Institute nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE INSTITUTE AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE INSTITUTE OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading Massachusetts Institute of Technology

The
parts of the libtelnet that handle Kerberos.

@verbatim

Copyright (C) 1990 by the Massachusetts Institute of Technology

Export of this software from the United States of America may
require a specific license from the United States Government.
It is the responsibility of any person or organization contemplating
export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
distribute this software and its documentation for any purpose and
without fee is hereby granted, provided that the above copyright
notice appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation, and that
the name of M.I.T. not be used in advertising or publicity pertaining
to distribution of the software without specific, written prior
permission. M.I.T. makes no representations about the suitability of
this software for any purpose. It is provided "as is" without express
or implied warranty.

@end
verbatim
@copynext

@heading The Regents of the University of California

The parts of the libroken, most of libtelnet, telnet, ftp,
and popper.

@verbatim

Copyright (c) 1988, 1990, 1993
The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS
``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading The Regents of the University of California.

libedit

@verbatim

Copyright (c) 1992, 1993
The Regents of the University of California. All rights reserved.

This code is derived from software contributed to Berkeley by
Christos Zoulas of Cornell University.

Redistribution
 and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
 EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading TomsFastMath / LibTomMath

Tom's fast math (bignum support) and LibTomMath

@verbatim

LibTomMath is hereby released into the Public Domain.

@end verbatim

@copynext

@heading Doug Rabson

GSS-API mechglue layer.

@verbatim

Copyright (c) 2005 Doug Rabson
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions
 in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading PADL Software Pty Ltd

@table
 @asis
@item GSS-API CFX, SPNEGO, naming extensions, API extensions.
@item KCM credential cache.
@item HDB LDAP backend.
@end table

@verbatim

Copyright (c) 2003-2011, PADL Software Pty Ltd.

Copyright (c) 2004, Andrew Bartlett.
Copyright (c) 2003 - 2008, Kungliga Tekniska Hgskolan
Copyright (c) 2015, Timothy Pearson.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

3. Neither the name of PADL Software nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific
 prior written permission.

THIS SOFTWARE IS PROVIDED BY PADL SOFTWARE AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL PADL SOFTWARE OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading Marko Kreen

Fortuna in libhcrypto

@verbatim

Copyright (c) 2005 Marko Kreen
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted

provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

@end verbatim
@copynext

@heading NTT (Nippon Telegraph and Telephone Corporation)

Camellia in libhcrypto

@verbatim

Copyright (c) 2006,2007
NTT (Nippon Telegraph and Telephone Corporation) . All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer as
the first lines of this file unmodified.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY NTT ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL NTT BE LIABLE FOR ANY DIRECT, INDIRECT,

INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

@end verbatim
@copynext

@heading The NetBSD Foundation, Inc.

vis.c in libroken

@verbatim

Copyright (c) 1999, 2005 The NetBSD Foundation, Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and
 the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

@end
 verbatim
@copynext

@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libhcrypto

@verbatim

rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

This code is hereby placed in the public domain.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

@end verbatim
@copynext

@heading Apple, Inc

kdc/announce.c

@verbatim

Copyright (c) 2008 Apple Inc. All Rights Reserved.

Export of this software from the United States of America may require
a specific license from the United States Government. It is the
responsibility of any person or organization contemplating export to
obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
distribute this software and its documentation for any purpose and
without fee is hereby granted, provided that the above copyright
notice appear in all copies and that both that copyright notice and

this permission notice appear in supporting documentation, and that
the name of Apple Inc. not be used in advertising or publicity pertaining
to distribution of the software without specific, written
 prior
permission. Apple Inc. makes no representations about the suitability of
this software for any purpose. It is provided "as is" without express
or implied warranty.

THIS SOFTWARE IS PROVIDED ``AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

@end verbatim

@copynext

@heading Richard Outerbridge

DES core in libhcrypto

@verbatim

D3DES (V5.09) -

A portable, public domain, version of the Data Encryption Standard.

Written with Symantec's THINK (Lightspeed) C by Richard Outerbridge.
Thanks to: Dan Hoey for his excellent Initial and Inverse permutation
code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis
Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau,
for humouring me on.

Copyright (c) 1988,1989,1990,1991,1992 by Richard Outerbridge.
(GEnie : OUTER; CIS : [71755,204]) Graven Imagery, 1992.

@end verbatim

@copynext

@heading
 Secure Endpoints Inc

Windows support

@verbatim

Copyright (c) 2009-2015, Secure Endpoints Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in
 the documentation and/or other materials provided with the
 distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING,
 BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

@end verbatim

@copynext

@heading Novell, Inc

lib/hcrypto/test_dh.c

@verbatim

Copyright (c) 2007, Novell, Inc.
Author: Matthias Koenig <mkoenig@suse.de>

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials
 provided with the distribution.

* Neither the name of the Novell nor the names of its contributors may be used
 to endorse or promote products derived from this software without specific
 prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

@end verbatim

@copyrightend

1.131 jakarta-mail 1.6.5

1.131.1 Available under license :

Eclipse Public License - v 2.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial content
 Distributed under this Agreement, and

b) in the case of each subsequent Contributor:
 i) changes to the Program, and
 ii) additions to the Program;
where such changes and/or additions to the Program originate from

and are Distributed by that particular Contributor. A Contribution "originates" from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include changes or additions to the Program that are not Modified Works.

"Contributor" means any person or entity that Distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions Distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement or any Secondary License (as applicable), including Contributors.

"Derivative Works" shall mean any work, whether in Source Code or other form, that is based on (or derived from) the Program and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship.

"Modified Works" shall mean any work in Source Code or other form that results from an addition to, deletion from, or modification of the contents of the Program, including, for purposes of clarity any new file in Source Code form that contains any contents of the Program. Modified Works shall not include works that contain only declarations, interfaces, types, classes, structures, or files of the Program solely in each case in order to link to, bind by name, or subclass the Program or Modified Works thereof.

"Distribute" means the acts of a) distributing or b) making available in any manner that enables the transfer of a copy.

"Source Code" means the form of a Program preferred for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Secondary License" means either the GNU General Public License, Version 2.0, or any later versions of that license, including any exceptions or additional permissions as identified by the initial Contributor.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, Distribute and sublicense the Contribution of such Contributor, if any, and such Derivative Works.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in Source Code or other form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to Distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant

the copyright license set forth in this Agreement.

e) Notwithstanding the terms of any Secondary License, no Contributor makes additional grants to any Recipient (other than those set forth in this Agreement) as a result of such Recipient's receipt of the Program under the terms of a Secondary License (if permitted under the terms of Section 3).

3. REQUIREMENTS

3.1 If a Contributor Distributes the Program in any form, then:

a) the Program must also be made available as Source Code, in accordance with section 3.2, and the Contributor must accompany the Program with a statement that the Source Code for the Program is available under this Agreement, and informs Recipients how to obtain it in a reasonable manner on or through a medium customarily used for software exchange; and

b) the Contributor may Distribute the Program under a license different than this Agreement, provided that such license:

i) effectively disclaims on behalf of all other Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all other Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) does not attempt to limit or alter the recipients' rights in the Source Code under section 3.2; and

iv) requires any subsequent distribution of the Program by any party to be under a license that satisfies the requirements of this section 3.

3.2 When the Program is Distributed as Source Code:

a) it must be made available under this Agreement, or if the Program (i) is combined with other material
in a separate file or
files made available under a Secondary License, and (ii) the initial Contributor attached to the Source Code the notice described in Exhibit A of this Agreement, then the Program may be made available under the terms of such Secondary Licenses, and

b) a copy of this Agreement must be included with each copy of the Program.

3.3 Contributors may not remove or alter any copyright, patent, trademark, attribution notices, disclaimers of warranty, or limitations of liability ("notices") contained within the Program from any copy of the Program which they Distribute, provided that Contributors may add their own appropriate notices.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs

or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the

responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be Distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to Distribute the Program (including its Contributions) under the new version.

Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel
or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. Nothing in this Agreement is intended to be enforceable by any entity that is not a Contributor or Recipient. No third-party beneficiary rights are created under this Agreement.

Exhibit A - Form of Secondary Licenses Notice

"This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License, v. 2.0 are satisfied: {name license(s), version(s), and exceptions or additional permissions here}."

Simply including a copy of this Agreement, including this Exhibit A is not sufficient to license the Source Code under Secondary Licenses.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely
to
look for such a notice.

You may add additional accurate notices of copyright ownership.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor
Boston, MA 02110-1335
USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.)
You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you
must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed
at all.

The precise terms and conditions for copying, distribution and

modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted,
and the output from the Program is
covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications
or work under the terms of Section 1 above, provided
that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such

interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how
to view a copy of this License.
(Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you;
rather, the intent is to
exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost

of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to

distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed
need not include anything that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have
their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible

for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular
circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted
in
certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER
EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF
TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1335 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library
General Public License instead of this License.

CLASSPATH EXCEPTION

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If
you do not wish to do so, delete this exception statement from your version.

1.132 openssl 1.1.1d

1.132.1 Available under license :

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a double license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts.

OpenSSL License

/* ==

```
* Copyright (c) 1998-2019 The OpenSSL Project.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. All advertising materials mentioning features or use
 of this
*    software must display the following acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For written permission, please contact
*    openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*    nor may "OpenSSL" appear in their names without prior written
*    permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS" AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
 TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ====================================================================
```

*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include

an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it

in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that
you distribute or publish, that in
whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived
from the Program,
and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those

sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component

itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even
though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying
the
Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if
a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals

of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM,
TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE
PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free
Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c'
for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public
License instead of this License.

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis
of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent

notice in each changed file stating how and
when you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable
form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided
that you do not advertise this Package as a
product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as
output from the programs of this Package do not automatically fall
under the copyright of this Package, but belong to whoever generated
them, and may be sold commercially, and may be aggregated with this
Package. If such scripts or library files are aggregated with this
Package via the so-called "undump" or "unexec" methods of producing a
binary executable image, then distribution of such an image shall
neither be construed as a distribution of this Package nor shall it
fall under the restrictions of Paragraphs 3 and 4, provided that you do
not represent such an executable image as a Standard Version of this
Package.

7. C subroutines
 (or comparably compiled subroutines in other
languages) supplied by you and linked into this Package in order to
emulate subroutines and variables of the language defined by this
Package shall not be considered part of this Package, but are the
equivalent of input as in Paragraph 6, provided these subroutines do
not change the language in any way that would cause it to fail the
regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always
permitted provided that the use of this Package is embedded; that is,
when no overt attempt is made to make this Package's interfaces visible
to the end user of the commercial distribution. Such use shall not be
construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote
products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT
 LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

1.133 stunnel 5.56

1.133.1 Available under license :

Copyright (C) 1998-2019 Michal Trojnara

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the

implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, see <http://www.gnu.org/licenses>.

Linking stunnel statically or dynamically with other modules is making a combined work based on stunnel. Thus, the terms and conditions of the GNU General Public License cover the whole combination.

In addition, as a special exception, the copyright holder of stunnel gives you permission to combine stunnel with free software programs or libraries
that are released under the GNU LGPL and with code included in the standard release of OpenSSL under the OpenSSL License (or modified versions of such code, with unchanged license). You may copy and distribute such a system following the terms of the GNU GPL for stunnel and the licenses of the other code concerned.

Note that people who make modified versions of stunnel are not obligated to grant this special exception for their modified versions; it is their choice whether to do so. The GNU General Public License gives permission to release a modified version without this exception; this exception also makes it possible to release a modified version which carries forward this exception.
GNU General Public License
==========

Version 2, June 1991
Copyright 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are
designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: **(1)** copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute
 and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed
 by the copyright holder saying it may be distributed
under the terms of this General Public License. The Program, below,
refers to any such program or work, and a work based on the Program
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term modification.) Each licensee is addressed as you.

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of

running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code
as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

* **a)** You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.
* **b)** You must cause any work that you distribute or publish, that in
whole or in part contains or is derived
from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.
* **c)** If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its
terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of

this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms
 of
Sections 1 and 2 above provided that you also do one of the following:

* **a)** Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,
* **b)** Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,
* **c)** Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred
 form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except
as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a
license from the
original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only
way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system, which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear
 what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and any
later version, you have the option of following the terms
 and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM
AS IS WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

###
How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the copyright line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w` and `show c` should show the appropriate
parts of the General Public License. Of course, the commands you
use may
be called something other than `show w` and `show c`; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a copyright disclaimer for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
SimpleFC - NSIS Firewall Control Plugin - License Agreement

This plugin is subject to the Mozilla Public License Version 1.1 (the "License");
You may not use this plugin except in compliance with the License. You may
obtain a copy of the License at http://www.mozilla.org/MPL.

Alternatively, you may redistribute this library, use and/or modify it
under the terms of the GNU Lesser General Public License as published
by the Free Software Foundation; either version 2.1 of the License,
or (at your option) any later version. You may obtain a copy
of the LGPL at www.gnu.org/copyleft.

Software distributed under the License is distributed on an "AS IS" basis,

WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License
for the specific language governing rights and limitations under the License.

Copyright

Portions of this software are Copyright (C) 2001 - Peter Windridge, 2003 by
Bernhard Mayer, Fixed and formatted by Brett Dever http://editor.nfscheats.com/

The
original code is FirewallControl.pas, released April 16, 2007.

The initial developer of the original code is Rainer Budde (http://www.speed-soft.de).

SimpleFC - NSIS Firewall Plugin is written, published and maintaned by
Rainer Budde (rainer@speed-soft.de).
stunnel license (see COPYRIGHT.md for detailed GPL conditions)

Copyright (C) 1998-2019 Michal Trojnara

This program is free software; you can redistribute it and/or modify it under
the terms of the GNU General Public License as published by the Free Software
Foundation; either version 2 of the License, or (at your option) any later
version.

This program is distributed in the hope that it will be useful, but WITHOUT
ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS
FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with
this program; if not, see <http://www.gnu.org/licenses>.

Linking stunnel statically or dynamically with other modules is making
a combined work based on stunnel. Thus, the terms and conditions of the
GNU General Public License cover the whole combination.

In addition, as a special exception, the copyright holder of stunnel gives you
permission
to combine stunnel with free software programs or libraries that
are released under the GNU LGPL and with code included in the standard release
of OpenSSL under the OpenSSL License (or modified versions of such code, with
unchanged license). You may copy and distribute such a system following the
terms of the GNU GPL for stunnel and the licenses of the other code concerned.

Note that people who make modified versions of stunnel are not obligated to
grant this special exception for their modified versions; it is their choice
whether to do so. The GNU General Public License gives permission to release
a modified version without this exception; this exception also makes it

possible to release a modified version which carries forward this exception.

1.134 icu 65

1.134.1 Available under license :

```
## -*-makefile-*-
## Copyright (C) 2016 and later: Unicode, Inc. and others.
## License & terms of use: http://www.unicode.org/copyright.html
## BSD-specific setup (FreeBSD, OpenBSD, NetBSD, *BSD)
## Copyright (c) 1999-2013, International Business Machines Corporation and
## others. All Rights Reserved.

## Commands to generate dependency files
GEN_DEPS.c= $(CC) -E -MM $(DEFS) $(CPPFLAGS)
GEN_DEPS.cc= $(CXX) -E -MM $(DEFS) $(CPPFLAGS)

## Flags for position independent code
SHAREDLIBCFLAGS = -fPIC
SHAREDLIBCXXFLAGS = -fPIC
SHAREDLIBCPPFLAGS = -DPIC

## Additional flags when building libraries and with threads
THREADSCPPFLAGS = -D_REENTRANT
LIBCPPFLAGS =

## Compiler switch to embed a runtime search path
LD_RPATH=
LD_RPATH_PRE= -Wl,-rpath,

## Compiler switch to embed a library name
LD_SONAME = -Wl,-soname -Wl,$(notdir $(MIDDLE_SO_TARGET))

## Shared library options
LD_SOOPTIONS= -Wl,-Bsymbolic

## Shared object suffix
SO = so
## Non-shared intermediate object suffix
STATIC_O = ao

## Compilation
 rules
%.$(STATIC_O): $(srcdir)/%.c
 $(COMPILE.c) $(STATICCPPFLAGS) $(STATICCFLAGS) -o $@ $<
%.o: $(srcdir)/%.c
 $(COMPILE.c) $(DYNAMICCPPFLAGS) $(DYNAMICCFLAGS) -o $@ $<
```

```
%.$(STATIC_O): $(srcdir)/%.cpp
 $(COMPILE.cc) $(STATICCPPFLAGS) $(STATICCXXFLAGS) -o $@ $<
%.o: $(srcdir)/%.cpp
 $(COMPILE.cc) $(DYNAMICCPPFLAGS) $(DYNAMICCXXFLAGS) -o $@ $<


## Dependency rules
%.d: $(srcdir)/%.c
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.c) $< \
  | sed '\''s/\($*\)\.o[ :]*/\1.o $@ : /g'\'' > $@; \
  [ -s $@ ] || rm -f $@'

%.d: $(srcdir)/%.cpp
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.cc) $< \
  | sed '\''s/\($*\)\.o[ :]*/\1.o $@ : /g'\'' > $@; \
  [ -s $@ ] || rm -f $@'

## Versioned libraries rules

%.$(SO).$(SO_TARGET_VERSION_MAJOR): %.$(SO).$(SO_TARGET_VERSION)
 $(RM) $@ && ln -s ${<F} $@
%.$(SO): %.$(SO).$(SO_TARGET_VERSION_MAJOR)
 $(RM) $@ && ln -s ${*F}.$(SO).$(SO_TARGET_VERSION) $@

##  Bind internal references

# LDflags that pkgdata will use
BIR_LDFLAGS= -Wl,-Bsymbolic

# Dependencies [i.e. map files] for the final library
BIR_DEPS=

## Remove shared library 's'
STATIC_PREFIX_WHEN_USED =
STATIC_PREFIX =

## End BSD-specific setup
```

COPYRIGHT AND PERMISSION NOTICE (ICU 58 and later)

Copyright 1991-2020 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in https://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software

without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT
NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

Third-Party Software Licenses

This section contains third-party software notices and/or additional
terms for licensed third-party software components included within ICU
libraries.

1. ICU License - ICU 1.8.1 to ICU
57.1

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2016 International Business Machines Corporation and others
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, and/or sell copies of the Software, and to permit persons
to whom the Software is furnished to do so, provided that the above

copyright notice(s) and this permission notice appear in all copies of
the Software and that both the above copyright notice(s) and this
permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT
OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR
HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY
SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER
RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF
CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale, use
or other dealings in this Software without prior written authorization
of the copyright holder.

All trademarks and registered trademarks mentioned herein are the
property of their respective owners.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

```
#     The Google Chrome software developed by Google is licensed under
# the BSD license. Other software included in this distribution is
# provided under other licenses, as set forth below.
#
#  The BSD License
#  http://opensource.org/licenses/bsd-license.php
 #  Copyright (C) 2006-2008, Google Inc.
#
#  All rights reserved.
#
#  Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are met:
#
#  Redistributions of source code must retain the above copyright notice,
# this list of conditions and the following disclaimer.
#  Redistributions in binary form must reproduce the above
# copyright notice, this list of conditions and the following
# disclaimer in the documentation and/or other materials provided with
# the distribution.
#  Neither the name of  Google Inc. nor the names of its
# contributors may be used to endorse or promote products derived from
# this software without specific prior written permission.
#
```

```
#
#  THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
# CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
# INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
# MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 PURPOSE ARE
# DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
# LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
# CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
# SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
# BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
# LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
# NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
# SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
#
#  The word list in cjdict.txt are generated by combining three word lists
# listed below with further processing for compound word breaking. The
# frequency is generated with an iterative training against Google web
# corpora.
#
#  * Libtabe (Chinese)
#    - https://sourceforge.net/project/?group_id=1519
#    - Its license terms and conditions are shown below.
#
#  * IPADIC (Japanese)
#    - http://chasen.aist-nara.ac.jp/chasen/distribution.html
 #    - Its license terms and conditions are shown below.
#
#  ---------COPYING.libtabe ---- BEGIN--------------------
#
#  /*
#   * Copyright (c) 1999 TaBE Project.
#   * Copyright (c) 1999 Pai-Hsiang Hsiao.
#   * All rights reserved.
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the TaBE Project nor the names of its
#   *   contributors may be used to endorse or promote products derived
```

```
#   *   from this software
 without specific prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
#  /*
#   * Copyright (c) 1999 Computer Systems and Communication Lab,
#   *                    Institute
 of Information Science, Academia
#      *                    Sinica. All rights reserved.
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the Computer Systems and Communication Lab
#   *   nor the names of its contributors may be used to endorse or
#   *   promote products derived from this software without specific
#   *   prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND
 ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
```

```
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
#  Copyright 1996 Chih-Hao Tsai @ Beckman Institute,
#      University of Illinois
#  c-tsai4@uiuc.edu  http://casper.beckman.uiuc.edu/~c-tsai4
#
#  ---------------COPYING.libtabe-----END--------------------------------
#
#
#  ---------------COPYING.ipadic-----BEGIN-------------------------------
 #
#  Copyright 2000, 2001, 2002, 2003 Nara Institute of Science
#  and Technology.  All Rights Reserved.
#
#  Use, reproduction, and distribution of this software is permitted.
#  Any copy of this software, whether in its original form or modified,
#  must include both the above copyright notice and the following
#  paragraphs.
#
#  Nara Institute of Science and Technology (NAIST),
#  the copyright holders, disclaims all warranties with regard to this
#  software, including all implied warranties of merchantability and
#  fitness, in no event shall NAIST be liable for
#  any special, indirect or consequential damages or any damages
#  whatsoever resulting from loss of use, data or profits, whether in an
#  action of contract, negligence or other tortuous action, arising out
#  of or in connection with the use or performance of this software.
#
#  A large portion of the dictionary entries
#  originate from ICOT
 Free Software.  The following conditions for ICOT
#  Free Software applies to the current dictionary as well.
#
#  Each User may also freely distribute the Program, whether in its
#  original form or modified, to any third party or parties, PROVIDED
#  that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear
#  on, or be attached to, the Program, which is distributed substantially
#  in the same form as set out herein and that such intended
#  distribution, if actually made, will neither violate or otherwise
#  contravene any of the laws and regulations of the countries having
#  jurisdiction over the User or the intended distribution itself.
#
#  NO WARRANTY
#
#  The program was produced on an experimental basis in the course of the
```

research and development conducted during the project and is provided
to users as so produced on an experimental basis. Accordingly, the
program is provided without any warranty whatsoever, whether express,
implied,
statutory or otherwise. The term "warranty" used herein
includes, but is not limited to, any warranty of the quality,
performance, merchantability and fitness for a particular purpose of
the program and the nonexistence of any infringement or violation of
any right of any third party.
#
Each user of the program will agree and understand, and be deemed to
have agreed and understood, that there is no warranty whatsoever for
the program and, accordingly, the entire risk arising from or
otherwise connected with the program is assumed by the user.
#
Therefore, neither ICOT, the copyright holder, or any other
organization that participated in or was otherwise related to the
development of the program and their respective officials, directors,
officers and other employees shall be held liable for any and all
damages, including, without limitation, general, special, incidental
and consequential damages, arising out of or otherwise in
connection
with the use or inability to use the program or any product, material
or result produced or otherwise obtained by using the program,
regardless of whether they have been advised of, or otherwise had
knowledge of, the possibility of such damages at any time during the
project or thereafter. Each user will be deemed to have agreed to the
foregoing by his or her commencement of use of the program. The term
"use" as used herein includes, but is not limited to, the use,
modification, copying and distribution of the program and the
production of secondary products from the program.
#
In the case where the program, whether in its original form or
modified, was distributed or delivered to or received by a user from
any person, organization or entity other than ICOT, unless it makes or
grants independently of ICOT any specific warranty to the user in
writing, such person, organization or entity, will also be exempted
from
and not be held liable to the user for any such damages as noted
above as far as the program is concerned.
#
----------COPYING.ipadic-----END----------

3. Lao Word Break Dictionary Data (laodict.txt)

Copyright (c) 2013 International Business Machines Corporation
and others. All Rights Reserved.
#

Project: http://code.google.com/p/lao-dictionary/
Dictionary: http://lao-dictionary.googlecode.com/git/Lao-Dictionary.txt
License: http://lao-dictionary.googlecode.com/git/Lao-Dictionary-LICENSE.txt
(copied below)
#
This file is derived from the above dictionary, with slight
modifications.
--
Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification,
are permitted provided that the following conditions are met:
 #
#
Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer. Redistributions in
binary form must reproduce the above copyright notice, this list of
conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.
#
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
 TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.
--

4. Burmese Word Break Dictionary Data (burmesedict.txt)

Copyright (c) 2014 International Business Machines Corporation
and others. All Rights Reserved.
#
This list is part of a project hosted at:
github.com/kanyawtech/myanmar-karen-word-lists
#
--
Copyright (c) 2013, LeRoy Benjamin Sharon

All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met: Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer. Redistributions in binary form must reproduce the
above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.
#
Neither the name Myanmar Karen Word Lists, nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.
---

5. Time Zone Database

ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.

7. Database Ownership
#
The TZ database itself is not an IETF Contribution or an IETF
document. Rather it is a pre-existing and regularly updated work
that is in the public domain, and is intended to remain in the
public domain. Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
not apply to the TZ Database or contributions that individuals make
to it. Should any claims be made and substantiated against the TZ
Database, the organization that is providing

the IANA
Considerations defined in this RFC, under the memorandum of
understanding with the IETF, currently ICANN, may act in accordance
with all competent court orders. No ownership claims will be made
by ICANN or the IETF Trust on the database or the code. Any person
making a contribution to the database or code waives all rights to
future claims in that contribution or in the TZ Database.

6. Google double-conversion

Copyright 2006-2011, the V8 project authors. All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided
with the distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.135 glibc 2.31

1.135.1 Available under license :

@c The GNU Lesser General Public License.
@center Version 2.1, February 1999

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence the
version number 2.1.]
@end display

@subheading Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software---to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software---typically
libraries---of the Free
Software Foundation and other authors who decide to use it. You can use
it too, but we suggest you first think carefully about whether this
license or the ordinary General Public License is the better strategy to
use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of it
in new free programs; and that you are informed that you can do these
things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library
or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation
will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative
of the original library. The ordinary
General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the @dfn{Lesser} General Public License because it does @emph{Less} to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free

library does the
same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
``work based on the library'' and a ``work that uses the library''. The
former
contains code derived from the library, whereas the latter must
be combined with the library in order to run.

@subheading TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0
@item
This License Agreement applies to any software library or other program
which contains a notice placed by the copyright holder or other
authorized party saying it may be distributed under the terms of this
Lesser General Public License (also called ``this License''). Each
licensee is addressed as ``you''.

A ``library'' means a collection of software functions and/or data
prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

The ``Library'', below, refers to any such software library or work
which has been distributed under these terms. A ``work based on the
Library'' means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it,
either verbatim or with modifications and/or translated
straightforwardly into another language. (Hereinafter, translation is
included without limitation in the term ``modification''.)

``Source code'' for a work means the preferred form of the work for

making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

@item
You may copy and distribute
verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

@item
You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

@enumerate a
@item
The modified work must itself be a software library.

@item
You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

@item
You must
cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

@item
If a facility in the modified Library refers to a function or a

table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)
@end enumerate

These requirements apply to the modified work as a whole. If
identifiable sections
 of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this
 License.

@item
You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

@item
You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and
2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

@item
A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a ``work that uses the Library''. Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a ``work that uses the Library'' with the Library
creates an executable that is a derivative of the Library (because
it
contains portions of the Library), rather than a ``work that uses the
library''. The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a ``work that uses the Library'' uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the

Library will still fall under Section 6.)

Otherwise,
if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

@item
As an exception to the Sections above, you may also combine or
link a ``work that uses the Library'' with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of
this License. Also, you must do one
of these things:

@enumerate a
@item
Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable ``work that
uses the Library'', as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

@item
Use a suitable shared library mechanism for linking with the Library. A
suitable mechanism is one that (1) uses at run time a copy of the
library already present on the user's computer system, rather than
copying library functions into the executable,
and (2) will operate
properly with a modified version of the library, if the user installs
one, as long as the modified version is interface-compatible with the
version that the work was made with.

@item
Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

@item
If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

@item
Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.
@end enumerate

For an executable, the required form of the ``work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that
is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies the
executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

@item
You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

@enumerate a
@item
Accompany the combined library with a copy of the same work
based on the Library,
uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

@item
Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.
@end enumerate

@item
You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

@item
You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are
prohibited
 by law if you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

@item
Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

@item
If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License,
 they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software
 distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

@item
If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

@item
The Free Software Foundation
 may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
``any later version'', you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

@item
If you wish to incorporate parts of the Library into other free

programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
 this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

@center @b{NO WARRANTY}

@item
BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY ``AS IS'' WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

@item
IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
 BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.
@end enumerate

@subheading END OF TERMS AND CONDITIONS

@page
@subheading How to Apply These Terms to Your New Libraries

 If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

 To apply these terms, attach the following notices to the library. It is

safest to attach them to the start of each source
file to most effectively
convey the exclusion of warranty; and each file should have at least the
``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}

This library is free software; you can redistribute it and/or modify it
under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1 of the License, or (at
your option) any later version.

This library is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301,
USA.
@end
smallexample

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a ``copyright disclaimer'' for the library, if
necessary. Here is a sample; alter the names:

@smallexample
Yoyodyne, Inc., hereby disclaims all copyright interest in the library
`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample

That's all there is to it!
Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that

you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you

conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or

collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program

except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is

implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED

OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

```
  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute
it
  under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

```
 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
 is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public

Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a

restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an

appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote

it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked

with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined

library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you

may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free

programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
@c The GNU Free Documentation License.
@center Version 1.3, 3 November 2008

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
@uref{http://fsf.org/}

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@enumerate 0
@item

PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document @dfn{free} in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondarily, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of ``copyleft'', which means that derivative works of the document
must themselves be free in the same sense. It
complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

@item
APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The ``Document'', below, refers
to any such manual or work. Any member of the public is a licensee, and is addressed as ``you''. You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A ``Modified Version'' of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A ``Secondary Section'' is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain

any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The ``Invariant Sections'' are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The ``Cover Texts'' are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A ``Transparent'' copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not ``Transparent'' is called ``Opaque''.

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, La@TeX{} input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The ``Title Page'' means, for a printed book, the title page itself,

plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, ``Title Page'' means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

The ``publisher'' means any person or entity that distributes copies of the Document to the public.

A section ``Entitled XYZ'' means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as ``Acknowledgements'', ``Dedications'', ``Endorsements'', or ``History''.) To ``Preserve the Title'' of such a section when you modify the Document means that it remains a section ``Entitled XYZ'' according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

@item
VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

@item
COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the

copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the
title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute
an
Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

@item
MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

@enumerate A
@item
Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions

(which should, if there were any, be listed in the History section
of the Document). You may use the same
title as a previous version
if the original publisher of that version gives permission.

@item
List on the Title Page, as authors, one or more persons or entities
responsible for authorship of the modifications in the Modified
Version, together with at least five of the principal authors of the
Document (all of its principal authors, if it has fewer than five),
unless they release you from this requirement.

@item
State on the Title page the name of the publisher of the
Modified Version, as the publisher.

@item
Preserve all the copyright notices of the Document.

@item
Add an appropriate copyright notice for your modifications
adjacent to the other copyright notices.

@item
Include, immediately after the copyright notices, a license notice
giving the public permission to use the Modified Version under the
terms of this License, in the form shown in the Addendum below.

@item
Preserve in that license notice the full lists of Invariant Sections
and required Cover Texts given in the Document's
license notice.

@item
Include an unaltered copy of this License.

@item
Preserve the section Entitled ``History'', Preserve its Title, and add
to it an item stating at least the title, year, new authors, and
publisher of the Modified Version as given on the Title Page. If
there is no section Entitled ``History'' in the Document, create one
stating the title, year, authors, and publisher of the Document as
given on its Title Page, then add an item describing the Modified
Version as stated in the previous sentence.

@item
Preserve the network location, if any, given in the Document for
public access to a Transparent copy of the Document, and likewise

the network locations given in the Document for previous versions
it was based on. These may be placed in the ``History'' section.
You may omit a network location for a work that was published at
least four years before the Document itself, or if the original
publisher of the version it refers to gives permission.

@item
For any
 section Entitled ``Acknowledgements'' or ``Dedications'', Preserve
the Title of the section, and preserve in the section all the
substance and tone of each of the contributor acknowledgements and/or
dedications given therein.

@item
Preserve all the Invariant Sections of the Document,
unaltered in their text and in their titles. Section numbers
or the equivalent are not considered part of the section titles.

@item
Delete any section Entitled ``Endorsements''. Such a section
may not be included in the Modified Version.

@item
Do not retitle any existing section to be Entitled ``Endorsements'' or
to conflict in title with any Invariant Section.

@item
Preserve any Warranty Disclaimers.
@end enumerate

If the Modified Version includes new front-matter sections or
appendices that qualify as Secondary Sections and contain no material
copied from the Document, you may at your option designate some or all
of these sections as invariant. To do this, add their titles to the
list of Invariant
 Sections in the Modified Version's license notice.
These titles must be distinct from any other section titles.

You may add a section Entitled ``Endorsements'', provided it contains
nothing but endorsements of your Modified Version by various
parties---for example, statements of peer review or that the text has
been approved by an organization as the authoritative definition of a
standard.

You may add a passage of up to five words as a Front-Cover Text, and a
passage of up to 25 words as a Back-Cover Text, to the end of the list
of Cover Texts in the Modified Version. Only one passage of
Front-Cover Text and one of Back-Cover Text may be added by (or

through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

@item
COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number.
Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled ``History'' in the various original documents, forming one section Entitled ``History''; likewise combine any sections Entitled ``Acknowledgements'', and any sections Entitled ``Dedications''. You must delete all sections Entitled ``Endorsements.''

@item
COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this

License
into the extracted document, and follow this License in all
other respects regarding verbatim copying of that document.

@item
AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate
and independent documents or works, in or on a volume of a storage or
distribution medium, is called an ``aggregate'' if the copyright
resulting from the compilation is not used to limit the legal rights
of the compilation's users beyond what the individual works permit.
When the Document is included in an aggregate, this License does not
apply to the other works in the aggregate which are not themselves
derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these
copies of the Document, then if the Document is less than one half of
the entire aggregate, the Document's Cover Texts may be placed on
covers that bracket the Document within the aggregate, or the
electronic equivalent of covers if the Document is in electronic
form.
Otherwise they must appear on printed covers that bracket the whole
aggregate.

@item
TRANSLATION

Translation is considered a kind of modification, so you may
distribute translations of the Document under the terms of section 4.
Replacing Invariant Sections with translations requires special
permission from their copyright holders, but you may include
translations of some or all Invariant Sections in addition to the
original versions of these Invariant Sections. You may include a
translation of this License, and all the license notices in the
Document, and any Warranty Disclaimers, provided that you also include
the original English version of this License and the original versions
of those notices and disclaimers. In case of a disagreement between
the translation and the original version of this License or a notice
or disclaimer, the original version will prevail.

If a section in the Document is Entitled ``Acknowledgements'',
``Dedications'', or ``History'', the requirement
(section 4) to Preserve
its Title (section 1) will typically require changing the actual
title.

@item

TERMINATION

You may not copy, modify, sublicense, or distribute the Document
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense, or distribute it is void, and
will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license
from a particular copyright holder is reinstated (a) provisionally,
unless and until the copyright holder explicitly and finally
terminates your license, and (b) permanently, if the copyright holder
fails to notify you of the violation by some reasonable means prior to
60 days after the cessation.

Moreover, your license from a particular copyright holder is
reinstated permanently if the copyright holder notifies you of the
violation by some reasonable means, this is the first time you have
received notice of violation of this License (for any
 work) from that
copyright holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the
licenses of parties who have received copies or rights from you under
this License. If your rights have been terminated and not permanently
reinstated, receipt of a copy of some or all of the same material does
not give you any rights to use it.

@item
FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions
of the GNU Free Documentation License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns. See
@uref{http://www.gnu.org/copyleft/}.

Each version of the License is given a distinguishing version number.
If the Document specifies that a particular numbered version of this
License ``or any later version'' applies to it, you have the option of
following the terms and
 conditions either of that specified version or
of any later version that has been published (not as a draft) by the
Free Software Foundation. If the Document does not specify a version
number of this License, you may choose any version ever published (not
as a draft) by the Free Software Foundation. If the Document
specifies that a proxy can decide which future versions of this
License can be used, that proxy's public statement of acceptance of a

version permanently authorizes you to choose that version for the
Document.

@item
RELICENSING

``Massive Multiauthor Collaboration Site'' (or ``MMC Site'') means any
World Wide Web server that publishes copyrightable works and also
provides prominent facilities for anybody to edit those works. A
public wiki that anybody can edit is an example of such a server. A
``Massive Multiauthor Collaboration'' (or ``MMC'') contained in the
site means any set of copyrightable works thus published on the MMC
site.

``CC-BY-SA'' means the Creative Commons
Attribution-Share Alike 3.0
license published by Creative Commons Corporation, a not-for-profit
corporation with a principal place of business in San Francisco,
California, as well as future copyleft versions of that license
published by that same organization.

``Incorporate'' means to publish or republish a Document, in whole or
in part, as part of another Document.

An MMC is ``eligible for relicensing'' if it is licensed under this
License, and if all works that were first published under this License
somewhere other than this MMC, and subsequently incorporated in whole
or in part into the MMC, (1) had no cover texts or invariant sections,
and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site
under CC-BY-SA on the same site at any time before August 1, 2009,
provided the MMC is eligible for relicensing.

@end enumerate

@page
@heading ADDENDUM: How to use this License for your documents

To use this License
in a document you have written, include a copy of
the License in the document and put the following copyright and
license notices just after the title page:

@smallexample
@group
Copyright (C) @var{year} @var{your name}.
Permission is granted to copy, distribute and/or modify this document

under the terms of the GNU Free Documentation License, Version 1.3
or any later version published by the Free Software Foundation;
with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
Texts. A copy of the license is included in the section entitled ``GNU
Free Documentation License".
@end group
@end smallexample

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts."@: line with this:

@smallexample
@group
  with the Invariant Sections being @var{list their titles}, with
  the Front-Cover Texts being @var{list}, and with the Back-Cover Texts
  being @var{list}.
@end group
@end smallexample

If you have Invariant
Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
@c End:
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/, and
http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF
online code charts under the directory http://www.unicode.org/Public/.
Software includes any source code published in the Unicode Standard or under
the directories http://www.unicode.org/Public/,
http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY
DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES
("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND
AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF
YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA
FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode,
Inc. All rights reserved. Distributed under
the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a
copy of the Unicode data files and any associated documentation (the "Data
Files") or Unicode software and any associated documentation (the "Software")
to deal in the Data Files or Software without restriction, including without
limitation the rights to use, copy, modify, merge, publish, distribute, and/or
sell copies of the Data Files or Software, and to permit persons to whom the
Data Files or Software are furnished to do so, provided that (a) the above
copyright notice(s) and this permission notice appear with all copies of the
Data Files or Software, (b) both the above copyright notice(s) and this
permission notice appear in associated documentation, and (c) there is clear
notice in each modified Data File or in the Software as well as in the
documentation associated with the Data File(s) or Software
that the data or
software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD
PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN
THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE
DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall
not be used in advertising or otherwise to promote the sale, use or other
dealings in these Data Files or Software without prior written authorization
of the copyright holder.
This file contains the copying permission notices for various files in the
GNU C Library distribution that have copyright owners other than the Free
Software Foundation. These notices all require that a copy of the notice
be included in the accompanying documentation and be distributed with
binary distributions of the code, so be sure to include this file along
with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following
license:

Copyright (C) 1991 Regents of the University of California.

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in
 the
  documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
 OF THE POSSIBILITY OF
SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC
Berkeley, by Digital Equipment Corporation and by Internet Software
Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies, and
that the name of Digital Equipment Corporation not be used in
advertising or publicity pertaining to distribution of the document or
software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS'' AND DIGITAL EQUIPMENT CORP.
DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL
DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES

OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,

INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science
Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the
above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER
IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized
Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse
or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR

CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright
(C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
Version 2.00

The author(s) grant permission for redistribution and use in source and
binary forms, with or without modification, of the software and documentation
provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled
as not being for redistribution (check the version message and/or README),
you are not permitted to redistribute that version of the software in any
way or form.
1. All terms of the all other applicable copyrights and licenses must be
followed.
2. Redistributions of source code must retain the authors' copyright
notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright
notice(s), this list of conditions, and the following disclaimer in the
documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s)
of the author(s) nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young
Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please
see <https://www.gnu.org/licenses/> to obtain a copy.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with
 the distribution.
3. Neither the name of the project nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright
 1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its

documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of the copyright holder not be
used in advertising or publicity pertaining to distribution of the
software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests
are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests
is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any
computer system, and to redistribute it freely, subject to the following
restrictions:

1. This software is distributed in the hope that it will be useful,
 but WITHOUT ANY WARRANTY; without even the implied warranty of
 MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by
 explicit claim or by omission. In practice, this means that if you use
 PCRE in software that you distribute to others, commercially or
 otherwise, you must put a sentence like this

  Regular expression support is provided by the PCRE library package,
  which is open source software, written by Philip Hazel, and copyright
  by the University of Cambridge, England.

 somewhere reasonably visible in your documentation and in any relevant
 files or online
help data or similar. A reference to the ftp site for
 the source, that is, to

  ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

 should also be given in the documentation. However, this condition is not
 intended to apply to whole chains of software. If package A includes PCRE,
 it must acknowledge it, but if package B is software that includes package
 A, the condition is not imposed on package B (unless it uses PCRE
 independently).

3. Altered versions must be plainly marked as such, and must not be
 misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU
 General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL),
 then the terms of that licence shall supersede any condition above with
 which it is incompatible.

Files from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems,
 Inc. business.
Permission to use, copy, modify, and distribute this
software is freely granted, provided that this notice
is preserved.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<https://www.gnu.org/licenses/>. */

1.136 net-snmp 5.8.1.pre2

1.136.1 Available under license :

Various copyrights apply to this package, listed in various separate
parts below. Please make sure that you read all the parts.

---- Part 1: Sparta, Inc (BSD) -----

Copyright (c) 2003-2010, Sparta, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

* Neither the name of Sparta, Inc nor the names of its contributors may
  be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS
IS'' AND ANY EXPRESS
 OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;

OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 2: ScienceLogic, LLC (BSD) ----

Copyright (c) 2006, ScienceLogic, LLC
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of ScienceLogic, LLC nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Various copyrights apply to this package, listed in various separate parts below. Please make sure that you read all the parts.

---- Part 1: CMU/UCD copyright notice: (BSD like) -----

Copyright 1989, 1991, 1992 by Carnegie Mellon University

Derivative Work - 1996, 1998-2000

Copyright 1996, 1998-2000 The Regents of the University of California

All Rights Reserved

Permission to use, copy, modify and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appears in all copies and
that both that copyright notice and this permission notice appear in
supporting documentation, and that the name of CMU and The Regents of
the University of California not be used in advertising or publicity
pertaining to distribution of the software without specific written
permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL
WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED
WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL,
INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING
FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF
CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

---- Part 2: Networks Associates Technology, Inc copyright notice (BSD) -----

Copyright (c) 2001-2003, Networks Associates Technology, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation
and/or other materials provided with the distribution.

* Neither the name of the Networks Associates Technology, Inc nor the
names of its contributors may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS
IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 3: Cambridge Broadband Ltd. copyright notice (BSD) -----

Portions of this code are copyright (c) 2001-2003, Cambridge Broadband Ltd.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

* The name of Cambridge Broadband Ltd. may not be used to endorse or
  promote products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 4: Sun Microsystems, Inc. copyright notice (BSD) -----

Copyright (c) 2003 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara,
California 95054, U.S.A. All rights reserved.

Use is subject to license terms below.

This distribution may include materials developed by third parties.

Sun, Sun Microsystems, the Sun logo and Solaris are trademarks or registered trademarks of Sun Microsystems,
Inc. in the U.S. and other countries.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Sun Microsystems, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 5: Sparta, Inc copyright notice (BSD) -----

Copyright (c) 2003-2013, Sparta, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright

notice, this list of conditions and the following
disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of Sparta, Inc nor the names of its contributors may
be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 6: Cisco/BUPTNIC copyright notice (BSD) -----

Copyright (c) 2004, Cisco, Inc and Information Network
Center of Beijing University of Posts and Telecommunications.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of Cisco, Inc, Beijing University of Posts and
Telecommunications, nor the names of their contributors may
be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS
PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,

EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 7: Fabasoft R&D Software GmbH & Co KG copyright notice (BSD) -----

Copyright (c) Fabasoft R&D Software GmbH & Co KG, 2003
oss@fabasoft.com
Author: Bernhard Penz <bernhard.penz@fabasoft.com>

Redistribution and use in source and binary forms, with
 or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

* The name of Fabasoft R&D Software GmbH & Co KG or any of its subsidiaries,
  brand or product names may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 8: Apple Inc. copyright notice (BSD) -----

Copyright (c) 2007 Apple Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.
3. Neither the
name of Apple Inc. ("Apple") nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY APPLE AND ITS CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL APPLE OR ITS
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

---- Part 9: ScienceLogic, LLC copyright notice (BSD) -----

Copyright
(c) 2009, ScienceLogic, LLC
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of ScienceLogic, LLC nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE COPYRIGHT
HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 10: Lennart Poettering copyright notice (BSD-like) -----

Copyright 2010 Lennart Poettering

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation files
(the "Software"), to deal in the Software without restriction,
including without limitation the rights to use, copy, modify, merge,
publish, distribute, sublicense, and/or sell copies of the Software,
and to permit persons to whom the Software
is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

---- Part 11: IETF copyright notice (BSD) -----

Copyright (c) 2013 IETF Trust and the persons identified as authors of
the code. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code

must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of Internet Society, IETF or IETF Trust, nor the
names of specific contributors, may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS
IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 12: Arista Networks copyright notice (BSD) ----

Copyright (c) 2013, Arista Networks, Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of Arista Networks, Inc. nor the names of its
contributors may be used to endorse or promote
products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 13: VMware, Inc. copyright notice (BSD) -----

Copyright (c) 2016, VMware, Inc.
All rights reserved.

Redistribution and use in source and
binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of VMware, Inc. nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 14: USC/Information Sciences Institute copyright notice (BSD) -----

Copyright (c) 2017-2018, Information Sciences Institute
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or
  other materials provided with the distribution.

* Neither the name of Information Sciences Institue nor the names of its
  contributors may be used to endorse or promote products derived from
  this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.

LICENSE ISSUES
==============

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License

/* ==
* Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*

```
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer
 in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. All advertising materials mentioning features or use of this
*    software must display the following acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For written permission, please contact
*    openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*    nor may "OpenSSL" appear in their names without prior written
*    permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
 *
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ====================================================================
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com).  This product includes software
 written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/
```

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the
library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
* must display the following acknowledgement:
* "This product includes cryptographic software written by
* Eric Young (eay@cryptsoft.com)"
* The word 'cryptographic' can be left out if the rouines from the library
* being used are not cryptographic
related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
* the apps directory (application code) you must include an acknowledgement:
* "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
 OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.137 iptables 1.6.0

1.137.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program

is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering

access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to

apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of

MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.138 dom4j 2.1.3

1.138.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2001-2005 (C) MetaStuff, Ltd. All Rights Reserved.

*
* This software is open source.
* See the bottom of this file for the licence.
*/
/*
* Redistribution and use of this software and associated documentation
* ("Software"), with or without modification, are permitted provided that the
* following conditions are met:
*
* 1. Redistributions of source code must retain copyright statements and
* notices. Redistributions must also contain a copy of this document.
*
* 2. Redistributions in binary form must reproduce the above copyright notice,
* this list of conditions and the following disclaimer in the documentation
* and/or other materials provided with the distribution.
*
* 3. The name "DOM4J" must not be used to endorse or promote products derived
* from this Software without prior written permission of MetaStuff, Ltd. For
* written permission, please contact dom4j-info@metastuff.com.
 *
* 4. Products derived from this Software may not be called "DOM4J" nor may
* "DOM4J" appear in their names without prior written permission of MetaStuff,
* Ltd. DOM4J is a registered trademark of MetaStuff, Ltd.
*
* 5. Due credit should be given to the DOM4J Project - http://www.dom4j.org
*
* THIS SOFTWARE IS PROVIDED BY METASTUFF, LTD. AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL METASTUFF, LTD. OR ITS CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN
 ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGE.
*
* Copyright 2001-2005 (C) MetaStuff, Ltd. All Rights Reserved.
*/

Found in path(s):
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/ElementQNameIterator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/ElementIterator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/ElementHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/CDATA.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Document.java

* /dom4j-2-1-3-sources-jar/org/dom4j/rule/Action.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Comment.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Entity.java
* /dom4j-2-1-3-sources-jar/org/dom4j/bean/BeanDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightCDATA.java
* /dom4j-2-1-3-sources-jar/org/dom4j/IllegalAddException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBModifier.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FilterIterator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMDocumentType.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/rule/Pattern.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/Rule.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/NamespaceStack.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/NamespaceCache.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBObjectHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DOMReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/QName.java
* /dom4j-2-1-3-sources-jar/org/dom4j/VisitorSupport.java
* /dom4j-2-1-3-sources-jar/org/dom4j/InvalidXPathException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/XPath.java
* /dom4j-2-1-3-sources-jar/org/dom4j/bean/BeanMetaData.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dtd/ElementDecl.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/XMLWriter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/pattern/DefaultPattern.java
* /dom4j-2-1-3-sources-jar/org/dom4j/xpath/XPathPattern.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultCDATA.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/PruningDispatchHandler.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/rule/Stylesheet.java
* /dom4j-2-1-3-sources-jar/org/dom4j/swing/XMLTableColumnDefinition.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/DatatypeDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXEventRecorder.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMEntityReference.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/DocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultDocument.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DocumentResult.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXModifyElementHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/NodeComparator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/ProcessingInstruction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/UserDataElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/PerThreadSingleton.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMComment.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/XMLErrorHandler.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/util/NonLazyElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/bean/BeanAttributeList.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DOMWriter.java

* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightEntity.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractProcessingInstruction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/BackedList.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/STAXEventWriter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBSupport.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/IndexedElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/ElementStack.java
* /dom4j-2-1-3-sources-jar/org/dom4j/NodeFilter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/XPathException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightText.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractCharacterData.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/pattern/NodeTypePattern.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dtd/ExternalEntityDecl.java
*
/dom4j-2-1-3-sources-jar/org/dom4j/swing/XMLTableDefinition.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/XPP3Reader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBWriter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/bean/BeanAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractCDATA.java
* /dom4j-2-1-3-sources-jar/org/dom4j/swing/DocumentTreeModel.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightProcessingInstruction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/ProxyDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/PruningElementStack.java
* /dom4j-2-1-3-sources-jar/org/dom4j/DocumentType.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/ContentListFacade.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractEntity.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/UserDataAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Visitor.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXWriter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Node.java
*
/dom4j-2-1-3-sources-jar/org/dom4j/Attribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/swing/XMLTableModel.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMProcessingInstruction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/Mode.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/NullAction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Namespace.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultProcessingInstruction.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/FlyweightComment.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXValidator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/BaseElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMText.java
* /dom4j-2-1-3-sources-jar/org/dom4j/xpath/DefaultXPath.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/ElementPath.java
* /dom4j-2-1-3-sources-jar/org/dom4j/CharacterData.java
* /dom4j-2-1-3-sources-jar/org/dom4j/bean/BeanElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/SimpleSingleton.java

*
 /dom4j-2-1-3-sources-jar/org/dom4j/util/NonLazyDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/DatatypeAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultEntity.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractDocument.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/QNameCache.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractNode.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBRuntimeException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/IndexedDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractBranch.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/HTMLWriter.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dtd/InternalEntityDecl.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/DatatypeElementFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultComment.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMCDATA.java
* /dom4j-2-1-3-sources-jar/org/dom4j/swing/BranchTreeNode.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXModifier.java
* /dom4j-2-1-3-sources-jar/org/dom4j/swing/LeafTreeNode.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMNodeHelper.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBObjectModifier.java
* /dom4j-2-1-3-sources-jar/org/dom4j/jaxb/JAXBReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/ElementModifier.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMAttributeNodeMap.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/XMLResult.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXModifyReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/xpp/ProxyXmlStartTag.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dtd/AttributeDecl.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DocumentInputSource.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/STAXEventReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXContentHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/SingletonStrategy.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractDocumentType.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/DocumentException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractText.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMNamespace.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultDocumentType.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXModifyException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMDocument.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/util/UserDataDocumentFactory.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/XPPReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/OutputFormat.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/NamedTypeResolver.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/SingleIterator.java

* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMAttribute.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/RuleManager.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultElement.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/datatype/InvalidSchemaException.java
* /dom4j-2-1-3-sources-jar/org/dom4j/xpath/DefaultNamespaceContext.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/DatatypeElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DocumentSource.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/ElementNameIterator.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DOMSAXContentHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/dom/DOMElement.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/JAXPHelper.java
* /dom4j-2-1-3-sources-jar/org/dom4j/rule/RuleSet.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Branch.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Text.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DOMDocumentResult.java
* /dom4j-2-1-3-sources-jar/org/dom4j/datatype/SchemaParser.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/DispatchHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXModifyContentHandler.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/AbstractComment.java
*
 /dom4j-2-1-3-sources-jar/org/dom4j/util/AttributeHelper.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultText.java
* /dom4j-2-1-3-sources-jar/org/dom4j/tree/DefaultNamespace.java
* /dom4j-2-1-3-sources-jar/org/dom4j/Element.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2001-2005 (C) MetaStuff, Ltd. All Rights Reserved.
*
* This software is open source.
* See the bottom of this file for the licence.
*/
/*
* Redistribution and use of this software and associated documentation
* ("Software"), with or without modification, are permitted provided that the
* following conditions are met:
*
* 1. Redistributions of source code must retain copyright statements and
* notices. Redistributions must also contain a copy of this document.
*
* 2. Redistributions in binary form must reproduce the above copyright notice,
* this list of conditions and the following disclaimer in the documentation
* and/or other materials provided with the distribution.
*
* 3. The name "DOM4J" must not be used to endorse or promote products derived
* from this Software without prior written permission of MetaStuff, Ltd. For
* written permission, please contact dom4j-info@metastuff.com.

*
* 4. Products derived from this Software may not be called "DOM4J" nor may
* "DOM4J" appear in their names without prior written permission of MetaStuff,
* Ltd. DOM4J is a registered trademark of MetaStuff, Ltd.
*
* 5. Due credit should be given to the DOM4J Project - http://www.dom4j.org
*
* THIS SOFTWARE IS PROVIDED BY METASTUFF, LTD. AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL METASTUFF, LTD. OR ITS CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGE.
*
* Copyright 2001-2005 (C) MetaStuff, Ltd. All Rights Reserved.
*/

Found in path(s):
* /dom4j-2-1-3-sources-jar/org/dom4j/DocumentHelper.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXReader.java
* /dom4j-2-1-3-sources-jar/org/dom4j/io/SAXHelper.java

1.139 glibc 2.31-0ubuntu9

1.139.1 Available under license :

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
  software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
  explicit claim or by omission. Since few users ever read sources,
  credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be

misrepresented as being the original software. Since few users ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of

Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,

INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute

it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether

this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use

this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library

with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the

Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply,

and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/, and
http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF
online code charts under the directory http://www.unicode.org/Public/.
Software includes any source code published in the Unicode Standard or under
the directories http://www.unicode.org/Public/,
http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY
DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES
("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND
AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF
YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA
FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode,
Inc. All rights reserved. Distributed under
the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a

copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that (a) the above copyright notice(s) and this permission notice appear with all copies of the Data Files or Software, (b) both the above copyright notice(s) and this permission notice appear in associated documentation, and (c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software
that the data or
software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.
This file contains the copying permission notices for various files in the GNU C Library distribution that have copyright owners other than the Free Software Foundation. These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in
the
documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF
SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC
Berkeley, by Digital Equipment Corporation and by Internet Software
Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies, and
that the name of Digital Equipment Corporation not be used in
advertising or publicity pertaining to distribution of the document or
software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS'' AND DIGITAL EQUIPMENT CORP.
DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL
DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES
OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following
license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials
  provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science
Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the
above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright
(C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
Version 2.00

The author(s) grant permission for redistribution and use in source and
binary forms, with or without modification, of the software and documentation
provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled
as not being for redistribution (check the version message and/or README),
you are not permitted to redistribute that version of the software in any
way or form.
1. All terms of the all other applicable copyrights and licenses must be
followed.
2. Redistributions of source code must retain the authors' copyright
notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright
notice(s), this list of conditions, and the following disclaimer in the
documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s)
of the author(s) nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young
Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please

see <https://www.gnu.org/licenses/> to obtain a copy.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with
 the distribution.
3. Neither the name of the project nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright
 1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of the copyright holder not be
used in advertising or publicity pertaining to distribution of the
software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,

INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests
are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests
is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any
computer system, and to redistribute it freely, subject to the following
restrictions:

1. This software is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. In practice, this means that if you use
PCRE in software that you distribute to others, commercially or
otherwise, you must put a sentence like this

Regular expression support is provided by the PCRE library package,
which is open source software, written by Philip Hazel, and copyright
by the University of Cambridge, England.

somewhere reasonably visible in your documentation and in any relevant
files or online
help data or similar. A reference to the ftp site for
the source, that is, to

ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

should also be given in the documentation. However, this condition is not
intended to apply to whole chains of software. If package A includes PCRE,
it must acknowledge it, but if package B is software that includes package
A, the condition is not imposed on package B (unless it uses PCRE
independently).

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU
General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL),
then the terms of that licence shall supersede any condition above with
which it is incompatible.

Files from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems,
Inc. business.
Permission to use, copy, modify, and distribute this
software is freely granted, provided that this notice
is preserved.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU

Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<https://www.gnu.org/licenses/>. */

1.140 jquery 3.5.1

1.140.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.141 junixsocket-common 2.3.2

1.141.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* junixsocket
*
* Copyright 2009-2020 Christian Kohlschütter
*
* Licensed under the Apache License, Version 2.0 (the "License");

* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/Closeables.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocket.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocketCredentials.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXServerSocket.java
*
 /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/NativeLibraryLoader.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocketCapability.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocketImpl.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/SuppressFBWarnings.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocketAddress.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/NativeUnixSocket.java
* /junixsocket-common-2-3-2-sources-jar/org/newsclub/net/unix/AFUNIXSocketFactory.java

1.142 junixsocket-native-common 2.3.2

1.142.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* junixsocket
*
* Copyright 2009-2020 Christian Kohlschütter
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

*/

Found in path(s):
* /junixsocket-native-common-2-3-2-sources-jar/org/newsclub/lib/junixsocket/common/NarMetadata.java

1.143 commons-fileupload 62

1.143.1 Available under license :

Apache Commons FileUpload
Copyright 2002-2018 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.144 libjpeg-turbo 2.0.3-0ubuntu1.20.04.1

1.144.1 Available under license :

libjpeg-turbo Licenses
==========

libjpeg-turbo is covered by three compatible BSD-style open source licenses:

- The IJG (Independent JPEG Group) License, which is listed in
README.ijg

This license applies to the libjpeg API library and associated programs
(any code inherited from libjpeg, and any modifications to that code.)

- The Modified (3-clause) BSD License, which is listed below

This license covers the TurboJPEG API library and associated programs, as well as the build system.

- The [zlib License](https://opensource.org/licenses/Zlib)

This license is a subset of the other two, and it covers the libjpeg-turbo SIMD extensions.

Complying with the libjpeg-turbo Licenses
==========

This section provides a roll-up of the libjpeg-turbo licensing terms, to the best of our understanding.

1. If you are distributing a modified version of the libjpeg-turbo source, then:

   1. You cannot alter or remove any existing copyright or license notices from the source.

      Origin
      - Clause 1 of the IJG License
      - Clause 1 of the Modified BSD License
      - Clauses 1 and 3 of the zlib License

   2. You must add your own copyright notice to the header of each source file you modified, so others can tell that you modified that file (if there is not an existing copyright header in that file, then you can simply add a notice stating that you modified the file.)

      Origin
      - Clause 1 of the IJG License
      - Clause 2 of the zlib License

   3. You must include the IJG README file, and you must not alter any of the copyright or license text in that file.

      Origin
      - Clause 1 of the IJG License

2. If you are distributing only libjpeg-turbo binaries without the source, or if you are distributing an application that statically links with libjpeg-turbo, then:

1. Your product documentation
must include a message stating:

This software is based in part on the work of the Independent JPEG Group.

Origin
- Clause 2 of the IJG license

2. If your binary distribution includes or uses the TurboJPEG API, then your product documentation must include the text of the Modified BSD License (see below.)

Origin
- Clause 2 of the Modified BSD License

3. You cannot use the name of the IJG or The libjpeg-turbo Project or the contributors thereof in advertising, publicity, etc.

Origin
- IJG License
- Clause 3 of the Modified BSD License

4. The IJG and The libjpeg-turbo Project do not warrant libjpeg-turbo to be free of defects, nor do we accept any liability for undesirable consequences resulting from your use of the software.

Origin
- IJG License
- Modified BSD License
- zlib License

The Modified (3-clause) BSD License
==========

Copyright
(C)2009-2019 D. R. Commander. All Rights Reserved.
Copyright (C)2015 Viktor Szathmry. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- Neither the name of the libjpeg-turbo Project nor the names of its
 contributors may be used to endorse or promote products derived from this
 software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS", AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
 AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Why Three Licenses?
==========

The zlib License could have been used instead of the Modified (3-clause) BSD License, and since the IJG License effectively subsumes the distribution conditions of the zlib License, this would have effectively placed libjpeg-turbo binary distributions under the IJG License. However, the IJG License specifically refers to the Independent JPEG Group and does not extend attribution and
 endorsement protections to other entities. Thus, it was
desirable to choose a license that granted us the same protections for new code that were granted to the IJG for code derived from their software.

1.145 lvm2 2.02.162

1.145.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence

of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits
its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the

users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that

you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact
all the notices that refer to this License and to the absence of any
warranty; and distribute a copy of this License along with the
Library.

You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices
stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves,
then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of

this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a

work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable

source code for the Library including whatever
changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user
installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot

distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system which is
implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by

the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively

convey the exclusion of warranty; and each file should have at least the
"copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free

software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such

interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is

allowed only for noncommercial distribution and only if you
received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

1.146 libbsd 0.4.1

1.146.1 Available under license :

The following 4-clause BSD licenses are only for man pages, specifically for man/arc4random.3, man/tree.3 and man/getprogname.3.

Copyright 1997 Niels Provos <provos@physnet.uni-hamburg.de>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
This product includes software developed by Niels Provos.
4. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright 2001 Christopher G. Demetriou
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification,
are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
must display the following acknowledgement:
This product includes software developed for the
NetBSD Project. See http://www.netbsd.org/ for
information about NetBSD.
4. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The rest of the licenses apply to code and/or man pages.

Copyright 2004-2006, 2008-2011 Guillem Jover <guillem@hadrons.org>
Copyright 2005 Hector Garcia Alvarez
Copyright 2005 Aurelien Jarno
Copyright 2006 Robert Millan

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright 1980, 1982, 1986, 1989-1994
The Regents of the University of California. All rights reserved.

Some code is derived from software contributed to Berkeley by
the American National Standards Committee X3, on Information
Processing Systems.

Some code is derived from software contributed to Berkeley by
Peter McIlroy.

Some code is derived from software contributed to Berkeley by
Ronnie Kon at Mindcraft Inc., Kevin Lew and Elmer Yglesias.

Some code is derived from software contributed to Berkeley by
Dave Borman at Cray Research, Inc.

Some code is derived from software contributed to Berkeley by
Paul Vixie.

Redistribution and use in source and binary forms,
with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software

without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 1996 Peter Wemm <peter@FreeBSD.org>.
All rights reserved.
Copyright 2002 Networks Associates Technology, Inc.
All rights reserved.

Portions of this software were developed for the FreeBSD Project by
ThinkSec AS and NAI Labs, the Security Research Division of Network
Associates, Inc. under DARPA/SPAWAR contract N66001-01-C-8035
("CBOSS"), as part of the DARPA CHATS research program.

Redistribution and use in source and binary forms, with or without
modification, is permitted
provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)

HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright 1995 Peter Wemm <peter@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, is permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice immediately at the beginning of the file, without modification, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. This work was done expressly for inclusion into FreeBSD. Other use is permitted provided this notation is included.
4. Absolutely no warranty of function or purpose is made by the author Peter Wemm.
5. Modifications may be freely made to this file providing the above conditions are met.

--

Copyright 1997-2000, 2002, 2005, 2006, 2008 The NetBSD Foundation, Inc.
All rights reserved.

Some code was contributed to The NetBSD Foundation by Allen Briggs.

Some code is derived from software contributed to The NetBSD Foundation by Jason R. Thorpe of the Numerical Aerospace Simulation Facility, NASA Ames Research Center, by Luke Mewburn and by Tomas Svensson.

Some code is derived from software contributed to The NetBSD Foundation by Julio M. Merino Vidal, developed as part of Google's Summer of Code 2005 program.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright

notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

--

Copyright (c) 2009 Advanced Computing Technologies LLC
Written by: John H. Baldwin <jhb@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 1998, M. Warner Losh <imp@freebsd.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above
copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY

OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 2001 Dima Dorfman.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY

OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright 2002 Niels Provos <provos@citi.umich.edu>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright 2002 Thomas Moestl <tmm@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted
provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE

FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 2005 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 2007 Eric Anderson <anderson@FreeBSD.org>
Copyright 2007 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of

conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 2007 Dag-Erling Codan Smrgrav
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF

--

Copyright 2007 Dag-Erling Codan Smrgrav
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer
in this position and unchanged.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or
other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

--

Copyright 1998, 2000 Todd C. Miller <Todd.Miller@courtesan.com>
Copyright 2004 Ted Unangst

Copyright 2004 Ted Unangst and Todd Miller
All
rights reserved.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

--

Copyright 2000-2002, 2004-2005, 2007, 2010

Todd C. Miller <Todd.Miller@courtesan.com>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that
the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Sponsored in part by the Defense Advanced Research Projects
Agency (DARPA) and Air Force Research Laboratory, Air Force
Materiel Command, USAF, under agreement number F39502-99-1-0512

--

Copyright 1996 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

--

Copyright 1996, David Mazieres <dm@uun.org>
Copyright 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

Modification and redistribution in
source and binary forms is
permitted provided that due credit is given to the author and the

OpenBSD project (for instance by leaving this copyright notice
intact).

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

This code is derived from section 17.1 of Applied Cryptography,
second edition, which describes a stream cipher allegedly
compatible with RSA Labs "RC4" cipher (the actual description of
which is a trade secret). The same algorithm is used as a stream
cipher called "arcfour" in Tatu Ylonen's
ssh package.

Here the stream cipher has been modified always to include the time
when initializing the state. That makes it impossible to
regenerate the same random sequence twice, so this can't be used
for encryption, but will generate good random numbers.

RC4 is a registered trademark of RSA Laboratories.

--

This code implements the MD5 message-digest algorithm.
The algorithm is due to Ron Rivest. This code was
written by Colin Plumb in 1993, no copyright is claimed.
This code is in the public domain; do with it what you wish.

Equivalent code is available from RSA Data Security, Inc.
This code has been tested against that, and is equivalent,
except that you don't need to include two pages of legalese
with every copy.

To compute the message digest of a chunk of bytes, declare an
MD5Context structure, pass it to MD5Init, call MD5Update as
needed on buffers full of bytes, and then call MD5Final, which

will fill a supplied 16-byte array with the digest.

--

"THE BEER-WARE LICENSE" (Revision 42):
<phk@login.dkuug.dk> wrote this file. As long as you retain this notice you
can do whatever you want with this stuff. If we meet some day, and you think

this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp

1.147 jandex 2.1.3.Final

1.147.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* JBoss, Home of Professional Open Source.
* Copyright 2013 Red Hat, Inc., and individual contributors
* as indicated by the @author tags.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*     http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

```
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/PackedDataOutputStream.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ClassInfo.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexWriter.java
*
 /jandex-2-1-3-final-sources-jar/org/jboss/jandex/DotName.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/FieldInternal.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/FieldInfo.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/NameTable.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/CompositeIndex.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexWriterV1.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexView.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/StrongInternPool.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/Indexer.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/JarIndexer.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/JandexAntTask.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/MethodInfo.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ClassType.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexReaderV1.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/Result.java
*
```

/jandex-2-1-3-final-sources-jar/org/jboss/jandex/Index.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/MethodParameterInfo.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/UnsupportedVersion.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/AnnotationValue.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/AnnotationTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/PrimitiveType.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/Main.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/PackedDataInputStream.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/AnnotationInstance.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexReader.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/Type.java
No license file was found, but licenses were detected in source scan.

/*
* JBoss, Home of Professional Open Source.
* Copyright 2014 Red Hat, Inc., and individual contributors
* as indicated by the @author tags.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ParameterizedType.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/Utils.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/FieldInfoGenerator.java
*
/jandex-2-1-3-final-sources-jar/org/jboss/jandex/MethodInfoGenerator.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ThrowsTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/TypeParameterBoundTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/EmptyTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/PositionBasedTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/TypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/AnnotationTargetFilterCollection.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexWriterImpl.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/TypeParameterTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/VoidType.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexReaderImpl.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ArrayType.java

* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexWriterV2.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/ClassExtendsTypeTarget.java
*
/jandex-2-1-3-final-sources-jar/org/jboss/jandex/MethodParameterTypeTarget.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/MethodInternal.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/WildcardType.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/GenericSignatureParser.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/TypeVariable.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/UnresolvedTypeVariable.java
* /jandex-2-1-3-final-sources-jar/org/jboss/jandex/IndexReaderV2.java

1.148 ntp 4.2.8p15

1.148.1 Available under license :

This file is automatically generated from html/copyright.html
Copyright Notice

jpg "Clone me," says Dolly sheepishly.

Last update: 4-Feb-2020 23:47 UTC

The following copyright notice applies to all files collectively called
the Network Time Protocol Version 4 Distribution. Unless specifically
declared otherwise in an individual file, this entire notice applies as
if the text was explicitly included in the file.

```
*****************************************************************************
*                                                                           *
* Copyright (c) University of Delaware 1992-2015                            *
*                                                                           *
* Permission to use, copy, modify, and distribute this software and         *
* its documentation for any purpose with or without fee is hereby           *
* granted, provided that the above copyright notice appears
 in all          *
* copies and that both the copyright notice and this permission             *
* notice appear in supporting documentation, and that the name              *
* University of Delaware not be used in advertising or publicity            *
* pertaining to distribution of the software without specific,               *
* written prior permission. The University of Delaware makes no             *
* representations about the suitability this software for any               *
* purpose. It is provided "as is" without express or implied                *
* warranty.                                                                 *
*                                                                           *
*****************************************************************************
```

Content starting in 2011 from Harlan Stenn, Danny Mayer, and Martin
Burnicki is:

```
**********************************************************************
*                                                                    *
* Copyright (c) Network Time Foundation
 2011-2020                *
*                                                                    *
* All Rights Reserved                                                *
*                                                                    *
* Redistribution and use in source and binary forms, with or without  *
* modification, are permitted provided that the following conditions  *
* are met:                                                           *
* 1. Redistributions of source code must retain the above copyright   *
*    notice, this list of conditions and the following disclaimer.    *
* 2. Redistributions in binary form must reproduce the above          *
*    copyright notice, this list of conditions and the following      *
*    disclaimer in the documentation and/or other materials provided  *
*    with the distribution.                                          *
*                                                                    *
* THIS SOFTWARE IS PROVIDED
 BY THE AUTHORS ``AS IS" AND ANY EXPRESS  *
* OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED   *
* WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE  *
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE    *
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR *
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT   *
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR  *
* BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF          *
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT           *
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE   *
* USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH    *
* DAMAGE.                                                            *
**********************************************************************

 The following individuals contributed in part to the Network Time
 Protocol Distribution
Version 4 and are acknowledged as authors of this
 work.
  1. [1]Takao Abe <takao_abe@xurb.jp> Clock driver for JJY receivers
  2. [2]Mark Andrews <mark_andrews@isc.org> Leitch atomic clock
     controller
  3. [3]Bernd Altmeier <altmeier@atlsoft.de> hopf Elektronik serial line
     and PCI-bus devices
  4. [4]Viraj Bais <vbais@mailman1.intel.com> and [5]Clayton Kirkwood
     <kirkwood@striderfm.intel.com> port to WindowsNT 3.5
  5. [6]Michael Barone <michael,barone@lmco.com> GPSVME fixes
  6. [7]Karl Berry <karl@owl.HQ.ileaf.com> syslog to file option
  7. [8]Greg Brackley <greg.brackley@bigfoot.com> Major rework of WINNT
     port. Clean up recvbuf and iosignal code into separate modules.
  8. [9]Marc Brett <Marc.Brett@westgeo.com> Magnavox GPS clock driver
```

9. [10]Piete Brooks <Piete.Brooks@cl.cam.ac.uk> MSF clock driver, Trimble PARSE support
10. [11]Nelson B Bolyard <nelson@bolyard.me> update and complete broadcast and crypto features

in sntp

11. [12]Jean-Francois Boudreault <Jean-Francois.Boudreault@viagenie.qc.ca> IPv6 support
12. [13]Reg Clemens <reg@dwf.com> Oncore driver (Current maintainer)
13. [14]Steve Clift <clift@ml.csiro.au> OMEGA clock driver
14. [15]Casey Crellin <casey@csc.co.za> vxWorks (Tornado) port and help with target configuration
15. [16]Sven Dietrich <sven_dietrich@trimble.com> Palisade reference clock driver, NT adj. residuals, integrated Greg's Winnt port.
16. [17]John A. Dundas III <dundas@salt.jpl.nasa.gov> Apple A/UX port
17. [18]Torsten Duwe <duwe@immd4.informatik.uni-erlangen.de> Linux port
18. [19]Dennis Ferguson <dennis@mrbill.canet.ca> foundation code for NTP Version 2 as specified in RFC-1119
19. [20]John Hay <jhay@icomtek.csir.co.za> IPv6 support and testing
20. [21]Dave Hart <davehart@davehart.com> General maintenance, Windows port interpolation rewrite
21. [22]Claas Hilbrecht <neoclock4x@linum.com> NeoClock4X

clock driver

22. [23]Glenn Hollinger <glenn@herald.usask.ca> GOES clock driver
23. [24]Mike Iglesias <iglesias@uci.edu> DEC Alpha port
24. [25]Jim Jagielski <jim@jagubox.gsfc.nasa.gov> A/UX port
25. [26]Jeff Johnson <jbj@chatham.usdesign.com> massive prototyping overhaul
26. [27]Hans Lambermont <Hans.Lambermont@nl.origin-it.com> or [28]<H.Lambermont@chello.nl> ntpsweep
27. [29]Poul-Henning Kamp <phk@FreeBSD.ORG> Oncore driver (Original author)
28. [30]Frank Kardel [31]<kardel (at) ntp (dot) org> PARSE <GENERIC> (driver 14 reference clocks), STREAMS modules for PARSE, support scripts, syslog cleanup, dynamic interface handling
29. [32]Johannes Maximilian Kuehn <kuehn@ntp.org> Rewrote sntp to comply with NTPv4 specification, ntpq saveconfig
30. [33]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX modifications, HPUX modifications
31. [34]Dave Katz <dkatz@cisco.com> RS/6000 AIX port
32. [35]Craig

Leres <leres@ee.lbl.gov> 4.4BSD port, ppsclock, Magnavox GPS clock driver

33. [36]George Lindholm <lindholm@ucs.ubc.ca> SunOS 5.1 port
34. [37]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication
35. [38]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305
36. [39]Danny Mayer <mayer@ntp.org>Network I/O, Windows Port, Code Maintenance

37. [40]David L. Mills <mills@udel.edu> Version 4 foundation, precision kernel; clock drivers: 1, 3, 4, 6, 7, 11, 13, 18, 19, 22, 36
38. [41]Wolfgang Moeller <moeller@gwdgv1.dnet.gwdg.de> VMS port
39. [42]Jeffrey Mogul <mogul@pa.dec.com> ntptrace utility
40. [43]Tom Moore <tmoore@fievel.daytonoh.ncr.com> i386 svr4 port
41. [44]Kamal A Mostafa <kamal@whence.com> SCO OpenServer port
42. [45]Derek Mulcahy <derek@toybox.demon.co.uk> and [46]Damon Hart-Davis <d@hd.org> ARCRON MSF clock driver
43. [47]Rob Neal <neal@ntp.org> Bancomm refclock and config/parse code maintenance
44. [48]Rainer Pruy <Rainer.Pruy@informatik.uni-erlangen.de> monitoring/trap scripts, statistics file handling
45. [49]Dirce Richards <dirce@zk3.dec.com> Digital UNIX V4.0 port
46. [50]Wilfredo Snchez <wsanchez@apple.com> added support for NetInfo
47. [51]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
48. [52]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
49. [53]Ray Schnitzler <schnitz@unipress.com> Unixware1 port
50. [54]Michael Shields <shields@tembel.org> USNO clock driver
51. [55]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
52. [56]Harlan Stenn <harlan@pfcs.com> GNU automake/autoconfigure makeover, various other bits (see the ChangeLog)
53. [57]Kenneth Stone <ken@sdd.hp.com> HP-UX port
54. [58]Ajit Thyagarajan <ajit@ee.udel.edu>IP multicast/anycast support
55. [59]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp>TRAK clock driver
56. [60]Brian Utterback <brian.utterback@oracle.com> General codebase, Solaris issues
57. [61]Loganaden Velvindron <loganaden@gmail.com> Sandboxing (libseccomp) support
58. [62]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
59. [63]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD

References

1. mailto:%20takao_abe@xurb.jp
2. mailto:%20mark_andrews@isc.org
3. mailto:%20altmeier@atlsoft.de
4. mailto:%20vbais@mailman1.intel.co
5. mailto:%20kirkwood@striderfm.intel.com
6. mailto:%20michael.barone@lmco.com
7. mailto:%20karl@owl.HQ.ileaf.com
8. mailto:%20greg.brackley@bigfoot.com
9. mailto:%20Marc.Brett@westgeo.com

10. mailto:%20Piete.Brooks@cl.cam.ac.uk
11. mailto:%20nelson@bolyard.me
12. mailto:%20Jean-Francois.Boudreault@viagenie.qc.ca
13. mailto:%20reg@dwf.com
14. mailto:%20clift@ml.csiro.au
15. mailto:%20casey@csc.co.za
16. mailto:%20Sven_Dietrich@trimble.COM
17. mailto:%20dundas@salt.jpl.nasa.gov
18. mailto:%20duwe@immd4.informatik.uni-erlangen.de
19. mailto:%20dennis@mrbill.canet.ca
20. mailto:%20jhay@icomtek.csir.co.za
21. mailto:%20davehart@davehart.com
22. mailto:%20neoclock4x@linum.com
23. mailto:%20glenn@herald.usask.ca
24. mailto:%20iglesias@uci.edu
25. mailto:%20jagubox.gsfc.nasa.gov
26. mailto:%20jbj@chatham.usdesign.com
27. mailto:%20Hans.Lambermont@nl.origin-it.com
28. mailto:H.Lambermont@chello.nl
29. mailto:%20phk@FreeBSD.ORG
30. http://www4.informatik.uni-erlangen.de/%7ekardel
31. mailto:%20kardel%20%28at%29%20ntp%20%28dot%29%20org
32. mailto:kuehn@ntp.org
33. mailto:%20jones@hermes.chpc.utexas.edu
34. mailto:%20dkatz@cisco.com
35. mailto:%20leres@ee.lbl.gov
36. mailto:%20lindholm@ucs.ubc.ca
37. mailto:%20louie@ni.umd.edu
38. mailto:%20thorinn@diku.dk
39. mailto:%20mayer@ntp.org
40. mailto:%20mills@udel.edu
41. mailto:%20moeller@gwdgv1.dnet.gwdg.de
42. mailto:%20mogul@pa.dec.com
43. mailto:%20tmoore@fievel.daytonoh.ncr.com
44. mailto:%20kamal@whence.com
45. mailto:%20derek@toybox.demon.co.uk
46. mailto:%20d@hd.org
47. mailto:%20neal@ntp.org
48. mailto:%20Rainer.Pruy@informatik.uni-erlangen.de
49. mailto:%20dirce@zk3.dec.com
50. mailto:%20wsanchez@apple.com
51. mailto:%20mrapple@quack.kfu.com
52. mailto:%20jack@innovativeinternet.com
53. mailto:%20schnitz@unipress.com
54. mailto:%20shields@tembel.org
55. mailto:%20pebbles.jpl.nasa.gov
56. mailto:%20harlan@pfcs.com

57. mailto:%20ken@sdd.hp.com
58. mailto:%20ajit@ee.udel.edu
59. mailto:%20tsuruoka@nc.fukuoka-u.ac.jp
60. mailto:%20brian.utterback@oracle.com
61. mailto:%20loganaden@gmail.com
62. mailto:%20vixie@vix.com
63. mailto:%20Ulrich.Windl@rz.uni-regensburg.de

Libevent is available for use under the following license, commonly known as the 3-clause (or "modified") BSD license:

==========

Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu>
Copyright (c) 2007-2012 Niels Provos and Nick Mathewson

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
==========

Portions of Libevent are based on works by others, also made available by them under the three-clause BSD license above. The copyright notices are available in the corresponding source files; the license is as above. Here's a list:

log.c:
Copyright (c) 2000 Dug Song <dugsong@monkey.org>
Copyright (c) 1993 The Regents of the University of California.

strlcpy.c:

Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>

win32select.c:
Copyright (c) 2003 Michael A. Davis <mike@datanerds.net>

evport.c:
Copyright (c) 2007 Sun Microsystems

ht-internal.h:
Copyright (c) 2002 Christopher Clark

minheap-internal.h:
Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com>

==========

The arc4module is available under the following, sometimes called the
"OpenBSD" license:

Copyright (c) 1996, David Mazieres <dm@uun.org>
Copyright (c) 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR
BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

==========

The Windows timer code is based on code from libutp, which is
distributed under this license, sometimes called the "MIT" license.

Copyright (c) 2010 BitTorrent, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is

furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

GNU LESSER GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed
a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are

based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified
Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure
layouts
and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above
   copyright notice, this list of conditions and the following
   disclaimer in the documentation and/or other materials provided
   with the distribution.

3. The name of the author may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT,
INDIRECT,
 INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2010 Serge A. Zaitsev

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH
 THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
                GNU GENERAL PUBLIC LICENSE
                 Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic

pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready
to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients"
may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other

parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's

users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium,

is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years and valid
for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the
written offer to provide the Corresponding Source. This
alternative is allowed only occasionally and noncommercially, and
only if you received the object code with such an offer, in accord
with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the
Corresponding Source in the same
way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the

Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors
and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above requirements
apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder,
and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic
Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted
or affirmed under this License. For example, you may
not impose a license fee, royalty, or other charge for exercise of

rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this

License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option
of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS

THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation
of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) by Bruce Korb - all rights reserved

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) by Bruce Korb - all rights reserved
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what
you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.149 dhcpcd 9.1.1

1.149.1 Available under license :

Copyright (c) 2006-2020 Roy Marples <roy@marples.name>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL

DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.150 docker 19.03.5-r1

1.150.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor
hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of
the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices
that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction,
or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the
NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by,
or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2013 Keith Rarick

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

(except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,

and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
 this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
 to endorse or promote products derived from this software
 without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
 GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,

OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2012 Matt T. Proud (matt.proud@gmail.com)

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices stating that You changed the files; and

You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2016, Google Inc.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
   the Work or Derivative Works thereof, You may choose to offer,
   and charge a fee for, acceptance of support, warranty, indemnity,
   or other liability obligations and/or rights consistent with this
   License. However, in accepting such obligations, You may act only
   on Your own behalf and on Your sole responsibility, not on behalf
   of any other Contributor, and only if You agree to indemnify,
   defend, and hold each Contributor harmless for any liability
   incurred by, or claims asserted
against, such Contributor by reason
   of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

   To apply the Apache License to your work, attach the following
   boilerplate notice, with the fields enclosed by brackets "{}"
   replaced with your own identifying information. (Don't include
   the brackets!) The text should be enclosed in the appropriate
   comment syntax for the file format. We also recommend that a
   file or class name and description of purpose be included on the
   same "printed page" as the copyright notice for easier
   identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

 Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF
 OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
 OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Casta. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
 ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but
not also under the terms of a
Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent
Licenses

No Contributor makes additional grants as a result of Your choice to

distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained
within the Source Code Form of the Covered
Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to
comply with any of the terms of this License
with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis,
if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any

direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to

create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible With Secondary Licenses, as defined by the Mozilla Public License, v. 2.0.

Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have

received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible

With Secondary Licenses under the terms of this version of
the License, the notice described in Exhibit B of this License must be
attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the
terms of the Mozilla Public License, v.
2.0. If a copy of the MPL was not
distributed with this file, You can
obtain one at
http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file,
then You may include the notice in a location (such as a LICENSE file in a
relevant directory) where a recipient would be likely to look for such a
notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible
With Secondary Licenses", as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED

TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the

editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of

this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,

FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2016 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN

CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2012-2018 Mat Ryer and Tyler Bunnell

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
MIT License

Copyright (c) 2017 Sean Chittenden
Copyright (c) 2016 Alex Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

=====

Bits of Go-lang's `once.Do()` were cribbed and reused here, too.

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED
 WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND

NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all

other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright (c) 2013 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2015, Philip Hofer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
 THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
 ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by

the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but

excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the

appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF

MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate

as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work

by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Attribution-ShareAlike 4.0 International

==========

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or

other relationship. Creative Commons makes its licenses and related information available on an "as-is" basis. Creative Commons gives no warranties regarding its licenses, any material licensed under their terms and conditions, or any related information. Creative Commons disclaims all liability for damages resulting from their use to the fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and conditions that creators and other rights holders may use to share original works of authorship and other material subject to copyright and certain other rights specified in the public license below. The following
considerations are for informational purposes only, are not exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are intended for use by those authorized to give the public permission to use material in ways otherwise restricted by copyright and certain other rights. Our licenses are irrevocable. Licensors should read and understand the terms and conditions of the license they choose before applying it. Licensors should also secure all rights necessary before applying our licenses so that the public can reuse the material as expected. Licensors should clearly mark any material not subject to the license. This includes other CC-licensed material, or material used under an exception or limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public licenses,
a licensor grants the public permission to use the licensed material under specified terms and conditions. If the licensor's permission is not necessary for any reason--for example, because of any applicable exception or limitation to copyright--then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More_considerations for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree to be bound by the terms and conditions of this Creative Commons Attribution-ShareAlike 4.0 International Public License ("Public License"). To the extent this Public License may be interpreted as a contract, You are granted the Licensed Rights in consideration of Your acceptance of these terms and conditions, and the Licensor grants You such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section 2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

   a. reproduce and Share the Licensed Material, in whole or in part; and

   b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

   a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
   Public License.

   b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

   c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or

apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by, the Licensor or others designated to receive attribution as provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed

Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES,

COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.

Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER

LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT License

Copyright (c) Microsoft Corporation. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE
Mozilla Public License Version 2.0
==================================

1. Definitions

1.1. "Contributor"
means each individual or legal entity that creates, contributes to
the creation of, or owns Covered Software.

1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used
by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
means Covered Software of a particular Contributor.

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of

version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"
means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method,

process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the

License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"
means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark)
Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes
such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes
additional grants as a result of Your choice to
distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of

the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

```
************************************************************************
*                                                                      *
*  6. Disclaimer of Warranty                                           *
*  -------------------------                                           *
*                                                                      *
*  Covered Software is provided under this License on an "as is"       *
*  basis, without warranty of any kind, either expressed, implied, or  *
*  statutory, including, without limitation, warranties that the       *
*  Covered Software is free of defects, merchantable, fit for a        *
*  particular purpose or non-infringing. The entire risk as to the     *
*  quality and performance of the Covered Software is with You.        *
*  Should any Covered Software prove defective in any respect, You     *
*  (not any Contributor) assume the cost of any necessary servicing,   *
*  repair, or correction. This disclaimer of warranty constitutes an   *
*  essential part of this License. No use of any Covered
 Software is   *
*  authorized under this License except under this disclaimer.         *
*                                                                      *
************************************************************************

************************************************************************
*                                                                      *
*  7. Limitation of Liability                                          *
*  --------------------------                                          *
*                                                                      *
*  Under no circumstances and under no legal theory, whether tort      *
*  (including negligence), contract, or otherwise, shall any           *
*  Contributor, or anyone who distributes Covered Software as          *
*  permitted above, be liable to You for any direct, indirect,         *
*  special, incidental, or consequential damages of any character      *
*  including, without limitation,
 damages for lost profits, loss of    *
*  goodwill, work stoppage, computer failure or malfunction, or any    *
*  and all other commercial damages or losses, even if such party      *
```

* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place
of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2.
Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a

copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You

institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,

reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0

Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015-Present CloudFoundry.org Foundation, Inc. All Rights Reserved.

This project contains software that is Copyright (c) 2015 Pivotal Software, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

This project may include a number of subcomponents with separate
copyright notices and license terms. Your use of these subcomponents
is subject to the terms and conditions of each subcomponent's license,
as noted in the LICENSE file.

Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

                    Apache License
                Version 2.0, January 2004
             http://www.apache.org/licenses/

 TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

 1. Definitions.

    "License" shall mean the terms and conditions for use, reproduction,
    and distribution as defined by Sections 1 through 9 of this document.

    "Licensor" shall mean the copyright owner or entity authorized by
    the copyright owner that is granting the License.

    "Legal Entity" shall mean the union of the acting entity and all
    other entities that control, are controlled by, or are under common
    control with that entity. For the purposes of this definition,
    "control" means (i) the power, direct or indirect, to cause the
    direction or management of such entity, whether by contract or
    otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
 names of its contributors may be used to endorse or promote products
 derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
 SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE

AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/creack/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,

DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE

IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
MIT License

Copyright (c) 2017 Gal Ben-Haim

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
 OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

   * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
   * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
   * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY

THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
AWS SDK for Go
Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.
Copyright 2014-2015 Stripe, Inc.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER

IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or

Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You

institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,

reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2016, opentracing-contrib
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of go-stdlib nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are

met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.151 libatomic-ops 1.2

1.151.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below,

refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but

does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for

making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot

distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of

this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the

library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.152 postgre-sql 42.2.14

1.152.1 Available under license :

Copyright (c) 1997, PostgreSQL Global Development Group
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
 GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.153 nghttp2 1.40.0-1build1

1.153.1 Available under license :

LEGAL NOTICE INFORMATION

All the files in this distribution are covered under the MIT license
(see the file LICENSE) except some files mentioned below:
The MIT License

Copyright (c) 2012, 2014, 2015, 2016 Tatsuhiro Tsujikawa
Copyright (c) 2012, 2014, 2015, 2016 nghttp2 contributors

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the

"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
set yrange [0:]
set terminal pngcairo font 'Sans, 8' lw 1 size 1400,1024
set xtics rotate by -45
set style histogram errorbars gap 2 lw 1
set style fill solid border -1
Copyright (c) 2019 mruby developers

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.
If not otherwise noted, the extensions in this package are licensed
under the following license.

Copyright (c) 2010 by the contributors (see AUTHORS file).
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL,
 EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.154 tomcat 9.0.37

1.154.1 Available under license :

Apache Tomcat
Copyright 1999-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (https://www.apache.org/).

This software contains code derived from netty-native
developed by the Netty project
(https://netty.io, https://github.com/netty/netty-tcnative/)
and from finagle-native developed at Twitter
(https://github.com/twitter/finagle).

This software contains code derived from jgroups-kubernetes
developed by the JGroups project (http://www.jgroups.org/).

The Windows Installer is built with the Nullsoft
Scriptable Install System (NSIS), which is
open source software. The original software and
related information is available at
http://nsis.sourceforge.net.

Java compilation software for JSP pages is provided by the Eclipse
JDT Core Batch Compiler component, which is open source software.
The original software and related information is available at
https://www.eclipse.org/jdt/core/.

org.apache.tomcat.util.json.JSONParser.jj is
a public domain javacc grammar
for JSON written by Robert Fischer.
https://github.com/RobertFischer/json-parser

For portions of the Tomcat JNI OpenSSL API and the OpenSSL JSSE integration
The org.apache.tomcat.jni and the org.apache.tomcat.net.openssl packages
are derivative work originating from the Netty project and the finagle-native
project developed at Twitter
* Copyright 2014 The Netty Project
* Copyright 2014 Twitter

For portions of the Tomcat cloud support
The org.apache.catalina.tribes.membership.cloud package contains derivative
work originating from the jgroups project.
https://github.com/jgroups-extras/jgroups-kubernetes
Copyright 2002-2018 Red Hat Inc.

The original XML Schemas for Java EE Deployment Descriptors:
- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd
- web-app_3_1.xsd
- web-common_3_1.xsd
- web-fragment_3_1.xsd
- javaee_8.xsd
- web-app_4_0.xsd
- web-common_4_0.xsd
- web-fragment_4_0.xsd

may be obtained from:

http://www.oracle.com/webfolder/technetwork/jsc/xml/ns/javaee/index.html
Apache Tomcat
Copyright 1999-@YEAR@ The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache Standard Taglib Implementation
Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE TOMCAT SUBCOMPONENTS:

Apache Tomcat includes a number of subcomponents with separate copyright notices
and license terms. Your use of these subcomponents is subject to the terms and
conditions of the following licenses.

For the following XML Schemas for Java EE Deployment Descriptors:
- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd

- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd
- web-app_3_1.xsd
- web-common_3_1.xsd
- web-fragment_3_1.xsd
- javaee_8.xsd
- web-app_4_0.xsd
- web-common_4_0.xsd
- web-fragment_4_0.xsd

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor. means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version. means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software. means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable. means the Covered Software in any form other than Source Code.

1.5. Initial Developer. means the individual or entity that first makes Original Software available
under this License.

1.6. Larger Work. means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License. means this document.

1.8. Licensable. means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications. means the Source Code and Executable form of any of the

following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software. means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims. means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code. means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You. (or .Your.) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, .You. includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, .control. means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under

Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.
Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License
with every copy of the Source Code
form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.
The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.
You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive
text giving
attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.
You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients. rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5.
Distribution of Executable Versions.
You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice,

which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient.s rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.
You
may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.
Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.
You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software
prohibiting it from
being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.
When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER
OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN .AS IS. BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach.

Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as .Participant.) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate

prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES
OF ANY CHARACTER INCLUDING, WITHOUT
LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY.S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a .commercial item,. as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of .commercial computer software. (as that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and commercial computer software documentation. as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent
with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1
through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located
in the
jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys. fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are

responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License
and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE TOMCAT SUBCOMPONENTS:

Apache Tomcat includes a number of subcomponents with separate copyright notices
and license terms. Your use of these subcomponents is subject to the terms and
conditions of the following licenses.

For the Eclipse JDT Core Batch Compiler (ecj-x.x.x.jar) component:

Eclipse Public License - v 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and
documentation
distributed under this Agreement, and

b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where such changes and/or additions to the Program originate from and are
distributed by that particular Contributor. A Contribution 'originates' from a
Contributor if it was added to the Program by such Contributor itself or anyone
acting on such Contributor's behalf. Contributions do not include additions to
the Program which: (i) are separate modules of software distributed in

conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient"
means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the
Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents

that to its knowledge it has sufficient copyright
rights in its Contribution, if any, to grant the copyright license set forth in
this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its
own license agreement, provided that:

a) it complies with the terms and conditions of this Agreement; and

b) its license agreement:

i) effectively disclaims on behalf of all Contributors all warranties and
conditions, express and implied, including warranties or conditions of title and
non-infringement, and implied warranties or conditions of merchantability and
fitness for a particular purpose;

ii) effectively excludes on behalf of all Contributors all liability for
damages, including direct, indirect, special, incidental and consequential
damages, such as lost profits;

iii) states that any provisions which differ from this Agreement are offered by
that Contributor alone and not by any other party; and

iv) states that source code for
the Program is available from such Contributor,
and informs licensees how to obtain it in a reasonable manner on or through a
medium customarily used for software exchange.

When the Program is made available in source code form:

a) it must be made available under this Agreement; and

b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the
Program.

Each Contributor must identify itself as the originator of its Contribution, if
any, in a manner that reasonably allows subsequent Recipients to identify the
originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with
respect to end users, business partners and the like. While this license is
intended to facilitate the commercial use of the Program, the Contributor who

includes the Program in a commercial product offering should do so in a manner which does not
create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related
settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT,
MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement , including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,

STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such
noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions)
may always
be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

For the Windows Installer component:

* All NSIS source code, plug-ins, documentation, examples, header files and graphics, with the exception of the compression modules and where otherwise noted, are licensed under the zlib/libpng license.
* The zlib compression module for NSIS is licensed under the zlib/libpng license.
* The bzip2 compression module for NSIS is licensed under the bzip2 license.
* The lzma compression module for NSIS is licensed under the Common Public License version 1.0.

zlib/libpng license

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

bzip2 license

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be

appreciated but is not required.
3. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original
software.
4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, Cambridge, UK.

jseward@acm.org
Common Public License version 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS COMMON PUBLIC
LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation distributed under this Agreement, and b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution 'originates' from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program.

"Licensed
Patents " mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor,
if any, in source code and object code form.
This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual
property rights needed, if any.
For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

a) it complies with the terms and conditions of this Agreement; and

b) its license agreement:

i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all Contributors all liability for damages, including
direct, indirect, special, incidental and consequential
damages, such as lost profits;

iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and

iv) states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange.

When the Program is made available in source code form:

a) it must be made available under this Agreement; and

b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the Program.

Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities
with
respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such

Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against a Contributor with respect to a patent applicable to software (including a cross-claim or counterclaim in a lawsuit), then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate as of the date such litigation is filed. In addition, if Recipient institutes
patent litigation against any entity
(including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid
inconsistency the Agreement is copyrighted and may only be
modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. IBM is the initial Agreement Steward. IBM may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly,
by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

Special exception for LZMA compression module

Igor Pavlov and Amir Szekely, the authors of the LZMA compression module for NSIS, expressly permit you to statically or dynamically link your code (or bind by name) to the files from the LZMA compression module for NSIS without subjecting your linked code to the terms of the Common Public license version 1.0. Any modifications or additions to files from the LZMA compression module for NSIS, however, are subject to the terms of the Common Public License version 1.0.

For the following XML
Schemas for Java EE Deployment Descriptors:
- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd
- web-app_3_1.xsd
- web-common_3_1.xsd
- web-fragment_3_1.xsd
- javaee_8.xsd
- web-app_4_0.xsd
- web-common_4_0.xsd
- web-fragment_4_0.xsd

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor. means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version. means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software. means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable. means the Covered Software in any form other than Source Code.

1.5. Initial Developer. means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work. means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License. means this document.

1.8. Licensable. means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications. means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software. means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims. means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code. means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You. (or .Your.) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, .You. includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, .control. means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of:
(1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications
made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.
Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.
The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have

sufficient
rights to grant the rights conveyed by this License.

3.3. Required Notices.
You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.
You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients. rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor.
You must make it absolutely clear that any such warranty,
support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.
You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient.s rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must
make it absolutely clear that any terms which differ
from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.
You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN .AS IS. BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach.

Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as .Participant.) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial
Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7.
LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY.S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION
MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a .commercial item,. as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of .commercial computer software. (as

that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and commercial computer software documentation. as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys. fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state

courts of the State of
California, with venue lying in Santa Clara County, California.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

```
/*
* Licensed to the Apache Software Foundation (ASF) under one or more
* contributor license agreements.  See the NOTICE file distributed with
* this work for additional information regarding copyright ownership.
* The ASF licenses this file to You under the Apache License, Version 2.0
* (the "License"); you may not use this file except in compliance with
* the License.  You may obtain a copy of the License at
*
*      http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Apache Standard Taglib Specification API
Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).
Apache Tomcat
Copyright 1999-@YEAR@ The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

The original XML Schemas for Java EE Deployment Descriptors:

- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd
- web-app_3_1.xsd
- web-common_3_1.xsd
- web-fragment_3_1.xsd
- javaee_8.xsd
- web-app_4_0.xsd
- web-common_4_0.xsd
- web-fragment_4_0.xsd

may be obtained from:
http://www.oracle.com/webfolder/technetwork/jsc/xml/ns/javaee/index.html
Apache Tomcat JDBC Pool
Copyright 2008-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or
(iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from)
the Work and for which the
editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication
on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and

subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own
copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names
of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,

whether in tort (including negligence), contract, or otherwise,
unless required by applicable law
(such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your
sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE TOMCAT SUBCOMPONENTS:

Apache Tomcat includes a number of subcomponents with separate copyright notices
and license terms. Your use of these subcomponents is subject to the terms and
conditions of the following licenses.

For the ecj-x.x.x.jar component and the EnclosingMethod and
LocalVariableTypeTable classes in the org.apache.tomcat.util.bcel.classfile
package:

Eclipse Public License - v 1.0

THE ACCOMPANYING
PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC
LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM
CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation
distributed under this Agreement, and

b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where such changes and/or additions to the Program originate from and are
distributed by that particular Contributor. A Contribution 'originates' from a
Contributor if it was added to the Program by such Contributor itself or anyone
acting on such Contributor's behalf. Contributions do not include additions to
the Program which: (i) are separate modules of software distributed in
conjunction with the Program under their own license agreement, and (ii) are not
derivative works of the Program.

"Contributor" means
any person or entity that distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell,
offer to sell, import and otherwise transfer the
Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses
granted hereunder, each Recipient hereby assumes sole
responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its

own license agreement, provided that:

a) it complies with the terms and conditions of this Agreement; and

b) its license agreement:

i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness
for a particular purpose;

ii) effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and

iv) states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange.

When the Program is made available in source code form:

a) it must be made available under this Agreement; and

b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the Program.

Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients
to identify the
originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal

actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement , including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

For the Windows Installer component:

* All NSIS source code, plug-ins, documentation, examples, header files and graphics, with the exception of the compression modules and where otherwise noted, are licensed under the zlib/libpng license.
* The zlib compression module for NSIS is licensed under the zlib/libpng license.
* The bzip2 compression module for NSIS is licensed under the bzip2 license.
* The lzma compression module for NSIS is licensed under the Common Public License version 1.0.

zlib/libpng license

This software
is provided 'as-is', without any express or implied warranty. In
no event will the authors be held liable for any damages arising from the use of
this software.

Permission is granted to anyone to use this software for any purpose, including
commercial applications, and to alter it and redistribute it freely, subject to
the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

bzip2 license

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
3. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, Cambridge, UK.

jseward@acm.org
Common Public License version 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS COMMON PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation distributed under this Agreement, and b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where
such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution 'originates' from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program.

"Licensed Patents " mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution.
No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

a) it complies with the terms and conditions of this Agreement; and

b) its license agreement:

i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and

iv) states that source code for the Program is available from such Contributor, and informs licensees how
to obtain it in a reasonable manner on or through a
medium customarily used for software exchange.

When the Program is made available in source code form:

a) it must be made available under this Agreement; and

b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the Program.

Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore,
if
a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product

offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such

provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against a Contributor with respect to a patent applicable to software (including a cross-claim or counterclaim in a lawsuit), then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate as of the date such litigation is filed. In addition, if Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such
Recipient's rights granted under
Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the
Agreement Steward has the right to modify this Agreement.
IBM is the initial Agreement Steward. IBM may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws
of the United States of America. No party to this
Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

Special exception for LZMA compression module

Igor Pavlov and Amir Szekely, the authors of the LZMA compression module for NSIS, expressly permit you to statically or dynamically link your code (or bind by name) to the files from the LZMA compression module for NSIS without subjecting your linked code to the terms of the Common Public license version 1.0. Any modifications or additions to files from the LZMA compression module for NSIS, however, are subject to the terms of the Common Public License version 1.0.

For the following XML Schemas for Java EE Deployment Descriptors:
- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor. means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version. means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software. means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable. means the Covered Software in any form other than Source Code.

1.5. Initial Developer. means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work. means
a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License. means this document.

1.8. Licensable. means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications. means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software. means the Source Code and Executable form of

computer software code that is originally released under this License.

1.11. Patent Claims. means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code. means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You. (or .Your.) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, .You. includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, .control. means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than
fifty percent (50%) of the
outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions
thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor
to use, reproduce, modify, display,
perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor

first distributes or otherwise makes the
Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted:
(1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.
Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms
of this License.
You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.
The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.
You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices
contained within the Covered
Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.
You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients. rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty,

support, indemnity or liability obligation is offered by You alone, and
You hereby agree to indemnify the Initial Developer and every Contributor
for any liability incurred by the Initial Developer or such Contributor
as
a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.
You may distribute the Executable form of the Covered Software under the
terms of this License or under the terms of a license of Your choice,
which may contain terms different from this License, provided that You are
in compliance with the terms of this License and that the license for the
Executable form does not attempt to limit or alter the recipient.s rights
in the Source Code form from the rights set forth in this License. If You
distribute the Covered Software in Executable form under a different
license, You must make it absolutely clear that any terms which differ
from this License are offered by You alone, not by the Initial Developer
or Contributor. You hereby agree to indemnify the Initial Developer and
every Contributor for any liability incurred by the Initial
Developer or
such Contributor as a result of any such terms You offer.

3.6. Larger Works.
You may create a Larger Work by combining Covered Software with other code
not governed by the terms of this License and distribute the Larger Work
as a single product. In such a case, You must make sure the requirements
of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.
Sun Microsystems, Inc. is the initial license steward and may publish
revised and/or new versions of this License from time to time. Each
version will be given a distinguishing version number. Except as provided
in Section 4.3, no one other than the license steward has the right to
modify this License.

4.2. Effect of New Versions.
You may always continue to use, distribute or otherwise make the Covered
Software available under the terms of the version of the License
under
which You originally received the Covered Software. If the Initial
Developer includes a notice in the Original Software prohibiting it from
being distributed or otherwise made available under any subsequent version
of the License, You must distribute and make the Covered Software
available under the terms of the version of the License under which You
originally received the Covered Software. Otherwise, You may also choose
to use, distribute or otherwise make the Covered Software available under
the terms of any subsequent version of the License published by the

license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN .AS IS. BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as .Participant.) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement

with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY.S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a .commercial item,. as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of .commercial computer software. (as that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and commercial computer software documentation. as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the

jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys. fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

1.155 netty 4.1.51.Final

1.155.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License

Copyright (c) 2009 William Kinney

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following
conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.

Apache Harmony

Copyright 2006, 2010 The Apache Software Foundation.

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

The MIT License (MIT)

Copyright (c) 2014 Cory Benfield

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

The Netty Project
==========

Please visit the Netty web site for more information:

* https://netty.io/

Copyright 2014 The Netty Project

The Netty Project licenses this file to you under the Apache License,
version 2.0 (the "License"); you may not use this file except in compliance
with the License. You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
License for the specific language governing permissions and limitations
under the License.

Also, please refer to each LICENSE.<component>.txt file, which is located in
the 'license' directory of the distribution file, for the license terms of the
components that this product depends on.

This
product contains the extensions to Java Collections Framework which has
been derived from the works by JSR-166 EG, Doug Lea, and Jason T. Greene:

* LICENSE:
  * license/LICENSE.jsr166y.txt (Public Domain)
* HOMEPAGE:
  * http://gee.cs.oswego.edu/cgi-bin/viewcvs.cgi/jsr166/
  * http://viewvc.jboss.org/cgi-bin/viewvc.cgi/jbosscache/experimental/jsr166/

This product contains a modified version of Robert Harder's Public Domain
Base64 Encoder and Decoder, which can be obtained at:

* LICENSE:
  * license/LICENSE.base64.txt (Public Domain)
* HOMEPAGE:
  * http://iharder.sourceforge.net/current/java/base64/

This product contains a modified portion of 'Webbit', an event based
WebSocket and HTTP server, which can be obtained at:

* LICENSE:
  * license/LICENSE.webbit.txt (BSD License)
* HOMEPAGE:
  * https://github.com/joewalnes/webbit

This product contains a modified portion of 'SLF4J', a simple logging
facade for Java,
which can be obtained at:

* LICENSE:
  * license/LICENSE.slf4j.txt (MIT License)
* HOMEPAGE:
  * http://www.slf4j.org/

This product contains a modified portion of 'Apache Harmony', an open source
Java SE, which can be obtained at:

* NOTICE:
  * license/NOTICE.harmony.txt
* LICENSE:
  * license/LICENSE.harmony.txt (Apache License 2.0)
* HOMEPAGE:
  * http://archive.apache.org/dist/harmony/

This product contains a modified portion of 'jbzip2', a Java bzip2 compression
and decompression library written by Matthew J. Francis. It can be obtained at:

* LICENSE:
  * license/LICENSE.jbzip2.txt (MIT License)
* HOMEPAGE:
  * https://code.google.com/p/jbzip2/

This product contains a modified portion of 'libdivsufsort', a C API library to construct
the suffix array and the Burrows-Wheeler transformed string for any input string of
a constant-size alphabet written by Yuta Mori. It can be obtained at:

* LICENSE:
  * license/LICENSE.libdivsufsort.txt (MIT License)
* HOMEPAGE:
  * https://github.com/y-256/libdivsufsort

This product contains a modified portion of Nitsan Wakart's 'JCTools', Java Concurrency Tools for the JVM, which can be obtained at:

 * LICENSE:
   * license/LICENSE.jctools.txt (ASL2 License)
 * HOMEPAGE:
   * https://github.com/JCTools/JCTools

This product optionally depends on 'JZlib', a re-implementation of zlib in pure Java, which can be obtained at:

 * LICENSE:
   * license/LICENSE.jzlib.txt (BSD style License)
 * HOMEPAGE:
   * http://www.jcraft.com/jzlib/

This product optionally depends on 'Compress-LZF', a Java library for encoding and decoding data in LZF format, written by Tatu Saloranta. It can be obtained at:

 * LICENSE:
   * license/LICENSE.compress-lzf.txt (Apache License 2.0)
 * HOMEPAGE:
   * https://github.com/ning/compress

This product optionally depends on 'lz4', a LZ4 Java compression and decompression library written by Adrien Grand. It can be obtained at:

 * LICENSE:
   * license/LICENSE.lz4.txt
 (Apache License 2.0)
 * HOMEPAGE:
   * https://github.com/jpountz/lz4-java

This product optionally depends on 'lzma-java', a LZMA Java compression and decompression library, which can be obtained at:

 * LICENSE:
   * license/LICENSE.lzma-java.txt (Apache License 2.0)
 * HOMEPAGE:
   * https://github.com/jponge/lzma-java

This product contains a modified portion of 'jfastlz', a Java port of FastLZ compression and decompression library written by William Kinney. It can be obtained at:

 * LICENSE:
   * license/LICENSE.jfastlz.txt (MIT License)
 * HOMEPAGE:

* https://code.google.com/p/jfastlz/

This product contains a modified portion of and optionally depends on 'Protocol Buffers', Google's data interchange format, which can be obtained at:

* LICENSE:
  * license/LICENSE.protobuf.txt (New BSD License)
* HOMEPAGE:
  * https://github.com/google/protobuf

This product optionally depends on 'Bouncy Castle Crypto APIs' to generate a temporary self-signed X.509 certificate when the JVM does not provide the equivalent functionality. It can be obtained at:

* LICENSE:
  * license/LICENSE.bouncycastle.txt (MIT License)
* HOMEPAGE:
  * http://www.bouncycastle.org/

This product optionally depends on 'Snappy', a compression library produced by Google Inc, which can be obtained at:

* LICENSE:
  * license/LICENSE.snappy.txt (New BSD License)
* HOMEPAGE:
  * https://github.com/google/snappy

This product optionally depends on 'JBoss Marshalling', an alternative Java serialization API, which can be obtained at:

* LICENSE:
  * license/LICENSE.jboss-marshalling.txt (Apache License 2.0)
* HOMEPAGE:
  * https://github.com/jboss-remoting/jboss-marshalling

This product optionally depends on 'Caliper', Google's micro-benchmarking framework, which can be obtained at:

* LICENSE:
  * license/LICENSE.caliper.txt (Apache License 2.0)
* HOMEPAGE:
  * https://github.com/google/caliper

This product optionally depends on 'Apache Commons Logging', a logging framework, which can be obtained at:

* LICENSE:
  * license/LICENSE.commons-logging.txt (Apache License 2.0)
* HOMEPAGE:
  * http://commons.apache.org/logging/

This product optionally depends on 'Apache Log4J', a logging framework, which
can be obtained at:

* LICENSE:
  * license/LICENSE.log4j.txt (Apache License 2.0)
* HOMEPAGE:
  * http://logging.apache.org/log4j/

This product optionally depends on 'Aalto XML', an ultra-high performance
non-blocking XML processor, which can be obtained at:

* LICENSE:
  * license/LICENSE.aalto-xml.txt (Apache License 2.0)
* HOMEPAGE:
  * http://wiki.fasterxml.com/AaltoHome

This product contains a modified version of 'HPACK', a Java implementation of
the HTTP/2 HPACK algorithm written by Twitter. It can be obtained at:

* LICENSE:
  * license/LICENSE.hpack.txt (Apache License 2.0)
* HOMEPAGE:
  * https://github.com/twitter/hpack

This product contains a modified version
 of 'HPACK', a Java implementation of
the HTTP/2 HPACK algorithm written by Cory Benfield. It can be obtained at:

* LICENSE:
  * license/LICENSE.hyper-hpack.txt (MIT License)
* HOMEPAGE:
  * https://github.com/python-hyper/hpack/

This product contains a modified version of 'HPACK', a Java implementation of
the HTTP/2 HPACK algorithm written by Tatsuhiro Tsujikawa. It can be obtained at:

* LICENSE:
  * license/LICENSE.nghttp2-hpack.txt (MIT License)
* HOMEPAGE:
  * https://github.com/nghttp2/nghttp2/

This product contains a modified portion of 'Apache Commons Lang', a Java library
provides utilities for the java.lang API, which can be obtained at:

* LICENSE:
  * license/LICENSE.commons-lang.txt (Apache License 2.0)
* HOMEPAGE:
  * https://commons.apache.org/proper/commons-lang/

This product contains the Maven wrapper scripts from 'Maven Wrapper', that provides an easy way to ensure a user has everything necessary to run the Maven build.

* LICENSE:
  *
license/LICENSE.mvn-wrapper.txt (Apache License 2.0)
* HOMEPAGE:
  * https://github.com/takari/maven-wrapper

This product contains the dnsinfo.h header file, that provides a way to retrieve the system DNS configuration on MacOS.
This private header is also used by Apple's open source
mDNSResponder (https://opensource.apple.com/tarballs/mDNSResponder/).

* LICENSE:
  * license/LICENSE.dnsinfo.txt (Apache License 2.0)
* HOMEPAGE:
  * http://www.opensource.apple.com/source/configd/configd-453.19/dnsinfo/dnsinfo.h
The person or persons who have associated work with this document (the
"Dedicator" or "Certifier") hereby either (a) certifies that, to the best of
his knowledge, the work of authorship identified is in the public domain of
the country from which the work is published, or (b) hereby dedicates whatever
copyright the dedicators holds in the work of authorship identified below (the
"Work") to the public domain. A certifier, moreover, dedicates any copyright
interest he may have in the associated work, and for these purposes, is
described as a "dedicator" below.

A certifier has taken reasonable steps to verify the copyright status of this
work. Certifier recognizes that his good faith efforts may not shield him from
liability if in fact the work certified is not in the public domain.

Dedicator makes this dedication for the benefit of the public at large and to
the detriment of the Dedicator's heirs and successors. Dedicator intends this
dedication to be an overt act of relinquishment in perpetuity
 of all present
and future rights under copyright law, whether vested or contingent, in the
Work. Dedicator understands that such relinquishment of all rights includes
the relinquishment of all rights to enforce (by lawsuit or otherwise) those
copyrights in the Work.

Dedicator recognizes that, once placed in the public domain, the Work may be

freely reproduced, distributed, transmitted, used, modified, built upon, or
otherwise exploited by anyone for any purpose, commercial or non-commercial,
and in any way, including by methods that have not yet been invented or
conceived.
(BSD License: http://www.opensource.org/licenses/bsd-license)

Copyright (c) 2011, Joe Walnes, Aslak Hellesy and contributors
All rights reserved.

Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the
following conditions are met:

* Redistributions of source code must retain the above
 copyright notice, this list of conditions and the
 following disclaimer.

* Redistributions in binary form must reproduce the above
 copyright notice, this list of conditions and the
 following disclaimer in the documentation and/or other
 materials provided with the distribution.

* Neither the name of the Webbit nor the names of
 its contributors may be used to endorse or promote products
 derived from this software without specific prior written
 permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
This copy of Aalto XML processor is licensed under the
Apache (Software) License, version 2.0 ("the License").
See the License for details about distribution rights, and the
specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/

A copy is also included with both the the downloadable source code package
and jar that contains class bytecodes, as file "ASL 2.0". In both cases,
that file should be located next to this file: in source distribution
the location should be "release-notes/asl"; and in jar "META-INF/"
Copyright 2011, Google Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2010-2011 Matthew J. Francis and Contributors of the jbzip2 Project

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright 2009-2010 Ning, Inc.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS,WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this

License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

The MIT License

Copyright (c) 2012, 2014, 2015, 2016 Tatsuhiro Tsujikawa
Copyright (c) 2012, 2014, 2015, 2016 nghttp2 contributors

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The person or persons who have associated work with this document (the
"Dedicator" or "Certifier") hereby either (a) certifies that, to the best of
his knowledge, the work of authorship identified is in the public domain of
the country from which the work is published, or (b) hereby dedicates whatever
copyright the dedicators holds in the work of authorship identified below (the
"Work") to the public domain. A certifier, moreover, dedicates any copyright
interest he may have in the associated work, and for these purposes, is
described as a "dedicator" below.

A certifier has taken reasonable steps to verify the copyright status of this
work. Certifier recognizes that his good faith efforts may not shield him from
liability if in fact the work certified is not in the public domain.

Dedicator makes this dedication for the benefit of the public at large and to the detriment of the Dedicator's heirs and successors. Dedicator intends this dedication to be an overt act of relinquishment in perpetuate
of all present
and future rights under copyright law, whether vested or contingent, in the Work. Dedicator understands that such relinquishment of all rights includes the relinquishment of all rights to enforce (by lawsuit or otherwise) those copyrights in the Work.

Dedicator recognizes that, once placed in the public domain, the Work may be freely reproduced, distributed, transmitted, used, modified, built upon, or otherwise exploited by anyone for any purpose, commercial or non-commercial, and in any way, including by methods that have not yet been invented or conceived.
The MIT License (MIT)

Copyright (c) 2000 - 2013 The Legion of the Bouncy Castle Inc.
(http://www.bouncycastle.org)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,

and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to

communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and

attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Protocol Buffers - Google's data interchange format
Copyright 2013 Google Inc. All rights reserved.
https://developers.google.com/protocol-buffers/

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner
of the input file used when generating it. This code is not
standalone and requires a support library to be linked with it. This
support library is itself covered by the above license.

/*
* Copyright (c) 2004-2006, 2008, 2009, 2011 Apple Inc. All rights reserved.
*
* @APPLE_LICENSE_HEADER_START@
*

* This file contains Original Code and/or Modifications of Original Code
* as defined in and that are subject to the Apple Public Source License
* Version 2.0 (the 'License'). You may not use this file except in
* compliance with the License. Please obtain a copy of the License at
* http://www.opensource.apple.com/apsl/ and read it before using this
* file.
*
* The Original Code and all software distributed under the License are
* distributed on an 'AS IS' basis, WITHOUT WARRANTY OF ANY KIND, EITHER
* EXPRESS OR IMPLIED, AND APPLE HEREBY DISCLAIMS ALL SUCH WARRANTIES,
* INCLUDING WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY,
* FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT OR NON-INFRINGEMENT.
* Please see the License for the specific language governing rights and
* limitations under the License.
*
* @APPLE_LICENSE_HEADER_END@
*/
Copyright (c) 2003-2008 Yuta Mori All Rights Reserved.

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following
conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR
 IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.
/*
* Copyright (c) 2004-2007 QOS.ch
* All rights reserved.
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of this software and associated documentation files (the
* "Software"), to deal in the Software without restriction, including
* without limitation the rights to use, copy, modify, merge, publish,

* distribute, sublicense, and/or sell copies of the Software, and to
* permit persons to whom the Software is furnished to do so, subject to
* the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
* NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
* LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
* OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*/
Copyright (c) 2000,2001,2002,2003,2004 ymnk, JCraft,Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the distribution.

3. The names of the authors may not be used to endorse or promote products
   derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL JCRAFT,
INC. OR ANY CONTRIBUTORS TO THIS SOFTWARE
BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA,
OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.156 netty-codec-http 4.1.51.Final

1.156.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*

*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerProtocolConfig.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker07.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketCloseStatus.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/CloseWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionFilter.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketClientProtocolConfig.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket00FrameDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshakerFactory.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker13.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerProtocolHandshakeHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/CorruptedWebSocketFrameException.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker00.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerProtocolHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionFilterProvider.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketDecoderConfig.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker08.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*

* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/*
* Adaptation of http://bjoern.hoehrmann.de/utf-8/decoder/dfa/
*
* Copyright (c) 2008-2009 Bjoern Hoehrmann <bjoern@hoehrmann.de>
*
* Permission is hereby granted, free of charge, to any person obtaining a copy of this software
* and associated documentation files (the "Software"), to deal
 in the Software without restriction,
* including without limitation the rights to use, copy, modify, merge, publish, distribute,
* sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is
* furnished to do so, subject to the following conditions:
*
* The above copyright notice and this permission notice shall be included in all copies or
* substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING
* BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
* NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,
* DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
* OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/Utf8Validator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a

* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpServerUpgradeHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpClientUpgradeHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/DefaultCookie.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/ServerCookieEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/CookieDecoder.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/CookieEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/Cookie.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/CookieHeaderNames.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/CombinedHttpHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/ClientCookieDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpExpectationFailedEvent.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/ServerCookieDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpScheme.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/package-info.java
*

/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/CookieUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/EmptyHttpHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/ClientCookieEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cookie/CookieUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspDecoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version
* 2.0 (the "License"); you may not use this file except in compliance with the
* License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cors/CorsConfigBuilder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
// (BSD License: http://www.opensource.org/licenses/bsd-license)
// All rights reserved.
// Redistribution and use in source and binary forms, with or
// * Redistributions of source code must retain the above
// copyright notice, this list of conditions and the

// following disclaimer.
// * Redistributions
in binary form must reproduce the above
// following disclaimer in the documentation and/or other
// * Neither the name of the Webbit nor the names of

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket13FrameEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket08FrameEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket07FrameEncoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/FileUploadUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpServerKeepAliveHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketChunkedInput.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT

* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/AbstractMemoryHttpData.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpContentDecompressor.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/package-info.java
*
 /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/multipart/InterfaceHttpPostRequestDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/HttpPostRequestDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpResponseStreamIdHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpResponseDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdySettingsFrame.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpContentEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultCookie.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/package-info.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/DiskAttribute.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpMethod.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpObject.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpResponseEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpContentDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpObjectAggregator.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpObjectDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpContent.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/InterfaceHttpData.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/QueryStringEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/Cookie.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/HttpPostBodyUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/package-info.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/Attribute.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketHandshakeException.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/HttpPostRequestEncoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshakerFactory.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/DefaultHttpDataFactory.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/HttpDataFactory.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpHeaders.java
*

/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpServerCodec.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpResponse.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/AbstractDiskHttpData.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpObject.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspVersions.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpClientCodec.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket00FrameEncoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker00.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker07.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/MemoryAttribute.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpMessage.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/LastHttpContent.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpVersion.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspObjectDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/DiskFileUpload.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/ContinuationWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/MixedFileUpload.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpRequestDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspHeaders.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/FileUpload.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspResponseStatuses.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpRequest.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpRequest.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspRequestDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultLastHttpContent.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/package-info.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/BinaryWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspMethods.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/AbstractHttpData.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/CaseIgnoringComparator.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpRequestEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspResponseDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpResponseStatus.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpResponse.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker08.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/multipart/HttpPostMultipartRequestDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspResponseEncoder.java

* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpContent.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/TextWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpObjectEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/package-info.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/MemoryFileUpload.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySession.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpConstants.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/PongWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/multipart/HttpPostStandardRequestDecoder.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspRequestEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/MixedAttribute.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/InternalAttribute.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpContentCompressor.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/QueryStringDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultHttpMessage.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/PingWebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/multipart/HttpData.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker13.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspObjectEncoder.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpHeaderDateFormat.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/CookieDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketVersion.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):

* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockDecoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateDecoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionEncoder.java
*
/netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/ServerCookieEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpChunkedInput.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpStatusClass.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpHeadersEncoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerFrameDeflateDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockZlibDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyFrameDecoderDelegate.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketClientExtension.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpHeaderValues.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpHeaderNames.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketServerExtensionHandshaker.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketServerExtension.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockRawDecoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateClientExtensionHandshaker.j
ava
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketClientExtensionHandshaker.java
*
/netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/WebSocketServerCompressionHandler.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateServerExtensionHandshaker.
java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtension.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyProtocolException.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspHeaderNames.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/package-info.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateFrameServerExtensionHandshaker.java
* /netty-codec-http-4-1-51-final-sources-

jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketServerExtensionHandler.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyFrameEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/Utf8FrameValidator.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerFrameDeflateEncoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateFrameClientExtensionHandshaker.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/rtsp/RtspHeaderValues.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/WebSocketClientCompressionHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyFrameDecoder.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpMessageUtil.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionData.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/ClientCookieEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/extensions/package-info.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketClientExtensionHandler.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionUtil.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyFrameCodec.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/ReadOnlyHttpHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketScheme.java

* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/HttpServerExpectContinueHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
// (BSD License: http://www.opensource.org/licenses/bsd-license)
// All rights reserved.
// Redistribution and use in source and binary forms, with or
// * Redistributions of source code must retain the above
// copyright notice, this list of conditions and the
// following disclaimer.
// * Redistributions
 in binary form must reproduce the above
// following disclaimer in the documentation and/or other
// * Neither the name of the Webbit nor the names of

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket08FrameDecoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket13FrameDecoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket07FrameDecoder.java
No license file was found, but licenses were detected in source scan.

The Netty Project licenses this file to you under the Apache License,
version 2.0 (the "License"); you may not use this file except in compliance
with the License. You may obtain a copy of the License at:
http://www.apache.org/licenses/LICENSE-2.0
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/META-INF/native-image/io.netty/codec-http/native-image.properties
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-codec-http/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketFrameEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyWindowUpdateFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySessionStatus.java
*
/netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyWindowUpdateFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyDataFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySynReplyFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyRstStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/FullHttpResponse.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySynStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyPingFrame.java

* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/FullHttpMessage.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyDataFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyVersion.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultFullHttpResponse.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySettingsFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyGoAwayFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cors/package-info.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockRawEncoder.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientProtocolHandler.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketFrameAggregator.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpCodec.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaders.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/DefaultFullHttpRequest.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyPingFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdySynStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdySynReplyFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyRstStreamFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/ComposedLastHttpContent.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientProtocolHandshakeHandler.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyGoAwayFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdySessionHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyHeaders.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/FullHttpRequest.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketFrameDecoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyCodecUtil.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyHeadersFrame.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockZlibEncoder.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockJZlibEncoder.java
*
 /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyStreamStatus.java
* /netty-codec-http-4-1-51-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketProtocolHandler.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeadersFrame.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*

* The Netty Project licenses this file to you under the Apache License, version
* 2.0 (the "License"); you may not use this file except in compliance with the
* License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cors/CorsConfig.java
* /netty-codec-http-4-1-51-final-sources-jar/io/netty/handler/codec/http/cors/CorsHandler.java

1.157 netty-buffer 4.1.51.Final

1.157.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnsafeDirectSwappedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnsafeHeapSwappedByteBuf.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance

~ with the License. You may obtain a copy of the License at:
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-buffer/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/HeapByteBufUtil.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolSubpageMetric.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractUnsafeSwappedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledDuplicatedByteBuf.java
*
/netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolChunkMetric.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnsafeByteBufUtil.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolArenaMetric.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolChunkListMetric.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledUnsafeHeapByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledSlicedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledUnsafeHeapByteBuf.java
No license file was found, but licenses were detected in source scan.

The Netty Project licenses this file to you under the Apache License,
version 2.0 (the "License"); you may not use this file except in compliance

with the License. You may obtain a copy of the License at:
http://www.apache.org/licenses/LICENSE-2.0
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/META-INF/native-image/io.netty/buffer/native-image.properties
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2020 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2020 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a
* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/AbstractMultiSearchProcessorFactory.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/AhoCorasicSearchProcessorFactory.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/AbstractSearchProcessorFactory.java

*
 /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/MultiSearchProcessor.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/SearchProcessorFactory.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/BitapSearchProcessorFactory.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/MultiSearchProcessorFactory.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/SearchProcessor.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/search/KmpSearchProcessorFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ReadOnlyByteBufferBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractReferenceCountedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/WrappedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufHolder.java
*
 /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/DefaultByteBufHolder.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractDerivedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/FixedCompositeByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledUnsafeDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufProcessor.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/SimpleLeakAwareByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnreleasableByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/EmptyByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ReadOnlyUnsafeDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AdvancedLeakAwareByteBuf.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance

* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ReadOnlyByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/SwappedByteBuf.java
*
 /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/DuplicatedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufOutputStream.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolChunk.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledHeapByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolArena.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledUnsafeDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/package-info.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/CompositeByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolSubpage.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/Unpooled.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufAllocator.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/SlicedByteBuf.java
*
 /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolChunkList.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufUtil.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledByteBufAllocator.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufInputStream.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractByteBufAllocator.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PoolThreadCache.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledByteBufAllocator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:

*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufAllocatorMetricProvider.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/ByteBufAllocatorMetric.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledByteBufAllocatorMetric.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AdvancedLeakAwareCompositeByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledSlicedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/SimpleLeakAwareCompositeByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractPooledDerivedByteBuf.java
*
 /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/AbstractUnpooledSlicedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/WrappedCompositeByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/WrappedUnpooledUnsafeDirectByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledDuplicatedByteBuf.java
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/UnpooledUnsafeNoCleanerDirectByteBuf.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*

* The Netty Project licenses this file to the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-buffer-4-1-51-final-sources-jar/io/netty/buffer/PooledHeapByteBuf.java

1.158 netty-handler 4.1.51.Final

1.158.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PemPrivateKey.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslServerContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PemX509Certificate.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/flow/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslClientContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslEngine.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PemEncoded.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PemValue.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/X509TrustManagerWrapper.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/flush/package-info.java

* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/Java8SslUtils.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslCertificateException.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/flush/FlushConsolidationHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/DelegatingSslContext.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterialManager.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedStream.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/IdleStateHandler.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/logging/LoggingHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/NotSslRecordException.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedFile.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedNioStream.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/logging/LogLevel.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedWriteHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedInput.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/ReadTimeoutException.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/TimeoutException.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/IdleStateEvent.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/WriteTimeoutException.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/IdleState.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/WriteTimeoutHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/package-info.java

* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/logging/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/timeout/ReadTimeoutHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/stream/ChunkedNioFile.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version
* 2.0 (the "License"); you may not use this file except in compliance with the
* License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/flow/FlowControlHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2018 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslSession.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslTlsv13X509ExtendedTrustManager.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ExtendedOpenSslSession.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/DefaultOpenSslKeyMaterial.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslCachingKeyMaterialProvider.java

* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslX509KeyManagerFactory.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslX509TrustManagerWrapper.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslPrivateKey.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterial.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslCachingX509KeyManagerFactory.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterialProvider.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SignatureAlgorithmConverter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2011 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/AbstractTrafficShapingHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/InsecureTrustManagerFactory.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PemReader.java

* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkBaseApplicationProtocolNegotiator.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SniHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslX509Certificate.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/Java7SslParametersUtils.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslSessionStats.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslServerContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SupportedCipherSuiteFilter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JettyNpnSslEngine.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslEngineMap.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/SimpleTrustManagerFactory.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/GlobalChannelTrafficCounter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/BouncyCastleSelfSignedCertGenerator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslClientContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/CipherSuiteConverter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslSessionContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/CipherSuiteFilter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslEngine.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslDefaultApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNegotiator.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkSslEngine.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/RuleBasedIpFilter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkAlpnApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkSslServerContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkDefaultApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslProvider.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/IdentityCipherSuiteFilter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/OpenJdkSelfSignedCertGenerator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkSslContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/ThreadLocalInsecureRandom.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolConfig.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/UniqueIpFilter.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslServerSessionContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkNpnApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolUtil.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/IpSubnetFilterRule.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/IpFilterRule.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslNpnApplicationProtocolNegotiator.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslUtils.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/IpFilterRuleType.java

* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ipfilter/AbstractRemoteAddressFilter.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkSslClientContext.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/FingerprintTrustManagerFactory.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSsl.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JettyAlpnSslEngine.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
// Try the OpenJDK's proprietary implementation.

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/SelfSignedCertificate.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/GlobalChannelTrafficShapingHandler.java

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/GlobalTrafficShapingHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/ChannelTrafficShapingHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/TrafficCounter.java
*
/netty-handler-4-1-51-final-sources-jar/io/netty/handler/traffic/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/X509KeyManagerWrapper.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/TrustManagerFactoryWrapper.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/util/SimpleKeyManagerFactory.java
*

/netty-handler-4-1-51-final-sources-jar/io/netty/handler/address/DynamicAddressConnectHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/KeyManagerFactoryWrapper.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslPrivateKeyMethod.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/address/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/PseudoRandomFunction.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslMasterKeyHandler.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-handler/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ocsp/OcspClientHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ocsp/package-info.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/AbstractSniHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslCompletionEvent.java

*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslCloseCompletionEvent.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/Conscrypt.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SniCompletionEvent.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OptionalSslHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslUtils.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslEngine.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslClientHelloHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ConscryptAlpnSslEngine.java
No license file was found, but licenses were detected in source scan.

The Netty Project licenses this file to you under the Apache License,
version 2.0 (the "License"); you may not use this file except in compliance
with the License. You may obtain a copy of the License at:
http://www.apache.org/licenses/LICENSE-2.0
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/META-INF/native-image/io.netty/handler/native-image.properties
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolAccessor.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslSessionTicketKey.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNames.java
*
 /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/OpenSslJavaxX509Certificate.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslContextBuilder.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ClientAuth.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNegotiationHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslHandshakeCompletionEvent.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2020 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/address/ResolveAddressHandler.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/logging/ByteBufFormat.java
* /netty-handler-4-1-51-final-sources-jar/io/netty/handler/ssl/SslHandshakeTimeoutException.java

1.159 netty-resolver 4.1.51.Final

1.159.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*

* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/RoundRobinInetAddressResolver.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2014 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~   http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-resolver-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-resolver/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/DefaultAddressResolverGroup.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/DefaultNameResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/AbstractAddressResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/HostsFileEntriesResolver.java
*
 /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/InetNameResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/DefaultHostsFileEntriesResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/HostsFileParser.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/InetSocketAddressResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/CompositeNameResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/AddressResolver.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/NoopAddressResolverGroup.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/SimpleNameResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/NoopAddressResolver.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/NameResolver.java
*
 /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/AddressResolverGroup.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project

*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/ResolvedAddressTypes.java
* /netty-resolver-4-1-51-final-sources-jar/io/netty/resolver/HostsFileEntries.java

1.160 netty-transport 4.1.51.Final

1.160.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/PreferHeapByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DuplexChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelOutboundInvoker.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/WriteBufferWaterMark.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultSelectStrategyFactory.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/VoidChannelGroupFuture.java

* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SelectStrategyFactory.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelInboundInvoker.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/BootstrapConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/ServerBootstrapConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/AbstractBootstrapConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultSelectStrategy.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SelectStrategy.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2018 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/NioChannelOption.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SimpleUserEventChannelHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/AbstractOioMessageChannel.java

* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/Bootstrap.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/MultithreadEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelInboundHandlerAdapter.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/LocalAddress.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DefaultSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/AbstractNioMessageChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelDuplexHandler.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DefaultServerSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/NioDatagramChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DatagramPacket.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultEventLoopGroup.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/Channel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/AbstractOioChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/AbstractBootstrap.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SingleThreadEventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/EventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/NioEventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/LocalChannelRegistry.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AdaptiveRecvByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/RecvByteBufAllocator.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelFlushPromiseNotifier.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelPromiseAggregator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DatagramChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioServerSocketChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelPromiseNotifier.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/AbstractOioByteChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioSocketChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelPipelineException.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/LocalChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/InternetProtocolFamily.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/LocalServerChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/VoidChannelPromise.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/ServerBootstrap.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/FailedChannelFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/embedded/EmbeddedEventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractServerChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelOutboundHandler.java

* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelException.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/NioDatagramChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelPipeline.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractChannelHandlerContext.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/CompleteChannelFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ThreadPerChannelEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ThreadPerChannelEventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DefaultDatagramChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelInboundHandler.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/SocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelOption.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/NioServerSocketChannel.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ServerChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelMetadata.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ServerSocketChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/CombinedChannelDuplexHandler.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/NioSocketChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelPipeline.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/nio/ProtocolFamilyConverter.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/AbstractNioChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/CombinedIterator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/OioEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/AbstractNioByteChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ChannelInputShutdownEvent.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/NioTask.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/DefaultChannelGroupFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelHandlerContext.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelInitializer.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/EventLoopException.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/embedded/EmbeddedSocketAddress.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultEventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/FixedRecvByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/SocketChannel.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/embedded/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/embedded/EmbeddedChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioDatagramChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/FileRegion.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultFileRegion.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/NioEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelGroupFutureListener.java

* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/EventLoop.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelGroupFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SucceededChannelFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelFutureListener.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelPromise.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelOutboundHandlerAdapter.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelPromise.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ServerSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/local/LocalEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/DatagramChannelConfig.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelHandlerContext.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a
* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
* or implied. See the License for the specific language governing permissions and limitations under

* the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractCoalescingBufferQueue.java
No license file was found, but licenses were detected in source scan.

The Netty Project licenses this file to you under the Apache License,
version 2.0 (the "License"); you may not use this file except in compliance
with the License. You may obtain a copy of the License at:
http://www.apache.org/licenses/LICENSE-2.0
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/META-INF/native-image/io.netty/transport/native-image.properties
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/EventLoopTaskQueueFactory.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelHandlerMask.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ExtendedClosedChannelException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*

```
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
* Handles an I/O event or intercepts an I/O operation, and forwards it to its next handler in
* its {@link ChannelPipeline}.
*
* <h3>Sub-types</h3>
* <p>
* {@link ChannelHandler} itself does not provide many methods, but you usually have to implement one of its
subtypes:
* <ul>
* <li>{@link
 ChannelInboundHandler} to handle inbound I/O events, and</li>
* <li>{@link ChannelOutboundHandler} to handle outbound I/O operations.</li>
* </ul>
* </p>
* <p>
* Alternatively, the following adapter classes are provided for your convenience:
* <ul>
* <li>{@link ChannelInboundHandlerAdapter} to handle inbound I/O events,</li>
* <li>{@link ChannelOutboundHandlerAdapter} to handle outbound I/O operations, and</li>
* <li>{@link ChannelDuplexHandler} to handle both inbound and outbound events</li>
* </ul>
* </p>
* <p>
* For more information, please refer to the documentation of each subtype.
* </p>
*
* <h3>The context object</h3>
* <p>
* A {@link ChannelHandler} is provided with a {@link ChannelHandlerContext}
* object.  A {@link ChannelHandler} is supposed to interact with the
* {@link ChannelPipeline} it belongs to via a context object.  Using the
* context object, the {@link ChannelHandler} can pass events upstream or
* downstream, modify the pipeline dynamically,
 or store the information
* (using {@link AttributeKey}s) which is specific to the handler.
*
* <h3>State management</h3>
*
* A {@link ChannelHandler} often needs to store some stateful information.
* The simplest and recommended approach is to use member variables:
* <pre>
* public interface Message {
```

```
*     // your methods here
* }
*
* public class DataServerHandler extends {@link SimpleChannelInboundHandler}&lt;Message&gt; {
*
*     <b>private boolean loggedIn;</b>
*
*     {@code @Override}
*     public void channelRead0({@link ChannelHandlerContext} ctx, Message message) {
*         if (message instanceof LoginMessage) {
*             authenticate((LoginMessage) message);
*             <b>loggedIn = true;</b>
*         } else (message instanceof GetDataMessage) {
*             if (<b>loggedIn</b>) {
*                 ctx.writeAndFlush(fetchSecret((GetDataMessage) message));
*             } else {
*                 fail();
*             }
*         }
 *     }
*     ...
* }
* </pre>
* Because the handler instance has a state variable which is dedicated to
* one connection, you have to create a new handler instance for each new
* channel to avoid a race condition where a unauthenticated client can get
* the confidential information:
* <pre>
* // Create a new handler instance per channel.
* // See {@link ChannelInitializer#initChannel(Channel)}.
* public class DataServerInitializer extends {@link ChannelInitializer}&lt;{@link Channel}&gt; {
*     {@code @Override}
*     public void initChannel({@link Channel} channel) {
*         channel.pipeline().addLast("handler", <b>new DataServerHandler()</b>);
*     }
* }
*
* </pre>
*
* <h4>Using {@link AttributeKey}s</h4>
*
* Although it's recommended to use member variables to store the state of a
* handler, for some reason you might not want to create many handler instances.
* In such a case, you can use {@link AttributeKey}s which is provided by
* {@link ChannelHandlerContext}:
 * <pre>
* public interface Message {
*     // your methods here
```

```
* }
*
* {@code @Sharable}
* public class DataServerHandler extends {@link SimpleChannelInboundHandler}&lt;Message&gt; {
*     private final {@link AttributeKey}&lt;{@link Boolean}&gt; auth =
*         {@link AttributeKey#valueOf(String) AttributeKey.valueOf("auth")};
*
*     {@code @Override}
*     public void channelRead({@link ChannelHandlerContext} ctx, Message message) {
*         {@link Attribute}&lt;{@link Boolean}&gt; attr = ctx.attr(auth);
*         if (message instanceof LoginMessage) {
*             authenticate((LoginMessage) o);
*             <b>attr.set(true)</b>;
*         } else (message instanceof GetDataMessage) {
*             if (<b>Boolean.TRUE.equals(attr.get())</b>) {
*                 ctx.writeAndFlush(fetchSecret((GetDataMessage) o));
*             } else {
*                 fail();
*             }
*         }
*     }
*     ...
* }
* </pre>
* Now that the state
 of the handler is attached to the {@link ChannelHandlerContext}, you can add the
* same handler instance to different pipelines:
* <pre>
* public class DataServerInitializer extends {@link ChannelInitializer}&lt;{@link Channel}&gt; {
*
*     private static final DataServerHandler <b>SHARED</b> = new DataServerHandler();
*
*     {@code @Override}
*     public void initChannel({@link Channel} channel) {
*         channel.pipeline().addLast("handler", <b>SHARED</b>);
*     }
* }
* </pre>
*
*
* <h4>The {@code @Sharable} annotation</h4>
* <p>
* In the example above which used an {@link AttributeKey},
* you might have noticed the {@code @Sharable} annotation.
* <p>
* If a {@link ChannelHandler} is annotated with the {@code @Sharable}
* annotation, it means you can create an instance of the handler just once and
* add it to one or more {@link ChannelPipeline}s multiple times without
```

```
* a race condition.
* <p>
* If this annotation is not specified, you have to create
 a new handler
* instance every time you add it to a pipeline because it has unshared state
* such as member variables.
* <p>
* This annotation is provided for documentation purpose, just like
* <a href="http://www.javaconcurrencyinpractice.com/annotations/doc/">the JCIP annotations</a>.
*
* <h3>Additional resources worth reading</h3>
* <p>
* Please refer to the {@link ChannelHandler}, and
* {@link ChannelPipeline} to find out more about inbound and outbound operations,
* what fundamental differences they have, how they flow in a  pipeline,  and how to handle
* the operation in your application.
*/
```

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelHandler.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
```

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/PendingWriteQueue.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelFactory.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/embedded/EmbeddedChannelId.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractEventLoop.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ReflectiveChannelFactory.java
No license file was found, but licenses were detected in source scan.

```
/*
```

* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/MaxMessagesRecvByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/SimpleChannelPool.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/AbstractChannelPoolHandler.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultMaxBytesRecvByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/ChannelPoolMap.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/ChannelPoolHandler.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/ChannelPool.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/FixedChannelPool.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/AbstractChannelPoolMap.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/pool/ChannelHealthChecker.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/MaxBytesRecvByteBufAllocator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultMaxMessagesRecvByteBufAllocator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultMessageSizeEstimator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelHandlerAdapter.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/DefaultChannelGroup.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultAddressedEnvelope.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelProgressivePromise.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelGroupException.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelOutboundBuffer.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelId.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/MessageSizeEstimator.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AbstractEventLoopGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelGroup.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelId.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelMatcher.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/DefaultOioSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/group/ChannelMatchers.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ConnectTimeoutException.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/ChannelFactory.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioServerSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/AddressedEnvelope.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelProgressiveFutureListener.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioSocketChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/ChannelProgressiveFuture.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/SimpleChannelInboundHandler.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DefaultChannelProgressivePromise.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/DefaultOioServerSocketChannelConfig.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/SelectedSelectionKeySet.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
 ~
 ~ The Netty Project licenses this file to you under the Apache License,
 ~ version 2.0 (the "License"); you may not use this file except in compliance
 ~ with the License. You may obtain a copy of the License at:
 ~
 ~   http://www.apache.org/licenses/LICENSE
2.0
 ~
 ~ Unless required by applicable law or agreed to in writing, software
 ~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
 ~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
 ~ License for the specific language governing permissions and limitations
 ~ under the License.

Found in path(s):

* /netty-transport-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-transport/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/oio/OioByteStreamChannel.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a
* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/CoalescingBufferQueue.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance

* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/PendingBytesTracker.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/DefaultOioDatagramChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/DelegatingChannelPromiseNotifier.java
*
 /netty-transport-4-1-51-final-sources-jar/io/netty/bootstrap/FailedChannel.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ChannelOutputShutdownEvent.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/internal/package-info.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/nio/SelectedSelectionKeySetSelector.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/oio/OioDatagramChannelConfig.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ChannelInputShutdownReadComplete.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/internal/ChannelUtils.java
* /netty-transport-4-1-51-final-sources-jar/io/netty/channel/socket/ChannelOutputShutdownException.java

1.161 netty-codec 4.1.51.Final

1.161.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
* A decoder that splits the received {@link ByteBuf}s dynamically by the

```
* value of the length field in the message.  It is particularly useful when you
* decode a binary message which has an integer header field that represents the
* length of the message body or the whole message.
*
 <p>
* {@link LengthFieldBasedFrameDecoder} has many configuration parameters so
* that it can decode any message with a length field, which is often seen in
* proprietary client-server protocols. Here are some example that will give
* you the basic idea on which option does what.
*
* <h3>2 bytes length field at offset 0, do not strip header</h3>
*
* The value of the length field in this example is <tt>12 (0x0C)</tt> which
* represents the length of "HELLO, WORLD".  By default, the decoder assumes
* that the length field represents the number of the bytes that follows the
* length field.  Therefore, it can be decoded with the simplistic parameter
* combination.
* <pre>
* <b>lengthFieldOffset</b>   = <b>0</b>
* <b>lengthFieldLength</b>   = <b>2</b>
* lengthAdjustment    = 0
* initialBytesToStrip = 0 (= do not strip header)
*
* BEFORE DECODE (14 bytes)         AFTER DECODE (14 bytes)
* +--------+----------------+      +--------+----------------+
* | Length | Actual Content
 |----->| Length | Actual Content |
* | 0x000C | "HELLO, WORLD" |      | 0x000C | "HELLO, WORLD" |
* +--------+----------------+      +--------+----------------+
* </pre>
*
* <h3>2 bytes length field at offset 0, strip header</h3>
*
* Because we can get the length of the content by calling
* {@link ByteBuf#readableBytes()}, you might want to strip the length
* field by specifying <tt>initialBytesToStrip</tt>.  In this example, we
* specified <tt>2</tt>, that is same with the length of the length field, to
* strip the first two bytes.
* <pre>
* lengthFieldOffset   = 0
* lengthFieldLength   = 2
* lengthAdjustment    = 0
* <b>initialBytesToStrip</b> = <b>2</b> (= the length of the Length field)
*
* BEFORE DECODE (14 bytes)         AFTER DECODE (12 bytes)
* +--------+----------------+      +----------------+
* | Length | Actual Content |----->| Actual Content |
* | 0x000C | "HELLO, WORLD" |      | "HELLO, WORLD" |
```

```
* +--------+----------------+      +----------------+
 * </pre>
*
* <h3>2 bytes length field at offset 0, do not strip header, the length field
*     represents the length of the whole message</h3>
*
* In most cases, the length field represents the length of the message body
* only, as shown in the previous examples.  However, in some protocols, the
* length field represents the length of the whole message, including the
* message header.  In such a case, we specify a non-zero
* <tt>lengthAdjustment</tt>.  Because the length value in this example message
* is always greater than the body length by <tt>2</tt>, we specify <tt>-2</tt>
* as <tt>lengthAdjustment</tt> for compensation.
* <pre>
* lengthFieldOffset   =  0
* lengthFieldLength   =  2
* <b>lengthAdjustment</b>    = <b>-2</b> (= the length of the Length field)
* initialBytesToStrip =  0
*
* BEFORE DECODE (14 bytes)         AFTER DECODE (14 bytes)
* +--------+----------------+      +--------+----------------+
* | Length | Actual Content |----->| Length | Actual
 Content |
* | 0x000E | "HELLO, WORLD" |      | 0x000E | "HELLO, WORLD" |
* +--------+----------------+      +--------+----------------+
* </pre>
*
* <h3>3 bytes length field at the end of 5 bytes header, do not strip header</h3>
*
* The following message is a simple variation of the first example.  An extra
* header value is prepended to the message.  <tt>lengthAdjustment</tt> is zero
* again because the decoder always takes the length of the prepended data into
* account during frame length calculation.
* <pre>
* <b>lengthFieldOffset</b>   = <b>2</b> (= the length of Header 1)
* <b>lengthFieldLength</b>   = <b>3</b>
* lengthAdjustment    = 0
* initialBytesToStrip = 0
*
* BEFORE DECODE (17 bytes)                      AFTER DECODE (17 bytes)
* +----------+----------+----------------+      +----------+----------+----------------+
* | Header 1 |  Length  | Actual Content |----->| Header 1 |  Length  | Actual Content |
* |  0xCAFE  | 0x00000C | "HELLO, WORLD" |      |
  0xCAFE  | 0x00000C | "HELLO, WORLD" |
* +----------+----------+----------------+      +----------+----------+----------------+
* </pre>
*
* <h3>3 bytes length field at the beginning of 5 bytes header, do not strip header</h3>
```

```
*
* This is an advanced example that shows the case where there is an extra
* header between the length field and the message body.  You have to specify a
* positive <tt>lengthAdjustment</tt> so that the decoder counts the extra
* header into the frame length calculation.
* <pre>
* lengthFieldOffset   = 0
* lengthFieldLength   = 3
* <b>lengthAdjustment</b>    = <b>2</b> (= the length of Header 1)
* initialBytesToStrip = 0
*
* BEFORE DECODE (17 bytes)                 AFTER DECODE (17 bytes)
* +----------+----------+----------------+      +----------+----------+----------------+
* |  Length  | Header 1 | Actual Content |----->|  Length  | Header 1 | Actual Content |
* | 0x00000C |  0xCAFE  | "HELLO, WORLD" |      | 0x00000C |  0xCAFE  | "HELLO,
 WORLD" |
* +----------+----------+----------------+      +----------+----------+----------------+
* </pre>
*
* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,
*     strip the first header field and the length field</h3>
*
* This is a combination of all the examples above.  There are the prepended
* header before the length field and the extra header after the length field.
* The prepended header affects the <tt>lengthFieldOffset</tt> and the extra
* header affects the <tt>lengthAdjustment</tt>.  We also specified a non-zero
* <tt>initialBytesToStrip</tt> to strip the length field and the prepended
* header from the frame.  If you don't want to strip the prepended header, you
* could specify <tt>0</tt> for <tt>initialBytesToSkip</tt>.
* <pre>
* lengthFieldOffset   = 1 (= the length of HDR1)
* lengthFieldLength   = 2
* <b>lengthAdjustment</b>    = <b>1</b> (= the length of HDR2)
* <b>initialBytesToStrip</b> = <b>3</b> (= the length of HDR1 + LEN)
 *
* BEFORE DECODE (16 bytes)                 AFTER DECODE (13 bytes)
* +------+--------+------+----------------+      +------+----------------+
* | HDR1 | Length | HDR2 | Actual Content |----->| HDR2 | Actual Content |
* | 0xCA | 0x000C | 0xFE | "HELLO, WORLD" |      | 0xFE | "HELLO, WORLD" |
* +------+--------+------+----------------+      +------+----------------+
* </pre>
*
* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,
*     strip the first header field and the length field, the length field
*     represents the length of the whole message</h3>
*
* Let's give another twist to the previous example.  The only difference from
* the previous example is that the length field represents the length of the
```

```
* whole message instead of the message body, just like the third example.
* We have to count the length of HDR1 and Length into <tt>lengthAdjustment</tt>.
* Please note that we don't need to take the length of HDR2 into account
* because
 the length field already includes the whole header length.
* <pre>
* lengthFieldOffset   =  1
* lengthFieldLength   =  2
* <b>lengthAdjustment</b>    = <b>-3</b> (= the length of HDR1 + LEN, negative)
* <b>initialBytesToStrip</b> = <b> 3</b>
*
* BEFORE DECODE (16 bytes)                       AFTER DECODE (13 bytes)
* +------+--------+------+----------------+      +------+----------------+
* | HDR1 | Length | HDR2 | Actual Content |----->| HDR2 | Actual Content |
* | 0xCA | 0x0010 | 0xFE | "HELLO, WORLD" |      | 0xFE | "HELLO, WORLD" |
* +------+--------+------+----------------+      +------+----------------+
* </pre>
* @see LengthFieldPrepender
*/
```

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/LengthFieldBasedFrameDecoder.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a
* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/
```

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DefaultHeaders.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/EmptyHeaders.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/Headers.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2016 The Netty Project
```

*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/string/LineSeparator.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ByteBufChecksum.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DatagramPacketDecoder.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/string/LineEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/CodecOutputList.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/CompressionUtil.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DateFormatter.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DatagramPacketEncoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Lz4XXHash32.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project

*
* The Netty Project licenses this file to you under the Apache License, version 2.0 (the
* "License"); you may not use this file except in compliance with the License. You may obtain a
* copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DefaultHeadersImpl.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/CharSequenceValueConverter.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ValueConverter.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-codec/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Crc32c.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/JdkZlibDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/xml/XmlFrameDecoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufVarint32FrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ProtocolDetectionResult.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufDecoder.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufVarint32LengthFieldPrepender.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufEncoderNano.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufDecoderNano.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/UnsupportedValueConverter.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ProtocolDetectionState.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/HeadersUtils.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufEncoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance

* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DelimiterBasedFrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ObjectDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ReferenceMap.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/MarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/CompatibleMarshallingDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/base64/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/CompactObjectInputStream.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/TooLongFrameException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/MarshallingDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/PrematureChannelClosureException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/JdkZlibEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/LimitingByteInput.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/DecompressionException.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/ThreadLocalUnmarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/MarshallingEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ObjectEncoderOutputStream.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ObjectEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/ChannelBufferByteOutput.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/CodecException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ReplayingDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageToMessageEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/EncoderException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/bytes/ByteArrayDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ClassLoaderClassResolver.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/UnmarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ClassResolver.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageToMessageDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/LineBasedFrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ZlibEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/UnsupportedMessageTypeException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/ContextBoundUnmarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ZlibUtil.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ZlibWrapper.java

* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ZlibCodecFactory.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ObjectDecoderInputStream.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ByteToMessageCodec.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/CorruptedFrameException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/string/StringEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/ClassResolvers.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/JZlibDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageAggregator.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/base64/Base64Decoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/bytes/ByteArrayEncoder.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/protobuf/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/DefaultUnmarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/xml/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/ZlibDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/CompressionException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/base64/Base64Encoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ByteToMessageDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DecoderException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/LengthFieldPrepender.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/SoftReferenceMap.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/SnappyFrameEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageToMessageCodec.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/bytes/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageToByteEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/DefaultMarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/string/StringDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/CompactObjectOutputStream.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/ReplayingDecoderByteBuf.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DecoderResult.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/Delimiters.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/JZlibEncoder.java
*
 /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/FixedLengthFrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/string/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/CachingClassResolver.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/SnappyFrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Snappy.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/CompatibleMarshallingEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/ThreadLocalMarshallerProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/marshalling/ChannelBufferByteInput.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/CompatibleObjectEncoder.java

*
/netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/serialization/WeakReferenceMap.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/AsciiHeadersEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/FastLzFrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Lz4FrameEncoder.java
*
/netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/LzmaFrameEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2DivSufSort.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2HuffmanStageDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/FastLz.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2MoveToFrontTable.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2BlockCompressor.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/FastLzFrameEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/MessageAggregationException.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Crc32.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/json/package-info.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2HuffmanStageEncoder.java
*
/netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2Decoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/LzfEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2MTFAndRLE2StageEncoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2BlockDecompressor.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Lz4Constants.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/DecoderResultProvider.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Lz4FrameDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2Encoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/LzfDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2BitWriter.java
*

/netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2Constants.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2HuffmanAllocator.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/json/JsonObjectDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2Rand.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/SnappyFramedDecoder.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/Bzip2BitReader.java
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/compression/SnappyFramedEncoder.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/*
* Written by Robert Harder and released to the public domain, as explained at
* http://creativecommons.org/licenses/publicdomain
*/
/**
* Enumeration of supported Base64 dialects.
* <p>
* The internal lookup tables in this class has been derived from
* <a href="http://iharder.sourceforge.net/current/java/base64/">Robert
 Harder's Public Domain
* Base64 Encoder/Decoder</a>.
*/
```

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/base64/Base64Dialect.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
```

```
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/*
* Written by Robert Harder and released to the public domain, as explained at
* http://creativecommons.org/licenses/publicdomain
*/
/**
* Utility class for {@link ByteBuf} that encodes and decodes to and from
* <a href="http://en.wikipedia.org/wiki/Base64">Base64</a> notation.
* <p>
*
 The encoding and decoding algorithm in this class has been derived from
* <a href="http://iharder.sourceforge.net/current/java/base64/">Robert Harder's Public Domain
* Base64 Encoder/Decoder</a>.
*/
```

Found in path(s):
* /netty-codec-4-1-51-final-sources-jar/io/netty/handler/codec/base64/Base64.java

1.162 coturn 4.5.1.3

1.162.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.162.2 Available under license :

```
/*
* TURN Server - RFC5766 TURN Server implementation
* Copyright (C) 2011, 2012, 2013 Citrix Systems
*
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
```

* 3. Neither the name of the project nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*   without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED
 WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

 LICENSE ISSUES
 ==============

 The OpenSSL toolkit stays under a dual license, i.e. both the conditions of
 the OpenSSL License and the original SSLeay license apply to the toolkit.
 See below for the actual license texts. Actually both licenses are BSD-style
 Open Source licenses. In case of any license issues related to OpenSSL
 please contact openssl-core@openssl.org.

 OpenSSL License

/* ==
* Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer
 in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. All advertising materials mentioning features or use of this
*   software must display the following acknowledgment:

*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For written permission, please contact
*   openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*   nor may "OpenSSL" appear in their names without prior written
*   permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit (http://www.openssl.org/)"
 *
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software
 written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*

* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the
 library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic
 related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
 OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or

* derivative of this code cannot be changed. i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.163 libunistring 0.9.10-2

1.163.1 Available under license :

@c The GNU Free Documentation License.
@center Version 1.3, 3 November 2008

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
@uref{http://fsf.org/}

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@enumerate 0
@item
PREAMBLE

The purpose of this License is to make a manual, textbook, or other
functional and useful document @dfn{free} in the sense of freedom: to
assure everyone the effective freedom to copy and redistribute it,
with or without modifying it, either commercially or noncommercially.
Secondarily, this License preserves for the author and publisher a way
to get credit for their work, while not being considered responsible
for modifications made by others.

This License is a kind of ``copyleft'', which means that derivative
works of the document
 must themselves be free in the same sense. It
complements the GNU General Public License, which is a copyleft
license designed for free software.

We have designed this License in order to use it for manuals for free
software, because free software needs free documentation: a free
program should come with manuals providing the same freedoms that the
software does. But this License is not limited to software manuals;
it can be used for any textual work, regardless of subject matter or
whether it is published as a printed book. We recommend this License
principally for works whose purpose is instruction or reference.

@item
APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The ``Document'', below, refers
to any such manual or work. Any member of the public is a licensee, and is addressed as ``you''. You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A ``Modified Version'' of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A ``Secondary Section'' is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political
position regarding
them.

The ``Invariant Sections'' are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The ``Cover Texts'' are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A ``Transparent'' copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for

images composed of
pixels) generic paint programs or (for drawings) some widely available
drawing editor, and that is suitable for input to text formatters or
for automatic translation to a variety of formats suitable for input
to text formatters. A copy made in an otherwise Transparent file
format whose markup, or absence of markup, has been arranged to thwart
or discourage subsequent modification by readers is not Transparent.
An image format is not Transparent if used for any substantial amount
of text. A copy that is not ``Transparent'' is called ``Opaque''.

Examples of suitable formats for Transparent copies include plain
@sc{ascii} without markup, Texinfo input format, La@TeX{} input
format, @acronym{SGML} or @acronym{XML} using a publicly available
@acronym{DTD}, and standard-conforming simple @acronym{HTML},
PostScript or @acronym{PDF} designed for human modification. Examples
of transparent image formats include @acronym{PNG}, @acronym{XCF} and
@acronym{JPG}. Opaque formats
include proprietary formats that can be
read and edited only by proprietary word processors, @acronym{SGML} or
@acronym{XML} for which the @acronym{DTD} and/or processing tools are
not generally available, and the machine-generated @acronym{HTML},
PostScript or @acronym{PDF} produced by some word processors for
output purposes only.

The ``Title Page'' means, for a printed book, the title page itself,
plus such following pages as are needed to hold, legibly, the material
this License requires to appear in the title page. For works in
formats which do not have any title page as such, ``Title Page'' means
the text near the most prominent appearance of the work's title,
preceding the beginning of the body of the text.

The ``publisher'' means any person or entity that distributes copies
of the Document to the public.

A section ``Entitled XYZ'' means a named subunit of the Document whose
title either is precisely XYZ or contains XYZ in parentheses following
text that translates XYZ in
another language. (Here XYZ stands for a
specific section name mentioned below, such as ``Acknowledgements'',
``Dedications'', ``Endorsements'', or ``History''.) To ``Preserve the Title''
of such a section when you modify the Document means that it remains a
section ``Entitled XYZ'' according to this definition.

The Document may include Warranty Disclaimers next to the notice which
states that this License applies to the Document. These Warranty
Disclaimers are considered to be included by reference in this
License, but only as regards disclaiming warranties: any other
implication that these Warranty Disclaimers may have is void and has

no effect on the meaning of this License.

@item
VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever
to those of this License. You may not use
technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

@item
COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible.
You may add other material on the covers in addition.
Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps,

when you begin distribution of Opaque copies in quantity, to ensure
that
this Transparent copy will remain thus accessible at the stated
location until at least one year after the last time you distribute an
Opaque copy (directly or through your agents or retailers) of that
edition to the public.

It is requested, but not required, that you contact the authors of the
Document well before redistributing any large number of copies, to give
them a chance to provide you with an updated version of the Document.

@item
MODIFICATIONS

You may copy and distribute a Modified Version of the Document under
the conditions of sections 2 and 3 above, provided that you release
the Modified Version under precisely this License, with the Modified
Version filling the role of the Document, thus licensing distribution
and modification of the Modified Version to whoever possesses a copy
of it. In addition, you must do these things in the Modified Version:

@enumerate A
@item
Use in the Title Page (and on the covers, if any) a title distinct
from that of the Document, and from
those of previous versions
(which should, if there were any, be listed in the History section
of the Document). You may use the same title as a previous version
if the original publisher of that version gives permission.

@item
List on the Title Page, as authors, one or more persons or entities
responsible for authorship of the modifications in the Modified
Version, together with at least five of the principal authors of the
Document (all of its principal authors, if it has fewer than five),
unless they release you from this requirement.

@item
State on the Title page the name of the publisher of the
Modified Version, as the publisher.

@item
Preserve all the copyright notices of the Document.

@item
Add an appropriate copyright notice for your modifications
adjacent to the other copyright notices.

@item
Include, immediately after the copyright notices, a license notice
giving the public permission to use the Modified Version under the
terms of this License, in the form shown in
the Addendum below.

@item
Preserve in that license notice the full lists of Invariant Sections
and required Cover Texts given in the Document's license notice.

@item
Include an unaltered copy of this License.

@item
Preserve the section Entitled ``History'', Preserve its Title, and add
to it an item stating at least the title, year, new authors, and
publisher of the Modified Version as given on the Title Page. If
there is no section Entitled ``History'' in the Document, create one
stating the title, year, authors, and publisher of the Document as
given on its Title Page, then add an item describing the Modified
Version as stated in the previous sentence.

@item
Preserve the network location, if any, given in the Document for
public access to a Transparent copy of the Document, and likewise
the network locations given in the Document for previous versions
it was based on. These may be placed in the ``History'' section.
You may omit a network location for a work that was published at
least
four years before the Document itself, or if the original
publisher of the version it refers to gives permission.

@item
For any section Entitled ``Acknowledgements'' or ``Dedications'', Preserve
the Title of the section, and preserve in the section all the
substance and tone of each of the contributor acknowledgements and/or
dedications given therein.

@item
Preserve all the Invariant Sections of the Document,
unaltered in their text and in their titles. Section numbers
or the equivalent are not considered part of the section titles.

@item
Delete any section Entitled ``Endorsements''. Such a section
may not be included in the Modified Version.

@item

Do not retitle any existing section to be Entitled ``Endorsements'' or
to conflict in title with any Invariant Section.

@item
Preserve any Warranty Disclaimers.
@end enumerate

If the Modified Version includes new front-matter sections or
appendices that qualify as Secondary Sections and contain no material
copied from the Document,
you may at your option designate some or all
of these sections as invariant. To do this, add their titles to the
list of Invariant Sections in the Modified Version's license notice.
These titles must be distinct from any other section titles.

You may add a section Entitled ``Endorsements'', provided it contains
nothing but endorsements of your Modified Version by various
parties---for example, statements of peer review or that the text has
been approved by an organization as the authoritative definition of a
standard.

You may add a passage of up to five words as a Front-Cover Text, and a
passage of up to 25 words as a Back-Cover Text, to the end of the list
of Cover Texts in the Modified Version. Only one passage of
Front-Cover Text and one of Back-Cover Text may be added by (or
through arrangements made by) any one entity. If the Document already
includes a cover text for the same cover, previously added by you or
by arrangement made by the same entity you are acting on behalf
of,
you may not add another; but you may replace the old one, on explicit
permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License
give permission to use their names for publicity for or to assert or
imply endorsement of any Modified Version.

@item
COMBINING DOCUMENTS

You may combine the Document with other documents released under this
License, under the terms defined in section 4 above for modified
versions, provided that you include in the combination all of the
Invariant Sections of all of the original documents, unmodified, and
list them all as Invariant Sections of your combined work in its
license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and
multiple identical Invariant Sections may be replaced with a single

copy. If there are multiple Invariant Sections with the same name but
different contents, make the title of
 each such section unique by
adding at the end of it, in parentheses, the name of the original
author or publisher of that section if known, or else a unique number.
Make the same adjustment to the section titles in the list of
Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled ``History''
in the various original documents, forming one section Entitled
``History''; likewise combine any sections Entitled ``Acknowledgements'',
and any sections Entitled ``Dedications''. You must delete all
sections Entitled ``Endorsements.''

@item
COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents
released under this License, and replace the individual copies of this
License in the various documents with a single copy that is included in
the collection, provided that you follow the rules of this License for
verbatim copying of each of the documents in all other respects.

You may extract
 a single document from such a collection, and distribute
it individually under this License, provided you insert a copy of this
License into the extracted document, and follow this License in all
other respects regarding verbatim copying of that document.

@item
AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate
and independent documents or works, in or on a volume of a storage or
distribution medium, is called an ``aggregate'' if the copyright
resulting from the compilation is not used to limit the legal rights
of the compilation's users beyond what the individual works permit.
When the Document is included in an aggregate, this License does not
apply to the other works in the aggregate which are not themselves
derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these
copies of the Document, then if the Document is less than one half of
the entire aggregate, the Document's Cover Texts may
 be placed on
covers that bracket the Document within the aggregate, or the
electronic equivalent of covers if the Document is in electronic form.
Otherwise they must appear on printed covers that bracket the whole

aggregate.

@item
TRANSLATION

Translation is considered a kind of modification, so you may
distribute translations of the Document under the terms of section 4.
Replacing Invariant Sections with translations requires special
permission from their copyright holders, but you may include
translations of some or all Invariant Sections in addition to the
original versions of these Invariant Sections. You may include a
translation of this License, and all the license notices in the
Document, and any Warranty Disclaimers, provided that you also include
the original English version of this License and the original versions
of those notices and disclaimers. In case of a disagreement between
the translation and the original version of this License or a notice
or disclaimer, the original
version will prevail.

If a section in the Document is Entitled ``Acknowledgements",
``Dedications", or ``History", the requirement (section 4) to Preserve
its Title (section 1) will typically require changing the actual
title.

@item
TERMINATION

You may not copy, modify, sublicense, or distribute the Document
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense, or distribute it is void, and
will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license
from a particular copyright holder is reinstated (a) provisionally,
unless and until the copyright holder explicitly and finally
terminates your license, and (b) permanently, if the copyright holder
fails to notify you of the violation by some reasonable means prior to
60 days after the cessation.

Moreover, your license from a particular copyright holder is
reinstated permanently if the copyright holder notifies
you of the
violation by some reasonable means, this is the first time you have
received notice of violation of this License (for any work) from that
copyright holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the

licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, receipt of a copy of some or all of the same material does not give you any rights to use it.

@item
FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See @uref{http://www.gnu.org/copyleft/}.

Each version of the License is given a distinguishing version number. If the Document specifies that
a particular numbered version of this
License ``or any later version'' applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation. If the Document specifies that a proxy can decide which future versions of this License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Document.

@item
RELICENSING

``Massive Multiauthor Collaboration Site'' (or ``MMC Site'') means any World Wide Web server that publishes copyrightable works and also provides prominent facilities for anybody to edit those works. A public wiki that anybody can edit is an example of such a server. A ``Massive Multiauthor Collaboration'' (or ``MMC'')
contained in the
site means any set of copyrightable works thus published on the MMC site.

``CC-BY-SA'' means the Creative Commons Attribution-Share Alike 3.0 license published by Creative Commons Corporation, a not-for-profit corporation with a principal place of business in San Francisco, California, as well as future copyleft versions of that license published by that same organization.

``Incorporate'' means to publish or republish a Document, in whole or in part, as part of another Document.

An MMC is ``eligible for relicensing'' if it is licensed under this
License, and if all works that were first published under this License
somewhere other than this MMC, and subsequently incorporated in whole
or in part into the MMC, (1) had no cover texts or invariant sections,
and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site
under CC-BY-SA on the same site at any time before August 1, 2009,
provided the
 MMC is eligible for relicensing.

@end enumerate

@page
@heading ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of
the License in the document and put the following copyright and
license notices just after the title page:

@smallexample
@group
 Copyright (C) @var{year} @var{your name}.
 Permission is granted to copy, distribute and/or modify this document
 under the terms of the GNU Free Documentation License, Version 1.3
 or any later version published by the Free Software Foundation;
 with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
 Texts. A copy of the license is included in the section entitled ``GNU
 Free Documentation License''.
@end group
@end smallexample

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts.'' line with this:

@smallexample
@group
   with the Invariant Sections being @var{list their titles}, with
   the Front-Cover
 Texts being @var{list}, and with the Back-Cover Texts
   being @var{list}.
@end group
@end smallexample

If you have Invariant Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
@c End:

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they
know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component

(kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under

the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the

Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization

keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own

removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent

(such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any

author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least

the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is
deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying
Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright

notices during
execution, include the copyright notice for the Library among
these notices, as well as a reference directing the user to the
copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this
License, and the Corresponding Application Code in a form
suitable for, and under terms that permit, the user to
recombine or relink the Application with a modified version of
the Linked Version to produce a modified Combined Work, in the
manner specified by section 6 of the GNU GPL for conveying
Corresponding Source.

1) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (a) uses at run time
a copy of the Library already present on the user's computer
system, and (b) will operate properly with a modified version
of the Library that is interface-compatible
with the Linked
Version.

e) Provide Installation Information, but only if you would otherwise
be required to provide such information under section 6 of the
GNU GPL, and only to the extent that such information is
necessary to install and execute a modified version of the
Combined Work produced by recombining or relinking the
Application with a modified version of the Linked Version. (If
you use option 4d0, the Installation Information must accompany
the Minimal Corresponding Source and Corresponding Application
Code. If you use option 4d1, you must provide the Installation
Information in the manner specified by section 6 of the GNU GPL
for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the
Library side by side in a single library together with other library
facilities that are not Applications and are not covered by this
License, and convey such a combined library under
terms of your
choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based
on the Library, uncombined with any other library facilities,
conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

1.164 libgpg-error 1.37-1

1.164.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to

using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work

which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code

or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent

infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version

number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest

to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the
License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages

are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under

copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a

table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all

subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object

code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

a) Accompany the
work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)
will operate properly
with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least
three years, to give the same user the materials specified in
Subsection 6a, above, for a charge no more than the cost of
performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above

specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY

AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE
LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms
of the ordinary General Public License).

To apply these terms, attach the following notices to the library.
It is safest to attach them to the start of each source file to most
effectively
convey the exclusion of warranty; and each file should
have at least the "copyright" line and a pointer to where the full
notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or
your school, if any, to sign a "copyright disclaimer" for the library,
if necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the
 library `Frob' (a library for tweaking knobs) written by James
 Random Hacker.

 <signature of Ty Coon>, 1 April 1990
 Ty Coon, President of Vice

That's all there is to it!

1.165 acl 2.2.53-6

1.165.1 Available under license :

Most components of the "acl" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see COPYING.LGPL).

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see below),

---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and
 to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

 When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you

have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another

language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works
based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections
1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a

special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent

license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free

programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision
will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR
DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one
line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts
in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License
does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
Most components of the "acl" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see below).

below.

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see COPYING).

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom
to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions
that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free
library. Also, if the library is
modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries
into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many

libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under

copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses

the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function
must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere
aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library
into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of
the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object
file
is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of
this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

a) Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library
mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)
will operate properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence
of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It
is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution
limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs
whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST
OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU

FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.166 libffi 3.3-4

1.166.1 Available under license :

The libffi source distribution contains certain code that is not part
of libffi, and is only used as tooling to assist with the building and
testing of libffi. This includes the msvcc.sh script used to wrap the
Microsoft compiler with GNU compatible command-line options,
make_sunver.pl, and the libffi test code distributed in the
testsuite/libffi.bhaible directory. This code is distributed with
libffi for the purpose of convenience only, and libffi is in no way
derived from this code.

msvcc.sh an testsuite/libffi.bhaible are both distributed under the
terms of the GNU GPL version 2, as below.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software
are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not

price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program

or a portion of it,
either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program
a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the
most ordinary way, to print or display an
announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose
permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily
used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the

scripts used to
control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have
received copies, or rights, from you under
this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You
are not responsible for enforcing compliance by third parties to
this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you

may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY
AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve
this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more
details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work
as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

libffi - Copyright (c) 1996-2019 Anthony Green, Red Hat, Inc and others.
See source files for details.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
``Software''), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ``AS IS'', WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF
 CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.167 bzip2 1.0.8-2

1.167.1 Available under license :

This program, "bzip2", the associated library "libbzip2", and all
documentation, are copyright (C) 1996-2019 Julian R Seward. All
rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must
  not claim that you wrote the original software. If you use this
  software in a product, an acknowledgment in the product
  documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must
  not be misrepresented as being the original software.

4. The name of the author may not be used to endorse or promote
products derived from this software without specific
prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, jseward@acm.org
bzip2/libbzip2 version 1.0.8 of 13 July 2019

1.168 netty-transport-native-epoll 4.1.51.Final

1.168.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
    * Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.
    * Keys can only be set on, not read to prevent a potential leak, as they are confidential.
    * Allowing them being read would mean anyone with access to the channel could get them.
```

```
  */
/**
    * Set the {@code TCP_QUICKACK} option on the socket. See <a
href="http://linux.die.net/man/7/tcp">TCP_QUICKACK</a>
    * for more details.
    */
```

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollSocketChannelConfig.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
    * Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.
    * Keys can only be set on, not read to prevent a potential leak, as they are confidential.
    * Allowing them being read would mean anyone with access to the channel could get them.

  */
```

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollServerSocketChannelConfig.java
No license file was found, but licenses were detected in source scan.

```
~ Copyright 2014 The Netty Project
 ~
 ~ The Netty Project licenses this file to you under the Apache License,
 ~ version 2.0 (the "License"); you may not use this file except in compliance
 ~ with the License. You may obtain a copy of the License at:
 ~
 ~   http://www.apache.org/licenses/LICENSE
2.0
 ~
 ~ Unless required by applicable law or agreed to in writing, software
```

~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-transport-native-epoll/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/netty_epoll_linuxsocket.c
* /netty-transport-native-epoll-4-1-51-final-sources-jar/netty_epoll_linuxsocket.h
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/LinuxSocket.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/NativeStaticallyReferencedJniMethods.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.

*/

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollDatagramChannelConfig.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/AbstractEpollStreamChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-
jar/io/netty/channel/epoll/EpollDomainSocketChannelConfig.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollChannelConfig.java
*
 /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollEventArray.java
* /netty-transport-native-epoll-4-1-51-final-sources-
jar/io/netty/channel/epoll/EpollServerDomainSocketChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollMode.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/TcpMd5Util.java
* /netty-transport-native-epoll-4-1-51-final-sources-
jar/io/netty/channel/epoll/EpollRecvByteAllocatorStreamingHandle.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/AbstractEpollServerChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollServerChannelConfig.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollRecvByteAllocatorHandle.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollDomainSocketChannel.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*

```
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
```

Found in path(s):

```
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/NativeDatagramPacketArray.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollDatagramChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/Epoll.java
*
 /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/package-info.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollServerSocketChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollEventLoop.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollEventLoopGroup.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollChannelOption.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/AbstractEpollChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollSocketChannel.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/EpollTcpInfo.java
No license file was found, but licenses were detected in source scan.
```

```
/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
```

Found in path(s):

```
* /netty-transport-native-epoll-4-1-51-final-sources-jar/io/netty/channel/epoll/Native.java
* /netty-transport-native-epoll-4-1-51-final-sources-jar/netty_epoll_native.c
```

1.169 netty-transport-native-unix-common 4.1.51.Final

1.169.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2016 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/PeerCredentials.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/SocketWritableByteChannel.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_util.c
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_limits.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_util.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/ErrorsStaticallyReferencedJniMethods.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_limits.c
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/Limits.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/LimitsStaticallyReferencedJniMethods.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2018 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations

* under the License.
*/

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/PreferredDirectByteBufAllocator.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/Buffer.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_buffer.c
*
/netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_buffer.h
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/DomainSocketChannel.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/ServerDomainSocketChannel.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_socket.c
*
/netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/DomainSocketAddress.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/DatagramSocketAddress.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_filedescriptor.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_filedescriptor.c
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/NativeInetAddress.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/DomainSocketChannelConfig.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_socket.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_errors.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/Socket.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_errors.c
*
/netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/FileDescriptor.java
* /netty-transport-native-unix-common-4-1-51-final-sources-

jar/io/netty/channel/unix/DomainSocketReadMode.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/Errors.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/UnixChannel.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/IovArray.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/UnixChannelOption.java
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/package-info.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2016 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~   http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-transport-native-unix-common/pom.xml
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/netty_unix_jni.h
* /netty-transport-native-unix-common-4-1-51-final-sources-jar/io/netty/channel/unix/UnixChannelUtil.java

1.170 jackson-annotations 2.11.2

1.170.1 Available under license :

This copy of Jackson JSON processor annotations is licensed under the
Apache (Software) License, version 2.0 ("the License").
See the License for details about distribution rights, and the
specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0

1.171 ffmpeg 4.3.1

1.171.1 Available under license :

License

Most files in FFmpeg are under the GNU Lesser General Public License version 2.1
or later (LGPL v2.1+). Read the file `COPYING.LGPLv2.1` for details. Some other
files have MIT/X11/BSD-style licenses. In combination the LGPL v2.1+ applies to
FFmpeg.

Some optional parts of FFmpeg are licensed under the GNU General Public License
version 2 or later (GPL v2+). See the file `COPYING.GPLv2` for details. None of
these parts are used by default, you have to explicitly pass `--enable-gpl` to
configure to activate them. In this case, FFmpeg's license changes to GPL v2+.

Specifically, the GPL parts of FFmpeg are:

- libpostproc
- optional x86 optimization in the files
  - `libavcodec/x86/flac_dsp_gpl.asm`
  - `libavcodec/x86/idct_mmx.c`
  - `libavfilter/x86/vf_removegrain.asm`
- the following building and testing tools
  - `compat/solaris/make_sunver.pl`
  - `doc/t2h.pm`
  - `doc/texi2pod.pl`
  - `libswresample/tests/swresample.c`
  - `tests/checkasm/*`
  - `tests/tiny_ssim.c`
-
 the following filters in libavfilter:
  - `signature_lookup.c`
  - `vf_blackframe.c`
  - `vf_boxblur.c`
  - `vf_colormatrix.c`
  - `vf_cover_rect.c`
  - `vf_cropdetect.c`
  - `vf_delogo.c`
  - `vf_eq.c`
  - `vf_find_rect.c`
  - `vf_fspp.c`
  - `vf_histeq.c`
  - `vf_hqdn3d.c`
  - `vf_kerndeint.c`
  - `vf_lensfun.c` (GPL version 3 or later)
  - `vf_mcdeint.c`
  - `vf_mpdecimate.c`
  - `vf_nnedi.c`
  - `vf_owdenoise.c`
  - `vf_perspective.c`
  - `vf_phase.c`
  - `vf_pp.c`
  - `vf_pp7.c`
  - `vf_pullup.c`
  - `vf_repeatfields.c`
  - `vf_sab.c`
  - `vf_signature.c`
  - `vf_smartblur.c`
  - `vf_spp.c`
  - `vf_stereo3d.c`
  - `vf_super2xsai.c`
  - `vf_tinterlace.c`
  - `vf_uspp.c`

- `vf_vaguedenoiser.c`
- `vsrc_mptestsrc.c`

Should you, for whatever reason, prefer to use version 3 of the (L)GPL, then
the configure parameter `--enable-version3` will activate this licensing option
for you. Read the file `COPYING.LGPLv3`
or, if you have enabled GPL parts,
`COPYING.GPLv3` to learn the exact legal terms that apply in this case.

There are a handful of files under other licensing terms, namely:

* The files `libavcodec/jfdctfst.c`, `libavcodec/jfdctint_template.c` and
`libavcodec/jrevdct.c` are taken from libjpeg, see the top of the files for
licensing details. Specifically note that you must credit the IJG in the
documentation accompanying your program if you only distribute executables.
You must also indicate any changes including additions and deletions to
those three files in the documentation.
* `tests/reference.pnm` is under the expat license.

External libraries

FFmpeg can be combined with a number of external libraries, which sometimes
affect the licensing of binaries resulting from the combination.

Compatible libraries

The following libraries are under GPL version 2:
- avisynth
- frei0r
- libcdio
- libdavs2
- librubberband
- libvidstab
- libx264
- libx265
- libxavs
-
libxavs2
- libxvid

When combining them with FFmpeg, FFmpeg needs to be licensed as GPL as well by
passing `--enable-gpl` to configure.

The following libraries are under LGPL version 3:
- gmp
- libaribb24
- liblensfun

When combining them with FFmpeg, use the configure option `--enable-version3` to
upgrade FFmpeg to the LGPL v3.

The VMAF, mbedTLS, RK MPI, OpenCORE and VisualOn libraries are under the Apache License
2.0. That license is incompatible with the LGPL v2.1 and the GPL v2, but not with
version 3 of those licenses. So to combine these libraries with FFmpeg, the
license version needs to be upgraded by passing `--enable-version3` to configure.

The smbclient library is under the GPL v3, to combine it with FFmpeg,
the options `--enable-gpl` and `--enable-version3` have to be passed to
configure to upgrade FFmpeg to the GPL v3.

Incompatible libraries

There are certain libraries you can combine with FFmpeg whose licenses are not
compatible with the GPL and/or the LGPL. If
you wish to enable these
libraries, even in circumstances that their license may be incompatible, pass
`--enable-nonfree` to configure. This will cause the resulting binary to be
unredistributable.

The Fraunhofer FDK AAC and OpenSSL libraries are under licenses which are
incompatible with the GPLv2 and v3. To the best of our knowledge, they are
compatible with the LGPL.

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.

Defining a subclass of a class defined by
the Library is deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a
facility refers to a function or data to be supplied by an Application
that uses the facility (other than as an argument passed when the
facility is invoked), then you may convey a copy of the modified
version:

a) under this License, provided that you make a good faith effort to
ensure that, in the event an Application does not supply the
function or data, the facility still operates, and performs
whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of
this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from
a header file that is part of the Library. You may convey such object
code under terms of your choice, provided that, if the incorporated
material is not limited to numerical parameters,
data structure
layouts and accessors, or small macros, inline functions and templates

(ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide

whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of

Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,

INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute

it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you

have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source

form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered

by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your
rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not
convey, without conditions so long as your license otherwise remains
in force. You may convey covered works to others for the sole purpose
of having them make modifications exclusively for you, or provide you
with facilities for running those works, provided that you comply with
the terms of this License in conveying all material for which you do
not control copyright. Those thus making or running the covered works
for you must do so exclusively on your behalf, under your direction
and control, on terms that prohibit them from making any copies of
your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under
the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological
measure under any applicable law fulfilling obligations under article
11 of the WIPO copyright treaty adopted on 20 December 1996, or
similar laws prohibiting or restricting circumvention of such
measures.

When you convey a covered work, you waive any legal power to forbid
circumvention of technological measures to the extent such circumvention
is effected by exercising rights under this License with respect to
the covered work, and you disclaim any intention to limit operation or
modification of the work as a means of enforcing, against the work's
users, your or third parties' legal rights to forbid circumvention of
technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you
receive it, in any medium, provided that you conspicuously and
appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,

and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted

by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered

work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General

Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates

an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.172 netty-handler-proxy 4.1.51.Final

1.172.1 Available under license :

No license file was found, but licenses were detected in source scan.

~ Copyright 2014 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~   http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-handler-proxy-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-handler-proxy/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/HttpProxyHandler.java
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/ProxyHandler.java
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/package-info.java
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/Socks4ProxyHandler.java
*
 /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/ProxyConnectionEvent.java
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/Socks5ProxyHandler.java
* /netty-handler-proxy-4-1-51-final-sources-jar/io/netty/handler/proxy/ProxyConnectException.java

1.173 netty-codec-socks 4.1.51.Final

1.173.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4ServerDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksInitRequestDecoder.java
* /netty-codec-socks-4-1-51-final-sources-
jar/io/netty/handler/codec/socksx/v5/DefaultSocks5PasswordAuthResponse.java
*
 /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/UnknownSocksRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5InitialResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4CommandRequest.java

* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5CommandResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4CommandResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksMessage.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5PasswordAuthRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksInitResponseDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdRequestDecoder.java
*
 /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5InitialRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4ClientDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/DefaultSocks4CommandResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5CommandRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/UnknownSocksResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCommonUtils.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandRequest.java
*
 /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4CommandType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/DefaultSocks4CommandRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksInitResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksInitRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdResponseDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandResponse.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5InitialResponse.java
*
 /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/package-info.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthRequestDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthResponseDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/SocksMessage.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5InitialRequest.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksMessageEncoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4CommandStatus.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 The Netty Project

*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5AddressEncoder.java
* /netty-codec-socks-4-1-51-final-sources-
jar/io/netty/handler/codec/socksx/SocksPortUnificationServerHandler.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5AddressDecoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/package-info.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5InitialRequestDecoder.java
* /netty-codec-socks-4-1-51-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5CommandResponseDecoder.java
*
 /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4Message.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5Message.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/AbstractSocksMessage.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/AbstractSocks5Message.java
* /netty-codec-socks-4-1-51-final-sources-

jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthRequestDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/package-info.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5InitialResponseDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/AbstractSocks4Message.java
* /netty-codec-socks-4-1-51-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthResponseDecoder.java
*
/netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4ServerEncoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5ClientEncoder.java
* /netty-codec-socks-4-1-51-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5CommandRequestDecoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5ServerEncoder.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4ClientEncoder.java
No license file was found, but licenses were detected in source scan.

~ Copyright 2012 The Netty Project
~
~ The Netty Project licenses this file to you under the Apache License,
~ version 2.0 (the "License"); you may not use this file except in compliance
~ with the License. You may obtain a copy of the License at:
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
~ WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
~ License for the specific language governing permissions and limitations
~ under the License.

Found in path(s):
* /netty-codec-socks-4-1-51-final-sources-jar/META-INF/maven/io.netty/netty-codec-socks/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.

*/

Found in path(s):
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksSubnegotiationVersion.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthScheme.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdStatus.java
*
/netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksRequestType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksCmdType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksResponseType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksMessageType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAddressType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksAuthStatus.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5AuthMethod.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandStatus.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socks/SocksProtocolVersion.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandType.java
*
/netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5AddressType.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/SocksVersion.java
* /netty-codec-socks-4-1-51-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthStatus.java

1.174 jackson-datatype-jdk8 2.11.2

1.174.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean
the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf

and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.175 jackson-datatype-jsr310 2.11.2

1.175.1 Available under license :

This copy of Jackson JSON processor streaming parser/generator is licensed under the
Apache (Software) License, version 2.0 ("the License").
See the License for details about distribution rights, and the
specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0

1.176 jackson-module-parameter-names 2.11.2

1.176.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean

the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or
product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend,

and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.177 openssh 8.0-p1

1.177.1 Available under license :

This file is part of the OpenSSH software.

The licences which components of this software fall under are as
follows. First, we will summarize and say that all components
are under a BSD licence, or a licence more free than that.

OpenSSH contains no GPL code.

1)
```
 * Copyright (c) 1995 Tatu Ylonen <ylo@cs.hut.fi>, Espoo, Finland
 *                    All rights reserved
 *
 * As far as I am concerned, the code I have written for this software
 * can be used freely for any purpose.  Any derived versions of this
 * software must be clearly marked as such, and if the derived work is
 * incompatible with the protocol description in the RFC file, it must be
 * called by a name other than "ssh" or "Secure Shell".
```

[Tatu continues]
```
 *  However, I am not implying to give any licenses to any patents or
 * copyrights held by third parties, and the software includes parts that
 * are not under my direct control.  As far as I know, all included

* source code is used in accordance with the relevant license agreements
 * and can be used freely for any purpose (the GNU license being the most
 * restrictive); see below for details.
```

[However, none of that term is relevant at this point in time. All of
these restrictively licenced software components which he talks about
have been removed from OpenSSH, i.e.,

- RSA is no longer included, found in the OpenSSL library
- IDEA is no longer included, its use is deprecated
- DES is now external, in the OpenSSL library
- GMP is no longer used, and instead we call BN code from OpenSSL
- Zlib is now external, in a library
- The make-ssh-known-hosts script is no longer included
- TSS has been removed
- MD5 is now external, in the OpenSSL library

- RC4 support has been replaced with ARC4 support from OpenSSL
- Blowfish is now external, in the OpenSSL library

[The licence continues]

Note that any information and
cryptographic algorithms used in this
software are publicly available on the Internet and at any major
bookstore, scientific library, and patent office worldwide. More
information can be found e.g. at "http://www.cs.hut.fi/crypto".

The legal status of this program is some combination of all these
permissions and restrictions. Use only at your own responsibility.
You will be responsible for any legal consequences yourself; I am not
making any claims whether possessing or using this is legal or not in
your country, and I am not taking any responsibility on your behalf.

NO WARRANTY

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

3)
ssh-keyscan was contributed by David Mazieres under a BSD-style
license.

* Copyright 1995, 1996 by David Mazieres <dm@lcs.mit.edu>.
*

```
 * Modification and redistribution in source and binary forms is
 * permitted provided that due credit is given to the author and the
 * OpenBSD project by leaving this copyright notice intact.
```

4)

The Rijndael implementation by Vincent Rijmen, Antoon Bosselaers and Paulo Barreto is in the public domain and distributed with the following license:

```
 * @version 3.0 (December 2000)
 *
 * Optimised ANSI C code for the Rijndael cipher (now AES)
 *
 * @author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
 * @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
 * @author Paulo Barreto <paulo.barreto@terra.com.br>
 *
 * This code is hereby placed in the public domain.
 *
 * THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS
 * OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
 * WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE
 * LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
 * CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
 * SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 * BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
 * WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
 * OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
 * EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

5)

One component of the ssh source code is under a 3-clause BSD license, held by the University of California, since we pulled these parts from original Berkeley code.

```
 * Copyright (c) 1983, 1990, 1992, 1993, 1995
 *      The Regents of the University of California.  All rights reserved.
 *
 * Redistribution and use in source and binary forms, with
or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in the
```

```
 *    documentation and/or other materials provided with the distribution.
 * 3. Neither the name of the University nor the names of its contributors
 *    may be used to endorse or promote products derived from this software
 *    without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
 * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS
BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
```

6)

Remaining components of the software are provided under a standard
2-term BSD licence with the following names as copyright holders:

Markus Friedl
Theo de Raadt
Niels Provos
Dug Song
Aaron Campbell
Damien Miller
Kevin Steves
Daniel Kouril
Wesley Griffin
Per Allansson
Nils Nordman
Simon Wilkinson
Roumen Petrov

Portable OpenSSH additionally includes code from the following copyright
holders, also under the 2-term BSD license:

Ben Lindstrom
Tim
Rice
Andre Lucas
Chris Adams
Corinna Vinschen
Cray Inc.
Denis Parker
Gert Doering

Jakob Schlyter
Jason Downs
Juha Yrjl
Michael Stone
Networks Associates Technology, Inc.
Solar Designer
Todd C. Miller
Wayne Schroeder
William Jones
Darren Tucker
Sun Microsystems
The SCO Group
Daniel Walsh
Red Hat, Inc
Simon Vallet / Genoscope

```
   * Redistribution and use in source and binary forms, with or without
   * modification, are permitted provided that the following conditions
   * are met:
   * 1. Redistributions of source code must retain the above copyright
   *    notice, this list of conditions and the following disclaimer.
   * 2. Redistributions in binary form must reproduce the above copyright
   *    notice, this list of conditions and the following disclaimer in the
   *    documentation and/or other materials provided with the distribution.
   *
   * THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
   * IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
   * OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
   * IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
   * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
   * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
   * THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
   * (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
   * THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

8) Portable OpenSSH contains the following additional licenses:

```
  a) md5crypt.c, md5crypt.h

 * "THE BEER-WARE LICENSE" (Revision 42):
 * <phk@login.dknet.dk> wrote this file.  As long as you retain this
 * notice you can do whatever you want with this stuff. If we meet
 * some day, and you think this stuff is worth
it, you can buy me a
 * beer in return.   Poul-Henning Kamp
```

b) snprintf replacement

* Copyright Patrick Powell 1995
* This code is based on code written by Patrick Powell
* (papowell@astart.com) It may be used for any purpose as long as this
* notice remains intact on all source code distributions

c) Compatibility code (openbsd-compat)

Apart from the previously mentioned licenses, various pieces of code in the openbsd-compat/ subdirectory are licensed as follows:

Some code is licensed under a 3-term BSD license, to the following copyright holders:

Todd C. Miller
Theo de Raadt
Damien Miller
Eric P. Allman
The Regents of the University of California
Constantin S. Svintsoff

* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the
following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the University nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*   without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS" AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.

Some code is licensed under an ISC-style license, to the following copyright holders:

Internet Software Consortium.
Todd C. Miller
Reyk Floeter
Chad Mynhier

* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THE SOFTWARE IS PROVIDED "AS IS" AND TODD C. MILLER DISCLAIMS ALL
* WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL TODD C. MILLER BE LIABLE
* FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION
*
OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
* CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Some code is licensed under a MIT-style license to the following copyright holders:

Free Software Foundation, Inc.

* Permission is hereby granted, free of charge, to any person obtaining a *
* copy of this software and associated documentation files (the *
* "Software"), to deal in the Software without restriction, including *
* without limitation the rights to use, copy, modify, merge, publish, *
* distribute, distribute with modifications, sublicense, and/or sell *
* copies of the Software, and to permit persons to whom the Software is *
* furnished to do so, subject to the following conditions: *
* *
* The above copyright notice and this permission notice shall be included *
* in all copies or substantial portions
of the Software. *
* *
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS *
* OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF *
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. *
* IN NO EVENT SHALL THE ABOVE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, *
* DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR *
* OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR *
* THE USE OR OTHER DEALINGS IN THE SOFTWARE. *
* *
* Except as contained in this notice, the name(s) of the above copyright *
* holders shall not be used in advertising or otherwise to promote the *

```
 * sale, use or other dealings in this Software without prior written       *
 * authorization.                                                           *
                                                                            *
 ****************************************************************************/
```

$OpenBSD: LICENCE,v 1.20 2017/04/30 23:26:16 djm Exp $

1.178 spring-security 2.3.3.RELEASE

1.178.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean
the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole,

an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the

License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or
product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.179 spring-security-web 5.3.4.RELEASE

1.179.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/AuthorizationContext.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/AuthorizationWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/AndServerWebExchangeMatcher.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/ContentTypeOptionsServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/WebSessionServerCsrfTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/ServerWebExchangeMatcherEntry.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/DelegatingServerAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/MediaTypeServerWebExchangeMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/XContentTypeOptionsServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/AbstractRememberMeServices.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/RedirectServerLogoutSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerAuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ui/LoginPageGeneratingWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/StrictTransportSecurityServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/savedrequest/ServerRequestCacheWebFilter.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/DefaultCsrfToken.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ServerFormLoginAuthenticationConverter.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/ServerWebExchangeMatchers.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/XFrameOptionsServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/ServerWebExchangeMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/SecurityContextServerLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/RedirectServerAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/WebFilterChainProxy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/ServerLogoutHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/WebFilterChainServerAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/CsrfException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/HttpBasicServerAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/SecurityContextServerWebExchange.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/OrServerWebExchangeMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/ServerCsrfTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/RedirectServerAuthenticationFailureHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ServerRedirectStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ui/LogoutPageGeneratingWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/DelegatingReactiveAuthorizationManager.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/ServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/ExceptionTranslationWebFilter.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/server/header/HttpHeaderWriterWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerAuthenticationEntryPointFailureHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/HttpStatusServerAccessDeniedHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/RedirectServerAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/savedrequest/NoOpServerRequestCache.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/WebFilterExchange.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/CsrfToken.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/SecurityContextServerWebExchangeWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/ServerAccessDeniedHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/savedrequest/ServerRequestCache.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/savedrequest/WebSessionServerRequestCache.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/LogoutWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/ReactorContextWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/SecurityWebFilterChain.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/CompositeServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/ServerLogoutSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/NoOpServerSecurityContextRepository.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/PersistentTokenBasedRememberMeServices.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/CacheControlServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/ServerSecurityContextRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ServerAuthenticationEntryPoint.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/JdbcTokenRepositoryImpl.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/support/SecurityWebApplicationContextUtils.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/DelegatingAuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/EvaluationContextPostProcessor.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/AbstractVariableEvaluationContextPostProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/DelegatingAccessDeniedHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CsrfLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/session/InvalidSessionAccessDeniedHandler.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/csrf/HttpSessionCsrfTokenRepository.java
*
 /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/csrf/CsrfAuthenticationStrategy.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/util/matcher/AnyRequestMatcher.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/csrf/InvalidCsrfTokenException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/DefaultCsrfToken.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/session/AbstractSessionFixationProtectionStrategy.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/session/ChangeSessionIdAuthenticationStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CsrfException.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/csrf/MissingCsrfTokenException.java
*
 /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/bind/support/AuthenticationPrincipalArgumentResolver.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/servlet/support/csrf/CsrfRequestDataValueProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CsrfFilter.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/context/AbstractSecurityWebApplicationInitializer.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/session/SessionFixationProtectionStrategy.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/authentication/session/CompositeSessionAuthenticationStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/XContentTypeOptionsHeaderWriter.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CsrfTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/method/annotation/AuthenticationPrincipalArgumentResolver.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/bind/annotation/AuthenticationPrincipal.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CsrfToken.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/HeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/SessionFixationProtectionEvent.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/method/annotation/CsrfTokenArgumentResolver.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/DelegatingRequestMatcherHeaderWriter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2010-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jaasapi/JaasApiIntegrationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/DelegatingAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/ELRequestMatcher.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/RequestMatcherEditor.java
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/RequestHeaderRequestMatcher.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/RequestVariablesExtractor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/StrictHttpFirewall.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/servlet/util/matcher/MvcRequestMatcher.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2009-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");

* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/ELRequestMatcherContext.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/ReferrerPolicyServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/http/SecurityHeaders.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/HttpStatusReturningServerLogoutSuccessHandler.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerAuthenticationConverter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/DefaultServerRedirectStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/PathPatternParserServerWebExchangeMatcher.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/server/authentication/HttpStatusServerEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/reactive/result/method/annotation/AuthenticationPrincipalArgumentResolver.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authorization/ServerWebExchangeDelegatingServerAccessDeniedHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/ServerHttpBasicAuthenticationConverter.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/ForwardLogoutSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/request/async/SecurityContextCallableProcessingInterceptor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerFormLoginAuthenticationConverter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/DelegatingServerAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/context/WebSessionServerSecurityContextRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ui/DefaultLogoutPageGeneratingFilter.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/SimpleUrlAuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/ContentSecurityPolicyServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/reactive/result/view/CsrfRequestDataValueProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ForwardAuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/CsrfServerLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/FeaturePolicyServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/XXssProtectionServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/FirewalledResponse.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ui/DefaultLoginPageGeneratingFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ExceptionMappingAuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ForwardAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerX509AuthenticationConverter.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/util/matcher/NegatedServerWebExchangeMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/CacheControlHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/AbstractPreAuthenticatedProcessingFilter.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/StaticServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/RequestMatcherDelegatingAccessDeniedHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/AnonymousAuthenticationWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/MatcherSecurityWebFilterChain.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/DelegatingServerLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ServerHttpBasicAuthenticationConverter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/ContentSecurityPolicyHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/transport/HttpsRedirectWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AbstractAuthenticationTargetUrlRequestHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/ConcurrentSessionFilter.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/authentication/AuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/ReactivePreAuthenticatedAuthenticationManager.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/intercept/RequestKey.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/ReferrerPolicyHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/header/ClearSiteDataServerHttpHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/reactive/result/method/annotation/CurrentSecurityContextArgumentResolver.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/IpAddressMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/HeaderWriterFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/MediaTypeRequestMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AuthenticationEntryPointFailureHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/ConcurrentSessionControlAuthenticationStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/method/annotation/CurrentSecurityContextArgumentResolver.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/LogoutSuccessEventPublishingLogoutHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/frameoptions/XFrameOptionsHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/FeaturePolicyHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/logout/HeaderWriterServerLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/HstsHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/BasicAuthenticationConverter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/CookieServerCsrfTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AuthenticationConverter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/AntPathRequestMatcher.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/StaticHeadersWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/CookieClearingLogoutHandler.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/HpkpHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/XXssProtectionHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/ClearSiteDataHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/CompositeHeaderWriter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/HeaderWriterLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/ExpressionBasedFilterInvocationSecurityMetadataSource.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/RequestMatcher.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2004, 2005, 2006 Acegi Technology Pty Limited
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/LogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/Enumerator.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/UrlUtils.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/DefaultWebInvocationPrivilegeEvaluator.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/FastHttpDateFormat.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/TokenBasedRememberMeServices.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/HttpSessionEventPublisher.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/AccessDeniedHandlerImpl.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/SavedRequestAwareWrapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/ChannelProcessingFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/RetryWithHttpEntryPoint.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/WebAuthenticationDetails.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/switchuser/SwitchUserFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/PortMapperImpl.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/DigestAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/PortResolver.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/RememberMeServices.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/SimpleSavedRequest.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/switchuser/AuthenticationSwitchUserEvent.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/UsernamePasswordAuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/WebAuthenticationDetailsSource.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/LoginUrlAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/SecurityContextLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/ChannelDecisionManagerImpl.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/intercept/FilterSecurityInterceptor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/ChannelEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/AccessDeniedHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/BasicAuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/AuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/WebInvocationPrivilegeEvaluator.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/intercept/FilterInvocationSecurityMetadataSource.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/SecureChannelProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/NullRememberMeServices.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/intercept/DefaultFilterInvocationSecurityMetadataSource.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AnonymousAuthenticationFilter.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/NonceExpiredException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/ChannelDecisionManager.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/PortResolverImpl.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/BasicAuthenticationEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AbstractAuthenticationProcessingFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/RetryWithHttpsEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/DefaultSavedRequest.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/HttpSessionCreatedEvent.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/servletapi/SecurityContextHolderAwareRequestFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/HttpSessionDestroyedEvent.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/PortMapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/servletapi/SecurityContextHolderAwareRequestWrapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/InsecureChannelProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/switchuser/SwitchUserGrantedAuthority.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/FilterChainProxy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/FilterInvocation.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/ChannelProcessor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/LogoutFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/RememberMeAuthenticationFilter.java
No license file was found, but licenses were detected in source scan.

/*

```
* Copyright 2015-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/jackson2/DefaultCsrfServerTokenMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/PreAuthenticatedAuthenticationTokenDeserializer.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/jackson2/WebServerJackson2Module.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2004-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/ExceptionTranslationFilter.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2020 the original author or authors.
*
```

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/authentication/AuthenticationWebFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/server/csrf/CsrfWebFilter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2004, 2005, 2006, 2009 Acegi Technology Pty Limited
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/DigestAuthenticationFilter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/DefaultCsrfTokenMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/DefaultSavedRequestMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/SessionInformationExpiredStrategy.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/CookieDeserializer.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/WebAuthenticationDetailsMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/SavedCookieMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/WebServletJackson2Module.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/CookieMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/PreAuthenticatedAuthenticationTokenMixin.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/WebJackson2Module.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/package-info.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/WebExpressionConfigAttribute.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/SimpleUrlLogoutSuccessHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/CookieTheftException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/SimpleUrlAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/SessionAuthenticationException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/SavedRequest.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/SavedCookie.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/websphere/package-info.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/SecurityContextPersistenceFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/TextEscapeUtils.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/HttpSessionRequestCache.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/intercept/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/debug/DebugFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/RedirectStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/HttpRequestResponseHolder.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/SavedRequestAwareAuthenticationSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/WebSecurityExpressionRoot.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/servletapi/HttpServletRequestFactory.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/SecurityContextRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/AndRequestMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/OrRequestMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/switchuser/package-info.java

* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/SessionAuthenticationStrategy.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/Http403ForbiddenEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/j2ee/J2eeBasedPreAuthenticatedWebAuthenticationDetailsSource.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/SessionManagementFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/PersistentTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/HttpStatusEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/servletapi/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/PreAuthenticatedAuthenticationToken.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/InMemoryTokenRepositoryImpl.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/PreAuthenticatedGrantedAuthoritiesUserDetailsService.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jackson2/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/WebAttributes.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/websphere/WASUsernameAndGroupsExtractor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/DefaultRedirectStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/frameoptions/AbstractRequestParameterAllowFromStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/matcher/NegatedRequestMatcher.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/j2ee/WebXmlMappableAttributesRetriever.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/NullAuthenticatedSessionStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/PreAuthenticatedAuthenticationProvider.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/DigestAuthUtils.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/RequestRejectedException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/package-info.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/authentication/logout/LogoutSuccessHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/FirewalledRequest.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/ui/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/HttpSessionSecurityContextRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/j2ee/J2eePreAuthenticatedProcessingFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/DefaultWebSecurityExpressionHandler.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/x509/SubjectDnX509PrincipalExtractor.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/OnCommittedResponseWrapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/session/RegisterSessionAuthenticationStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/switchuser/SwitchUserAuthorityChanger.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/SecurityFilterChain.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/RedirectUrlBuilder.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/websphere/DefaultWASUsernameAndGroupsExtractor.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/CompositeLogoutHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/savedrequest/RequestCacheAwareFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/util/ThrowableAnalyzer.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/PreAuthenticatedCredentialsNotFoundException.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/x509/X509AuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/Header.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/frameoptions/WhiteListedAllowFromStrategy.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/AuthenticationFailureHandler.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/context/SaveContextOnUpdateOrErrorResponseWrapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/DefaultSecurityFilterChain.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/session/SimpleRedirectSessionInformationExpiredStrategy.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/rememberme/PersistentRememberMeToken.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/util/matcher/RegexRequestMatcher.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/HttpFirewall.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/package-
info.java
*
/spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/DefaultHttpFirewall.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/preauth/j2ee/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/firewall/RequestWrapper.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/package-
info.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/savedrequest/RequestCache.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/preauth/websphere/WebSpherePreAuthenticatedWebAuthentic
ationDetailsSource.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/servletapi/HttpServlet3RequestFactory.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/util/ThrowableCauseExtractor.java
*
/spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/preauth/RequestHeaderAuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/preauth/x509/X509PrincipalExtractor.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/context/NullSecurityContextRepository.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/rememberme/InvalidCookieException.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/savedrequest/NullRequestCache.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/session/SimpleRedirectInvalidSessionStrategy.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/header/writers/frameoptions/StaticAllowFromStrategy.java
* /spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/context/request/async/WebAsyncManagerIntegrationFilter.java
*
/spring-security-web-5-3-4-release-sources-
jar/org/springframework/security/web/authentication/logout/HttpStatusReturningLogoutSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-

jar/org/springframework/security/web/authentication/preauth/PreAuthenticatedGrantedAuthoritiesWebAuthenticationDetails.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/RequestAttributeAuthenticationFilter.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/debug/Logger.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/frameoptions/RegExpAllowFromStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/logout/DelegatingLogoutSuccessHandler.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/websphere/WebSpherePreAuthenticatedProcessingFilter.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/header/writers/frameoptions/AllowFromStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/preauth/x509/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/jaasapi/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/www/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/InvalidSessionStrategy.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/channel/AbstractRetryEntryPoint.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/authentication/rememberme/RememberMeAuthenticationException.java
*
 /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/context/package-info.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/WebExpressionVoter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

*/

Found in path(s):
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/access/expression/DelegatingEvaluationContext.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/session/SessionInformationExpiredEvent.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/CookieCsrfTokenRepository.java
* /spring-security-web-5-3-4-release-sources-jar/org/springframework/security/web/csrf/LazyCsrfTokenRepository.java

1.180 spring-security-core 5.3.4.RELEASE

1.180.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Base64 encoder which is a reduced version of Robert Harder's public domain
* implementation (version 2.3.7). See <a
* href="http://iharder.sourceforge.net/current/java/base64/">http://iharder.sourceforge.net/current/java/base64/ for more information.
* <p>
* For internal use only.
*
* @author
 Luke Taylor
* @since 3.0
* @deprecated Use java.util.Base64
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/codec/Base64.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/parameters/AnnotationParameterNameDiscoverer.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/annotation/AuthenticationPrincipal.java
No license file was found, but licenses were detected in source scan.

// Permission to use, copy, modify, and distribute this software for any
// purpose with or without fee is hereby granted, provided that the above
// copyright notice and this permission notice appear in all copies.

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/bcrypt/BCrypt.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2004, 2005, 2006 Acegi Technology Pty Limited
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/
/**
* Reviews the <code>Object</code> returned from a secure object invocation, being able to
* modify the <code>Object</code> or throw an {@link AccessDeniedException}.
*
* Typically used to ensure the principal is permitted to access the domain object
* instance returned by a service layer bean.
Can also be used to mutate the domain object
* instance so the principal is only able to access authorised bean properties or
* <code>Collection</code> elements.
*
* Special consideration should be given to using an <code>AfterInvocationManager</code>
* on bean methods that modify a database. Typically an
* <code>AfterInvocationManager</code> is used with read-only methods, such as
* <code>public DomainObject getById(id)</code>. If used with methods that modify a
* database, a transaction manager should be used to ensure any
* <code>AccessDeniedException</code> will cause a rollback of the changes made by the
* transaction.
*
*
* @author Ben Alex
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/AfterInvocationManager.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/scrypt/SCryptPasswordEncoder.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/converter/RsaKeyConverters.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/UserDetailsPasswordService.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/argon2/Argon2PasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/ReactiveAuthenticationManagerResolver.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AbstractUserDetailsReactiveAuthenticationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/argon2/Argon2EncodingUtils.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/SecureRandomFactoryBean.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/ExpressionBasedPreInvocationAdvice.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/LogoutSuccessEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/UserDetailsRepositoryReactiveAuthenticationManager.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/annotation/CurrentSecurityContext.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/RoleHierarchyImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/ReactiveAuthenticationManagerAdapter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationManagerResolver.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2011-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/PasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/SecureRandomBytesKeyGenerator.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/util/EncodingUtils.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/HexEncodingTextEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/TextEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/HexEncodingStringKeyGenerator.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/StandardPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/NoOpPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/BouncyCastleAesCbcBytesEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/CipherUtils.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/SharedKeyGenerator.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/BouncyCastleAesBytesEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/StringKeyGenerator.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/KeyGenerators.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/AesBytesEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/BytesEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/BouncyCastleAesGcmBytesEncryptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/BytesKeyGenerator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/SecurityJackson2Modules.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/PreInvocationExpressionAttribute.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/AbstractFallbackMethodSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/SimpleGrantedAuthority.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/event/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/MethodSecurityExpressionRoot.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/P.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/SecurityExpressionRoot.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/InternalAuthenticationServiceException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PostInvocationAttribute.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PostFilter.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/package-info.java
* /spring-security-core-5-3-4-release-sources-

jar/org/springframework/security/access/prepost/PreInvocationAuthorizationAdviceVoter.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/GrantedAuthoritiesMapper.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/intercept/aspectj/AspectJMethodSecurityInterceptor.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/annotation/AnnotationMetadataExtractor.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AccountStatusException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/MutableUser.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/session/SessionDestroyedEvent.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/concurrent/DelegatingSecurityContextScheduledExecutorService.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/intercept/aspectj/MethodInvocationAdapter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/MappableAttributesRetriever.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/expression/method/MethodSecurityExpressionOperations.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/expression/method/AbstractExpressionBasedMethodConfigAttribute.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/MapBasedAttributes2GrantedAuthoritiesMapper.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/provisioning/UserDetailsManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PostAuthorize.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/GrantedAuthoritiesContainer.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/SimpleMappableAttributesRetriever.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/NullAuthoritiesMapper.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/context/DelegatingApplicationListener.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/AuthorityUtils.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/session/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/expression/ExpressionUtils.java
* /spring-security-core-5-3-4-release-sources-

jar/org/springframework/security/access/vote/RoleHierarchyVoter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PreFilter.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/userdetails/UserDetailsByNameServiceWrapper.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/prepost/PrePostInvocationAttributeFactory.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/concurrent/DelegatingSecurityContextExecutor.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/authority/mapping/SimpleAttributes2GrantedAuthoritiesMapper.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/userdetails/UserDetailsChecker.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/task/DelegatingSecurityContextAsyncTaskExecutor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/codec/Utf8.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/jdbc/package-
info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/prepost/PrePostAnnotationSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/PermissionCacheOptimizer.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/concurrent/AbstractDelegatingSecurityContextSupport.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/crypto/password/AbstractPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/prepost/PostInvocationAdviceProvider.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/prepost/PreInvocationAuthorizationAdvice.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/GroupManager.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/util/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/cache/package-
info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/package-info.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/expression/SecurityExpressionHandler.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/userdetails/cache/SpringCacheBasedUserCache.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/task/DelegatingSecurityContextTaskExecutor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/package-

info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/DenyAllPermissionEvaluator.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/DelegatingMethodSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/Sha512DigestUtils.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/session/SessionCreationEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/rcp/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/InMemoryUserDetailsManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/AuthenticationUserDetailsService.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/memory/package-info.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/RoleHierarchyAuthoritiesMapper.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/mapping/Attributes2GrantedAuthoritiesMapper.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/scheduling/DelegatingSecurityContextSchedulingTaskExecutor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/ExpressionBasedAnnotationAttributeFactory.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/codec/Hex.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/CycleInRoleHierarchyException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/CredentialsContainer.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AccountStatusUserDetailsChecker.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/DefaultToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/aspectj/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PreAuthorize.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/memory/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/parameters/DefaultSecurityParameterNameDiscoverer.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/AbstractSecurityExpressionHandler.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/dao/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PostInvocationAuthorizationAdvice.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationEventPublisher.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/codec/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/mapping/SimpleAuthorityMapper.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/PostInvocationExpressionAttribute.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/Jsr250Voter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/concurrent/DelegatingSecurityContextExecutorService.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/MutableUserDetails.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/Jsr250SecurityConfig.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/aopalliance/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/RoleHierarchy.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/NullRoleHierarchy.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/authority/mapping/package-info.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/MethodSecurityExpressionHandler.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/package-info.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PreInvocationAttribute.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/ExpressionBasedPostInvocationAdvice.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/TokenService.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*

```
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* A token issued by {@link TokenService}.
*
* <p>
* It is important that the keys assigned to tokens are sufficiently randomised and
* secured that they can serve as identifying a unique user session. Implementations of
* {@link TokenService} are free to use encryption or encoding strategies of their
 choice.
* It is strongly recommended that keys are of sufficient length to balance safety against
* persistence cost. In relation to persistence cost, it is strongly recommended that
* returned keys are small enough for encoding in a cookie.
* </p>
*
* @author Ben Alex
* @since 2.0.1
*/
```

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/Token.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Licensed to the Apache Software Foundation (ASF) under one
* or more contributor license agreements.  See the NOTICE file
* distributed with this work for additional information
```

* regarding copyright ownership. The ASF licenses this file
* to you under the Apache License, Version 2.0 (the
* "License");
 you may not use this file except in compliance
* with the License. You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing,
* software distributed under the License is distributed on an
* "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY
* KIND, either express or implied. See the License for the
* specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/ComparableVersion.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2004, 2005, 2006 Acegi Technology Pty Limited
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/AccessDecisionVoter.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/intercept/MethodInvocationPrivilegeEvaluator.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/util/FieldUtils.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/session/SessionRegistry.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AnonymousAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/event/AuthenticationFailureServiceExceptionEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/Secured.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AbstractAuthenticationFailureEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/rcp/RemoteAuthenticationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationTrustResolver.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/AfterInvocationProviderManager.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/JaasGrantedAuthority.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/PublicInvocationEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/AbstractAuthorizationEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationServiceException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/AuthenticatedVoter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/aopalliance/MethodSecurityInterceptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/LockedException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/UserDetailsService.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureCredentialsExpiredEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureProviderNotFoundEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/TestingAuthenticationToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/UnanimousBased.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/RememberMeAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/SpringSecurityMessageSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/SecurityConfig.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/ConsensusBased.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/AfterInvocationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/rcp/RemoteAuthenticationManagerImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AbstractAuthenticationEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/NullRunAsManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/AbstractAccessDecisionManager.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/InterceptorStatusToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/LoggerListener.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/InheritableThreadLocalSecurityContextHolderStrategy.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/session/SessionRegistryImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/InteractiveAuthenticationSuccessEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/AbstractSecurityInterceptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/AuthenticationCredentialsNotFoundEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/AuthorizedEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/TestingAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/AuthorityGranter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/ConfigAttribute.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/UsernameNotFoundException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureProxyUntrustedEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/RunAsManagerImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureExpiredEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/DefaultLoginExceptionResolver.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/SecurityContext.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/rcp/RemoteAuthenticationException.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/JaasNameCallbackHandler.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/AuthorizationServiceException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/memory/UserAttributeEditor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/SecuredAnnotationSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/GrantedAuthority.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/Authentication.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureBadCredentialsEvent.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/event/JaasAuthenticationFailedEvent.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/SecurityContextImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/MethodSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/RunAsUserToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/dao/DaoAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/jdbc/JdbcDaoImpl.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/SecurityContextHolderStrategy.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/UserCache.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationFailureLockedEvent.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationCredentialsNotFoundException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/JaasAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/AbstractAclVoter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/cache/EhCacheBasedUserCache.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/annotation/Jsr250MethodSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/event/JaasAuthenticationEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/rcp/RemoteAuthenticationProvider.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/util/MethodInvocationUtils.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/RunAsImplAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/GlobalSecurityContextHolderStrategy.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/util/InMemoryResource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/SecurityContextHolder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/event/AuthenticationSuccessEvent.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/SecurityContextLoginModule.java
* /spring-security-core-5-3-4-release-sources-

jar/org/springframework/security/authentication/CredentialsExpiredException.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AccountExpiredException.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/session/SessionInformation.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/event/LoggerListener.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/intercept/aopalliance/MethodSecurityMetadataSourceAdvisor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/AccessDeniedException.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/core/userdetails/memory/UserAttribute.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/event/AuthenticationFailureDisabledEvent.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/method/MapBasedMethodSecurityMetadataSource.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/DisabledException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/UserDetails.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/util/SimpleMethodInvocation.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/InsufficientAuthenticationException.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AuthenticationManager.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/jaas/event/JaasAuthenticationSuccessEvent.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/jaas/JaasAuthenticationCallbackHandler.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/jaas/JaasAuthenticationToken.java
*
/spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/ProviderNotFoundException.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/UsernamePasswordAuthenticationToken.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AuthenticationTrustResolverImpl.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/AnonymousAuthenticationToken.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/intercept/aspectj/AspectJCallback.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/User.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/authentication/BadCredentialsException.java
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/event/AuthorizationFailureEvent.java
*

/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/AuthenticationException.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/ThreadLocalSecurityContextHolderStrategy.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AuthenticationDetailsSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/cache/NullUserCache.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/AffirmativeBased.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/method/AbstractMethodSecurityMetadataSource.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/AccessDecisionManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/SecurityMetadataSource.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/AbstractAuthenticationToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/vote/RoleVoter.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/dao/AbstractUserDetailsAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/RememberMeAuthenticationToken.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/JaasPasswordCallbackHandler.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/intercept/RunAsManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/LoginExceptionResolver.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/DefaultAuthenticationEventPublisher.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/MethodSecurityEvaluationContext.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/ProviderManager.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2011-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/Digester.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/context/ReactiveSecurityContextHolder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authorization/AuthorizationDecision.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/PasswordEncoderUtils.java
*

/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/ReactiveAuthenticationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/ReactiveUserDetailsService.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authorization/AuthenticatedReactiveAuthorizationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/Md4.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/factory/PasswordEncoderFactories.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/SpringSecurityCoreVersion.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authorization/ReactiveAuthorizationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/AuthenticatedPrincipal.java
*
/spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/parameters/P.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/MapReactiveUserDetailsService.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2010-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/DefaultJaasAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/AbstractJaasAuthenticationProvider.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/jaas/memory/InMemoryConfiguration.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015-2018 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UsernamePasswordAuthenticationTokenDeserializer.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UserDeserializer.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/keygen/Base64StringKeyGenerator.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/DelegatingReactiveAuthenticationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/Transient.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/userdetails/ReactiveUserDetailsPasswordService.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/MessageDigestPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/scheduling/DelegatingSecurityContextTaskScheduler.java

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authorization/AuthorityReactiveAuthorizationManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UnmodifiableListDeserializer.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/provisioning/JdbcUserDetailsManager.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/expression/method/DefaultMethodSecurityExpressionHandler.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/core/token/KeyBasedPersistenceTokenService.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/LdapShaPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UnmodifiableListMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/concurrent/DelegatingSecurityContextCallable.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/concurrent/DelegatingSecurityContextRunnable.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/prepost/PrePostAdviceReactiveMethodInterceptor.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/authentication/CachingUserDetailsService.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/Md4PasswordEncoder.java
*
 /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/DelegatingPasswordEncoder.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/BadCredentialsExceptionMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/password/Pbkdf2PasswordEncoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2011-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/encrypt/Encryptors.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
  * Determines if the {@link #getAuthentication()} has permission to access the target
  * given the permission
  * @param target the target domain object to check permission on
  * @param permission the permission to check on the domain object (i.e. "read",
  * "write", etc).
  * @return true if permission
 is granted to the {@link #getAuthentication()}, else
  * false
  */

Found in path(s):
* /spring-security-core-5-3-4-release-sources-
jar/org/springframework/security/access/expression/SecurityExpressionOperations.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/hierarchicalroles/RoleHierarchyUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/crypto/bcrypt/BCryptPasswordEncoder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):

* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/CoreJackson2Module.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UserMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UnmodifiableSetDeserializer.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UnmodifiableSetMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/RememberMeAuthenticationTokenMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/SimpleGrantedAuthorityMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/UsernamePasswordAuthenticationTokenMixin.java
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/jackson2/AnonymousAuthenticationTokenMixin.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
  *
  * @param authentication represents the user in question. Should not be null.
  * @param targetDomainObject the domain object for which permissions should be
  * checked. May be null in which case implementations should return false, as the null
  * condition can be checked explicitly in the expression.

 * @param permission a representation of the permission object as supplied by the
  * expression system. Not null.
  * @return true if the permission is granted, false otherwise
  */
```

Found in path(s):
* /spring-security-core-5-3-4-release-sources-jar/org/springframework/security/access/PermissionEvaluator.java

1.181 xz 5.2.4-1ubuntu1

1.181.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of

Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,

INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute

it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you

have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source

form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered

by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your
rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not
convey, without conditions so long as your license otherwise remains
in force. You may convey covered works to others for the sole purpose
of having them make modifications exclusively for you, or provide you
with facilities for running those works, provided that you comply with
the terms of this License in conveying all material for which you do
not control copyright. Those thus making or running the covered works
for you must do so exclusively on your behalf, under your direction
and control, on terms that prohibit them from making any copies of
your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under
the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological
measure under any applicable law fulfilling obligations under article
11 of the WIPO copyright treaty adopted on 20 December 1996, or
similar laws prohibiting or restricting circumvention of such
measures.

When you convey a covered work, you waive any legal power to forbid
circumvention of technological measures to the extent such circumvention
is effected by exercising rights under this License with respect to
the covered work, and you disclaim any intention to limit operation or
modification of the work as a means of enforcing, against the work's
users, your or third parties' legal rights to forbid circumvention of
technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you
receive it, in any medium, provided that you conspicuously and
appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,

and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted

by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered

work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General

Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates

an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

XZ Utils Licensing
==========

Different licenses apply to different files in this package. Here
is a rough summary of which licenses apply to which parts of this
package (but check the individual files to be sure!):

- liblzma is in the public domain.

- xz, xzdec, and lzmadec command line tools are in the public
domain unless GNU getopt_long had to be compiled and linked
in from the lib directory. The getopt_long code is under
GNU LGPLv2.1+.

- The scripts to grep, diff, and view compressed files have been
adapted from gzip. These scripts and their documentation are
under GNU GPLv2+.

- All the documentation in the doc directory and most of the
XZ Utils specific documentation files in other directories
are in the public domain.

- Translated messages are in the public domain.

- The build system contains public domain files, and files that
are under GNU GPLv2+ or GNU
GPLv3+. None of these files end up
in the binaries being built.

- Test files and test code in the tests directory, and debugging
utilities in the debug directory are in the public domain.

- The extra directory may contain public domain files, and files
that are under various free software licenses.

You can do whatever you want with the files that have been put into
the public domain. If you find public domain legally problematic,
take the previous sentence as a license grant. If you still find
the lack of copyright legally problematic, you have too many
lawyers.

As usual, this software is provided "as is", without any warranty.

If you copy significant amounts of public domain code from XZ Utils
into your project, acknowledging this somewhere in your software is
polite (especially if it is proprietary, non-free software), but
naturally it is not legally required. Here is an example of a good
notice to
put into "about box" or into documentation:

This software includes code from XZ Utils <https://tukaani.org/xz/>.

The following license texts are included in the following files:
- COPYING.LGPLv2.1: GNU Lesser General Public License version 2.1
- COPYING.GPLv2: GNU General Public License version 2
- COPYING.GPLv3: GNU General Public License version 3

Note that the toolchain (compiler, linker etc.) may add some code
pieces that are copyrighted. Thus, it is possible that e.g. liblzma
binary wouldn't actually be in the public domain in its entirety
even though it contains no copyrighted code from the XZ Utils source
package.

If you have questions, don't hesitate to ask the author(s) for more
information.

1.182 classgraph 4.8.69

1.182.1 Available under license :

The MIT License (MIT)

Copyright (c) 2019 Luke Hutchison

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all

copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.183 spring-data-commons 2.3.3.RELEASE

1.183.1 Available under license :

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

==========

To the extent any open source subcomponents are licensed under the EPL and/or other similar licenses that require the source code and/or modifications to source code to be made available (as would be noted above), you may obtain a copy of the source code corresponding to the binaries for such open source components and modifications thereto, if any, (the "Source Files"), by downloading the Source Files from https://www.springsource.org/download, or by sending a request, with your name and address to: VMware, Inc., 3401 Hillview Avenue, Palo Alto, CA 94304,
United States of America or email info@vmware.com. All such requests should clearly specify: OPEN SOURCE FILES REQUEST, Attention General Counsel. VMware shall mail a copy of the Source Files to you on a CD or equivalent physical medium. This offer to obtain a copy of the Source Files is valid for three years from the date you acquired this Software product.

Spring Data Commons 2.3.3 (Neumann SR3)
Copyright (c) [2010-2019] Pivotal Software, Inc.

This product is licensed to you under the Apache License, Version 2.0 (the "License").
You may not use this product except in compliance with the License.

This product may include a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for the these subcomponents is subject to the terms and
conditions of the subcomponent's license, as noted in the LICENSE file.

1.184 ical4j 3.0.19

1.184.1 Available under license :

BSD 3-Clause License

Copyright (c) 2012, Ben Fortuna
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

* Neither the name of the copyright holder nor the names of its
 contributors may be used to endorse or promote products derived from
 this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO
 EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.185 oniguruma 6.9.4-1

1.185.1 Available under license :

Oniguruma LICENSE

Copyright (c) 2002-2020 K.Kosako <kkosako0@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED
 TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

1.186 jq 1.6-1

1.186.1 Available under license :

jq is copyright (C) 2012 Stephen Dolan

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

jq's documentation (everything found under the docs/ subdirectory in the source tree) is licensed under the Creative Commons CC BY 3.0 license, which can be found at:

https://creativecommons.org/licenses/by/3.0/

The documentation website includes a copy of Twitter's Boostrap and relies on Bonsai, Liquid templates and various other projects, look them up for detailed licensing conditions.

jq incorporates David M. Gay's dtoa.c and g_fmt.c, which bear the following notices:

dtoa.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 2000, 2001 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any purpose without fee is hereby granted, provided that this entire notice is included in all copies of any software which is or includes a copy or modification of this software and in all copies of the supporting documentation for such software.

THIS SOFTWARE IS BEING
PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

g_fmt.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 1996 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any
purpose without fee is hereby granted, provided that this entire notice
is included in all copies of any software which is or includes a copy
or modification of this software and in all copies of the supporting
documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED
WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY
REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY
OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

1.187 micrometer-core 1.5.4

1.187.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright 2018 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/ipc/http/OkHttpSender.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/logging/LoggingRegistryConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/ipc/http/ReactorNettySender.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/logging/LoggingMeterRegistry.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/push/PushRegistryConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/StrongReferenceGaugeFunction.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/ipc/http/HttpSender.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/kafka/KafkaConsumerMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/ipc/http/HttpStatusClass.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/NamedThreadFactory.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/JsonUtils.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/push/PushMeterRegistry.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/MultiGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/ipc/http/HttpUrlConnectionSender.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required
 by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/OnlyOnceLoggingDenyMeterFilter.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required
 by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/Slf4JLoggerFactory.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/InternalLogLevel.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/Slf4JLogger.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/AbstractInternalLogger.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/InternalLoggerFactory.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/JdkLoggerFactory.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2017 Pivotal Software, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyStatisticsMetrics.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Copyright 2012 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*

* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required
by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
* Copyright (c) 2004-2011 QOS.ch
* All rights reserved.
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of this software and associated documentation files (the
* "Software"), to deal in the Software without restriction, including
* without limitation the rights to use, copy, modify, merge, publish,
* distribute, sublicense, and/or sell copies of the Software, and to
* permit persons to whom the Software is furnished to do so, subject to
* the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.
*
*
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
* NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
* LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
* OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/JdkLogger.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/InternalLogger.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0

* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/httpcomponents/MicrometerHttpRequestExecutor.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/httpcomponents/PoolingHttpClientConnectionManagerMetricsBinder.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2020 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/CumulativeHistogramLongTaskTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyClientTags.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/validate/Validated.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/http/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/httpcomponents/HttpContextUtils.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/httpcomponents/MicrometerHttpClientInterceptor.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/validate/InvalidReason.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/validate/DurationValidator.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/http/HttpServletRequestTagsProvider.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/validate/PropertyValidator.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepTuple2.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/db/JooqExecuteListener.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/FixedBoundaryVictoriaMetricsHistogram.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyClientTagsProvider.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmHeapPressureMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/validate/ValidationException.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/db/MetricsDSLContext.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepValue.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/http/DefaultHttpServletRequestTagsProvider.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/TimeWindowSum.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/kafka/KafkaMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/http/HttpRequestTags.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/HazelcastIMapAdapter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettySslHandshakeMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/httpcomponents/DefaultUriMapper.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/http/Outcome.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jpa/HibernateQueryMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/MeterRegistryConfigValidator.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyClientMetrics.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2020 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use super file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/kafka/KafkaClientMetrics.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.

* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/OnCompletionAsyncListener.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Timer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/TimedScheduledExecutorService.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/jetty/InstrumentedQueuedThreadPool.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/WarnThenDebugLogger.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/TimedHandler.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/TimedCallable.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/mongodb/MongoMetricsCommandListener.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmMemory.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/TimedRunnable.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/mongodb/MongoMetricsConnectionPoolListener.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyServerThreadPoolMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jetty/JettyConnectionMetrics.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2017 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/NoopHistogram.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/MockClock.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/CacheMeterBinder.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/hystrix/HystrixMetricsBinder.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepMeterRegistry.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/lang/NonNullApi.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/TimeWindowMax.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/CaffeineCacheMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/simple/SimpleMeterRegistry.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/TimeGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/MeterEquivalence.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/config/MissingRequiredConfigurationException.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/annotation/Timed.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Measurement.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/pause/NoPauseDetector.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/db/DatabaseTableMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/logging/Log4j2Metrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/aop/CountedAspect.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/StringEscapeUtils.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/search/RequiredSearch.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/package-info.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/okhttp3/OkHttpMetricsEventListener.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/ImmutableTag.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/annotation/TimedSet.java
*
 /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepLong.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/LongTaskTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopCounter.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/dropwizard/DropwizardDistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardFunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/BaseUnits.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/MeterPartition.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepFunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopLongTaskTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeLongTaskTimer.java
*
 /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/hystrix/MicrometerMetricsPublisherCommand.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/DistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/aop/TimedAspect.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/pause/PauseDetector.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/EhCache2Metrics.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/Mergeable.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/system/FileDescriptorMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Tags.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Statistic.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardMeterRegistry.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/MeterRegistry.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Metrics.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/composite/CompositeDistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/lang/Nullable.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/DiskSpaceMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/push/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/logging/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardFunctionTimer.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/TimeUtils.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopTimeGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/simple/CountingMode.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeMeterRegistry.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/distribution/AbstractTimeWindowHistogram.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepRegistryConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Meter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeCustomMeter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeTimeGauge.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmCompilationMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/cumulative/CumulativeFunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/MeterRegistryConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/simple/SimpleConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/InvalidConfigurationException.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmThreadMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Clock.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/AbstractTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/HierarchicalNameMapper.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/JCacheMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/DefaultMeter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepDouble.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/AbstractMeter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/AbstractCompositeMeter.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/search/MeterNotFoundException.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/system/UptimeMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/HistogramGauges.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/cumulative/CumulativeCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/MeterBinder.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/IOUtils.java
*
/micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/hystrix/MicrometerMetricsPublisherThreadPool.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/db/PostgreSQLDatabaseMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopDistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/MeterFilter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/PercentileHistogramBuckets.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepMeasurement.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/system/ProcessorMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/ValueAtPercentile.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/DistributionStatisticConfig.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/FunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Gauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/Histogram.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/MeterFilterReply.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/CountAtBucket.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/DoubleFormat.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/TimedExecutor.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/cumulative/CumulativeDistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/StringUtils.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopFunctionTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepCounter.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmMemoryMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/annotation/Incubating.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/distribution/TimeWindowPercentileHistogram.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/cumulative/CumulativeTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/tomcat/TomcatMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopFunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardConfig.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/HistogramSnapshot.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/TimedExecutorService.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/HistogramSupport.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/annotation/Counted.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/distribution/pause/ClockDriftPauseDetector.java

* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopMeter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeFunctionCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/cumulative/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardRate.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/search/Search.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/FunctionTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeMeter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/JvmGcMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/lang/NonNullFields.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Tag.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/composite/CompositeFunctionTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/distribution/pause/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/AbstractPartition.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardClock.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/AbstractDistributionSummary.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/DefaultLongTaskTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/search/package-info.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/binder/hystrix/MicrometerMetricsPublisher.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/HazelcastCacheMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/cumulative/CumulativeFunctionTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/config/NamingConvention.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/lang/NonNull.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/logging/LogbackMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/Counter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/ClassLoaderMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/dropwizard/DropwizardCounter.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/cache/GuavaCacheMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepFunctionTimer.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jvm/ExecutorServiceMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/internal/DefaultGauge.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/jpa/HibernateMetrics.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/step/StepDistributionSummary.java
*
/micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/noop/NoopGauge.java
* /micrometer-core-1-5-4-sources-
jar/io/micrometer/core/instrument/distribution/TimeWindowFixedBoundaryHistogram.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/util/package-info.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/simple/package-info.java

No license file was found, but licenses were detected in source scan.

```
/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Copyright 2013 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required
 by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
* Copyright (c) 2004-2011 QOS.ch
* All rights reserved.
*
* Permission is hereby granted, free  of charge, to any person obtaining
* a  copy  of this  software  and  associated  documentation files  (the
* "Software"), to  deal in  the Software without  restriction, including
* without limitation  the rights to  use, copy, modify,  merge, publish,
* distribute,  sublicense, and/or sell  copies of  the Software,  and to
* permit persons to whom the Software  is furnished to do so, subject to
* the following conditions:
*
* The  above  copyright  notice  and  this permission  notice  shall  be
* included in all copies or substantial portions of the Software.
*
```

*
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
* NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
* LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
* OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/FormattingTuple.java
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/MessageFormatter.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2020 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License"); you may not use super file except
* in compliance with the License. You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/instrument/binder/kafka/KafkaStreamsMetrics.java
No license file was found, but licenses were detected in source scan.

/**
* Copyright 2019 VMware, Inc.
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* https://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/
/*
* Copyright 2017 The Netty Project
*
* The Netty Project licenses this file to you under the Apache License,
* version 2.0 (the "License"); you may not use this file except in compliance
* with the License. You may obtain a copy of the License at:
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required
 by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/

Found in path(s):
* /micrometer-core-1-5-4-sources-jar/io/micrometer/core/util/internal/logging/LocationAwareSlf4JLogger.java

1.188 jaxb-core 2.3.3

1.188.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache CXF
Copyright 2006-2011 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

1.189 lcms 2.11

1.189.1 Available under license :

Little CMS
Copyright (c) 1998-2011 Marti Maria Saguer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

THIS LICENSE APPLIES ONLY TO iccjpeg.c file

In plain English:

1. We don't promise that this software works. (But if you find any bugs, please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a program, you must acknowledge somewhere in your documentation that you've used the IJG code.

In legalese:

The authors make NO WARRANTY or representation, either express or implied, with respect to this software, its quality, accuracy, merchantability, or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-2013, Thomas G. Lane, Guido Vollbeding.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this

software (or portions thereof) for any purpose, without
fee, subject to these
conditions:
(1) If any part of the source code for this software is distributed, then this
README file must be included, with this copyright and no-warranty notice
unaltered; and any additions, deletions, or changes to the original files
must be clearly indicated in accompanying documentation.
(2) If only executable code is distributed, then the accompanying
documentation must state that "this software is based in part on the work of
the Independent JPEG Group".
(3) Permission for use of this software is granted only if the user accepts
full responsibility for any undesirable consequences; the authors accept
NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code,
not just to the unmodified library. If you use our work, you ought to
acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name
in advertising or publicity relating to this software or products
derived from
it. This software may be referred to only as "the Independent JPEG Group's
software".

We specifically permit and encourage the use of this software as the basis of
commercial products, provided that all warranty or liability claims are
assumed by the product vendor.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltmain.sh). Another support script, install-sh, is copyright by X Consortium
but is also freely distributable.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent, GIF reading support has
been removed altogether, and the GIF writer has been simplified to produce
"uncompressed GIFs". This technique does not use the LZW algorithm; the
resulting GIF files are larger than usual, but are readable by
all standard
GIF decoders.

We are required to state that
"The Graphics Interchange Format(c) is the Copyright property of
CompuServe Incorporated. GIF(sm) is a Service Mark property of
CompuServe Incorporated."

1.190 libevent 2.1.12

1.190.1 Available under license :

Libevent is available for use under the following license, commonly known
as the 3-clause (or "modified") BSD license:

==========

Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu>
Copyright (c) 2007-2012 Niels Provos and Nick Mathewson

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING,
 BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
==========

Portions of Libevent are based on works by others, also made available by
them under the three-clause BSD license above. The copyright notices are
available in the corresponding source files; the license is as above. Here's
a list:

log.c:
  Copyright (c) 2000 Dug Song <dugsong@monkey.org>
  Copyright (c) 1993 The Regents of the University of California.

strlcpy.c:
   Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>

win32select.c:
Copyright (c) 2003 Michael A. Davis <mike@datanerds.net>

evport.c:
Copyright (c) 2007 Sun Microsystems

ht-internal.h:
Copyright (c) 2002 Christopher Clark

minheap-internal.h:
Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com>

==========

The arc4module is available under the following, sometimes called the
"OpenBSD" license:

Copyright (c) 1996, David Mazieres <dm@uun.org>
Copyright (c) 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR
BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

==========

The Windows timer code is based on code from libutp, which is
distributed under this license, sometimes called the "MIT" license.

Copyright (c) 2010 BitTorrent, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CMake - Cross Platform Makefile Generator
Copyright 2000-2013 Kitware, Inc.
Copyright 2000-2011 Insight Software Consortium
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the names of Kitware, Inc., the Insight Software Consortium,
nor the names of their contributors may be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The above copyright and license notice applies to distributions of

CMake in source and binary form. Some source files contain additional
notices of original copyright by their contributors; see each source
for details. Third-party software packages supplied with CMake under
compatible licenses provide their
 own copyright notices documented in
corresponding subdirectories.

CMake was initially developed by Kitware with the following sponsorship:

* National Library of Medicine at the National Institutes of Health
  as part of the Insight Segmentation and Registration Toolkit (ITK).

* US National Labs (Los Alamos, Livermore, Sandia) ASC Parallel
  Visualization Initiative.

* National Alliance for Medical Image Computing (NAMIC) is funded by the
  National Institutes of Health through the NIH Roadmap for Medical Research,
  Grant U54 EB005149.

* Kitware, Inc.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.191 reactor-netty 0.9.11.RELEASE

1.191.1 Available under license :

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2006, Ivan Sagalaev
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
* Neither the name of highlight.js nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT
SHALL THE REGENTS AND CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.192 poco 1.9.2-3ubuntu3

1.192.1 Available under license :

Guenter Obiltschnig
Alex Fabijanic
Peter Schojer
Ferdinand Beyer
Krzysztof Burghardt
Claus Dabringer
Caleb Epstein
Eran Hammer-Lahav
Chris Johnson
Sergey Kholodilov
Ryan Kraay
Larry Lewis
Andrew J. P. Maclean
Andrew Marlow
Paschal Mushubi
Jiang Shan
David Shawley
Sergey Skorokhodov
Tom Tan
Sergey N. Yatskevich
Marc Chevrier
Philippe Cuvillier
Marian Krivos
Franky Braem
Philip Prindeville
Anton Yabchinskiy
Rangel Reale
Fabrizio Duhem
Patrick White
Mike Naquin
Roger Meier
Mathaus Mendel
Arturo Castro
Adrian Imboden
Matej Knopp
Patrice Tarabbia
Lucas Clemente
Karl Reid
Pascal Bach
Cristian Thiago Moecke
Sergei Nikulov
Aaron Kaluszka
Iyed Bennour

Scott Davis
Kristin Cowalcijk
Yuval Kashtan
Christopher Baker
Scott Davis
Jeff Adams
Martin Osborne
Bjrn Schramke
Francis Andre
Note about WCELIBCEX files copyright.

File copyright is held by a file author.

Files created for the first version of the WCELIBCEX project are
copyrighted by (c) 2006 Taxus SI Ltd., http://www.taxussi.com.pl

See comment in header of source files for more details.
See LICENSE.txt for license agreement.
Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Note:
Individual files contain the following tag instead of the full license text.

SPDX-License-Identifier: BSL-1.0

This enables machine processing of license information based on the SPDX
License Identifiers that are here available: http://spdx.org/licenses/
WCELIBCEX - Windows CE C Library Extensions

The source code of the WCELIBCEX library is
licensed under MIT License:

http://opensource.org/licenses/mit-license.php

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom
the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM,
DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.193 boost 1.71.0-6ubuntu6

1.193.1 Available under license :

The following people hereby grant permission to replace all existing
licenses on their contributions to Boost with the Boost Software
License, Version 1.0. (boostinspect:nolicense boostinspect:nocopyright)

Aleksey Gurtovoy (agurtovoy@meta-comm.com)
Andrei Alexandrescu (andrewalex - at - hotmail.com) (See Boost list message of August 12, 2004 11:06:58 AM EST)
Andrew Lumsdaine ()
Anthony Williams (anthony -at- justsoftwaresolutions.co.uk)
Beman Dawes (bdawes@acm.org)
Brad King (brad.king -at- kitware.com) (See Boost list message of Wed, 21 Jul 2004 11:15:46 -0400)
Brian Osman (osman -at- vvisions.com) (See CVS log)
Bruce Barr (schmoost -at- yahoo.com) (See Boost list of Mon, 16 Aug 2004 15:06:43 -0500)
Bruno da Silva de Oliveira (bruno - at - esss.com.br)
Christain Engstrom (christian.engstrom -at- glindra.org) (See Boost list message of Mon, 30 Aug 2004 14:31:49

+0200)
Cromwell D Enage (sponage -at- yahoo.com) (See Boost list message of August 12, 2004 11:49:13 AM EST)
Dan Gohman (djg
-at- cray.com) (See Boost list messsage of Sat, 21 Aug 2004 10:54:59 +0100)
Dan Nuffer (dan -at- nuffer.name)
Daniel Frey (d.frey -at- gmx.de, daniel.frey -at- aixigo.de)
Daniel Nuffer (dan -at- nuffer.name)
Darin Adler (darin -at- bentspoon.com) (Email to Andreas Huber, see change log)
Daryle Walker (darylew - at - hotmail.com)
Dave Abrahams (dave@boost-consulting.com)
Dave Moore (dmoore -at- viefinancial.com) (See Boost list message of 18 Dec 2003 15:35:50 -0500)
David Abrahams (dave@boost-consulting.com)
Dietmar Kuehl (dietmar_kuehl -at- yahoo.com) (Email to Andreas Huber, see change log)
Douglas Gregor (gregod -at- cs.rpi.edu, dgregor -at- cs.indiana.edu, doug.gregor -at- gmail.com)
Dr John Maddock (john - at - johnmaddock.co.uk)
Edward D. Brey (brey -at- ductape.net) (Email to Andreas Huber, see change log)
Eric Ford (un5o6n902 -at- sneakemail.com) (See Boost list message of Sun, 15 Aug 2004 10:29:13 +0100)
Eric Friedman (ebf@users.sourceforge.net)
Eric Niebler (eric@boost-consulting.com)
Fernando
Cacciola (fernando_cacciola@ciudad.com.ar)
Fernando Luis Cacciola Carballal (fernando_cacciola@ciudad.com.ar)
Francois Faure (Francois.Faure -at- imag.fr) (See CVS log)
Gary Powell (powellg - at - amazon.com) (See Boost list message of 10 Feb 2004 14:22:46 -0800)
Gennadiy Rozental (rogeeff -at- mail.com) (Email to Andreas Huber, see change log)
Gottfried Ganssauge (Gottfried.Ganssauge -at- HAUFE.DE) (See Boost List message of Mon, 16 Aug 2004 10:09:19 +0200)
Gottfried Ganauge (Gottfried.Ganssauge -at- HAUFE.DE) (Alternative spelling of Gottfried Ganssauge)
Greg Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gregory Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gunter Winkler (gunter.winkler -at- unibw-muenchen.de) (See Boost List message of Mon, 16 Aug 2004 10:24:17 +0200)
Hartmut Kaiser (hartmut.kaiser -at- gmail.com)
Herve Bronnimann (hbr -at- poly.edu)
Herv
Brnnimann (hbr -at- poly.edu)
Housemarque Oy (Ilari Kuittinen ilari.kuittinen -at- housemarque.fi)
Howard Hinnant (hinnant -at- twcny.rr.com) (See Boost list message of July 25, 2004 3:44:49 PM EST)
Hubert Holin (hubert_holin -at- users.sourceforge.net)
Indiana University ()
Itay Maman (imaman -at- users.sourceforge.net)
Jaakko Jrvi (jajarvi -at- osl.iu.edu)
Jaap Suter (j.suter -at- student.utwente.nl) (See Boost list message of Thu, 16 Sep 2004 09:32:43 -0700)
Jeff Garland (jeff - at - crystalclearsoftware.com) (see Boost list post of July 25, 2004 19:31:09 -0700)
Jens Maurer (Jens.Maurer@gmx.net)
Jeremy G Siek (jsiek@osl.iu.edu)
Jeremy Siek (jsiek@osl.iu.edu)
Joel de Guzman (joel -at- boost-consulting.com) (See Boost list message of July 25, 2004 8:32:00 PM EST)

John Bandela (jbandela-at-ufl.edu)
John Maddock (john - at - johnmaddock.co.uk)
John R Bandela (jbandela-at-ufl.edu)
Jonathan Turkanis (turkanis -at- coderage dot com)
Juergen Hunold (hunold -at- ive.uni-hannover.de) (See Boost
List Message of Fri, 13 Aug 2004 19:39:55 +0200)
Kevlin Henney (kevlin -at- curbralan.com) (See Boost list message of Wed, 15 Sep 2004 18:15:17 +0200)
Kresimir Fresl (fresl -at- master.grad.hr) (See Boost List message of August 16, 2004 8:23:35 AM EST)
Lars Gullik Bjnnes (larsbj -at- lyx.org) (See Boost list message of Tue, 17 Aug 2004 15:49:02 +0100)
Lie-Quan Lee (liequan - at - slac.stanford.edu, llee - at - cs.indiana.edu)
Maarten Keijzer (mkeijzer -at- cs.vu.nl) (See Boost list message of Wed, 18 Aug 2004 21:43:18 +0100)
Mac Murrett (mmurrett -at- mac.com)
Marc Wintermantel (wintermantel -at- imes.mavt.ethz.ch, wintermantel -at- even-ag.ch) (See CVS log)
Michael Glassford (glassfordm - at - hotmail.com)
Michael Stevens (Michael.Stevens - at - epost.de)
Multi Media Ltd. (pdimov@mmltd.net)
Nicolai M Josuttis (solutions -at- josuttis.com) (See Boost list message of Mon, 30 Aug 2004 10:52:00 +0100)
Nikolay Mladenov (nickm -at- sitius.com) (See Boost list message of Tue, 17 Aug 2004
15:45:33 +0100)
Paul Mensonides (pmenso57 -at- comcast.net) (See Boost list message of July 21, 2004 1:12:21 AM EST)
Pavol Droba (droba -at- topmail.sk)
Peter Dimov (pdimov@mmltd.net)
R W Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Ralf W. Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Rational Discovery LLC (Greg Landrum Landrum -at- RationalDiscovery.com) (See Boost list post of Tue, 17 Aug 2004 10:35:36 +0100)
Rene Rivera (grafik/redshift-software.com, rrivera/acm.org)
Robert Ramey (ramey@www.rrsd.com)
Roland Richter (roland -at- flll.jku.at) (See Boost list post of Mon, 16 Aug 2004 22:16:55 +0200)
Roland Schwarz (roland.schwarz -at- chello.at)
Ronald Garcia (garcia -at- cs.indiana.edu) (Email to Andreas Huber, see change log)
Samuel Krempp (krempp -at- crans.ens-cachan.fr) (See Boost list message of Mon, 27 Sep 2004 13:18:36 +0200)
Stefan Seefeld (seefeld -at- sympatico.ca)
Stephen Cleary (scleary -at- jerviswebb.com) (See Boost list message of Tue, 28 Sep 2004 13:11:46 +0100)
Steve
Cleary (Variant of Stephen Cleary)
Sylvain Pion (Sylvain.Pion - at - sophia.inria.fr)
The Trustees of Indiana University ()
Thomas Witt (witt - at - ive.uni-hannover.de, witt - at - acm.org, witt - at - styleadvisor.com)
Thorsten Jrgen Ottosen (nesotto - at - cs.auc.dk)
Thorsten Ottosen (nesotto - at - cs.auc.dk)
Toon Knapen (toon dot knapen - at - fft.be)
Trustees of Indiana University ()
University of Notre Dame ()
Vladimir Prus (ghost@cs.msu.su)
William E. Kempf () (email to Beman Dawes, 9/14/2006 4:18 PM)
Joerg Walter (jhr.walter - at - t-online.de : email to ublas mailing list Mon, 17 Sep 2007 10:17:08 +0200)
Mathias Koch (mkoch - at - idesis.de 7 : email to boost-owner@lists.boost.org Sep 2007 13:20:09 +0200)

--- end ---
Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.194 berkeley-db 5.3.28+dfsg1-0.6ubuntu2

1.194.1 Available under license :

Copyright (c) 1996, 2013 Oracle and/or its affiliates. All rights reserved.
See the file LICENSE for redistribution information.
This software is copyrighted by Christian Werner <chw@ch-werner.de>
and other authors. The following terms apply to all files associated
with the software unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute,
and license this software and its documentation for any purpose, provided
that existing copyright notices are retained in all copies and that this
notice is included verbatim in any distributions. No written agreement,
license, or royalty fee is required for any of the authorized uses.
Modifications to this software may be copyrighted by their authors
and need not follow the licensing terms described here, provided that
the new terms are clearly indicated on the first page of each file where
they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY

FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES
ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY
DERIVATIVES
THEREOF, EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE
IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE
NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR
MODIFICATIONS.
This software is copyrighted by Christian Werner <chw@ch-werner.de> and others.
The following terms apply to all files associated with the software
unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute,
and license this software and its documentation for any purpose, provided
that existing copyright notices are retained in all copies and that this
notice is included verbatim in any distributions. No written agreement,
license, or royalty fee is required for any of the authorized uses.
Modifications to this software may be copyrighted by their authors
and need not follow the licensing terms described here, provided that
the new terms are clearly indicated on the first page of each file where
they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY
FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES
ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY
DERIVATIVES THEREOF,
EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE
IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE
NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR
MODIFICATIONS.
/*-
* Id
*/

The following is the license that applies to this copy of the Berkeley DB
software. For a license to use the Berkeley DB software under conditions
other than those described here, or to purchase support for this software,
please contact Oracle at berkeleydb-info_us@oracle.com.

=-=-=-

* documentation and/or other materials provided with
the distribution.
* 3. Neither the name of the University nor the names of its contributors
* may be used to endorse or promote products derived from this software
* without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
/*
* Copyright (c) 1995, 1996
* The President and Fellows of Harvard University. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. Neither the name of the University nor the names of its contributors
* may be used to endorse or promote products derived from this software
* without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY HARVARD AND ITS CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL HARVARD OR ITS CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
=-=

/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2005 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the
 above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*   contributors may be used to endorse or promote products derived from
*   this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES;
 LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
NOTE

The license is based on the zlib/libpng license. For more details see
http://www.opensource.org/licenses/zlib-license.html. The intent of the
license is to:

- keep the license as simple as possible
- encourage the use of CuTest in both free and commercial applications
 and libraries
- keep the source code together
- give credit to the CuTest contributors for their work

If you ship CuTest in source form with your source distribution, the
following license document must be included with it in unaltered form.
If you find CuTest useful we would like to hear about it.

LICENSE

Copyright (c) 2003 Asim Jalis

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin
of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software in
a product, an acknowledgment in the product documentation would be
appreciated but is not required.

2. Altered source versions must be plainly marked as such, and must not
be misrepresented as being the original software.

3. This notice may not be removed or altered from any source
distribution.
This package was debianized by Sam Clegg <samo@debian.org> on
Tue, 25 Jul 2006 11:43:45 +0100.

It was downloaded from <http://www.ch-werner.de/sqliteodbc/>

Upstream Author: Christian Werner <chw@ch-werner.de>

Copyright: Copyright (c) 2001-2011 Christian Werner <chw@ch-werner.de>
OS/2 Port Copyright (c) 2004 Lorne R. Sunley <lsunley@mb.sympatico.ca>

License:

This software is copyrighted by Christian Werner <chw@ch-werner.de>
and other authors. The following terms apply to all files associated
with the software unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute,
and license this software and its documentation for any purpose, provided
that existing copyright notices are retained in all copies and that this
notice is included verbatim in any distributions. No written agreement,
license, or royalty fee is required for any of the authorized uses.
Modifications to this software may be copyrighted by their authors
and
need not follow the licensing terms described here, provided that
the new terms are clearly indicated on the first page of each file where
they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY
FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES
ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY
DERIVATIVES THEREOF, EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE
IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE
NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR
MODIFICATIONS.

The Debian packaging is (C) 2006, Sam Clegg <samo@debian.org> and
is licensed under the GPL-3, see `/usr/share/common-licenses/GPL-3'.

1.195 fdisk 1.1.0

1.195.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new

free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official

standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product,

doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions.

Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent
that they are valid under applicable law. If additional permissions
apply only to part of the Program, that part may be used separately
under those permissions, but the entire Program remains governed by
this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option
remove any additional permissions from that copy, or from any part of
it. (Additional permissions may be written to require their own
removal in certain cases when you modify the work.) You may place
additional permissions on material, added by you to a covered work,
for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you
add to a covered work, you may (if authorized by the copyright holders of
that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further

restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or

run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor

version. For
purposes of this definition, "control" includes the right to grant
patent sublicenses in a manner consistent with the requirements of
this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free
patent license under the contributor's essential patent claims, to
make, use, sell, offer for sale, import and otherwise run, modify and
propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express
agreement or commitment, however denominated, not to enforce a patent
(such as an express permission to practice a patent or covenant not to
sue for patent infringement). To "grant" such a patent license to a
party means to make such an agreement or commitment not to enforce a
patent against the party.

If you convey a covered work, knowingly relying on a patent license,
and the Corresponding Source of the work is not available for anyone
to copy, free of charge and under the terms of this
License, through a
publicly available network server or other readily accessible means,
then you must either (1) cause the Corresponding Source to be so
available, or (2) arrange to deprive yourself of the benefit of the
patent license for this particular work, or (3) arrange, in a manner
consistent with the requirements of this License, to extend the patent
license to downstream recipients. "Knowingly relying" means you have
actual knowledge that, but for the patent license, your conveying the
covered work in a country, or your recipient's use of the covered work
in a country, would infringe one or more identifiable patents in that
country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or
arrangement, you convey, or propagate by procuring conveyance of, a
covered work, and grant a patent license to some of the parties
receiving the covered work authorizing them to use, propagate, modify
or convey a specific copy of the covered
work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying

the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General
Public License "or any later version" applies to it, you
have the
option of following the terms and conditions either of that numbered

version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary.

For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.196 flyway-core 6.4.4

1.196.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2010-2020 Redgate Software Ltd
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*        http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/filesystem/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/TimeFormat.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/CompositeMigrationResolver.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLParser.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/jdbc/CockroachRetryingTransactionalExecutionTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Database.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/FileCopyUtils.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/DerbyDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptExecutor.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/clazz/ClassProvider.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/license/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/ExceptionUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/schemahistory/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/filesystem/FileSystemScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/DerbySchema.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/schemahistory/SchemaHistory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlStatement.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/android/AndroidScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/android/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/UrlResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/migration/BaseJavaMigration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Table.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANASchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/StopWatch.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/InfoOutputProvider.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/DefaultUrlResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/RowMapper.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/license/FlywayEditionUpgradeRequiredException.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/PlaceholderReplacingReader.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/ParsingContext.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/LoadableResource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerTable.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbSchemas.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/license/VersionPrinter.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/StringUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANADatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/ClassPathLocationScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScript.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASETable.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/WarningImpl.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Connection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/FeatureDetector.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/LogCreatorFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/H2Table.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/Recorder.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/migration/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/BomFilter.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/TransactionalExecutionTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/SchemaObject.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/schemahistory/JdbcTableSchemaHistory.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/InformixConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/jboss/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/CloseableIterator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/ExecutionTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/executor/Context.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/migration/JavaMigration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/Scanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/configuration/ConfigUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftConnection.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/android/AndroidLogCreator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/H2Schema.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/scanner/classpath/JarFileClassPathLocationScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/PeekingReader.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/ResourceNameCache.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbClean.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/PositionTrackingReader.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/MigrationInfoService.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeConnection.java
*
 /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/scanner/classpath/FileSystemClassPathLocationScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/jboss/JBossVFSv2UrlResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/H2Database.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/Statement.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/android/ContextHolder.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBParser.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Schema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/configuration/ClassicConfiguration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/ResourceProvider.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/ErrorCode.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleResults.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/MigrationInfoContext.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/LocationScannerCache.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/schemahistory/AppliedMigration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleSqlScriptExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/CallbackExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/Resource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/executor/package-info.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Parser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptMetadata.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/StatementType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/DefaultSqlScriptExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/ResourceNameValidator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/slf4j/Slf4jLogCreator.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/ParserContext.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANATable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/java/JavaMigrationExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/license/Edition.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/scanner/classpath/jboss/JBossVFSv3ClassPathLocationScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Statement.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBDatabase.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/apachecommons/ApacheCommonsLog.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlStatementIterator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/slf4j/Slf4jLog.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBRetryingStrategy.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Error.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/RecordingReader.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/migration/Context.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/FlywayException.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/package-info.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/javautil/JavaUtilLog.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/slf4j/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Database.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbRepair.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/Parser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/PlainExecutionTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/MigrationInfoDumper.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/ResourceName.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLDatabase.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Type.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Table.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/configuration/FluentConfiguration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/Locations.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/MigrationInfoHelper.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/InformixSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/logging/Log.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/DatabaseType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLType.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/ParsedSqlStatement.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/android/AndroidLog.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/license/FlywayProUpgradeRequiredException.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/android/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/logging/LogFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/java/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Function.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/AsciiTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLNamedLockTemplate.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/DefaultCallbackExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/resolver/ResolvedMigration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/exception/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/MigrationInfoServiceImpl.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/configuration/Configuration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/InformixDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/DerbyConnection.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbMigrate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/MigrationInfo.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/base/Connection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/ErrorImpl.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/DateUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/NoopCallbackExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/DatabaseExecutionStrategy.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationExecutorFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/output/InfoOutputFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/Results.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptExecutorFactory.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/SqlScriptCallbackFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerEngineEdition.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbBaseline.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/SqlCallable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/AppliedMigrationAttributes.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/sql/DefaultSqlMigrationExecutorFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/InformixTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/MigrationState.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/MigrationType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeTable.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Warning.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/Flyway.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/javautil/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/ChecksumCalculator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/NoopCallback.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/BomStrippingReader.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/java/ResolvedJavaMigration.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/javautil/JavaUtilLogCreator.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/output/ErrorOutput.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANAConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/clazz/NoopClassProvider.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftParser.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/oracle/OracleSchema.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLAdvisoryLockTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/configuration/ConfigurationValidator.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/ResolvedMigrationImpl.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/logging/apachecommons/ApacheCommonsLogCreator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Type.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/UrlUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/logging/LogCreator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Schema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/DriverDataSource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/TableLockingExecutionTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbInfo.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/ResolvedMigrationComparator.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/JdbcUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/output/MigrationOutput.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/H2Parser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/logging/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Callback.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/android/AndroidResource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/MigrationVersion.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/DerbyTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/JarUtils.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/java/ScanningJavaMigrationResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/Result.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteConnection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/MigrationInfoImpl.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/informix/InformixParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/command/DbValidate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLSchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdSchema.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/BaseCallback.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/mysql/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/sql/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANAParser.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/output/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/derby/DerbyParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/schemahistory/SchemaHistoryFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/FlywaySqlScriptException.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/saphana/package-info.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/DatabaseFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/DefaultExecutionStrategy.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/NoopResourceProvider.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/TokenType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/db2/DB2Function.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/h2/H2Connection.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/classpath/ClassPathResource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/resolver/package-info.java
*
/flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLCopyParsedStatement.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/clazz/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/OsgiClassPathLocationScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/ResourceAndClassScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/Token.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/JdbcTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/android/package-info.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/info/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/resolver/ChecksumMatcher.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/resolver/MigrationResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/configuration/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resolver/java/FixedJavaMigrationResolver.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/ExecutionTemplateFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/executor/MigrationExecutor.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/Delimiter.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/Location.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/jdbc/JdbcConnectionFactory.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/ResourceType.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Context.java
*
/flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/configuration/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/sqlscript/ParserSqlScript.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/callback/SimpleContext.java

* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/resolver/Context.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/classpath/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/AbbreviationUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/exception/FlywayDbUpgradeRequiredException.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/package-info.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteDatabase.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/scanner/classpath/ClassPathScanner.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/IOUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/api/callback/Event.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASESchema.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/StringResource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/ResourceNameParser.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/output/InfoOutput.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/ClassUtils.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBTable.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/parser/PositionTracker.java
*
 /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/logging/apachecommons/package-info.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/util/Pair.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/resource/filesystem/FileSystemResource.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/exception/FlywaySqlException.java
* /flyway-core-6-4-4-sources-
jar/org/flywaydb/core/internal/database/sqlserver/SQLServerApplicationLockTemplate.java
* /flyway-core-6-4-4-sources-jar/org/flywaydb/core/internal/database/sybasease/package-info.java
No license file was found, but licenses were detected in source scan.

2020 Redgate Software Ltd

  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

      http://www.apache.org/licenses/LICENSE
2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.

Found in path(s):
* /flyway-core-6-4-4-sources-jar/META-INF/maven/org.flywaydb/flyway-core/pom.xml

1.197 brotli 1.0.7-6ubuntu0.1

1.197.1 Available under license :

Copyright (c) 2009, 2010, 2013-2016 by the Brotli Authors.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF
 OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.198 free-type 2.10.1-2ubuntu0.1

1.198.1 Available under license :

The FreeType Project LICENSE

2006-Jan-27

Copyright 1996-2002, 2006 by
David Turner, Robert Wilhelm, and Werner Lemberg

Introduction
============

The FreeType Project is distributed in several archive packages;
some of them may contain, in addition to the FreeType font engine,
various tools and contributions which rely on, or relate to, the
FreeType Project.

This license applies to all files found in such packages, and

which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its
main points are that:

- o We don't promise that this software works. However, we will be interested in any kind of bug reports. (`as is' distribution)

- o You can use this software for whatever you want, in parts or full form, without having to pay us. (`royalty-free' usage)

- o You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you have used the FreeType code. (`credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products. We disclaim all warranties covering The FreeType Project and assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a credit/disclaimer to use in compliance with this license. We thus encourage you to use the following text:

```
"""
  Portions
of this software are copyright  <year> The FreeType
  Project (www.freetype.org).  All rights reserved.
"""
```

Please replace <year> with the value from the FreeType version you actually use.

Legal Terms
==========

0. Definitions

Throughout this license, the terms `package', `FreeType Project',

and `FreeType archive' refer to the set of files originally distributed by the authors (David Turner, Robert Wilhelm, and Werner Lemberg) as the `FreeType Project', be they named as alpha, beta or final release.

`You' refers to the licensee, or person using the project, where `using' is a generic term including compiling the project's source code as well as linking it to form a `program' or `executable'. This program is referred to as `a program using the FreeType engine'.

This license applies to all files distributed in the original FreeType Project, including all source code, binaries and documentation,
unless otherwise stated in the file in its
original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

1. No Warranty

THE FREETYPE PROJECT IS PROVIDED `AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

2. Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display,
copy, create derivative works of, distribute and
sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

- Redistribution of source code must retain this license file (`FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying

documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.

o Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

3. Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission.

We suggest, but do not require, that you use one or more of the following phrases to refer to this software in your documentation or advertising materials: `FreeType Project', `FreeType Engine', `FreeType library', or `FreeType Distribution'.

As you have not signed this license, you are not required to accept it. However, as the FreeType Project is copyrighted material, only this license, or another one contracted with the authors, grants you the right to use, distribute, and modify it. Therefore, by using,
distributing, or modifying the FreeType
Project, you indicate that you understand and accept all the terms of this license.

4. Contacts

There are two mailing lists related to FreeType:

o freetype@nongnu.org

Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

o freetype-devel@nongnu.org

Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.

Our home page can be found at

https://www.freetype.org

--- end of FTL.TXT ---

```
# Files that don't get a copyright, or which are taken from elsewhere.
#
# All lines in this file are patterns, including the comment lines; this
# means that e.g. `FTL.TXT' matches all files that have this string in
# the file name (including the path relative to the current directory,
# always starting with `./').
#
# Don't put empty lines into this file!
#
.gitignore
#
builds/unix/pkg.m4
#
docs/FTL.TXT
docs/GPLv2.TXT
#
include/freetype/internal/fthash.h
#
src/base/fthash.c
src/base/md5.c
src/base/md5.h
#
src/bdf/bdf.c
src/bdf/bdf.h
src/bdf/bdfdrivr.c
src/bdf/bdfdrivr.h
src/bdf/bdferror.h
src/bdf/bdflib.c
src/bdf/module.mk
src/bdf/README
src/bdf/rules.mk
#
src/pcf/module.mk
src/pcf/pcf.c
src/pcf/pcf.h
src/pcf/pcfdrivr.c
src/pcf/pcfdrivr.h
```

src/pcf/pcferror.h
src/pcf/pcfread.c
src/pcf/pcfread.h
src/pcf/pcfutil.c
src/pcf/pcfutil.h
src/pcf/README
src/pcf/rules.mk
#
src/gzip/adler32.c
src/gzip/infblock.c
src/gzip/infblock.h
src/gzip/infcodes.c
src/gzip/infcodes.h
src/gzip/inffixed.h
src/gzip/inflate.c
src/gzip/inftrees.c
src/gzip/inftrees.h
src/gzip/infutil.c
src/gzip/infutil.h
src/gzip/zconf.h
src/gzip/zlib.h
src/gzip/zutil.c
src/gzip/zutil.h
#
src/tools/apinames.c
src/tools/ftrandom/ftrandom.c
#
#
EOF

The FreeType 2 font engine is copyrighted work and cannot be used legally without a software license. In order to make this project usable to a vast majority of developers, we distribute it under two mutually exclusive open-source licenses.

This means that *you* must choose *one* of the two licenses described below, then obey all its terms and conditions when using FreeType 2 in any of your projects or products.

- The FreeType License, found in the file `FTL.TXT', which is similar to the original BSD license *with* an advertising clause that forces you to explicitly cite the FreeType project in your product's documentation. All details are in the license file. This license is suited to products which don't use the GNU General Public License.

  Note that this license is compatible to the GNU General Public License version 3, but not version 2.

- The GNU General Public License version 2, found in `GPLv2.TXT' (any
  later version can be used also), for programs which already use the
  GPL. Note that the FTL is incompatible with GPLv2 due to its
  advertisement clause.

The contributed BDF and PCF drivers come with a license similar to that
of the X Window System. It is compatible to the above two licenses (see
file src/bdf/README and src/pcf/README). The same holds for the files
`fthash.c' and `fthash.h'; their code was part of the BDF driver in
earlier FreeType versions.

The gzip module uses the zlib license (see src/gzip/zlib.h) which too is
compatible to the above two licenses.

The MD5 checksum support (only used for debugging in development builds)
is in the public domain.

--- end of LICENSE.TXT ---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not

covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those

sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component

itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals

of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.199 nlohmann-json 3.9.1

1.199.1 Available under license :

The MIT License (MIT)

Copyright (c) 2016-2019 Viktor Kirilov

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
amalgamate.py - Amalgamate C source and header files
Copyright (c) 2012, Erik Edlund <erik.edlund@32767.se>

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

* Neither the name of Erik Edlund, nor the names of its contributors may
  be used to endorse or promote products derived from this software without
  specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON

ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
# People who have agreed to one of the CLAs and can contribute patches.
# The AUTHORS file lists the copyright holders; this file
# lists people.  For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
# Names should be added to this file only after verifying that
# the individual or the individual's organization has agreed to
# the appropriate Contributor License Agreement, found here:
#
# https://developers.google.com/open-source/cla/individual
# https://developers.google.com/open-source/cla/corporate
#
# The agreement for individuals can be filled out on the web.
#
# When adding J Random Contributor's name to this file,
# either J's name or J's organization's name should be
# added to the AUTHORS file, depending on whether the
# individual or corporate CLA was used.
#
# Names should be added to this file as:
#     Name <email address>
#
# Please keep the list sorted.

Albert Pretorius <pretoalb@gmail.com>
Arne Beer <arne@twobeer.de>
Billy
 Robert O'Neal III <billy.oneal@gmail.com> <bion@microsoft.com>
Chris Kennelly <ckennelly@google.com> <ckennelly@ckennelly.com>
Christopher Seymour <chris.j.seymour@hotmail.com>
David Coeurjolly <david.coeurjolly@liris.cnrs.fr>
Deniz Evrenci <denizevrenci@gmail.com>
Dominic Hamon <dma@stripysock.com> <dominic@google.com>
Dominik Czarnota <dominik.b.czarnota@gmail.com>
Eric Fiselier <eric@efcs.ca>
Eugene Zhuk <eugene.zhuk@gmail.com>
Evgeny Safronov <division494@gmail.com>
Felix Homann <linuxaudio@showlabor.de>
Ismael Jimenez Martinez <ismael.jimenez.martinez@gmail.com>
Jern-Kuan Leong <jernkuan@gmail.com>
JianXiong Zhou <zhoujianxiong2@gmail.com>
Joao Paulo Magalhaes <joaoppmagalhaes@gmail.com>
John Millikin <jmillikin@stripe.com>
Jussi Knuuttila <jussi.knuuttila@gmail.com>
Kai Wolf <kai.wolf@gmail.com>
```

Kishan Kumar <kumar.kishan@outlook.com>
Kaito Udagawa <umireon@gmail.com>
Lei Xu <eddyxu@gmail.com>
Matt Clarkson <mattyclarkson@gmail.com>
Maxim Vafin <maxvafin@gmail.com>
Nick Hutchinson
<nshutchinson@gmail.com>
Oleksandr Sochka <sasha.sochka@gmail.com>
Pascal Leroy <phl@google.com>
Paul Redmond <paul.redmond@gmail.com>
Pierre Phaneuf <pphaneuf@google.com>
Radoslav Yovchev <radoslav.tm@gmail.com>
Raul Marin <rmrodriguez@cartodb.com>
Ray Glover <ray.glover@uk.ibm.com>
Robert Guo <robert.guo@mongodb.com>
Roman Lebedev <lebedev.ri@gmail.com>
Shuo Chen <chenshuo@chenshuo.com>
Tobias Ulvgrd <tobias.ulvgard@dirac.se>
Tom Madams <tom.ej.madams@gmail.com> <tmadams@google.com>
Yixuan Qiu <yixuanq@gmail.com>
Yusuke Suzuki <utatane.tea@gmail.com>
Zbigniew Skowron <zbychs@gmail.com>
cpplint.py and its corresponding unit tests are Copyright (C) 2009 Google Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains

that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy,
is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The
"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to

control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological

measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not

invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the
Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the
Corresponding Source. Regardless of what server hosts the
Corresponding Source, you remain obligated to ensure that it is
available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided
you inform other peers where the object code and Corresponding
Source of the work are being offered to the general public at no
charge under subsection 6d.

A separable portion of the object code, whose source code is excluded
from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any
tangible personal property which is normally used for personal, family,
or household purposes, or (2) anything designed or sold for incorporation
into a dwelling. In determining whether a product is a consumer product,
doubtful cases shall be resolved in favor of coverage. For a particular
product received by a particular user, "normally used" refers to a
typical or common use of that class of product, regardless of the status
of the particular user or of the way in which the particular user
actually uses, or expects or is expected to use, the product. A product
is a consumer product regardless of whether the product has substantial
commercial, industrial or non-consumer uses, unless such uses represent
the only significant mode of use of the product.

"Installation Information" for a User Product means any methods,
procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from
a modified version of its Corresponding Source. The information must
suffice to ensure that the continued functioning of the modified object
code is in no case prevented or interfered with solely because
modification has been made.

If you convey an object code work under this section in, or with, or

specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty
or limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains
a further restriction but permits relicensing or conveying under this
License, you may add to a covered work material governed by the terms
of that license document, provided that the further restriction does
not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you
must place, in the relevant source files, a statement of the
additional terms that apply to those files, or a notice indicating
where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the
form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly

provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that

transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this

License, through a
publicly available network server or other readily accessible means,
then you must either (1) cause the Corresponding Source to be so
available, or (2) arrange to deprive yourself of the benefit of the
patent license for this particular work, or (3) arrange, in a manner
consistent with the requirements of this License, to extend the patent
license to downstream recipients. "Knowingly relying" means you have
actual knowledge that, but for the patent license, your conveying the
covered work in a country, or your recipient's use of the covered work
in a country, would infringe one or more identifiable patents in that
country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or
arrangement, you convey, or propagate by procuring conveyance of, a
covered work, and grant a patent license to some of the parties
receiving the covered work authorizing them to use, propagate, modify
or convey a specific copy of the covered
work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may

not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT

HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS"
WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM
IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF
ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS
THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY
GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE
USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF
DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD
PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF
SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided
above cannot be given local legal effect according to their terms,
reviewing courts shall apply local law that most closely approximates
an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify

it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want
to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/licenses/why-not-lgpl.html>.
License

<img align="right" src="http://opensource.org/trademarks/opensource/OSI-Approved-License-100x137.png">

The class is licensed under the [MIT License](http://opensource.org/licenses/MIT):

Copyright © 2013-2020 [Niels Lohmann](http://nlohmann.me)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated
documentation files (the Software), to deal in the Software without restriction, including without limitation the

rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED AS IS, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE
AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

* * *

The class contains the UTF-8 Decoder from Bjoern Hoehrmann which is licensed under the [MIT License](http://opensource.org/licenses/MIT) (see above). Copyright © 2008-2009 [Bjrn Hoehrmann](http://bjoern.hoehrmann.de/) <bjoern@hoehrmann.de>

The class contains a slightly modified version of the Grisu2 algorithm from Florian Loitsch which is licensed under the [MIT License](http://opensource.org/licenses/MIT) (see above). Copyright © 2009 [Florian Loitsch](http://florian.loitsch.com/)

The class contains a copy of [Hedley](https://nemequ.github.io/hedley/) from Evan Nemerson which is licensed as [CC0-1.0](http://creativecommons.org/publicdomain/zero/1.0/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) 2015-2017 Niels Lohmann

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2013-2020 Niels Lohmann

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.200 syslinux 4.07

1.200.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we

want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and

distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program
in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are

prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies
a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING

OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Lua License

Lua is licensed under the terms of the MIT license reproduced below.
This means that Lua is free software and can be used for both academic
and commercial purposes at absolutely no cost.

For details and rationale, see http://www.lua.org/license.html .

==========

Copyright (C) 1994-2008 Lua.org, PUC-Rio.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT
WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,

FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

(end of COPYRIGHT)
The Syslinux logo is licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported License. To view a copy of this license, visit http://creativecommons.org/licenses/by-sa/3.0/ or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View, California, 94041, USA.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether

gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim

copies of the Program's
source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably
considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy

the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any

patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE

LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License

along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c'
should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
libcom32 and libutil are licensed under the MIT license:

```
## -----------------------------------------------------------------------
##
##   Copyright 2004-2009 H. Peter Anvin - All Rights Reserved
##   Portions Copyright 2009 Intel Corporation; author: H. Peter Anvin
##
##   Permission is hereby granted, free of charge, to any person
##   obtaining a copy of this software and associated documentation
##   files (the "Software"), to deal in the Software without
##   restriction, including without limitation the rights to use,
##   copy, modify, merge, publish, distribute, sublicense, and/or
##   sell copies of the Software, and to permit persons to whom
##   the Software is furnished to do so, subject to the following
```

conditions:
##
The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the Software.
##
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED
TO THE WARRANTIES
OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.
##
--

The files in the sample, modules and libgpl directories are mostly under the
GNU GPL (see the file COPYING in the directory above.)

In general gPXE files are licensed under the GPL. GPLed files are in
general either from Linux or have been explicitly put under GPL by the
authors. The license for a file is usually documented at the top of
the file.

A few files are inherited from FreeBSD netboot and therefore can be
used under BSD or GPL. Documented in this file are some of the
non-GPL'ed files. If the internal documentation for a file disagrees
with what is documented in this file, the internal documentation for
the file shall be override this file.

File Copyright status

src/core/misc.c BSD
src/drivers/net/3c509.c BSD
src/drivers/net/3c509.h BSD
src/drivers/net/3c595.c BSD
src/drivers/net/3c595.h BSD
src/drivers/net/3c90x.c Open Source
src/drivers/net/epic100.c None
src/drivers/net/epic100.h None
src/drivers/net/ns8390.c BSD
src/drivers/net/ns8390.h BSD
src/arch/i386/include/bits/string.h None

This copy of the libpng notices is provided for your convenience. In case of
any discrepancy between this copy and the notices in the file png.h that is
included in the libpng distribution, the latter shall prevail.

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE:

If you modify libpng you may insert additional notices immediately following
this sentence.

This code is released under the libpng license.

libpng versions 1.2.6, August 15, 2004, through 1.2.44, June 26, 2010, are
Copyright (c) 2004, 2006-2009 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.2.5
with the following individual added to the list of Contributing Authors

Cosmin Truta

libpng versions 1.0.7, July 1, 2000, through 1.2.5 - October 3, 2002, are
Copyright (c) 2000-2002 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.0.6
with the following individuals added to the list of Contributing Authors

Simon-Pierre Cadieux
Eric S. Raymond
Gilles Vollant

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the
library or against infringement. There is no warranty that our
efforts or the library will fulfill any of your particular purposes
or needs. This library is provided with all faults, and the entire
risk of satisfactory quality, performance, accuracy, and effort is with
the user.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are
Copyright (c) 1998, 1999 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-0.96,
with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are
Copyright (c) 1996, 1997 Andreas Dilger
Distributed according to the same disclaimer and license as libpng-0.88,
with the following individuals
added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing Authors
and Group 42, Inc. disclaim all warranties, expressed or implied,
including, without limitation, the warranties of merchantability and of
fitness for any purpose. The Contributing Authors and Group 42, Inc.
assume no liability for direct, indirect, incidental, special, exemplary,
or consequential damages, which may result from the use of the PNG
Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to
use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without
fee, and encourage the use of this source code as a component to
supporting the PNG file format in commercial products. If you use this
source code in a product, acknowledgment is not required but would be
appreciated.

A "png_get_copyright" function is available, for convenient use in "about"

boxes and the like:

```
printf("%s",png_get_copyright(NULL));
```

Also, the PNG logo (in PNG format, of course) is supplied in the
files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

Libpng
is OSI Certified Open Source Software. OSI Certified Open Source is a
certification mark of the Open Source Initiative.

Glenn Randers-Pehrson
glennrp at users.sourceforge.net
June 26, 2010
The EFI headers contained herein are copied from the EFI Development
Kit, available from http://www.tianocore.org and published under the
following licence:

BSD License from Intel
Copyright (c) 2004, Intel Corporation
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

Neither the name of the Intel Corporation nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE

POSSIBILITY OF SUCH DAMAGE.

This licence applies only to files that are part of the EFI Development Kit. Other files may contain their own licence terms, or may fall under the standard gPXE GPL licence.

1.201 syslinux 6.03

1.201.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their

rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate

copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program

except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is

implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED

OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
The Syslinux logo is licensed under the Creative Commons
Attribution-ShareAlike 3.0 Unported License. To view a copy of this
license, visit http://creativecommons.org/licenses/by-sa/3.0/ or send
a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain
View, California, 94041, USA.

```
/*
* Copyright (c) 2001, 2002 Swedish Institute of Computer Science.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without modification,
* are permitted provided that the following conditions are met:
*
* 1. Redistributions of source code must retain the above copyright notice,
*    this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright notice,
*    this list of conditions and the following disclaimer in the documentation
```

* and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote products
* derived from this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT

* SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
* EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
* OF SUCH DAMAGE.
*
* This file is part of the lwIP TCP/IP stack.
*
* Author: Adam Dunkels <adam@sics.se>
*
*/
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it

in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably

considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work
based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code
or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary

form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free

Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of

the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c'
should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
libcom32 and libutil are licensed under the MIT license:

##
Copyright 2004-2009 H. Peter Anvin - All Rights Reserved

```
##   Portions Copyright 2009 Intel Corporation; author: H. Peter Anvin
##
##   Permission is hereby granted, free of charge, to any person
##   obtaining a copy of this software and associated documentation
##   files (the "Software"), to deal in the Software without
##   restriction, including without limitation the rights to use,
##   copy, modify, merge, publish, distribute, sublicense, and/or
##   sell copies of the Software, and to permit persons to whom
##   the Software is furnished to do so, subject to the following
##   conditions:
##
##   The above copyright notice and this permission notice shall
##   be included in all copies or substantial portions of the Software.
##
##   THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
##   EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED
 TO THE WARRANTIES
##   OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
##   NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
##   HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
##   WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
##   FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
##   OTHER DEALINGS IN THE SOFTWARE.
##
## ------------------------------------------------------------------------
```

The files in the sample, modules and libgpl directories are mostly under the
GNU GPL (see the file COPYING in the directory above.)

In general gPXE files are licensed under the GPL. GPLed files are in
general either from Linux or have been explicitly put under GPL by the
authors. The license for a file is usually documented at the top of
the file.

A few files are inherited from FreeBSD netboot and therefore can be
used under BSD or GPL. Documented in this file are some of the
non-GPL'ed files. If the internal documentation for a file disagrees
with what is documented in this file, the internal documentation for
the file shall be override this file.

File Copyright status

src/core/misc.c BSD
src/drivers/net/3c509.c BSD
src/drivers/net/3c509.h BSD
src/drivers/net/3c595.c BSD
src/drivers/net/3c595.h BSD
src/drivers/net/3c90x.c Open Source

src/drivers/net/epic100.c None
src/drivers/net/epic100.h None
src/drivers/net/ns8390.c BSD
src/drivers/net/ns8390.h BSD
src/arch/i386/include/bits/string.h None

This copy of the libpng notices is provided for your convenience. In case of
any discrepancy between this copy and the notices in the file png.h that is
included in the libpng distribution, the latter shall prevail.

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE:

If you modify libpng you may insert additional notices immediately following
this sentence.

This code is released under the libpng license.

libpng versions 1.2.6, August 15, 2004, through 1.2.44, June 26, 2010, are
Copyright (c) 2004, 2006-2009 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.2.5
with the following individual added to the list of Contributing Authors

  Cosmin Truta

libpng versions 1.0.7, July 1, 2000, through 1.2.5 - October 3, 2002, are
Copyright (c) 2000-2002 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-1.0.6
with the following individuals added to the list of Contributing Authors

  Simon-Pierre Cadieux
  Eric S. Raymond
  Gilles Vollant

and with the following additions to the disclaimer:

  There is no warranty against interference with your enjoyment of the
  library or against infringement. There is no warranty that our
  efforts or the library will fulfill any of your particular purposes
  or needs. This library is provided with all faults, and the entire
  risk of satisfactory quality, performance, accuracy, and effort is with
  the user.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are
Copyright (c) 1998, 1999 Glenn Randers-Pehrson, and are
distributed according to the same disclaimer and license as libpng-0.96,
with the following individuals added to the list of Contributing Authors:

  Tom Lane

Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are
Copyright (c) 1996, 1997 Andreas Dilger
Distributed according to the same disclaimer and license as libpng-0.88,
with the following individuals
added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing Authors
and Group 42, Inc. disclaim all warranties, expressed or implied,
including, without limitation, the warranties of merchantability and of
fitness for any purpose. The Contributing Authors and Group 42, Inc.
assume no liability for direct, indirect, incidental, special, exemplary,
or consequential damages, which may result from the use of the PNG
Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to
use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without fee, and encourage the use of this source code as a component to supporting the PNG file format in commercial products. If you use this source code in a product, acknowledgment is not required but would be appreciated.

A "png_get_copyright" function is available, for convenient use in "about" boxes and the like:

```
printf("%s",png_get_copyright(NULL));
```

Also, the PNG logo (in PNG format, of course) is supplied in the files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

Libpng
is OSI Certified Open Source Software. OSI Certified Open Source is a certification mark of the Open Source Initiative.

Glenn Randers-Pehrson
glennrp at users.sourceforge.net
June 26, 2010
The EFI headers contained herein are copied from the EFI Development Kit, available from http://www.tianocore.org and published under the following licence:

BSD License from Intel
Copyright (c) 2004, Intel Corporation
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS

"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This licence applies only to files that are part of the EFI Development Kit. Other files may contain their own licence terms, or may fall under the standard gPXE GPL licence.

1.202 dav1d 0.6.0

1.202.1 Available under license :

Copyright 2018-2019, VideoLAN and dav1d authors
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.203 inja 3.1.0

1.203.1 Available under license :

The MIT License (MIT)

Copyright (c) 2016-2019 Viktor Kirilov

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2011 - Nick Bruun.

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not
   claim that you wrote the original software. If you use this software
   in a product, an acknowledgment in the product documentation would be
   appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
   misrepresented as being the original software.
3. If you meet (any of) the author(s), you're encouraged to buy them a beer,
   a drink or whatever is suited to the situation, given that you like the
   software.
4. This notice may not be removed or altered from
 any source
   distribution.

amalgamate.py - Amalgamate C source and header files
Copyright (c) 2012, Erik Edlund <erik.edlund@32767.se>

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

* Neither the name of Erik Edlund, nor the names of its contributors may
  be used to endorse or promote products derived from this software without
  specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2018 lbersch

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH

THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright (c) 2009-2018 FIRST
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
* Neither the name of the FIRST nor the
  names of its contributors may be used to endorse or promote products
  derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY FIRST AND CONTRIBUTORS``AS IS'' AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY NONINFRINGEMENT
AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL FIRST OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2013-2017 Niels Lohmann

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,

FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.204 gnulib 2019-09-23

1.204.1 Available under license :

Please email the following information to fsf-records@gnu.org, and we
will send you the assignment form that covers your program.

Please use your full legal name (in ASCII characters) as the subject
line of the message.

[What is the name of the program or package you're contributing?]

[Will this become part of a larger GNU package? If so, what package?]

[Did you copy any files or text written by someone else into the
program? Even if that material is free software, we need to know
about it.]

[Do you have an employer who might have a basis to claim to own
your changes? Do you attend a school which might make such a claim?]

[What country are you a citizen of?]

[What year were you born?]

[Please write your email address here.]

[Please write your postal address here.]
Files:
tests/test-update-copyright.sh

Depends-on:

configure.ac:
abs_aux_dir=`cd "$ac_aux_dir"; pwd`
AC_SUBST([abs_aux_dir])

Makefile.am:
TESTS += test-update-copyright.sh
TESTS_ENVIRONMENT += abs_aux_dir='$(abs_aux_dir)'
@c The GNU Lesser General Public License.
@center Version 2.1, February 1999

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence the
version number 2.1.]
@end display

@subheading Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software---to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software---typically
libraries---of the Free
Software Foundation and other authors who decide to use it. You can use
it too, but we suggest you first think carefully about whether this
license or the ordinary General Public License is the better strategy to
use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of it
in new free programs; and that you are informed that you can do these
things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the @dfn{Lesser} General Public License because it
does @emph{Less} to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the
same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
``work based on the library'' and a ``work that uses the library''. The
former
contains code derived from the library, whereas the latter must
be combined with the library in order to run.

@subheading TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0
@item
This License Agreement applies to any software library or other program
which contains a notice placed by the copyright holder or other
authorized party saying it may be distributed under the terms of this
Lesser General Public License (also called ``this License''). Each
licensee is addressed as ``you''.

A ``library'' means a collection of software functions and/or data

prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

The ``Library'', below, refers to any such software library or work
which has been distributed under these terms. A ``work based on the
Library'' means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it,
either verbatim or with modifications and/or translated
straightforwardly into another language. (Hereinafter, translation is
included without limitation in the term ``modification''.)

``Source code'' for a work means the preferred form of the work for
making modifications to it. For a library, complete source code means
all the source code for all modules it contains, plus any associated
interface definition files, plus the scripts used to control compilation
and installation of the library.

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running a program using the Library is not restricted, and output from
such a program is covered only if its contents constitute a work based
on the Library (independent of the use of the Library in a tool for
writing it). Whether that is true depends on what the Library does
and what the program that uses the Library does.

@item
You may copy and distribute
verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that
you conspicuously and appropriately publish on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact
all the notices that refer to this License and to the absence of any
warranty; and distribute a copy of this License along with the
Library.

You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

@item
You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

@enumerate a
@item

The modified work must itself be a software library.

@item
You must cause the files modified to carry prominent notices
stating that you changed the files and the date of any change.

@item
You must
cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

@item
If a facility in the modified Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)
@end enumerate

These requirements apply to the modified work as a whole. If
identifiable sections
of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under

the scope of this
License.

@item
You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

@item
You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and
2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

@item
A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a ``work that uses the Library''. Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a ``work that uses the Library'' with the Library
creates an executable that is a derivative of the Library (because
it
contains portions of the Library), rather than a ``work that uses the
library''. The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a ``work that uses the Library'' uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise,
if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

@item
As an exception to the Sections above, you may also combine or link a ``work that uses the Library'' with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of
this License. Also, you must do one
of these things:

@enumerate a
@item
Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable ``work that uses the Library'', as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood

that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

@item
Use a suitable shared library mechanism for linking with the Library. A
suitable mechanism is one that (1) uses at run time a copy of the
library already present on the user's computer system, rather than
copying library functions into the executable,
and (2) will operate
properly with a modified version of the library, if the user installs
one, as long as the modified version is interface-compatible with the
version that the work was made with.

@item
Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

@item
If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

@item
Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.
@end enumerate

For an executable, the required form of the ``work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that
is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies the
executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

@item
You may place library facilities that are a work based on the

Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

@enumerate a
@item
Accompany the combined library with a copy of the same work based on the Library,
uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

@item
Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
@end enumerate

@item
You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

@item
You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

@item
Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

@item
If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License,
 they do not
excuse you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software
 distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

@item
If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

@item
The Free Software Foundation
 may publish revised and/or new
versions of the Lesser General Public License from time to time.

Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
``any later version'', you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

@item
If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

@center @b{NO WARRANTY}

@item
BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY ``AS IS'' WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

@item
IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.
@end enumerate

@subheading END OF TERMS AND CONDITIONS

@page
@subheading How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source
file to most effectively
convey the exclusion of warranty; and each file should have at least the ``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
@end
smallexample

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a ``copyright disclaimer'' for the library, if necessary. Here is a sample; alter the names:

@smallexample
Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample

That's all there is to it!

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by
the Library is deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are

covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined

library under terms of your
choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option
of following the terms and
conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.
Description:
Concatenate two arbitrary file names.

Files:
lib/filenamecat.h
lib/filenamecat-lgpl.c
m4/filenamecat.m4

Depends-on:
dirname-lgpl

configure.ac:
gl_FILE_NAME_CONCAT_LGPL

Makefile.am:
lib_SOURCES += filenamecat-lgpl.c

Include:
"filenamecat.h"

License:
LGPLv2+

Maintainer:
Jim Meyering
$Id: COPYING,v 1.3 2006-10-26 16:20:28 eggert Exp $
The files in here are mostly copyright (C) Free Software Foundation, and
are under assorted licenses. Mostly, but not entirely, GPL.

Many modules are provided dual-license, either GPL or LGPL at your
option. The headers of files in the lib directory (e.g., lib/error.c)
state GPL for convenience, since the bulk of current gnulib users are
GPL'd programs. But the files in the modules directory (e.g.,
modules/error) state the true license of each file, and when you use
'gnulib-tool --lgpl --import <modules>', gnulib-tool either rewrites
the files to have an LGPL header as part of copying them from gnulib
to your project directory, or fails because the modules you requested
were not licensed under LGPL.

Some of the source files in lib/ have different licenses. Also, the
copy of maintain.texi in doc/ has a verbatim-copying license, and
doc/standards.texi and make-stds.texi are GFDL. Most (but not all)
m4/*.m4 files have nearly unlimited
 licenses.
@c The GNU General Public License.
@center Version 2, June 1991

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@heading Preamble

 The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public

License is intended to guarantee your freedom to share and change free software---to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

@heading TERMS AND
CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0
@item
This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The ``Program'', below,
refers to any such program or work, and a ``work based on the Program''
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term ``modification''.) Each licensee is addressed as ``you''.

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been
made by running the Program).
Whether that is true depends on what the Program does.

@item
You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

@item
You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

@enumerate a
@item
You must cause the modified files to carry prominent notices
stating
that you changed the files and the date of any change.

@item

You must cause any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

@item
If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)
@end enumerate

These requirements apply to the modified work as
a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring
the other work under
the scope of this License.

@item
You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

@enumerate a
@item
Accompany it with the complete corresponding machine-readable

source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

@item
Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

@item
Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial
distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)
@end enumerate

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts
as
distribution of the source code, even though third parties are not
compelled to copy the source along with the object code.

@item
You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

@item

You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions
for copying, distributing or modifying
the Program or works based on it.

@item
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

@item
If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute
the Program at all. For example, if a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system;

it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

@item
If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

@item
The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each
version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and ``any
later version'', you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

@item
If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

@iftex
@heading NO WARRANTY
@end iftex
@ifinfo
@center
NO WARRANTY

@end ifinfo

@item
BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM ``AS IS'' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

@item
IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO
LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.
@end enumerate

@iftex
@heading END OF TERMS AND CONDITIONS
@end iftex
@ifinfo
@center END OF TERMS AND CONDITIONS

@end ifinfo

@page
@heading Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the ``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the program's name

and a brief idea of what it does.}
Copyright (C) @var{yyyy} @var{name of author}

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
@end smallexample

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

@smallexample
Gnomovision version
69, Copyright (C) @var{year} @var{name of author}
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
@end smallexample

The hypothetical commands @samp{show w} and @samp{show c} should show
the appropriate parts of the General Public License. Of course, the
commands you use may be called something other than @samp{show w} and
@samp{show c}; they could even be mouse-clicks or menu items---whatever
suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a ``copyright disclaimer'' for the program, if
necessary. Here is a sample; alter the names:

@example
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

@var{signature of Ty Coon}, 1 April 1989
Ty Coon, President of Vice
@end example

This General
Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:

(1)
assert copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains
that there is no warranty for this free software. For both users' and
authors' sake, the GPL requires that modified versions be marked as
changed, so that their problems will not be attributed erroneously to
authors of previous versions.

Some devices are designed to deny users access to install or run
modified versions of the software inside them, although the manufacturer
can do so. This is fundamentally incompatible with the aim of
protecting users' freedom to change the software. The systematic
pattern of such abuse occurs in the area of products for individuals to
use, which is precisely where it is most unacceptable. Therefore, we
have designed this version of the GPL to prohibit the practice for those
products. If such problems arise substantially in other domains, we
stand
ready to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents.
States should not allow patents to restrict development and use of
software on general-purpose computers, but in those that do, we wish to
avoid the special danger that patents applied to a free program could
make it effectively proprietary. To prevent this, the GPL assures that
patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and
modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of
works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this
License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work
in a fashion requiring copyright permission, other than the making of an

exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy,
is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The
"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to

produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;

section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from

a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work,

for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;

the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible

for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a

patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where

the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want
to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/licenses/why-not-lgpl.html>.
Files:
tests/test-canonicalize-lgpl.c
tests/signature.h
tests/null-ptr.h

tests/macros.h

Depends-on:
ignore-value
same-inode
symlink

configure.ac:

Makefile.am:
TESTS += test-canonicalize-lgpl
check_PROGRAMS += test-canonicalize-lgpl
Description:
Provide the GNU Free Documentation License in Texinfo format.

Files:
doc/fdl.texi

Depends-on:

configure.ac:

Makefile.am:

Include:

License:
unmodifiable license text

Maintainer:
all
Legal Issues about Contributing Code to GNU last updated 14 July 2015

Project GNU has to be careful to obey copyright laws, even though
these laws are wrong when they stop people from sharing generally
useful published information such as software, because we are in the
public eye. We also use copyright to defend users' freedom, by means
of copyleft (though this does not excuse copyright law for helping
to make software proprietary).

This means that if you want to contribute software to GNU, you have to
do something to give us legal permission to use it. There are three
ways this can be done:

* Assign the copyright to the Free Software Foundation.
This allows the FSF to act to stop violations of the GPL.

* Keep the copyright and release the program yourself under the GNU

GPL. (This alternative is too impractical for contributions to a preexisting FSF-copyrighted GNU program.)

* Put the code in the public domain. Then there is nothing to stop hoarding of modified versions, but we can still use the program in GNU.

Most of these alternatives require a signed piece of paper, or in some cases a digital signature, to make it happen.

* Assigning copyright.

Assigning the copyright means signing a contract that makes the Free Software Foundation the "owner" of the program according to the law. As the copyright holder, the Foundation can sue anyone who tries to distribute the program as a proprietary product. We are willing to keep your name on the program as the author for as long as the program remains recognizably distinct. ("Owner" is in quotes to show that we don't really believe in this kind of ownership.)

The assignment contract commits the foundation to setting distribution terms that permit free redistribution.

Often we don't want to do the work of starting to distribute a program right away. There are many things which we will need in order to have a complete system but which aren't really useful until the rest of the system is done. But signing the assignment does not stop you from distributing the program yourself--as long as you do so under the GNU terms. You don't have to wait for us to start distributing. You can start distributing as soon as you attach our standard copyleft to the files. (Ask for our advice on how to do this.)

The assignment contract we normally use has a clause that permits you to use your code in proprietary programs, on 30 days' notice. (The 30 days' notice is there because, through a legal technicality, it would improve our position in a suit against a hoarder.) Although we believe that proprietary software is wrong, we include this clause because it would serve no purpose to ask you to promise not to do it. You're giving us a gift in the first place.

You don't need to invoke this clause in order to distribute copies as free software under the GNU GPL, since everyone is allowed to do that.

* Releasing it yourself.

You can release a program yourself under copyleft distribution terms such as the

GNU GPL. (In order to accept the program as GNU software, we would have to be happy with your choice of terms.) This does not require a contract between you and the FSF, but we would appreciate having a signed piece of paper to confirm your decision.

If someone violates your terms--for example, if someone gets a copy from us, and uses it as a basis for a proprietary product in violation of the terms--we cannot sue him. You would have to sue, or he gets away with it.

* Public domain.

If you put the program in the public domain, we prefer to have a signed piece of paper--a disclaimer of rights--from you confirming this. If the program is not very important, we can do without one; the worst that could happen is that we might some day be forced to stop using it.

The law says that anyone can copyright a modified version of the public domain work. (This doesn't restrict the original, which remains in the public domain; only the changes are copyrighted.) If we make extensive changes,
we will probably do this and add our usual copyleft. If we make small changes, we will leave the version we distribute in the public domain.

* What about your employer?

If you are employed to do programming, or have made an agreement with your employer that says it owns programs you write, we need a signed piece of paper from your employer disclaiming rights to the program. It should be signed by a vice president or general manager of the company. If you can't get at them, it is almost as good to find someone who signs licenses for software that is purchased. Here is a sample wording:

Digital Simulation Corporation hereby disclaims all copyright interest in the program "sample.el" (a program to direct assemblers to make passes at compilers under GNU Emacs) written by Hugh Hacker.

<signature of Mo Ghoul>, 1 April 1987
Mo Ghoul, President of Vice, Digital Simulation Corp.

The description of what the program does is just to make it clearer what the disclaimer covers.

If
what you did was change an existing program, it should say this:

...in the changes and enhancements made by Hugh Hacker to the

program "sample.el".

* Did anyone else contribute?

If someone else contributed more than a few lines here or there to the program, then that person too is an author, and that person too needs to sign papers just as you do. So may that person's employer. However, if his contribution is just a fraction of the whole work, it is satisfactory if he disclaims his own rights, even if you are assigning yours. (If just the minor contributors' work goes in the public domain, that doesn't leave much of a loophole for hoarders.)

If you incorporated packages which you found floating around as "public domain", we might still want to track down their authors, to get disclaimers to reassure us that they really are in the public domain. So keep track of what these packages are and who wrote them.

* A reminder:

In working on a project for GNU, DO NOT study and
follow any Unix
sources or other non-free software that might have any bearing on the project. Don't refer to them at all, unless you are forced to for non-GNU reasons.

It is not considered a serious problem if you have read Unix sources or other non-free source code in the past for other purposes, provided you don't copy anything in particular from them. However, referring to them while you do the work could cause us legal problems later. Please email the following information to assign@gnu.org, and we will send you the assignment form for your past and future changes.

Please use your full legal name (in ASCII characters) as the subject line of the message.

REQUEST: SEND FORM FOR PAST AND FUTURE CHANGES

[What is the name of the program or package you're contributing to?]

[Did you copy any files or text written by someone else in these changes? Even if that material is free software, we need to know about it.]

[Do you have an employer who might have a basis to claim to own your changes? Do you attend a school which might make such a claim?]

[For the copyright registration, what country are you a citizen of?]

[What year were you born?]

[Please write your email address here.]

[Please write your postal address here.]

[Which files have you changed so far, and which new files have you written so far?]
Description:
Help make libraries relocatable, that is, to allow them to function properly when copied to an arbitrary directory.

Files:
doc/relocatable.texi
lib/relocatable.h
lib/relocatable.c
lib/relocatable.valgrind
m4/relocatable-lib.m4

Depends-on:
strdup

configure.ac:
gl_RELOCATABLE_LIBRARY
if test $RELOCATABLE = yes; then
 AC_LIBOBJ([relocatable])
fi

Makefile.am:
DEFS += -DNO_XMALLOC

Include:
"relocatable.h"

License:
LGPLv2+

Maintainer:
Ben Pfaff

Description:
Ensure getcwd(NULL, 0) returns a buffer allocated by the malloc() function.

Files:
lib/getcwd-lgpl.c
m4/getcwd.m4

Depends-on:
unistd
strdup [test $REPLACE_GETCWD = 1]

configure.ac:
gl_FUNC_GETCWD_LGPL
if test $REPLACE_GETCWD = 1; then
AC_LIBOBJ([getcwd-lgpl])
fi
gl_UNISTD_MODULE_INDICATOR([getcwd])

Makefile.am:

Include:
<unistd.h>

License:
LGPLv2+

Maintainer:
Eric Blake

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law:

that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to

control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For

example, if a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to
decide if he or she is willing
to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free

library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means

all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has

a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be
reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany

it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may
distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit

modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception,

the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision
will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

Description:
Locating a program in PATH (LGPLed version).

Files:
lib/findprog.h
lib/findprog.c
lib/findprog-lgpl.c
m4/findprog.m4
m4/eaccess.m4

Depends-on:
stdbool
strdup
concat-filename
access
unistd

configure.ac:
gl_FINDPROG
gl_MODULE_INDICATOR([findprog-lgpl])

Makefile.am:
lib_SOURCES += findprog.h findprog.c

Include:
"findprog.h"

License:
LGPLv2+

Maintainer:
all
The files in this directory describe the gnulib modules.
The following copyright notice applies to each of these
description files.

Copyright (C) 2002-2019 Free Software Foundation, Inc.
This file is free software; the Free Software Foundation
gives unlimited permission to copy and/or distribute it,
with or without modifications, as long as this notice is preserved.
Please email the following information to assign@gnu.org, and we will
send you the assignment form that covers the changes you have already
written. That form will cover subsequent corrections to those
changes, but it will not cover other unrelated future changes to the
same program.

Please use your full legal name (in ASCII characters) as the subject line of the message.

REQUEST: SEND FORM FOR CHANGES ALREADY MADE

[What is the name of the program or package you're contributing to?]

[Did you copy any files or text written by someone else in these changes?
Even if that material is free software, we need to know about it.]

[Do you have an employer who might have a basis to claim to own
your changes? Do you attend a school which might make such a claim?]

[For the copyright registration, what country are you a citizen of?]

[What year were you born?]

[Please write your email address here.]

[Please write your
 postal address here.]

[Which files have you changed so far, and which new files have you written
so far?]
Files:
tests/test-getcwd-lgpl.c
tests/signature.h
tests/macros.h

Depends-on:

configure.ac:

Makefile.am:
TESTS += test-getcwd-lgpl
check_PROGRAMS += test-getcwd-lgpl
test_getcwd_lgpl_LDADD = $(LDADD) $(LIBINTL)
Please email the following information to assign@gnu.org, and we will
send you the disclaimer form for your changes. This form is preferred
when your changes are small, they do not add any nontrivial new
files, and you are finished making them (aside perhaps from small bug

fixes).

If you would like to make further contributions to the same package,
and you would like to avoid the need to sign more papers when you
contribute them, you have another option: to sign a copyright
assignment covering your future changes. If that is what you want to
do, please tell the maintainer you would prefer to sign an assignment
of past and future changes.

Please use your full legal name (in ASCII characters) as the subject
line of the message.

REQUEST: SEND DISCLAIMER FORM

[What is the name of the program or package you're contributing to?]

[Did you copy any files or text written by someone else in these changes?
Even if that
material is free software, we need to know about it.]

[Do you have an employer who might have a basis to claim to own
your changes?]

[Please write your email address here.]

[Please write your snail address here.]

[Please list the files involved, or give a brief description of the changes
being disclaimed.]
Description:
realpath, canonicalize_file_name: Provide canonical absolute file name

Files:
lib/canonicalize-lgpl.c
m4/canonicalize.m4
m4/double-slash-root.m4

Depends-on:
extensions

stdlib
nocrash
alloca-opt [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
errno [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
lstat [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
malloca [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
memmove [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
pathmax [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
readlink [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]
sys_stat [test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1]

configure.ac:
gl_CANONICALIZE_LGPL
if
 test $HAVE_CANONICALIZE_FILE_NAME = 0 || test $REPLACE_CANONICALIZE_FILE_NAME = 1; then
 AC_LIBOBJ([canonicalize-lgpl])
fi
gl_MODULE_INDICATOR([canonicalize-lgpl])
gl_STDLIB_MODULE_INDICATOR([canonicalize_file_name])
gl_STDLIB_MODULE_INDICATOR([realpath])

Makefile.am:

Include:
<stdlib.h>

License:
LGPLv2+

Maintainer:
all
Description:
Extract specific portions of filenames.

Files:
lib/dirname.h
lib/dirname-lgpl.c
lib/basename-lgpl.c
lib/stripslash.c
m4/dirname.m4

Depends-on:
dosname
double-slash-root
malloc-posix
stdbool

configure.ac:
gl_DIRNAME_LGPL

Makefile.am:
lib_SOURCES += dirname-lgpl.c basename-lgpl.c stripslash.c

Include:
"dirname.h"

License:
LGPLv2+

Maintainer:
Jim Meyering, Eric Blake

1.205 hd-parm 9.38

1.205.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not

price. Our General Public
Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:

that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can
be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program
(or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program
in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any

associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based
on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you

may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical
commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

BSD-Style Open Source License:

You may freely use, modify, and redistribute the hdparm program,
as either binary or source, or both.

The only condition is that my name and copyright notice
remain in the source code as-is.

Mark Lord (mlord@pobox.com)
This package was debianized by Christopher L Cheney <ccheney@debian.org> on
Wed, 21 Nov 2001 15:51:14 -0600.

It was downloaded from http://www.ibiblio.org/pub/Linux/system/hardware

Upstream Author: Mark S. Lord <mlord@pobox.com>

Copyright:

/* hdparm.c - Command line interface to get/set hard disk parameters */
/*   - by Mark Lord 1994-2008 -- freely distributable */

You are free to distribute this software under the terms of the BSD License.
On Debian systems, the complete text of the BSD License can be found in
/usr/share/common-licenses/BSD

1.206 libjpeg 8d

1.206.1 Available under license :

This is Debian's prepackaged version of the `jpeg library' by the Independent
JPEG Group.

This package was created by Mark Mickan <mmickan@debian.org> from sources
which can be found at ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz

It is partly based on the libjpeg6a package originally put together by
Andy Guy <awpguy@acs.ucalgary.ca> and later maintained by Mark Mickan.

Current Debian maintainer is Bill Allombert <ballombe@debian.org>.

LEGAL ISSUES [from README supplied with source - MM]
==========

In plain English:

1. We don't promise that this software works. (But if you find any bugs,
  please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.

3. You may not pretend that you wrote this software. If you use it in a
program, you must acknowledge somewhere in your documentation that
you've used the IJG code.

In legalese:

The authors make NO WARRANTY or representation, either express or implied,
with respect to this software,
its quality, accuracy, merchantability, or
fitness for a particular purpose. This software is provided "AS IS", and you,
its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-2010, Thomas G. Lane, Guido Vollbeding.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this
software (or portions thereof) for any purpose, without fee, subject to these
conditions:
(1) If any part of the source code for this software is distributed, then this
README file must be included, with this copyright and no-warranty notice
unaltered; and any additions, deletions, or changes to the original files
must be clearly indicated in accompanying documentation.
(2) If only executable code is distributed, then the accompanying
documentation must state that "this software is based in part on the work of
the Independent JPEG Group".
(3) Permission for use of this software is granted only if the user
accepts
full responsibility for any undesirable consequences; the authors accept
NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code,
not just to the unmodified library. If you use our work, you ought to
acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name
in advertising or publicity relating to this software or products derived from
it. This software may be referred to only as "the Independent JPEG Group's
software".

We specifically permit and encourage the use of this software as the basis of
commercial products, provided that all warranty or liability claims are
assumed by the product vendor.

ansi2knr.c is included in this distribution by permission of L. Peter Deutsch,
sole proprietor of its copyright holder, Aladdin Enterprises of Menlo Park, CA.
ansi2knr.c is NOT covered by the above copyright and conditions, but instead
by the usual distribution terms of the Free Software

Foundation; principally,
that you must include source code if you redistribute it. (See the file
ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part
of any program generated from the IJG code, this does not limit you more than
the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltmain.sh). Another support script, install-sh, is copyright by X Consortium
but is also freely distributable.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent, GIF reading support has
been removed altogether, and the GIF writer has been simplified to produce
"uncompressed GIFs". This technique does not use the LZW algorithm; the
resulting GIF files are larger than usual, but are readable by all standard
GIF decoders.

We
are required to state that
  "The Graphics Interchange Format(c) is the Copyright property of
  CompuServe Incorporated. GIF(sm) is a Service Mark property of
  CompuServe Incorporated."

1.207 zlib 1.2.11.dfsg-2ubuntu1.2

1.207.1 Available under license :

Found license 'General Public License 2.0' in 'No. PKWare has apparently decided to keep that format proprietary,
since 42. The match.asm code in contrib is under the GNU General Public License. GNU GPL?'
/* zlib.h -- interface of the 'zlib' general purpose compression library
 version 1.2.11, January 15th, 2017

 Copyright (C) 1995-2017 Jean-loup Gailly and Mark Adler

 This software is provided 'as-is', without any express or implied
 warranty. In no event will the authors be held liable for any damages
 arising from the use of this software.

 Permission is granted to anyone to use this software for any purpose,
 including commercial applications, and to alter it and redistribute it
 freely, subject to the following restrictions:

 1. The origin of this software must not be misrepresented; you must not
    claim that you wrote the original software. If you use this software
    in a product, an acknowledgment in the product documentation would be
    appreciated but is not required.

2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950 (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).
*/

1.208 xmltooling 3.0.5-1build1

1.208.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge

for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary

General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and
modification follow. Pay close attention to the difference between a
"work based on the library" and a "work that uses the library". The
former contains code derived from the library, whereas the latter must
be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other
program which contains a notice placed by the copyright holder or
other authorized party saying it may be distributed under the terms of

this Lesser General Public License (also called "this License").
Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the
terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be
reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary

GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The

threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate

properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

e) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally
distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work
based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the

integrity of the free software distribution system
which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision
will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.

EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
OpenSAML XMLTooling C++ Library

This product includes software developed by the Apache Software
Foundation (http://www.apache.org/).

This product includes software developed by the OpenSSL Project
for use in the OpenSSL Toolkit. (http://www.openssl.org/).

This project uses libraries covered by the Lesser GNU Public License.
Source code for these libraries is available on request.

This product includes software developed, copyrighted, and contributed by:

The Ohio State University
SWITCH, Zurich, CH

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2004, Daniel Stenberg, <daniel@haxx.se>.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose
with or without fee is hereby granted, provided that the above copyright
notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not
be used in advertising or otherwise to promote the sale, use or other dealings
in this Software without prior written
authorization of the copyright holder.

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts. Actually both licenses are BSD-style
Open Source licenses. In case of any license issues related to OpenSSL
please contact openssl-core@openssl.org.

OpenSSL License

/* ==
* Copyright (c) 1998-2004 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*

* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer
 in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. All advertising materials mentioning features or use of this
*   software must display the following acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For written permission, please contact
*   openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*   nor may "OpenSSL" appear in their names without prior written
*   permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit (http://www.openssl.org/)"
 *
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software
 written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the
 library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic
 related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS

* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
 OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.209 xerces-c 3.2.2+debian-1build3

1.209.1 Available under license :

 ==
== NOTICE file corresponding to section 4(d) of the Apache License,   ==
== Version 2.0, in this case for the Apache Xerces distribution.   ==
==

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

Portions of this software were originally based on the following:
  - software copyright (c) 1999, IBM Corporation., http://www.ibm.com.

                                 Apache License
                           Version 2.0, January 2004
                        http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

   "License" shall mean the terms and conditions for use, reproduction,
   and distribution as defined by Sections 1 through 9 of this document.

   "Licensor" shall mean the copyright owner or entity authorized by
   the copyright owner that is granting the License.

   "Legal Entity" shall mean the union of the acting entity and all
   other entities that control, are controlled by, or are under common
   control with that entity. For the purposes of this definition,
   "control" means (i) the power, direct or indirect, to cause the
   direction or management of such entity, whether by contract or
   otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.210 pluggy 0.13.1

1.210.1 Available under license :

MIT
The MIT License (MIT)

Copyright (c) 2015 holger krekel (rather uses bitbucket/hpk42)

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

1.211 linenoise 1.0

1.211.1 Available under license :

Copyright (c) 2010-2014, Salvatore Sanfilippo <antirez at gmail dot com>
Copyright (c) 2010-2013, Pieter Noordhuis <pcnoordhuis at gmail dot com>

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND

ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.212 hd-parm 9.38

1.212.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public
Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish,
that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can
be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based
on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit
royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY
OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical
commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
BSD-Style Open Source License:

You may freely use, modify, and redistribute the hdparm program,
as either binary or source, or both.

The only condition is that my name and copyright notice
remain in the source code as-is.

Mark Lord (mlord@pobox.com)
This package was debianized by Christopher L Cheney <ccheney@debian.org> on
Wed, 21 Nov 2001 15:51:14 -0600.

It was downloaded from http://www.ibiblio.org/pub/Linux/system/hardware

Upstream Author: Mark S. Lord <mlord@pobox.com>

Copyright:

/* hdparm.c - Command line interface to get/set hard disk parameters */
/*   - by Mark Lord 1994-2008 -- freely distributable */

You are free to distribute this software under the terms of the BSD License.
On Debian systems, the complete text of the BSD License can be found in
/usr/share/common-licenses/BSD

1.213 packaging 19.0

1.213.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this

License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

This software is made available under the terms of *either* of the licenses
found in LICENSE.APACHE or LICENSE.BSD. Contributions to this software is made
under the terms of *both* these licenses.

Copyright (c) Donald Stufft and individual contributors.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.214 mail 1.6.2

1.214.1 Available under license :

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)
Version 1.1

1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7.
"License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process,
and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby
grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused

by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made,

and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications

that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability

incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor

as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Oracle is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice

in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED

UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their

nature, must remain in effect beyond the termination of this License
shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant
to a written agreement with Participant.

6.3. If You assert a patent infringement claim against Participant alleging that the Participant Software directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

6.4. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR
OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. § 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original

Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating
to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its
utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)
The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

1.215 mail 1.6.5

1.215.1 Available under license :

Eclipse Public License - v 2.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial content
Distributed under this Agreement, and

b) in the case of each subsequent Contributor:
i) changes to the Program, and
ii) additions to the Program;
where such changes and/or additions to the Program originate from and are Distributed by that particular Contributor. A Contribution "originates" from a Contributor if it was added to the Program by

such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include changes or additions to the Program that are not Modified Works.

"Contributor" means any person or entity that Distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions Distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement or any Secondary License (as applicable), including Contributors.

"Derivative Works" shall mean any work, whether in Source Code or other form, that is based on (or derived from) the Program and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship.

"Modified Works" shall mean any work in Source Code or other form that results from an addition to, deletion from, or modification of the contents of the Program, including, for purposes of clarity any new file in Source Code form that contains any contents of the Program. Modified Works shall not include works that contain only declarations, interfaces, types, classes, structures, or files of the Program solely in each case in order to link to, bind by name, or subclass the Program or Modified Works thereof.

"Distribute" means the acts of a) distributing or b) making available in any manner that enables the transfer of a copy.

"Source Code" means the form of a Program preferred for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Secondary License" means either the GNU General Public License, Version 2.0, or any later versions of that license, including any exceptions or additional permissions as identified by the initial Contributor.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free

copyright
license to reproduce, prepare Derivative Works of, publicly display, publicly perform, Distribute and sublicense the Contribution of such Contributor, if any, and such Derivative Works.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in Source Code or other form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands
that although each Contributor grants the
licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to Distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant

the copyright license set forth in this Agreement.

e) Notwithstanding the terms of any Secondary License, no Contributor makes additional grants to any Recipient (other than those set forth in this Agreement) as a result of such Recipient's receipt of the Program under the terms of a Secondary License (if permitted under the terms of Section 3).

3. REQUIREMENTS

3.1 If a Contributor Distributes the Program in any form, then:

a) the Program must also be made available as Source Code, in

accordance with section 3.2, and the Contributor must accompany the Program with a statement that the Source Code for the Program is available under this Agreement, and informs Recipients how to obtain it in a reasonable manner on or through a medium customarily used for software exchange; and

b) the Contributor may Distribute the Program under a license different than this Agreement, provided that such license:

i) effectively disclaims on behalf of all other Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all other Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) does not attempt to limit or alter the recipients' rights in the Source Code under section 3.2; and

iv) requires any subsequent distribution of the Program by any party to be under a license that satisfies the requirements of this section 3.

3.2 When the Program is Distributed as Source Code:

a) it must be made available under this Agreement, or if the Program (i) is combined with other material in a separate file or files made available under a Secondary License, and (ii) the initial Contributor attached to the Source Code the notice described in Exhibit A of this Agreement, then the Program may be made available under the terms of such Secondary Licenses, and

b) a copy of this Agreement must be included with each copy of the Program.

3.3 Contributors may not remove or alter any copyright, patent, trademark, attribution notices, disclaimers of warranty, or limitations of liability ("notices") contained within the Program from any copy of the Program which they Distribute, provided that Contributors may add their own appropriate notices.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this

license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing

version number. The Program (including Contributions) may always be Distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to Distribute the Program (including its Contributions) under the new version.

Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel
or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. Nothing in this Agreement is intended to be enforceable by any entity that is not a Contributor or Recipient. No third-party beneficiary rights are created under this Agreement.

Exhibit A - Form of Secondary Licenses Notice

"This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License, v. 2.0 are satisfied: {name license(s), version(s), and exceptions or additional permissions here}."

Simply including a copy of this Agreement, including this Exhibit A is not sufficient to license the Source Code under Secondary Licenses.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely
to
look for such a notice.

You may add additional accurate notices of copyright ownership.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor
Boston, MA 02110-1335
USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to

share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.)
You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you
must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed
at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted,
and the output from the Program is
covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications
or work under the terms of Section 1 above, provided
that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice

that there is no warranty (or else, saying that you provide a
warranty) and that users may redistribute the program under these
conditions, and telling the user how
to view a copy of this License.
(Exception: if the Program itself is interactive but does not
normally print such an announcement, your work based on the Program
is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program, and
can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based on
the Program, the distribution of the whole must be on the terms of this
License, whose permissions for other licensees extend to the entire
whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you;
rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of a
storage or distribution medium does not bring the other work under the
scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections 1
and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your cost

of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to
distribute corresponding source code. (This alternative is allowed
only for noncommercial distribution and only if you received the

program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent

infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular
circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted
in
certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and

conditions either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER
EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF
TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey

the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

    One line to give the program's name and a brief idea of what it does.
    Copyright (C) <year> <name of author>

    This program is free software; you can redistribute it and/or modify
    it under the terms of the GNU General Public License as published by
    the Free Software Foundation; either version 2 of the License, or
    (at your option) any later version.

This program is distributed in the hope that it will be useful, but
    WITHOUT ANY WARRANTY; without even the implied warranty of
    MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
    General Public License for more details.

    You should have received a copy of the GNU General Public License
    along with this program; if not, write to the Free Software
    Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1335 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

    Gnomovision version 69, Copyright (C) year name of author
    Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type
    `show w'. This is free software, and you are welcome to redistribute
    it under certain conditions; type `show c' for details.

The hypothetical commands `show
w' and `show c' should show the
appropriate parts of the General Public License. Of course, the commands
you use may be called something other than `show w' and `show c'; they
could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

    Yoyodyne, Inc., hereby disclaims all copyright interest in the
    program `Gnomovision' (which makes passes at compilers) written by
    James Hacker.

    signature of Ty Coon, 1 April 1989
    Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

CLASSPATH EXCEPTION

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

Notices for Jakarta Mail

This content is produced and maintained by the Jakarta Mail project.

* Project home: https://projects.eclipse.org/projects/ee4j.mail

Trademarks

Jakarta Mail is a trademark of the Eclipse Foundation.

Copyright

All content is the property of the respective authors or their employers. For more information regarding authorship of content, please consult the listed source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at

http://www.eclipse.org/legal/epl-2.0. This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License v. 2.0 are satisfied: GNU General Public License, version 2 with the GNU Classpath Exception which is available at https://www.gnu.org/software/classpath/license.html.

SPDX-License-Identifier: EPL-2.0
OR GPL-2.0 WITH Classpath-exception-2.0

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/mail

Third-party Content

This project leverages the following third party content.

None

Cryptography

Content may contain encryption software. The country in which you are currently may have restrictions on the import, possession, and use, and/or re-export to another country, of encryption software. BEFORE using any encryption software, please check the country's laws, regulations and policies concerning the import, possession, or use, and re-export of encryption software, to see if this is permitted.
Apache Commons Lang
Copyright 2001-2016 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

This product includes software from the Spring Framework,
under the Apache License 2.0 (see: StringUtils.containsWhitespace())

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License

2009-2017, Jonathan Hedley <jonathan@hedley.net>

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.216 aop-alliance 1.0

1.216.1 Available under license :

Public Domain

1.217 webrtc m44

1.217.1 Available under license :

Copyright (c) 2011, The WebRTC project authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in
the documentation and/or other materials provided with the
distribution.

* Neither the name of Google nor the names of its contributors may
be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This source tree contains third party source code which is governed by third
party licenses. Paths to the files and associated licenses are collected here.

Files governed by third party licenses:
common_audio/fft4g.c
common_audio/signal_processing/spl_sqrt_floor.c
common_audio/signal_processing/spl_sqrt_floor_arm.S
modules/audio_coding/codecs/g711/main/source/g711.c
modules/audio_coding/codecs/g711/main/source/g711.h
modules/audio_coding/codecs/g722/main/source/g722_decode.c
modules/audio_coding/codecs/g722/main/source/g722_enc_dec.h
modules/audio_coding/codecs/g722/main/source/g722_encode.c
modules/audio_coding/codecs/isac/main/source/fft.c
modules/audio_device/mac/portaudio/pa_memorybarrier.h
modules/audio_device/mac/portaudio/pa_ringbuffer.c
modules/audio_device/mac/portaudio/pa_ringbuffer.h
modules/audio_processing/aec/aec_rdft.c
system_wrappers/source/condition_variable_event_win.cc
system_wrappers/source/set_thread_name_win.h
system_wrappers/source/spreadsortlib/constants.hpp
system_wrappers/source/spreadsortlib/spreadsort.hpp

Individual
licenses for each file:

Files:

common_audio/signal_processing/spl_sqrt_floor.c
common_audio/signal_processing/spl_sqrt_floor_arm.S

License:
/*
* Written by Wilco Dijkstra, 1996. The following email exchange establishes the
* license.
*
* From: Wilco Dijkstra <Wilco.Dijkstra@ntlworld.com>
* Date: Fri, Jun 24, 2011 at 3:20 AM
* Subject: Re: sqrt routine
* To: Kevin Ma <kma@google.com>
* Hi Kevin,
* Thanks for asking. Those routines are public domain (originally posted to
* comp.sys.arm a long time ago), so you can use them freely for any purpose.
* Cheers,
* Wilco
*
* ----- Original Message -----
* From: "Kevin Ma" <kma@google.com>
* To: <Wilco.Dijkstra@ntlworld.com>
* Sent: Thursday, June 23, 2011 11:44 PM
* Subject: Fwd: sqrt routine
* Hi Wilco,
* I saw your sqrt routine from several web sites, including
* http://www.finesse.demon.co.uk/steven/sqrt.html.
 * Just wonder if there's any copyright information with your Successive
* approximation routines, or if I can freely use it for any purpose.
* Thanks.
* Kevin
*/

Files:
modules/audio_coding/codecs/g711/main/source/g711.c
modules/audio_coding/codecs/g711/main/source/g711.h

License:
/*
* SpanDSP - a series of DSP components for telephony
*
* g711.h - In line A-law and u-law conversion routines
*
* Written by Steve Underwood <steveu@coppice.org>
*
* Copyright (C) 2001 Steve Underwood
*
* Despite my general liking of the GPL, I place this code in the
* public domain for the benefit of all mankind - even the slimy

* ones who might try to proprietize my work and use it to my
* detriment.
*/

Files:
modules/audio_coding/codecs/g722/main/source/g722_decode.c
modules/audio_coding/codecs/g722/main/source/g722_enc_dec.h
modules/audio_coding/codecs/g722/main/source/g722_encode.c

License:
/*
 * SpanDSP - a series of DSP components for telephony
*
* g722_decode.c - The ITU G.722 codec, decode part.
*
* Written by Steve Underwood <steveu@coppice.org>
*
* Copyright (C) 2005 Steve Underwood
*
* Despite my general liking of the GPL, I place my own contributions
* to this code in the public domain for the benefit of all mankind -
* even the slimy ones who might try to proprietize my work and use it
* to my detriment.
*
* Based in part on a single channel G.722 codec which is:
*
* Copyright (c) CMU 1993
* Computer Science, Speech Group
* Chengxiang Lu and Alex Hauptmann
*/

Files:
modules/audio_coding/codecs/isac/main/source/fft.c

License:
/*
* Copyright(c)1995,97 Mark Olesen <olesen@me.QueensU.CA>
*   Queen's Univ at Kingston (Canada)
*
* Permission to use, copy, modify,
 and distribute this software for
* any purpose without fee is hereby granted, provided that this
* entire notice is included in all copies of any software which is
* or includes a copy or modification of this software and in all
* copies of the supporting documentation for such software.
*
* THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR
* IMPLIED WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR QUEEN'S

* UNIVERSITY AT KINGSTON MAKES ANY REPRESENTATION OR WARRANTY OF ANY
* KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS
* FITNESS FOR ANY PARTICULAR PURPOSE.
*
* All of which is to say that you can do what you like with this
* source code provided you don't try to sell it as your own and you
* include an unaltered copy of this message (including the
* copyright).
*
* It is also implicitly understood that bug fixes and improvements
* should make their way back to the general Internet community so
* that everyone benefits.
*/

Files:
modules/audio_device/mac/portaudio/pa_memorybarrier.h
modules/audio_device/mac/portaudio/pa_ringbuffer.c
modules/audio_device/mac/portaudio/pa_ringbuffer.h

License:

/*
 * $Id: pa_memorybarrier.h 1240 2007-07-17 13:05:07Z bjornroche $
* Portable Audio I/O Library
* Memory barrier utilities
*
* Author: Bjorn Roche, XO Audio, LLC
*
* This program uses the PortAudio Portable Audio Library.
* For more information see: http://www.portaudio.com
* Copyright (c) 1999-2000 Ross Bencina and Phil Burk
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of this software and associated documentation files
* (the "Software"), to deal in the Software without restriction,
* including without limitation the rights to use, copy, modify, merge,
* publish, distribute, sublicense, and/or sell copies of the Software,
* and to permit persons to whom the Software is furnished to do so,
* subject
 to the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
* IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR
* ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF

```
* CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*/

/*
* The text above constitutes the entire PortAudio license; however,
* the PortAudio community also makes the following non-binding requests:
*
* Any person wishing to distribute modifications to the Software is
* requested to send the modifications to the original developer so that
* they can be incorporated into the canonical version.
 It is also
* requested that these non-binding requests be included along with the
* license above.
*/

/*
* $Id: pa_ringbuffer.c 1421 2009-11-18 16:09:05Z bjornroche $
* Portable Audio I/O Library
* Ring Buffer utility.
*
* Author: Phil Burk, http://www.softsynth.com
* modified for SMP safety on Mac OS X by Bjorn Roche
* modified for SMP safety on Linux by Leland Lucius
* also, allowed for const where possible
* modified for multiple-byte-sized data elements by Sven Fischer
*
* Note that this is safe only for a single-thread reader and a
* single-thread writer.
*
* This program uses the PortAudio Portable Audio Library.
* For more information see: http://www.portaudio.com
* Copyright (c) 1999-2000 Ross Bencina and Phil Burk
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of this software and associated documentation files
* (the "Software"), to deal in the Software without restriction,
* including without limitation the
 rights to use, copy, modify, merge,
* publish, distribute, sublicense, and/or sell copies of the Software,
* and to permit persons to whom the Software is furnished to do so,
* subject to the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
```

* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
* IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR
* ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF
* CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*/

/*
* The text above constitutes the entire PortAudio license; however,
* the PortAudio community also makes the following non-binding requests:
*
* Any person
 wishing to distribute modifications to the Software is
* requested to send the modifications to the original developer so that
* they can be incorporated into the canonical version. It is also
* requested that these non-binding requests be included along with the
* license above.
*/

Files:
common_audio/fft4g.c
modules/audio_processing/aec/aec_rdft.c

License:
/*
* http://www.kurims.kyoto-u.ac.jp/~ooura/fft.html
* Copyright Takuya OOURA, 1996-2001
*
* You may use, copy, modify and distribute this code for any purpose (include
* commercial use) and without fee. Please refer to this package when you modify
* this code.
*/

Files:
system_wrappers/source/condition_variable_event_win.cc

Source:
http://www1.cse.wustl.edu/~schmidt/ACE-copying.html

License:
Copyright and Licensing Information for ACE(TM), TAO(TM), CIAO(TM),
 DAnCE(TM),
and CoSMIC(TM)

ACE(TM), TAO(TM), CIAO(TM), DAnCE>(TM), and CoSMIC(TM) (henceforth referred to
as "DOC software") are copyrighted by Douglas C. Schmidt and his research
group at Washington University, University of California, Irvine, and
Vanderbilt University, Copyright (c) 1993-2009, all rights reserved. Since DOC

software is open-source, freely available software, you are free to use, modify, copy, and distribute--perpetually and irrevocably--the DOC software source code and object code produced from the source, as well as copy and distribute modified versions of this software. You must, however, include this copyright statement along with any code built using DOC software that you release. No copyright statement needs to be provided if you just ship binary executables of your software products.
You can use DOC software in commercial and/or binary software releases and are under no obligation to redistribute any of your source code that is built using DOC software.
Note, however, that you may not misappropriate the DOC software code, such as copyrighting it yourself or claiming authorship of the DOC software code, in a way that will prevent DOC software from being distributed freely using an open-source development model. You needn't inform anyone that you're using DOC software in your software, though we encourage you to let us know so we can promote your project in the DOC software success stories.

The ACE, TAO, CIAO, DAnCE, and CoSMIC web sites are maintained by the DOC Group at the Institute for Software Integrated Systems (ISIS) and the Center for Distributed Object Computing of Washington University, St. Louis for the development of open-source software as part of the open-source software community. Submissions are provided by the submitter ``as is'' with no warranties whatsoever, including any warranty of merchantability, noninfringement of third party intellectual property, or fitness for any particular purpose. In no event shall the submitter be liable for any direct, indirect, special, exemplary, punitive, or consequential damages, including without limitation, lost profits, even if advised of the possibility of such damages. Likewise, DOC software is provided as is with no warranties of any kind, including the warranties of design, merchantability, and fitness for a particular purpose, noninfringement, or arising from a course of dealing, usage or trade practice. Washington University, UC Irvine, Vanderbilt University, their employees, and students shall have no liability with respect to the infringement of copyrights, trade secrets or any patents by DOC software or any part thereof. Moreover, in no event will Washington University, UC Irvine, or Vanderbilt University, their employees, or students be liable for any lost revenue or profits or other special, indirect and consequential damages.

DOC software is provided with no support and without any obligation on the part of Washington University, UC Irvine, Vanderbilt University, their employees, or students to assist in its use, correction, modification, or enhancement. A number of companies around the world provide commercial support for DOC software, however. DOC software is Y2K-compliant, as long as the underlying OS platform is Y2K-compliant. Likewise, DOC software is compliant with the new US daylight savings rule passed by Congress as "The Energy Policy

Act of 2005," which established new daylight savings times (DST) rules for the United States that expand DST as of March 2007. Since DOC software obtains time/date and calendaring information from operating systems users will not be affected by the new DST rules as long as they upgrade their operating systems accordingly.

The names ACE(TM), TAO(TM), CIAO(TM), DAnCE(TM), CoSMIC(TM), Washington University, UC Irvine, and Vanderbilt University, may not be used to endorse or promote products or services derived from this source without express written permission from Washington University, UC Irvine, or Vanderbilt University. This license grants no permission to call products or services derived from this source ACE(TM), TAO(TM), CIAO(TM), DAnCE(TM), or CoSMIC(TM), nor does it grant permission for the name Washington University, UC Irvine, or Vanderbilt University to appear in their names.

Files:
system_wrappers/source/set_thread_name_win.h

Source:
http://msdn.microsoft.com/en-us/cc300389.aspx#P

License:
This license governs use of code marked as sample or example available on this web site without a license agreement, as provided under the section above titled NOTICE SPECIFIC TO SOFTWARE AVAILABLE ON THIS WEB SITE. If you use such code (the software), you accept this license. If you do not accept the license, do not use the software.

1. Definitions

The terms reproduce, reproduction, derivative works, and distribution have the same meaning here as under U.S. copyright law.

A contribution is the original software, or any additions or changes to the software.

A contributor is any person that distributes its contribution under this license.

Licensed patents are a contributors patent claims that read directly on its contribution.

2. Grant of Rights

(A) Copyright Grant - Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a

non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant - Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in
the software.

3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed as-is. You bear the risk of using it. The contributors give no express warranties, guarantees or conditions. You may have
additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

(F) Platform Limitation - The licenses granted in sections 2(A) and 2(B) extend only to the software or derivative works that you create that run on a Microsoft Windows operating system product.

Files:
system_wrappers/source/spreadsortlib/constants.hpp
system_wrappers/source/spreadsortlib/spreadsort.hpp

License:

/*Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works
 of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE
FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.*/

1.218 linux-kernel 4.4.245

1.218.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below,

refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but

does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for

making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot

distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of

this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the
License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the

library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Copyright (c) 2009-2013 QLogic Corporation
QLogic Linux qlcnic NIC Driver

You may modify and redistribute the device driver code under the
GNU General Public License (a copy of which is attached hereto as
Exhibit A) published by the Free Software Foundation (version 2).

EXHIBIT A

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors
commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have.

You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's
free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program
is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you

conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition,
mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily
used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If
distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program

except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is

implemented
by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of
the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of
preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED

OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL,
INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
Contributors to bttv:

Michael Chu <mmchu@pobox.com>
AverMedia fix and more flexible card recognition

Alan Cox <alan@lxorguk.ukuu.org.uk>
Video4Linux interface and 2.1.x kernel adaptation

Chris Kleitsch
Hardware I2C

Gerd Knorr <kraxel@cs.tu-berlin.de>
Radio card (ITT sound processor)

bigfoot <bigfoot@net-way.net>
Ragnar Hojland Espinosa <ragnar@macula.net>
ConferenceTV card

+ many more (please mail me if you are missing in this list and would
like to be mentioned)
/* nicstar.c v0.22 Jawaid Bazyar (bazyar@hypermall.com)
* nicstar.c, M. Welsh (matt.welsh@cl.cam.ac.uk)
*
* Hacked October, 1997 by Jawaid Bazyar, Interlink Advertising Services Inc.
* http://www.hypermall.com/
* 10/1/97 - commented out CFG_PHYIE bit - we don't care when the PHY
* interrupts us (except possibly for removal/insertion of the cable?)
* 10/4/97 - began heavy inline documentation of the code. Corrected typos
* and spelling mistakes.
* 10/5/97 - added code to handle PHY interrupts, disable PHY on
* loss of link, and correctly re-enable PHY when link is

```
* re-established. (put back CFG_PHYIE)
*
*   Modified to work with the IDT7721 nicstar -- AAL5 (tested) only.
*
* R. D. Rechenmacher <ron@fnal.gov>, Aug. 6, 1997
*
* Linux driver for the IDT77201 NICStAR PCI ATM controller.
* PHY component is expected to be 155 Mbps S/UNI-Lite or IDT 77155;
* see init_nicstar() for PHY initialization to change this. This driver
* expects the Linux ATM stack to support scatter-gather
 lists
* (skb->atm.iovcnt != 0) for Rx skb's passed to vcc->push.
*
* Implementing minimal-copy of received data:
*   IDT always receives data into a small buffer, then large buffers
*     as needed. This means that data must always be copied to create
*     the linear buffer needed by most non-ATM protocol stacks (e.g. IP)
*     Fix is simple: make large buffers large enough to hold entire
*     SDU, and leave <small_buffer_data> bytes empty at the start. Then
*     copy small buffer contents to head of large buffer.
*   Trick is to avoid fragmenting Linux, due to need for a lot of large
*     buffers. This is done by 2 things:
*       1) skb->destructor / skb->atm.recycle_buffer
*            combined, allow nicstar_free_rx_skb to be called to
*            recycle large data buffers
*       2) skb_clone of received buffers
*   See nicstar_free_rx_skb and linearize_buffer for implementation
*     details.
*
*
*
* Copyright (c) 1996 University of Cambridge
 Computer Laboratory
*
*   This program is free software; you can redistribute it and/or modify
*   it under the terms of the GNU General Public License as published by
*   the Free Software Foundation; either version 2 of the License, or
*   (at your option) any later version.
*
*   This program is distributed in the hope that it will be useful,
*   but WITHOUT ANY WARRANTY; without even the implied warranty of
*   MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
*   GNU General Public License for more details.
*
*   You should have received a copy of the GNU General Public License
*   along with this program; if not, write to the Free Software
*   Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.
*
```

* M. Welsh, 6 July 1996
*
*
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based

on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING

WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Copyright (c) 2003-2013 QLogic Corporation
QLogic Linux iSCSI Driver

This program includes a device driver for Linux 3.x.
You may modify and redistribute the device driver code under the
GNU General Public License (a copy of which is attached hereto as
Exhibit A) published by the Free Software Foundation (version 2).

EXHIBIT A

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public

License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's
software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give
the recipients all the rights that
you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it
clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively

when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception:
if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective
works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms
of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to

this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this.
Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE
TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
Code in this directory written at the IDA Supercomputing Research Center carries the following copyright and license.

Copyright 1993 United States Government as represented by the
Director, National Security Agency. This software may be used
and distributed according to the terms of the GNU General Public License,
incorporated herein by reference.

In addition to the disclaimers in the GPL, SRC expressly disclaims any
and all warranties, expressed or implied, concerning the enclosed software.
This software was developed at SRC for use in internal research, and the
intent in sharing this software is to promote the productive interchange
of ideas throughout the research community. All software is furnished
on an "as-is" basis. No further updates to this software should be
expected. Although updates may occur, no commitment exists.
Copyright (c) 2003-2006, Marvell International Ltd.
All Rights Reserved

This program is free software; you can redistribute it and/or modify it
under the terms of version 2 of the GNU General Public License as
published by the Free Software Foundation.

This program is distributed in the hope that it will be useful, but WITHOUT
ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or
FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for
more details.

You should have received a copy of the GNU General Public License along with
this program; if not, write to the Free Software Foundation, Inc., 59
Temple Place - Suite 330, Boston, MA 02111-1307, USA.

"This software program is licensed subject to the GNU General Public License
(GPL). Version 2, June 1991, available at
<http:

GNU General Public License

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA 02111-1307, USA

Everyone is permitted to copy and distribute verbatim copies of this license
document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to
share and change it. By contrast, the GNU General Public License is intended
to guarantee your freedom to share and change free software--to make sure
the software is free for all its users. This General Public License applies
to most of the Free Software Foundation's software and to any other program
whose authors commit to using it. (Some other Free Software Foundation
software is covered by the GNU Library General Public License instead.) You
can apply it to your programs, too.

When we speak of free
software, we are referring to freedom, not price. Our
General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software,
and (2)
offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies
to any program or other work which contains a notice
placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a

work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

* a) You must cause the modified files to carry prominent notices stating that you changed the files and
the date of any change.

* b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

* c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

* a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

* b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

*
c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special

exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you

could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make

exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of
each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the program's name and an idea of what it does.
Copyright (C) yyyy name of author

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT
ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or
FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for
more details.

You should have received a copy of the GNU General Public License along with
this program; if not, write to the Free Software Foundation, Inc., 59
Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you
 by electronic and paper mail.

If the program is interactive, make it output a short notice like this when
it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes
with ABSOLUTELY NO WARRANTY; for details type 'show w'. This is free
software, and you are welcome to redistribute it under certain conditions;
type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may be
called something other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written by James Hacker.

signature
 of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General Public
License instead of this License.
   GNU LIBRARY GENERAL PUBLIC LICENSE
      Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
            675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some
specially designated Free Software Foundation software, and to any
other libraries whose authors decide to use it. You can use it for
your libraries, too.

When we speak of free software, we are referring to freedom,
not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if
you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link a program with the library, you must provide
complete object files to the recipients so that they can relink them
with the library, after making changes
to the library and recompiling
it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright
the library, and (2) offer you this license which gives you legal
permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain
that everyone understands that there is no warranty for this free
library. If the library is modified by someone else and passed on, we
want its recipients to know that what they have is not the original
version, so that any problems introduced by others will not reflect on

the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed
under these terms. A "work based on the
Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of
the use of the Library in a tool for
writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to

exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition,
mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the
Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative
work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it

contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood

that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for
copying, distributing or modifying
the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute
the Library at all. For example, if a patent
license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the

integrity of the free software distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system;
it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Library General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each
version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS
LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.

EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES
SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year>
<name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free
Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter
the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
The files in this directory and elsewhere which refer to this LICENCE
file are part of JFFS2, the Journalling Flash File System v2.

Copyright 2001-2007 Red Hat, Inc. and others

JFFS2 is free software; you can redistribute it and/or modify it under
the terms of the GNU General Public License as published by the Free
Software Foundation; either version 2 or (at your option) any later
version.

JFFS2 is distributed in the hope that it will be useful, but WITHOUT
ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or
FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License
for more details.

You should have received a copy of the GNU General Public License along
with JFFS2; if not, write to the Free Software Foundation, Inc.,
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA.

As a special exception, if other files instantiate templates or use
macros or inline functions from these files, or you compile these
files and link them with other works to produce
a work based on these
files, these files do not by themselves cause the resulting work to be
covered by the GNU General Public License. However the source code for
these files must still be made available in accordance with section (3)
of the GNU General Public License.

This exception does not invalidate any other reasons why a work based on

this file might be covered by the GNU General Public License.
Copyright (c) 2003-2006 QLogic Corporation
QLogic Linux Networking HBA Driver

This program includes a device driver for Linux 2.6 that may be
distributed with QLogic hardware specific firmware binary file.
You may modify and redistribute the device driver code under the
GNU General Public License as published by the Free Software
Foundation (version 2 or a later version).

You may redistribute the hardware specific firmware binary file
under the following terms:

1. Redistribution of source code (only if applicable),
   must retain the above copyright notice, this list of
   conditions and the following disclaimer.

2. Redistribution in binary form must reproduce the above
   copyright notice, this list of conditions and the
   following disclaimer in the documentation and/or other
   materials provided with the distribution.

3. The name of QLogic Corporation may not be used to
   endorse or promote products derived from this software
   without specific prior written permission

REGARDLESS
OF WHAT LICENSING MECHANISM IS USED OR APPLICABLE,
THIS PROGRAM IS PROVIDED BY QLOGIC CORPORATION "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

USER ACKNOWLEDGES AND AGREES THAT USE OF THIS PROGRAM WILL NOT
CREATE OR GIVE GROUNDS FOR A LICENSE BY IMPLICATION, ESTOPPEL, OR
OTHERWISE IN ANY INTELLECTUAL PROPERTY RIGHTS (PATENT, COPYRIGHT,
TRADE SECRET, MASK WORK,
OR OTHER PROPRIETARY RIGHT) EMBODIED IN
ANY OTHER QLOGIC HARDWARE OR SOFTWARE EITHER SOLELY OR IN
COMBINATION WITH THIS PROGRAM.

Thanks go to the following people for patches and contributions:

Michael Hunold <m.hunold@gmx.de>
for the initial saa7146 driver and its recent overhaul

Christian Theiss
for his work on the initial Linux DVB driver

Marcus Metzler <mocm@metzlerbros.de>
Ralph Metzler <rjkm@metzlerbros.de>
for their continuing work on the DVB driver

Michael Holzt <kju@debian.org>
for his contributions to the dvb-net driver

Diego Picciani <d.picciani@novacomp.it>
for CyberLogin for Linux which allows logging onto EON
(in case you are wondering where CyberLogin is, EON changed its login
procedure and CyberLogin is no longer used.)

Martin Schaller <martin@smurf.franken.de>
for patching the cable card decoder driver

Klaus Schmidinger <Klaus.Schmidinger@cadsoft.de>
for various fixes regarding tuning, OSD and CI stuff and his work on VDR

Steve Brown <sbrown@cortland.com>
for his AFC kernel thread

Christoph Martin <martin@uni-mainz.de>
for his LIRC infrared handler

Andreas Oberritter
<obi@linuxtv.org>
Dennis Noermann <dennis.noermann@noernet.de>
Felix Domke <tmbinc@elitedvb.net>
Florian Schirmer <jolt@tuxbox.org>
Ronny Strutz <3des@elitedvb.de>
Wolfram Joost <dbox2@frokaschwei.de>
...and all the other dbox2 people
for many bugfixes in the generic DVB Core, frontend drivers and
their work on the dbox2 port of the DVB driver

Oliver Endriss <o.endriss@gmx.de>
for many bugfixes

Andrew de Quincey <adq_dvb@lidskialf.net>
for the tda1004x frontend driver, and various bugfixes

Peter Schildmann <peter.schildmann@web.de>
 for the driver for the Technisat SkyStar2 PCI DVB card

Vadim Catana <skystar@moldova.cc>
Roberto Ragusa <r.ragusa@libero.it>
Augusto Cardoso <augusto@carhil.net>
 for all the work for the FlexCopII chipset by B2C2,Inc.

Davor Emard <emard@softhome.net>
 for his work on the budget drivers, the demux code,
 the module unloading problems, ...

Hans-Frieder Vogt <hfvogt@arcor.de>
 for his work on calculating and checking the crc's for the

 TechnoTrend/Hauppauge DEC driver firmware

Michael Dreher <michael@5dot1.de>
Andreas 'randy' Weinberger
 for the support of the Fujitsu-Siemens Activy budget DVB-S

Kenneth Aafly <ke-aa@frisurf.no>
 for adding support for Typhoon DVB-S budget card

Ernst Peinlich <e.peinlich@inode.at>
 for tuning/DiSEqC support for the DEC 3000-s

Peter Beutner <p.beutner@gmx.net>
 for the IR code for the ttusb-dec driver

Wilson Michaels <wilsonmichaels@earthlink.net>
 for the lgdt330x frontend driver, and various bugfixes

Michael Krufky <mkrufky@linuxtv.org>
 for maintaining v4l/dvb inter-tree dependencies

Taylor Jacob <rtjacob@earthlink.net>
 for the nxt2002 frontend driver

Jean-Francois Thibert <jeanfrancois@sagetv.com>
 for the nxt2004 frontend driver

Kirk Lapray <kirk.lapray@gmail.com>
 for the or51211 and or51132 frontend drivers, and
 for merging the nxt2002 and nxt2004 modules into a
 single nxt200x frontend driver.

(If you think you should be in this list, but you are not, drop
 a
line to the DVB mailing list)
Copyright (c) 2003-2014 QLogic Corporation
QLogic Linux FC-FCoE Driver

This program includes a device driver for Linux 3.x.
You may modify and redistribute the device driver code under the
GNU General Public License (a copy of which is attached hereto as
Exhibit A) published by the Free Software Foundation (version 2).

EXHIBIT A

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's
software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute
such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception:
if the Program itself is interactive but
does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective
works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms
of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs,
unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free
software distribution system, which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software
Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this.
Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE
TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

NOTE! This copyright does *not* cover user programs that use kernel services by normal system calls - this is merely considered normal use of the kernel, and does *not* fall under the heading of "derived work". Also note that the GPL below is copyrighted by the Free Software Foundation, but the instance of code that it refers to (the Linux kernel) is copyrighted by me and others who actually wrote it.

Also note that the only valid version of the GPL as far as the kernel is concerned is _this_ particular version of the license (ie v2, not v2.2 or v3.x or whatever), unless explicitly otherwise stated.

Linus Torvalds

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your

freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for

such
interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be
on the terms of
this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and
2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer

to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface
definition files, plus the scripts used to
control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this
License.
However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise
of the rights granted herein.
You are not responsible for enforcing compliance by third parties to

this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular
circumstance, the balance of the section is intended to
apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted
interfaces, the
original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this

is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer)
or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Copyright (c) 2003-2011 QLogic Corporation
QLogic Linux qlge NIC Driver

You may modify and redistribute the device driver code under the
GNU General Public License (a copy of which is attached hereto as
Exhibit A) published by the Free Software Foundation (version 2).

EXHIBIT A

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit
to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program

is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section
1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but

does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If
distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

5. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Program or its derivative works. These actions are
prohibited by law if you do not
accept this License. Therefore, by
modifying or distributing the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the
Program), the recipient automatically receives a license from the
original licensor to copy, distribute or modify the Program subject to
these terms and conditions. You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties to
this License.

7. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions
of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Program at all. For example, if a patent
license would not permit royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented
by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of
the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving

the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL,
INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

FlashPoint Driver Developer's Kit
Version 1.0

Copyright 1995-1996 by Mylex Corporation
All Rights Reserved

This program is free software; you may redistribute and/or modify it under the terms of either:

a) the GNU General Public License as published by the Free Software Foundation; either version 2, or (at your option) any later version,

or

b) the "BSD-style License" included below.

This program is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See either the GNU General Public License or the BSD-style License below for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc.,

675 Mass Ave, Cambridge, MA 02139, USA.

The BSD-style License is as follows:

Redistribution
and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

1. Redistributions of source code must retain this LICENSE.FlashPoint
file, without modification, this list of conditions, and the following
disclaimer. The following copyright notice must appear immediately at
the beginning of all source files:

Copyright 1995-1996 by Mylex Corporation. All Rights Reserved

This file is available under both the GNU General Public License
and a BSD-style copyright; see LICENSE.FlashPoint for details.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. The name of Mylex Corporation may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE
IS PROVIDED BY MYLEX CORP. ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN
NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

1.219 atomicwrites 1.3.0

1.219.1 Available under license :

Copyright (c) 2015-2016 Markus Unterwaditzer

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in

the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
MIT

1.220 jackson-databind 2.11.2

1.220.1 Available under license :

This copy of Jackson JSON processor databind module is licensed under the
Apache (Software) License, version 2.0 ("the License").
See the License for details about distribution rights, and the
specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0
Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library.
It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has
been in development since 2007.
It is currently developed by a community of developers, as well as supported
commercially by FasterXML.com.

Licensing

Jackson core and extension components may be licensed under different licenses.
To find the details that apply to this artifact see the accompanying LICENSE file.
For more information, including possible other licensing options, contact
FasterXML.com (http://fasterxml.com).

Credits

A list of contributors may be found from CREDITS file, which is included

in some artifacts (usually source distributions); but is always available
from the source code management (SCM) system project uses.

1.221 jackson 2.11.2

1.221.1 Available under license :

```
 ========================================================================
 ==  NOTICE file corresponding to the section 4 d of                   ==
 ==  the Apache License, Version 2.0,                                  ==
 ==  in this case for the Apache Camel distribution.                   ==
 ========================================================================
```

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

Please read the different LICENSE files present in the licenses directory of
this distribution.

Camel :: Jackson
Copyright 2007-2013 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of,

publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.222 gmp 6.1.2+dfsg-4

1.222.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they
know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)
assert copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains
that there is no warranty for this free software. For both users' and

authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's

System Libraries, or general-purpose tools or generally
available free
programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article

11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as

part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or

limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains
a further restriction but permits relicensing or conveying under this
License, you may add to a covered work material governed by the terms
of that license document, provided that the further restriction does
not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you
must place, in the relevant source files, a statement of the
additional terms that apply to those files, or a notice indicating
where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the
form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly
provided under this License. Any attempt otherwise to propagate or

modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that

transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this

License, through a
publicly available network server or other readily accessible means,
then you must either (1) cause the Corresponding Source to be so
available, or (2) arrange to deprive yourself of the benefit of the
patent license for this particular work, or (3) arrange, in a manner
consistent with the requirements of this License, to extend the patent
license to downstream recipients. "Knowingly relying" means you have
actual knowledge that, but for the patent license, your conveying the
covered work in a country, or your recipient's use of the covered work
in a country, would infringe one or more identifiable patents in that
country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or
arrangement, you convey, or propagate by procuring conveyance of, a
covered work, and grant a patent license to some of the parties
receiving the covered work authorizing them to use, propagate, modify
or convey a specific copy of the covered
work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may

not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS"

WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by

the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.223 zlib 1.2.11.dfsg-1

1.223.1 Available under license :

Found license 'General Public License 2.0' in 'No. PKWare has apparently decided to keep that format proprietary, since 42. The match.asm code in contrib is under the GNU General Public License. GNU GPL?'

1.224 selinux 2.8-1+b1

1.224.1 Available under license :

NOTE! This copyright does *not* cover user programs that use kernel services by normal system calls - this is merely considered normal use of the kernel, and does *not* fall under the heading of "derived work". Also note that the GPL below is copyrighted by the Free Software Foundation, but the instance of code that it refers to (the Linux kernel) is copyrighted by me and others who actually wrote it.

Also note that the only valid version of the GPL as far as the kernel is concerned is _this_ particular version of the license (ie v2, not v2.2 or v3.x or whatever), unless explicitly otherwise stated.

Linus Torvalds

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of

running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any
other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running
for such
interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must
be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1
and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface
definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any
particular circumstance, the balance of the section is intended to
apply and the section as a whole is intended to apply in other
circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system, which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted
interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any
version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and

of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as
a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.225 pam 1.3.1-5

1.225.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices

stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based
on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code
or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying

the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License

may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE
LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS),

EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may

be called something other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 'Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Unless otherwise *explicitly* stated the following text describes the
licensed conditions under which the contents of this Linux-PAM release
may be distributed:

Redistribution and use in source and binary forms of Linux-PAM, with
or without modification, are permitted provided that the following
conditions are met:

1. Redistributions of source code must retain any existing copyright
  notice, and this entire permission notice in its entirety,
  including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
  copyright notices, this list of conditions, and the following
  disclaimer in the documentation and/or other materials provided
  with the distribution.

3. The name of any author may not be used to endorse or promote
  products derived from this software without their specific prior
  written permission.

ALTERNATIVELY, this product may be distributed
 under the terms of the
GNU General Public License, in which case the provisions of the GNU
GPL are required INSTEAD OF the above restrictions. (This clause is
necessary due to a potential conflict between the GNU GPL and the
restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED

WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.226 attr 2.4.48-5

1.226.1 Available under license :

Most components of the "attr" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see below).
below.

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see COPYING).

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your
freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You

can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions
that forbid
distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free
library. Also, if the library is
modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and

is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries
into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a
certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions
for copying, distribution and
modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed
under these terms. A "work based on the
Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use
of the Library in a tool for
writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a

fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere
aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library
into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of
the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file
is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of
this License. If the work
during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library
mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate
distribution of the work based on
the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the

Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply,

and the section as a whole is intended to apply in other
circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution
limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs
whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE
COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these
terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License
for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Most components of the "attr" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see COPYING.LGPL).

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see below),

---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software

and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients
all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that
any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide

a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such

an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions
are
prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues),

conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any

later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively

convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts
in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License

does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.227 kerberos 1.17-6ubuntu4.1

1.227.1 Available under license :

Apache Commons BCEL
Copyright 2004-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (https://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but

not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this
License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.228 hibernate-validator 6.1.5.Final

1.228.1 Available under license :

Adam Stawicki
Ahmed Al Hafoudh
Alaa Nassef
Andrey Derevyanko
Andrey Rodionov
Asutosh Pandya
Benson Margulies
Brent Douglas
Carlos Vara
Carlo de Wolf

Chris Beckey
Christian Ivan
Dag Hovland
Damir Alibegovic
Dario Seidl
Davide D'Alto
Davide Marchignoli
Denis Tiago
Doug Lea
Emmanuel Bernard
Efthymis Sarbanis
Federico
Federico Mancini
Gavin King
George Gastaldi
Gerhard Petracek
Guillaume Husta
Guillaume Smet
Gunnar Morling
Hardy Ferentschik
Henno Vermeulen
Hillmer Chona
Jan-Willem Willebrands
Jason T. Greene
Jesper Preuss
Jiri Bilek
Julien Furgerot
Julien May
Juraci Krohling
Justin Nauman
Kathryn Killebrew
Kazuki Shimizu
Kevin Pollet
Khalid Alqinyah
Lee KyoungIl
Leonardo Loch Zanivan
Lucas Pouzac
Lukas Niemeier
Mark Hobson
Marko Bekhta
Matthias Kurz
Mert Caliskan
Michal Fotyga
Nicola Ferraro
Nicolas Franois
Paolo Perrotta
Pete Muir
Rob Dickinson

Sanne Grinovero
Sebastian Bayerl
Shahram Goodarzi
Shane Bryzak
Shelly McGowan
Sjaak Derksen
Steve Ebersole
Strong Liu
Tadhg Pearson
Takashi Aoe
Tomaz
Cerar
Tommy Johansen
Victor Rezende dos Santos
Willi Schnborn
Xavier Sosnovsky
Yanming Zhou
Yoann Rodire
Hibernate Validator, declare and validate application constraints

License: Apache License, Version 2.0
See the license.txt file in the root directory or <http://www.apache.org/licenses/LICENSE-2.0>.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and

do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all

other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.229 expat 2.2.5

1.229.1 Available under license :

Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2017 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.230 jq 1.6-1ubuntu0.20.04.1

1.230.1 Available under license :

jq is copyright (C) 2012 Stephen Dolan

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

jq's documentation (everything found under the docs/ subdirectory in
the source tree) is licensed under the Creative Commons CC BY 3.0
license, which can be found at:

    https://creativecommons.org/licenses/by/3.0/

The documentation website includes a copy of Twitter's Boostrap and
relies on Bonsai, Liquid templates and various other projects, look
them up for detailed licensing conditions.

jq incorporates David M. Gay's dtoa.c and g_fmt.c, which bear the
following notices:

dtoa.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 2000, 2001 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any
purpose without fee is hereby granted, provided that this entire notice
is included in all copies of any software which is or includes a copy
or modification of this software and in all copies of the supporting
documentation for such software.

THIS SOFTWARE IS BEING
 PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED
WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY
REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY
OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

g_fmt.c:
The author of this software is David M. Gay.

Copyright (c) 1991, 1996 by Lucent Technologies.

Permission to use, copy, modify, and distribute this software for any
purpose without fee is hereby granted, provided that this entire notice
is included in all copies of any software which is or includes a copy
or modification of this software and in all copies of the supporting
documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED
WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR LUCENT MAKES ANY
REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY
OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

1.231 util-linux 2.20.0

1.231.1 Available under license :

NR START END SECTORS SIZE NAME UUID
1 32 7679 7648 3.7M 8f8378c0-01
2 7680 16383 8704 4.3M 8f8378c0-02
5 7936 12799 4864 2.4M
6 12544 16127 3584 1.8M

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty;

and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program

with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.

However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that

system; it is up to the author/donor to
decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE

PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this

when it starts in an interactive mode:

```
  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute
it
  under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a

"work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the

Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it

contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified

executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free

Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to

your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could

make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of

copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is
covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code;

keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms

of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the
written offer to provide the Corresponding Source. This
alternative is allowed only occasionally and noncommercially, and
only if you received the object code with such an offer, in accord
with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the
Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the
Corresponding Source. Regardless of what server hosts the
Corresponding Source, you remain obligated to ensure that it is
available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided
you inform other peers where the object code and Corresponding
Source of the work are being offered to the general public at no
charge under subsection 6d.

A separable portion of the object code, whose source code is excluded

from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly

documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for

any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the

licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within

the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public
License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.

Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

 You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

 The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want
 to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/licenses/why-not-lgpl.html>.
WEV @@ WEV[B "1
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
 DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
x   ?"U@,5 @mISmIN<GimCN7g1u|E
43mI,5WEV @@ WEV   @mImImIAmImImI0mImImI*mImI
A0mImImI...
lost+found...

;9GimCN7g

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~WEV @@
WEV[B "1
This library is free software; you can redistribute it and/or
modify it under the terms of the Modified BSD License.

The complete text of the license is available in the
../Documentation/licenses/COPYING.BSD-3-Clause file.
Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later file.

/*
* Copyright (c) 1989 The Regents of the University of California.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*
 without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.232 expat 2.2.4

1.232.1 Available under license :

Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2019 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.233 expat 2.2.0

1.233.1 Available under license :

Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2016 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.234 glibc 2.31-0ubuntu9.2

1.234.1 Available under license :

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
  software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
  explicit claim or by omission. Since few users ever read sources,
  credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
  misrepresented as being the original software. Since few users
  ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of

it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits

such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License").

Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do

this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if
the user installs one, as long as the modified version is

interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute

the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system

which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded. In such case, this License incorporates the limitation as if
written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision
will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR

OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.

These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program).

Whether that is true depends on what the
Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause
any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the

entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing
or modifying
the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For
example, if a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/, and
http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF
online code charts under the directory http://www.unicode.org/Public/.
Software includes any source code published in the Unicode Standard or under
the directories http://www.unicode.org/Public/,
http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY

DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode,
Inc. All rights reserved. Distributed under
the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that (a) the above copyright notice(s) and this permission notice appear with all copies of the Data Files or Software, (b) both the above copyright notice(s) and this permission notice appear in associated documentation, and (c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software
that the data or
software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.
This file contains the copying permission notices for various files in the GNU C Library distribution that have copyright owners other than the Free Software Foundation. These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC Berkeley, by Digital Equipment Corporation and by Internet Software Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies, and that the name of Digital Equipment Corporation not be used in advertising or publicity pertaining to distribution of the document or software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS" AND DIGITAL EQUIPMENT CORP.
DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL
DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES
OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following
license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials
  provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS

"AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science
Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the
 above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
   may be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER
IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized
Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse
 or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright (C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
Version 2.00

The author(s) grant permission for redistribution and use in source and binary forms, with or without modification, of the software and documentation provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled as not being for redistribution (check the version message and/or README), you are not permitted to redistribute that version of the software in any way or form.
1. All terms of the all other applicable copyrights and licenses must be followed.
2. Redistributions of source code must retain the authors' copyright notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright notice(s), this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s) of the author(s) nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young
Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please
see <https://www.gnu.org/licenses/> to obtain a copy.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with
the distribution.
3. Neither the name of the project nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright

1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of the copyright holder not be
used in advertising or publicity pertaining to distribution of the
software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests
are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
  software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
  explicit claim or by omission. Since few users ever read sources,
  credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
  misrepresented as being the original software. Since few users
  ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests
is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any computer system, and to redistribute it freely, subject to the following restrictions:

1. This software is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by explicit claim or by omission. In practice, this means that if you use PCRE in software that you distribute to others, commercially or otherwise, you must put a sentence like this

Regular expression support is provided by the PCRE library package, which is open source software, written by Philip Hazel, and copyright by the University of Cambridge, England.

somewhere reasonably visible in your documentation and in any relevant files or online
help data or similar. A reference to the ftp site for the source, that is, to

ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

should also be given in the documentation. However, this condition is not intended to apply to whole chains of software. If package A includes PCRE, it must acknowledge it, but if package B is software that includes package A, the condition is not imposed on package B (unless it uses PCRE independently).

3. Altered versions must be plainly marked as such, and must not be misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL), then the terms of that licence shall supersede any condition above with which it is incompatible.

Files from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems, Inc. business.
Permission to use, copy, modify, and distribute this software is freely granted, provided that this notice is preserved.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<https://www.gnu.org/licenses/>. */

1.235 libarchive 3.4.0-2ubuntu1

1.235.1 Available under license :

The libarchive distribution as a whole is Copyright by Tim Kientzle
and is subject to the copyright notice reproduced at the bottom of
this file.

Each individual file in this distribution should have a clear
copyright/licensing statement at the beginning of the file. If any do
not, please let me know and I will rectify it. The following is
intended to summarize the copyright status of the individual files;
the actual statements in the files are controlling.

* Except as listed below, all C sources (including .c and .h files)
and documentation files are subject to the copyright notice reproduced
at the bottom of this file.

* The following source files are also subject in whole or in part to
a 3-clause UC Regents copyright; please read the individual source
files for details:
libarchive/archive_entry.c
libarchive/archive_read_support_filter_compress.c
libarchive/archive_write_add_filter_compress.c
libarchive/mtree.5

* The following source files are in the public domain:
libarchive/archive_getdate.c

* The following source files are triple-licensed with the ability to choose
 from CC0 1.0 Universal, OpenSSL or Apache 2.0 licenses:
  libarchive/archive_blake2.h
  libarchive/archive_blake2_impl.h
  libarchive/archive_blake2s_ref.c
  libarchive/archive_blake2sp_ref.c

* The build files---including Makefiles, configure scripts,
 and auxiliary scripts used as part of the compile process---have
 widely varying licensing terms. Please check individual files before
 distributing them to see if those restrictions apply to you.

I intend for all new source code to use the license below and hope over
time to replace code with other licenses with new implementations that
do use the license below. The varying licensing of the build scripts
seems to be an unavoidable mess.

Copyright (c) 2003-2018 <author(s)>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following
 conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer
  in this position and unchanged.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR(S) ``AS IS'' AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR
 OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.236 gmp 6.2.0+dfsg-4

1.236.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we

want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1

above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause
any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable

source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution
and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

5. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Program or its derivative works. These actions are
prohibited by law if you do not accept this License. Therefore, by
modifying or distributing the Program (or any work based on the

Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in

certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY

YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate

parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of

interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not

convey, without conditions so long as your license otherwise remains
in force. You may convey covered works to others for the sole purpose
of having them make modifications exclusively for you, or provide you
with facilities for running those works, provided that you comply with
the terms of this License in conveying all material for which you do
not control copyright. Those thus making or running the covered works
for you must do so exclusively on your behalf, under your direction
and control, on terms that prohibit them from making any copies of
your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under
the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological
measure under any applicable law fulfilling obligations under article
11 of the WIPO copyright treaty adopted on 20 December 1996, or
similar laws prohibiting or restricting circumvention of such
measures.

When you convey a covered work, you waive any legal power to forbid
circumvention of technological measures to the extent such circumvention
is effected by exercising rights under this License with respect to
the covered work, and you disclaim any intention to limit operation or
modification of the work as a means of enforcing, against the work's
users, your or third parties' legal rights to forbid circumvention of
technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you
receive it, in any medium, provided that you conspicuously and
appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,
and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to

produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular

product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the

entire Program shall
be treated as though they were included in this License, to the extent
that they are valid under applicable law. If additional permissions
apply only to part of the Program, that part may be used separately
under those permissions, but the entire Program remains governed by
this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option
remove any additional permissions from that copy, or from any part of
it. (Additional permissions may be written to require their own
removal in certain cases when you modify the work.) You may place
additional permissions on material, added by you to a covered work,
for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you
add to a covered work, you may (if authorized by the copyright holders of
that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains

a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work

occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant

patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory

patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General
Public License "or any later version" applies to it, you
have the
option of following the terms and conditions either of that numbered
version or of any later version published by the Free Software
Foundation. If the Program does not specify a version number of the

GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work

in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system

(if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;

section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from

a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work,

for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;

the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and

propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a

party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the
option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where

the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.
GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is
deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying
Modified Versions.

If you modify a copy of the Library, and, in your modifications, a
facility refers to a function or data to be supplied by an Application

that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the

copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

1.237 curl 7.62.0-DEV

1.237.1 Available under license :

License Mixing
==============

libcurl can be built to use a fair amount of various third party libraries, libraries that are written and provided by other parties that are distributed using their own licenses. Even libcurl itself contains code that may cause problems to some. This document attempts to describe what licenses libcurl and the other libraries use and what possible dilemmas linking and mixing them all can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that [GPL](https://www.gnu.org/licenses/gpl.html) licensed code is not allowed to be linked with code licensed under the [Original BSD license](https://spdx.org/licenses/BSD-4-Clause.html) (with the announcement clause). You may still build your own copies that use them all, but distributing them as binaries would be to violate the GPL license - unless you accompany your license with an [exception](https://www.gnu.org/licenses/gpl-faq.html#GPLIncompatibleLibs). This

particular problem
was addressed when the [Modified BSD
license](https://opensource.org/licenses/BSD-3-Clause) was created, which does
not have the announcement clause that collides with GPL.

libcurl

Uses an [MIT style license](https://curl.haxx.se/docs/copyright.html) that is
very liberal.

OpenSSL

(May be used for SSL/TLS support) Uses an Original BSD-style license with an
announcement clause that makes it "incompatible" with GPL. You are not
allowed to ship binaries that link with OpenSSL that includes GPL code
(unless that specific GPL code includes an exception for OpenSSL - a habit
that is growing more and more common). If OpenSSL's licensing is a problem
for you, consider using another TLS library.

GnuTLS

(May be used for SSL/TLS support) Uses the
[LGPL](https://www.gnu.org/licenses/lgpl.html) license. If this is a problem
for you, consider using another TLS library. Also note that GnuTLS itself
depends on and uses other libs (libgcrypt and libgpg-error) and they too
are
LGPL- or GPL-licensed.

WolfSSL

(May be used for SSL/TLS support) Uses the GPL license or a proprietary
license. If this is a problem for you, consider using another TLS library.

NSS

(May be used for SSL/TLS support) Is covered by the
[MPL](https://www.mozilla.org/MPL/) license, the GPL license and the LGPL
license. You may choose to license the code under MPL terms, GPL terms, or
LGPL terms. These licenses grant you different permissions and impose
different obligations. You should select the license that best meets your
needs.

mbedTLS

(May be used for SSL/TLS support) Uses the [Apache 2.0
license](https://opensource.org/licenses/Apache-2.0) or the GPL license.
You may choose to license the code under Apache 2.0 terms or GPL terms.
These licenses grant you different permissions and impose different

obligations. You should select the license that best meets your needs.

BoringSSL

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same
license as that.

libressl

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same
license as that.

c-ares

(Used for asynchronous name resolves) Uses an MIT license that is very
liberal and imposes no restrictions on any other library or part you may link
with.

zlib

(Used for compressed Transfer-Encoding support) Uses an MIT-style license
that shouldn't collide with any other library.

MIT Kerberos

(May be used for GSS support) MIT licensed, that shouldn't collide with any
other parts.

Heimdal

(May be used for GSS support) Heimdal is Original BSD licensed with the
announcement clause.

GNU GSS

(May be used for GSS support) GNU GSS is GPL licensed. Note that you may not
distribute binary curl packages that uses this if you build curl to also link
and use any Original BSD licensed libraries!

libidn

(Used for IDNA support) Uses the GNU Lesser General Public License [3]. LGPL
is a variation of GPL with slightly less aggressive
"copyleft". This license
requires more requirements to be met when distributing binaries, see the
license for details. Also note that if you distribute a binary that includes
this library, you must also include the full LGPL license text. Please
properly point out what parts of the distributed package that the license

addresses.

OpenLDAP

(Used for LDAP support) Uses a Modified BSD-style license. Since libcurl uses
OpenLDAP as a shared library only, I have not heard of anyone that ships
OpenLDAP linked with libcurl in an app.

libssh2

(Used for scp and sftp support) libssh2 uses a Modified BSD-style license.
COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2019, Daniel Stenberg, <daniel@haxx.se>, and many
contributors, see the THANKS file.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose
with or without fee is hereby granted, provided that the above copyright
notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN
NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,
DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE
OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not
be used in advertising or otherwise to promote the sale, use or other
dealings
in this Software without prior written authorization of the copyright holder.

1.238 junixsocket-core 2.3.2

1.238.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1

through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section)

patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that
such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any
Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims
asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.239 protobuf 3.6.1.3-2ubuntu5

1.239.1 Available under license :

BSD-3-Clause
This file contains a list of people who have made large contributions
to the public version of Protocol Buffers.

Original Protocol Buffers design and implementation:
Sanjay Ghemawat <sanjay@google.com>
Jeff Dean <jeff@google.com>
Daniel Dulitz <daniel@google.com>
Craig Silverstein
Paul Haahr <haahr@google.com>
Corey Anderson <corin@google.com>
(and many others)

Proto2 C++ and Java primary author:
Kenton Varda <kenton@google.com>

Proto2 Python primary authors:
Will Robinson <robinson@google.com>
Petar Petrov <petar@google.com>

Java Nano primary authors:
Brian Duff <bduff@google.com>
Tom Chao <chaot@google.com>
Max Cai <maxtroy@google.com>
Ulas Kirazci <ulas@google.com>

Large code contributions:

Jason Hsueh <jasonh@google.com>
Joseph Schorr <jschorr@google.com>
Wenbo Zhu <wenboz@google.com>

Large quantity of code reviews:
Scott Bruce <sbruce@google.com>
Frank Yellin
Neal Norwitz <nnorwitz@google.com>
Jeffrey Yasskin <jyasskin@google.com>
Ambrose
Feinstein <ambrose@google.com>

Documentation:
Lisa Carey <lcarey@google.com>

Maven packaging:
Gregory Kick <gak@google.com>

Patch contributors:
Kevin Ko <kevin.s.ko@gmail.com>
  * Small patch to handle trailing slashes in --proto_path flag.
Johan Euphrosine <proppy@aminche.com>
  * Small patch to fix Python CallMethod().
Ulrich Kunitz <kune@deine-taler.de>
  * Small optimizations to Python serialization.
Leandro Lucarella <llucax@gmail.com>
  * VI syntax highlighting tweaks.
  * Fix compiler to not make output executable.
Dilip Joseph <dilip.antony.joseph@gmail.com>
  * Heuristic detection of sub-messages when printing unknown fields in
    text format.
Brian Atkinson <nairb774@gmail.com>
  * Added @Override annotation to generated Java code where appropriate.
Vincent Choinire <Choiniere.Vincent@hydro.qc.ca>
  * Tru64 support.
Monty Taylor <monty.taylor@gmail.com>
  * Solaris 10 + Sun Studio fixes.
Alek Storm <alek.storm@gmail.com>

  * Slicing support for repeated scalar fields for the Python API.
Oleg Smolsky <oleg.smolsky@gmail.com>
  * MS Visual Studio error format option.
  * Detect unordered_map in stl_hash.m4.
Brian Olson <brianolson@google.com>
  * gzip/zlib I/O support.
Michael Poole <mdpoole@troilus.org>
  * Fixed warnings about generated constructors not explicitly initializing
    all fields (only present with certain compiler settings).

  * Added generation of field number constants.
Wink Saville <wink@google.com>
  * Fixed initialization ordering problem in logging code.
Will Pierce <willp@nuclei.com>
  * Small patch improving performance of in Python serialization.
Alexandre Vassalotti <alexandre@peadrop.com>
  * Emacs mode for Protocol Buffers (editors/protobuf-mode.el).
Scott Stafford <scott.stafford@gmail.com>
  * Added Swap(), SwapElements(), and RemoveLast() to Reflection interface.
Alexander Melnikov <alm@sibmail.ru>
  * HPUX support.
Oliver Jowett <oliver.jowett@gmail.com>
   * Detect whether zlib is new enough in configure script.
  * Fixes for Solaris 10 32/64-bit confusion.
Evan Jones <evanj@mit.edu>
  * Optimize Java serialization code when writing a small message to a stream.
  * Optimize Java serialization of strings so that UTF-8 encoding happens only
    once per string per serialization call.
  * Clean up some Java warnings.
  * Fix bug with permanent callbacks that delete themselves when run.
Michael Kucharski <m.kucharski@gmail.com>
  * Added CodedInputStream.getTotalBytesRead().
Kacper Kowalik <xarthisius.kk@gmail.com>
  * Fixed m4/acx_pthread.m4 problem for some Linux distributions.
William Orr <will@worrbase.com>
  * Fixed detection of sched_yield on Solaris.
  * Added atomicops for Solaris
Andrew Paprocki <andrew@ishiboo.com>
  * Fixed minor IBM xlC compiler build issues
  * Added atomicops for AIX (POWER)

Copyright 2008 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner
of the input file used when generating it. This code is not
standalone and requires a support library to be linked with it. This
support library is itself covered by the above license.

1.240 x264 0.155.2917+git0a84d98-2

1.240.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of

running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you

distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and

of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.241 flyway-test 6.4.0

1.241.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright (C) 2011-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /flyway-test-6-4-0-sources-jar/org/flywaydb/test/annotation/package-info.java
* /flyway-test-6-4-0-sources-jar/org/flywaydb/test/annotation/FlywayTest.java
* /flyway-test-6-4-0-sources-jar/org/flywaydb/test/annotation/FlywayTests.java

1.242 flyway-spring5-test 6.4.0

1.242.1 Available under license :

No license file was found, but licenses were detected in source scan.

2020 the original author or authors.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE
2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Found in path(s):
* /flyway-spring5-test-6-4-0-sources-jar/context/dataSourceSingleContext.xml
* /flyway-spring5-test-6-4-0-sources-jar/context/simple_applicationContext.xml

* /flyway-spring5-test-6-4-0-sources-jar/context/flywayContainerContext.xml
* /flyway-spring5-test-6-4-0-sources-jar/context/flywaySingleContext.xml
* /flyway-spring5-test-6-4-0-sources-jar/context/secondFlywayContainerContext.xml
*
 /flyway-spring5-test-6-4-0-sources-jar/context/flywayPropertiesContext.xml
No license file was found, but licenses were detected in source scan.

/**
* Copyright (C) 2011-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit5/annotation/FlywayTestExtension.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit5/FlywayTestExtension.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit/FlywayTestExecutionListener.java
*
 /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/ExecutionListenerHelper.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit/FlywayHelperFactory.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit5/annotation/package-info.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/package-info.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/junit/package-info.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/FlywayTestExecutionListener.java
* /flyway-spring5-test-6-4-0-sources-jar/org/flywaydb/test/FlywayHelperFactory.java
No license file was found, but licenses were detected in source scan.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at
http://www.apache.org/licenses/LICENSE-2.0
distributed under the License is distributed on an "AS IS" BASIS,

Found in path(s):
* /flyway-spring5-test-6-4-0-sources-jar/flyway.default.properties

1.243 flyway-core 7.3.1

1.243.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright © Red Gate Software Ltd 2010-2020
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/configuration/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/VersionPrinter.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbRepair.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/InsertRowLock.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/PlaceholderReplacingReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/clazz/NoopClassProvider.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/MigrateResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/ClassPathScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/SchemaObject.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/JdbcNullTypes.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/strategy/BackoffStrategy.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/synapse/SynapseDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/Locations.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptExecutorFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/ResourceNameCache.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/jboss/package-info.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/DatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixDatabase.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/logging/LogFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlStatement.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/DateUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/log4j2/Log4j2Log.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Table.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/BaselineResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/PositionTrackingReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/ClasspathClassScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/Location.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Warning.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/SimpleContext.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/OperationResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASETable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/configuration/ConfigUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/WarningImpl.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Connection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/Recorder.java
*
 /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/logging/apachecommons/ApacheCommonsLogCreator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/apachecommons/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbyParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/ErrorOutput.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/JarUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/android/ContextHolder.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleResults.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/ValidateOutput.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/filesystem/FileSystemScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/ValidateResult.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/authentication/ExternalAuthPropertiesProvider.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/SqlScriptCallbackFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/ParsingContext.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/slf4j/Slf4jLog.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/authentication/postgres/PgpassFileReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteDatabase.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/migration/Context.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/ResolvedMigrationImpl.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/javautil/JavaUtilLog.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/s3/AwsS3Resource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/CloseableIterator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/exception/FlywayDbUpgradeRequiredException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2DatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbyDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/configuration/Configuration.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/AsciiTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/ExecutionTemplateFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/sql/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/SqlCallable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/RepairOutput.java
* /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/database/sybasease/SybaseASEJConnectDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Type.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/resolver/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptMetadata.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/authentication/ExternalAuthFileReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationPattern.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANADatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/Flyway.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/classpath/ClassPathResource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/classpath/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/FlywayException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Context.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/migration/JavaMigration.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/RepairResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/schemahistory/SchemaHistory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/android/AndroidLogCreator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixTable.java
* /flyway-core-7-3-1-sources-

jar/org/flywaydb/core/internal/scanner/classpath/JarFileClassPathLocationScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbyDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/exception/FlywayValidateException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/StatementInterceptor.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/MigrationInfoContext.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/ParserSqlScript.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/resolver/ChecksumMatcher.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/BomFilter.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Statement.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/ErrorImpl.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/LogCreatorFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/migration/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/slf4j/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/MigrateOutput.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/ParserContext.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/logging/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANAParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/CommandResultFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/java/JavaMigrationExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Database.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/FileCopyUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLNamedLockTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBDatabase.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/BooleanEvaluator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/CallbackExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbyTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/cloud/s3/AwsS3Scanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/sql/DefaultSqlMigrationExecutorFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/javautil/JavaUtilLogCreator.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/StringResource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/gcs/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/PositionTracker.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/PlainExecutionTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/CompositeMigrationResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/jboss/JBossVFSv2UrlResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2Database.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/Statement.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/BaseCallback.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/resolver/ResolvedMigration.java
* /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLCopyParsedStatement.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Parser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/ResourceAndClassScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/DefaultExecutionStrategy.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/LoadableResource.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/CleanResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/ClassUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/apachecommons/ApacheCommonsLog.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2Table.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/FlywayTeamsUpgradeMessage.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/ErrorDetails.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2DatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/synapse/SynapseDatabase.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Function.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/ResourceType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/TokenType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/AbbreviationUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/ErrorCode.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/JdbcConnectionFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Connection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerDatabaseType.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Event.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/executor/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/ParsedSqlStatement.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/Delimiter.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/TestContainersDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/ExceptionUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANAConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/RecordingReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/Scanner.java
*
 /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/scanner/classpath/jboss/JBossVFSv3ClassPathLocationScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/authentication/mysql/MySQLOptionFileReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/IOUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/UrlUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/exception/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/android/AndroidResource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/PeekingReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/ChecksumCalculator.java
* /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/database/sqlserver/SQLServerApplicationLockTemplate.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/InfoOutput.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Error.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/Resource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/gcs/GCSResource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/OsgiClassPathLocationScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/InfoOutputProvider.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/FlywayEditionUpgradeRequiredException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/resolver/Context.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/BomStrippingReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/UndoOutput.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/FlywayTeamsUpgradeRequiredException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/DatabaseTypeRegister.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASESchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/TableLockingExecutionTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/TimeFormat.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/StopWatch.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/android/AndroidLog.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/s3/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/MigrationInfoServiceImpl.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Schema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/configuration/S3ClientFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbyConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/UrlResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/package-info.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/logging/LogCreator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/RowMapper.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/ResourceNameValidator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/executor/MigrationExecutor.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/StringUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/android/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/ClassPathLocationScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScript.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/FeatureDetector.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/ResourceNameParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/executor/Context.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/ResourceName.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbClean.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/java/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2Connection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationInfo.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationState.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/DatabaseExecutionStrategy.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/DriverDataSource.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/mariadb/MariaDBDatabase.java
* /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/database/sybasease/SybaseASEJTDSDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/mariadb/MariaDBDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/configuration/ConfigurationValidator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/Edition.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/license/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdSchema.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Database.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/configuration/FluentConfiguration.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/package-info.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2Schema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/logging/Log.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/schemahistory/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEConnection.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/filesystem/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/NoopResourceProvider.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationExecutorFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/DefaultUrlResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/Results.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/SQLServerEngineEdition.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/util/Pair.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/HSQLDBDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixConnection.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Type.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/callback/Callback.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/NoopCallbackExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/Result.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/synapse/SynapseTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbValidate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/resolver/MigrationResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/package-info.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/DefaultCallbackExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/android/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/hsqldb/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sybasease/SybaseASEDatabase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/JdbcTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/slf4j/Slf4jLogCreator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/configuration/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/callback/NoopCallback.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/migration/BaseJavaMigration.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlite/SQLiteConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/Parser.java

* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/java/FixedJavaMigrationResolver.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/InfoResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachRetryingTransactionalExecutionTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationInfoService.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANADatabaseType.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlScriptExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/clazz/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/StatementType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/configuration/ClassicConfiguration.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/synapse/SynapseConnection.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/schemahistory/JdbcTableSchemaHistory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/DefaultSqlScriptExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbBaseline.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/SqlStatementIterator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/snowflake/SnowflakeTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/strategy/RetryStrategy.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/java/ResolvedJavaMigration.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Schema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/MigrationInfoDumper.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/JdbcUtils.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/sqlserver/synapse/SynapseSchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/java/ScanningJavaMigrationResolver.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/postgresql/PostgreSQLAdvisoryLockTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/classpath/FileSystemClassPathLocationScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/cloud/CloudScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/OperationResultBase.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/oracle/OracleSqlScriptExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/db2/DB2Function.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/schemahistory/SchemaHistoryFactory.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/AppliedMigrationAttributes.java
*
 /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANATable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/javautil/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/ResourceProvider.java

* /flyway-core-7-3-1-sources-
jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBRetryingStrategy.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/TransactionalExecutionTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/firebird/FirebirdDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/MySQLDatabaseType.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/filesystem/FileSystemResource.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/ClassProvider.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/ResolvedMigrationComparator.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/sql/SqlMigrationExecutor.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/h2/H2Parser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/cloud/gcs/GCSScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/LocationScannerCache.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/info/MigrationInfoImpl.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/FlywaySqlScriptException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/mysql/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/derby/DerbySchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbMigrate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/scanner/android/AndroidScanner.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/schemahistory/AppliedMigration.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/exception/FlywaySqlException.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/jdbc/ExecutionTemplate.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/sqlscript/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbSchemas.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/UnboundedReadAheadReader.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/CompositeResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/informix/InformixParser.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/saphana/SAPHANASchema.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/command/DbInfo.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/MigrationVersion.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/base/Table.java
*
/flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resolver/MigrationInfoHelper.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/parser/Token.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/api/output/UndoResult.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/logging/log4j2/Log4j2LogCreator.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/redshift/RedshiftTable.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/resource/android/package-info.java
* /flyway-core-7-3-1-sources-jar/org/flywaydb/core/internal/database/cockroachdb/CockroachDBSchema.java
No license file was found, but licenses were detected in source scan.

2020

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE
2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Found in path(s):
* /flyway-core-7-3-1-sources-jar/META-INF/maven/org.flywaydb/flyway-core/pom.xml

1.244 opencore-amr 0.1.3

1.244.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and
distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the
copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other
entities that control, are controlled by, or are under common control with
that entity. For the purposes of this definition, "control" means (i) the
power, direct or indirect, to cause the direction or management of such
entity, whether by contract or otherwise, or (ii) ownership of fifty
percent (50%) or more of the outstanding shares, or (iii) beneficial
ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising
permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications,
including but not limited to software source code, documentation source,
and configuration files.

"Object" form shall mean any form resulting from mechanical transformation
or translation of a Source form, including but not limited to compiled

object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative
Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on
behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily

infringed by their Contribution(s) alone or by combination
of their
Contribution(s) with the Work to which such Contribution(s) was submitted.
If You institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work or a
Contribution incorporated within the Work constitutes direct or
contributory patent infringement, then any patent licenses granted to You
under this License for that Work shall terminate as of the date such
litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or
Derivative Works thereof in any medium, with or without modifications, and
in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a
copy of this License; and

2. You must cause any modified files to carry prominent notices stating
that You changed the files; and

3. You must retain, in the Source form of any Derivative Works that You
distribute, all copyright, patent,
trademark, and attribution notices from
the Source form of the Work, excluding those notices that do not pertain to
any part of the Derivative Works; and

4. If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must include a
readable copy of the attribution notices contained within such NOTICE file,
excluding those notices that do not pertain to any part of the Derivative
Works, in at least one of the following places: within a NOTICE text file
distributed as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or, within a
display generated by the Derivative Works, if and wherever such third-party
notices normally appear. The contents of the NOTICE file are for
informational purposes only and do not modify the License. You may add Your
own attribution notices within Derivative Works that You distribute,
alongside or as an addendum to the NOTICE text
from the Work, provided that
such additional attribution notices cannot be construed as modifying the
License.

You may add Your own copyright statement to Your modifications and may
provide additional or different license terms and conditions for use,
reproduction, or distribution of Your modifications, or for any such
Derivative Works as a whole, provided Your use, reproduction, and
distribution of the Work otherwise complies with the conditions stated in
this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable
law or agreed
to in writing, software distributed under the License is
distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

```
/* ------------------------------------------------------------------
* Copyright (C) 2009 PacketVideo
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
* express or implied.
* See the License for the specific language governing permissions
* and limitations under the License.
* -------------------------------------------------------------------
*/
```

Portions of the PacketVideo supplied code contain contributions which may be covered by the following copyright statements:

```
/*     ------------------------------------------------------------------      *
```

```
*                   MPEG-4 Simple Profile Video
 Decoder
*     ------------------------------------------------------------------      *
*
* This software module was originally developed and/or edited by
*
*   Paulo Nunes (IST / ACTS-MoMuSyS)
*   Robert Danielsen (Telenor / ACTS-MoMuSyS)
*   Luis Ducla-Soares (IST / ACTS-MoMuSys).
*   Cor Quist (KPN / ACTS-MoMuSys).
*   Minhua Zhou (HHI / ACTS-MoMuSys).
*
* in the course of development of the MPEG-4 Video (ISO/IEC 14496-2) standard.
* This software module is an implementation of a part of one or more MPEG-4
* Video (ISO/IEC 14496-2) tools as specified by the MPEG-4 Video (ISO/IEC
* 14496-2) standard.
*
* ISO/IEC gives users of the MPEG-4 Video (ISO/IEC 14496-2) standard free
* license to this software module or modifications thereof for use in hardware
* or software products claiming conformance to the MPEG-4 Video (ISO/IEC
* 14496-2) standard.
*
* Those intending to use this software module in hardware or software products
* are advised that its use may infringe
 existing patents. The original
* developer of this software module and his/her company, the subsequent
* editors and their companies, and ISO/IEC have no liability for use of this
* software module or modifications thereof in an implementation. Copyright is
* not released for non MPEG-4 Video (ISO/IEC 14496-2) Standard conforming
* products.
*
* ACTS-MoMuSys partners retain full right to use the code for his/her own
* purpose, assign or donate the code to a third party and to inhibit third
* parties from using the code for non MPEG-4 Video (ISO/IEC 14496-2) Standard
* conforming products. This copyright notice must be included in all copies or
* derivative works.
*
* Copyright (c) 1996, 1997
*
***************************************************************************/



/**************************************************************************

SC 29 Software Copyright Licencing Disclaimer:

This software module was originally developed by
```

Coding Technologies

and
edited by
-

in the course of development of the ISO/IEC 13818-7 and ISO/IEC 14496-3
standards for reference purposes and its performance may not have been
optimized. This software module is an implementation of one or more tools as
specified by the ISO/IEC 13818-7 and ISO/IEC 14496-3 standards.
ISO/IEC gives users free license to this software module or modifications
thereof for use in products claiming conformance to audiovisual and
image-coding related ITU Recommendations and/or ISO/IEC International
Standards. ISO/IEC gives users the same free license to this software module or
modifications thereof for research purposes and further ISO/IEC standardisation.
Those intending to use this software module in products are advised that its
use may infringe existing patents. ISO/IEC have no liability for use of this
software module or modifications thereof. Copyright is not released for
products that do not conform to audiovisual and image-coding related ITU
Recommendations
and/or ISO/IEC International Standards.
The original developer retains full right to modify and use the code for its
own purpose, assign or donate the code to a third party and to inhibit third
parties from using the code for products that do not conform to audiovisual and
image-coding related ITU Recommendations and/or ISO/IEC International Standards.
This copyright notice must be included in all copies or derivative works.
Copyright (c) ISO/IEC 2003.

**********/

/**********

This software module was originally developed by

Mikko Suonio (Nokia)

in the course of development of the MPEG-2 NBC/MPEG-4 Audio standard
ISO/IEC 13818-7, 14496-1,2 and 3. This software module is an
implementation of a part of one or more MPEG-2 NBC/MPEG-4 Audio tools
as specified by the MPEG-2 NBC/MPEG-4 Audio standard. ISO/IEC gives
users of the MPEG-2 NBC/MPEG-4 Audio
standards free license to this
software module or modifications thereof for use in hardware or
software products claiming conformance to the MPEG-2 NBC/ MPEG-4 Audio
standards. Those intending to use this software module in hardware or
software products are advised that this use may infringe existing
patents. The original developer of this software module and his/her

company, the subsequent editors and their companies, and ISO/IEC have
no liability for use of this software module or modifications thereof
in an implementation. Copyright is not released for non MPEG-2
NBC/MPEG-4 Audio conforming products. The original developer retains
full right to use the code for his/her own purpose, assign or donate
the code to a third party and to inhibit third party from using the
code for non MPEG-2 NBC/MPEG-4 Audio conforming products. This
copyright notice must be included in all copies or derivative works.

Copyright (c) 1997.

*****/

/*****

This
 software module was originally developed by
Nokia in the course of development of the MPEG-2 AAC/MPEG-4
Audio standard ISO/IEC13818-7, 14496-1, 2 and 3.
This software module is an implementation of a part
of one or more MPEG-2 AAC/MPEG-4 Audio tools as specified by the
MPEG-2 aac/MPEG-4 Audio standard. ISO/IEC gives users of the
MPEG-2aac/MPEG-4 Audio standards free license to this software module
or modifications thereof for use in hardware or software products
claiming conformance to the MPEG-2 aac/MPEG-4 Audio standards. Those
intending to use this software module in hardware or software products
are advised that this use may infringe existing patents. The original
developer of this software module, the subsequent
editors and their companies, and ISO/IEC have no liability for use of
this software module or modifications thereof in an
implementation. Copyright is not released for non MPEG-2
 aac/MPEG-4
Audio conforming products. The original developer retains full right to
use the code for the developer's own purpose, assign or donate the code to a
third party and to inhibit third party from using the code for non
MPEG-2 aac/MPEG-4 Audio conforming products. This copyright notice
must be included in all copies or derivative works.
Copyright (c)1997.

*****/

MPEG-2 NBC Audio Decoder
  "This software module was originally developed by AT&T, Dolby
  Laboratories, Fraunhofer Gesellschaft IIS in the course of development

of the MPEG-2 NBC/MPEG-4 Audio standard ISO/IEC 13818-7, 14496-1,2 and
3. This software module is an implementation of a part of one or more
MPEG-2 NBC/MPEG-4 Audio tools as specified by the MPEG-2 NBC/MPEG-4
Audio standard. ISO/IEC gives users of the MPEG-2 NBC/MPEG-4 Audio
standards free
license to this software module or modifications thereof
for use in hardware or software products claiming conformance to the
MPEG-2 NBC/MPEG-4 Audio standards. Those intending to use this software
module in hardware or software products are advised that this use may
infringe existing patents. The original developer of this software
module and his/her company, the subsequent editors and their companies,
and ISO/IEC have no liability for use of this software module or
modifications thereof in an implementation. Copyright is not released
for non MPEG-2 NBC/MPEG-4 Audio conforming products.The original
developer retains full right to use the code for his/her own purpose,
assign or donate the code to a third party and to inhibit third party
from using the code for non MPEG-2 NBC/MPEG-4 Audio conforming products.
This copyright notice must be included in all copies or derivative
works."
Copyright(c)1996.

```
/*
 * snprintf.c - a portable implementation of snprintf
*
* AUTHOR
*   Mark Martinec <mark.martinec@ijs.si>, April 1999.
*
*   Copyright 1999, Mark Martinec. All rights reserved.
*
* TERMS AND CONDITIONS
*   This program is free software; you can redistribute it and/or modify
*   it under the terms of the "Frontier Artistic License" which comes
*   with this Kit.
*
*   This program is distributed in the hope that it will be useful,
*   but WITHOUT ANY WARRANTY; without even the implied warranty
*   of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
*   See the Frontier Artistic License for more details.
*
*
*/
```

The "Frontier Artistic License" may be found at
http://www.spinwardstars.com/frontier/fal.html

```
/*----------------------------------------------------------------------*/

/*
* Copyright (c) 2005 The Khronos Group Inc.
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of
 this software and associated documentation files (the
* "Software"), to deal in the Software without restriction, including
* without limitation the rights to use, copy, modify, merge, publish,
* distribute, sublicense, and/or sell copies of the Software, and to
* permit persons to whom the Software is furnished to do so, subject
* to the following conditions:
* The above copyright notice and this permission notice shall be included
* in all copies or substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
* OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
* IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
* CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
* TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
* SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*
*/

/*----------------------------------------------------------------------*/

/**@@@+++@@@@*************************************************************************

**
** Microsoft Windows Media
** Copyright (C) Microsoft Corporation. All rights reserved.
**
***@@@---@@@@*************************************************************************
*/


---------------------------------------------------------------------------
Portions of this file are derived from the following 3GPP standard:

   3GPP TS 26.073
   ANSI-C code for the Adaptive Multi-Rate (AMR) speech codec
   Available from http://www.3gpp.org

(C) 2004, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC)
Permission to distribute, modify and use this file under the standard license
```

terms listed above has been obtained from the copyright holder.

Portions
of this file are derived from the following 3GPP standard:

3GPP TS 26.173
ANSI-C code for the Adaptive Multi-Rate - Wideband (AMR-WB) speech codec
Available from http://www.3gpp.org

(C) 2007, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC)
Permission to distribute, modify and use this file under the standard license
terms listed above has been obtained from the copyright holder.

1.245 ipmiutil 2.9.9

1.245.1 Available under license :

Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: ipmiutil
Upstream-Contact: Andy Cress <arcress at users.sourceforge.net>
Source: http://ipmiutil.sourceforge.net
Comment: This COPYING file includes detail about each source file in ipmiutil

Files: *
Copyright: 2001-2008, Intel Corporation
2009-2012, Kontron America
2013, Andy Cress <arcress at users.sourceforge.net>
License: BSD-3-clause

Files: lib/lanplus/*
Copyright: 2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/itsol.c
Copyright: 2005 Tyan Computer Corp.
License: BSD-3-clause

Files: util/iekanalyzer.c
Copyright: 2007 Kontron Canada, Inc.
2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/md2.h
Copyright: 2003 FreeIPMI Core Team

Comment: Build does not include this file, unless 'configure --enable-gpl'
License: GPL-2.0

Files: util/AnsiTerm.cpp
Copyright: 2009 Robert Nelson <robertnelson at users.sourceforge.net>
License: BSD-2-clause

Files:
util/oem_dell.c
Copyright: 2008, Dell Inc
License: BSD-3-clause

Files: util/oem_sun.c
Copyright: 2005 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/ifirewall.c
Copyright: 2010 Kontron America Inc.
2005 International Business Machines, Inc.
2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/ifwum.c util/ihpm.c
Copyright: 2004-2006 Kontron Canada, Inc.
2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/md5.c
Copyright: 1999, 2000, 2002 Aladdin Enterprises.
Comment: Aladdin unrestricted license is compatible with BSD-3-clause
License: Aladdin
This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.
Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:
1. The origin of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software
in a product, an acknowledgment in the product documentation would be
appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.
L. Peter Deutsch
ghost@aladdin.com

License: BSD-3-clause

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
a. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
b. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other
materials provided with the distribution.
c. Neither the name of Kontron, nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.

License: BSD-2-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
a. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
b. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License: GPL-2.0
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2, or (at your option)
any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
A copy of the GNU General Public License is available as
/usr/share/common-licenses/GPL-2 in the Debian distribution or on
the World Wide Web at http://www.gnu.org/copyleft/gpl.html.
You can
also obtain it by writing to the Free Software Foundation, Inc.,
51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.
Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: ipmiutil
Upstream-Contact: Andy Cress <arcress at users.sourceforge.net>
Source: http://ipmiutil.sourceforge.net
Comment: This package was debianized by Andy Cress on 2010-10-29,
 with Debian package updates by Alex Waite on 2013-06-14

Files: *
Copyright: 2001-2008, Intel Corporation
 2009-2012, Kontron America
 2013, Andy Cress <arcress at users.sourceforge.net>
License: BSD-3-clause

Files: lib/lanplus/*
Copyright: 2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/itsol.c
Copyright: 2005 Tyan Computer Corp.
License: BSD-3-clause

Files: util/iekanalyzer.c
Copyright: 2007 Kontron Canada, Inc.
        2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/md2.h
Copyright: 2003 FreeIPMI Core Team
Comment: Optional to include this file, based on configure options
License: GPL-2.0

Files: util/AnsiTerm.cpp
Copyright: 2009 Robert Nelson <robertnelson at
 users.sourceforge.net>
License: BSD-2-clause

Files: util/oem_dell.c
Copyright: 2008, Dell Inc

License: BSD-3-clause

Files: util/oem_sun.c
Copyright: 2005 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/ifirewall.c
Copyright: 2010 Kontron America Inc.
2005 International Business Machines, Inc.
2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/ifwum.c util/ihpm.c
Copyright: 2004-2006 Kontron Canada, Inc.
2003 Sun Microsystems, Inc.
License: BSD-3-clause

Files: util/md5.c
Copyright: 1999, 2000, 2002 Aladdin Enterprises.
Comment: Aladdin unrestricted license is compatible with BSD-3-clause
License: Aladdin
This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.
Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:
1. The origin of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software
in a product, an acknowledgment in the product documentation would be
appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.
L. Peter Deutsch
ghost@aladdin.com

License: BSD-3-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
a. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
b. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer
in the documentation
and/or other materials provided with the distribution.
c. Neither the name of Kontron, nor the names of its
contributors may be used to endorse or promote products derived from

this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License: BSD-2-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
a. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
b. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License: GPL-2.0
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2, or (at your option)
any later version.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
A copy of the GNU General Public License is available as
/usr/share/common-licenses/GPL-2 in the Debian distribution or on
the World Wide Web at
http://www.gnu.org/copyleft/gpl.html. You can
also obtain it by writing to the Free Software Foundation, Inc.,
51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.

Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: ipmiutil
Upstream-Contact: Andy Cress <arcress at users.sourceforge.net>
Source: http://ipmiutil.sourceforge.net
http://www.openmash.org/lxr/source/src/getopt.c?c=gsm
http://www.openssl.org/source/openssl-0.9.8x.tar.gz
Comment: This COPYING.win covers contributed source used in Windows ipmiutil.exe

Files: getopt.c
Copyright: 1987-2001 The Regents of the University of California.
License: BSD-3-clause

Files: getopt.h
Copyright: 2007 Andy Cress <arcress at users.sourceforge.net>
License: BSD-3-clause

Files: openssl-0.9.8x/* (libeay32.dll, ssleay32.dll binaries)
See https://www.openssl.org/source/license.html
Copyright: 1998-2011, The OpenSSL Project
1995-1998, Eric Young (eay@cryptsoft.com)
Comment:
The OpenSSL toolkit stays under a dual license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual
license texts. Actually both licenses are BSD-style
Open Source licenses. In case of any license issues related to OpenSSL
please contact openssl-core@openssl.org.
License: OpenSSL-License and Original-SSLeay-License

License: BSD-3-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
a. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
b. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
c. Neither the name of Kontron, nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT
HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON

ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License: OpenSSL-License
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"

4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.

5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.

6. Redistributions of any form whatsoever must retain the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)

ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.
==========

This product includes
cryptographic software written by Eric Young
(eay@cryptsoft.com). This product includes software written by Tim
Hudson (tjh@cryptsoft.com).

License: Original-SSLeay-License
This package is an SSL implementation written
by Eric Young (eay@cryptsoft.com).
The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as
the following conditions are aheared to. The following conditions
apply to all code found in this distribution, be it the RC4, RSA,
lhash, DES, etc., code; not just the SSL code. The SSL documentation
included with this distribution is covered by the same copyright terms
except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in
the code are not to be removed.
If this package is used in a product, Eric Young should be given attribution
as the author of the parts of the library used.
This can be in the form
of a textual message at program startup or
in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
must display the following acknowledgement:
"This product includes cryptographic software written by
Eric Young (eay@cryptsoft.com)"
The word 'cryptographic' can be left out if the rouines from the library
being used are not cryptographic related :-).
4. If you include any Windows specific code (or a derivative
thereof) from
the apps directory (application code) you must include an acknowledgement:
"This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The licence and distribution terms for any publically available version or
derivative
 of this code cannot be changed. i.e. this code cannot simply be
copied and put under another distribution licence
[including the GNU Public Licence.]
The BSD License

Copyright (c) 2003, Intel Corporation
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

 a.. Redistributions of source code must retain the above copyright notice,
    this list of conditions and the following disclaimer.
 b.. Redistributions in binary form must reproduce the above copyright notice,
    this list of conditions and the following disclaimer in the documentation
    and/or other materials provided with the distribution.
 c.. Neither the name of Intel Corporation nor the names of its contributors
    may be used to endorse or promote products derived from this software
    without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.246 curl 7.50.1

1.246.1 Available under license :

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2021, Daniel Stenberg, <daniel@haxx.se>, and many
contributors, see the THANKS file.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose
with or without fee is hereby granted, provided that the above copyright
notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN
NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,
DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE
OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not
be used in advertising or otherwise to promote the sale, use or other
dealings
in this Software without prior written authorization of the copyright holder.

1.247 lombok 1.18.12

1.247.1 Available under license :

Copyright (C) 2009-2015 The Project Lombok Authors.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER

LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.248 reactive-streams 1.0.3

1.248.1 Available under license :

No license file was found, but licenses were detected in source scan.

/***
* Licensed under Public Domain (CC0) *
* *
* To the extent possible under law, the person who associated CC0 with *
* this code has waived all copyright and related or neighboring *
* rights to this code. *
* *
* You should have received a copy of the CC0 legalcode along with this *
* work. If not, see <http://creativecommons.org/publicdomain/zero/1.0/>.*
***/

Found in path(s):
* /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Publisher.java
* /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/FlowAdapters.java
* /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Processor.java
*
/reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Subscription.java
* /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Subscriber.java

1.249 commons-dbcp 1.4

1.249.1 Available under license :

Apache Commons DBCP
Copyright 2001-2010 The Apache Software Foundation

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.250 jul-to-slf4j 1.7.30

1.250.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright (c) 2004-2011 QOS.ch
* All rights reserved.
*
* Permission is hereby granted, free of charge, to any person obtaining
* a copy of this software and associated documentation files (the
* "Software"), to deal in the Software without restriction, including
* without limitation the rights to use, copy, modify, merge, publish,
* distribute, sublicense, and/or sell copies of the Software, and to
* permit persons to whom the Software is furnished to do so, subject to
* the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.
*
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
* EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
* NONINFRINGEMENT. IN
NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
* LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
* OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
* WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
*
*/

Found in path(s):
* /jul-to-slf4j-1-7-30-sources-1-jar/org/slf4j/bridge/SLF4JBridgeHandler.java

1.251 spring-retry 1.2.5.RELEASE

1.251.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2006-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/ExponentialRandomBackOffPolicy.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2006-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/NoBackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/ExceptionClassifierRetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/AlwaysRetryPolicy.java
*

/spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/ExhaustedRetryException.java
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/policy/RetryCacheCapacityExceededException.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/PatternMatchingClassifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/annotation/Classifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/BackToBackPatternClassifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/support/RetrySimulator.java
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/policy/SoftReferenceMapRetryContextCache.java
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/interceptor/NewMethodArgumentsIdentifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/ClassifierSupport.java
*
/spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/MapRetryContextCache.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RecoveryCallback.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/BackOffInterruptedException.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/Classifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/SleepingBackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/RetryContextCache.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryStatistics.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/ObjectWaitSleeper.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryCallback.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/support/RetrySimulation.java
*
/spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/interceptor/MethodArgumentsKeyGenerator.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/PatternMatcher.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryContext.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/CompositeRetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryListener.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/TimeoutRetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/interceptor/MethodInvocationRecoverer.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/ClassifierAdapter.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryState.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/TerminatedRetryException.java
*
/spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/listener/RetryListenerSupport.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/Sleeper.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/BackOffContext.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/BackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/NeverRetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryException.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/StatelessBackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/RetryOperations.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/support/RetrySynchronizationManager.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/support/DefaultRetryState.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2016-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/CircuitBreaker.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2006-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance
with
* the License. You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on
* an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the
* specific language governing permissions and limitations under the License.
*/
```

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/interceptor/RetryOperationsInterceptor.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2014-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
```

* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/annotation/AnnotationAwareRetryOperationsInterceptor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/RetryStatisticsFactory.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/StatisticsListener.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/DefaultStatisticsRepository.java
*
 /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/ExponentialAverageRetryStatistics.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/DefaultRetryStatisticsFactory.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/DefaultRetryStatistics.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/StatisticsRepository.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/stats/MutableRetryStatistics.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2006-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at

*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/interceptor/StatefulRetryOperationsInterceptor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2006-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/UniformRandomBackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/context/RetryContextSupport.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/support/RetryTemplate.java
*
 /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/FixedBackOffPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/ExponentialBackOffPolicy.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/interceptor/RetryInterceptorBuilder.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/RetryConfiguration.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/backoff/ThreadWaitSleeper.java
*
 /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/Retryable.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/interceptor/Retryable.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/util/SimpleMethodInvoker.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/Recover.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/Backoff.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/annotation/EnableRetry.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/interceptor/FixedKeyGenerator.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/CircuitBreakerRetryPolicy.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/ExpressionRetryPolicy.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2013-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-
jar/org/springframework/retry/annotation/RecoverAnnotationRecoveryHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/util/MethodInvokerUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2008 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/util/AnnotationMethodResolver.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/util/MethodResolver.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/util/MethodInvoker.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2006-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/BinaryExceptionClassifier.java
* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/retry/policy/SimpleRetryPolicy.java

* /spring-retry-1-2-5-release-sources-1-jar/org/springframework/classify/SubclassClassifier.java

1.252 aspect-j 1.9.6

1.252.1 Available under license :

Found license 'Eclipse Public License 1.0' in '* Copyright (c) 2005 Contributors. All rights reserved. * This program and the accompanying materials are made available * under the terms of the Eclipse Public License v1.0'
Found license 'Eclipse Public License 1.0' in '* Copyright (c) 2006 Contributors. All rights reserved. * This program and the accompanying materials are made available * under the terms of the Eclipse Public License v1.0'
Found license 'Eclipse Public License 1.0' in '* All rights reserved. * This program and the accompanying materials are made available * under the terms of the Eclipse Public License v1.0'
Found license 'Eclipse Public License 1.0' in '* All rights reserved. This program and the accompanying materials * are made available under the terms of the Eclipse Public License v1.0'

1.253 asm 5.0.4

1.253.1 Available under license :

No license file was found, but licenses were detected in source scan.

2011, Eugene Kuleshov
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holders nor the names of its
   contributors may be used to endorse or promote products derived from
   this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGE.

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/asm-xml.dtd
No license file was found, but licenses were detected in source scan.

2011, Eugene Kuleshov
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*   contributors may be used to endorse or promote products derived from
*   this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED
 WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/package.html
No license file was found, but licenses were detected in source scan.

#All rights reserved.
#Redistribution and use in source and binary forms, with or without
#modification, are permitted provided that the following conditions
#are met:
#1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
#2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
#3. Neither the name of the copyright holders nor the names of its
this software without specific prior written permission.

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink-annotations.properties
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink-frames.properties
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink-resize.properties
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink-signatures.properties
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink.properties
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/shrink-writer.properties
No license file was found, but licenses were detected in source scan.

/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*   contributors may be used to endorse or promote products derived from
*   this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
```
/**
   * Creates a new JSRInliner. <i>Subclasses must not use this
   * constructor</i>. Instead, they must use the
   * {@link #JSRInlinerAdapter(int, MethodVisitor, int, String, String, String, String[])}
   * version.
   *
   * @param mv
```

```
   *
  the <code>MethodVisitor</code> to send the resulting inlined
   *          method code to (use <code>null</code> for none).
   * @param access
   *          the method's access flags (see {@link Opcodes}). This
   *          parameter also indicates if the method is synthetic and/or
   *          deprecated.
   * @param name
   *          the method's name.
   * @param desc
   *          the method's descriptor (see {@link Type}).
   * @param signature
   *          the method's signature. May be <tt>null</tt>.
   * @param exceptions
   *          the internal names of the method's exception classes (see
   *          {@link Type#getInternalName() getInternalName}). May be
   *          <tt>null</tt>.
   * @throws IllegalStateException
   *           If a subclass calls this constructor.
   */
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/JSRInlinerAdapter.java
No license file was found, but licenses were detected in source scan.

```
/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
```

```
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
/**
   * Constructs a new {@link LocalVariableAnnotationNode}. <i>Subclasses must
   * not use this constructor</i>. Instead, they must use the
   * {@link #LocalVariableAnnotationNode(int, TypePath, LabelNode[], LabelNode[], int[], String)}
   * version.
   *

   * @param typeRef
   *          a reference to the annotated type. See {@link TypeReference}.
   * @param typePath
   *          the path to the annotated type argument, wildcard bound, array
   *          element type, or static inner type within 'typeRef'. May be
   *          <tt>null</tt> if the annotation targets 'typeRef' as a whole.
   * @param start
   *          the fist instructions corresponding to the continuous ranges
   *          that make the scope of this local variable (inclusive).
   * @param end
   *          the last instructions corresponding to the continuous ranges
   *          that make the scope of this local variable (exclusive). This
   *          array must have the same size as the 'start' array.
   * @param index
   *          the local variable's index in each range. This array must have
   *          the same size as the 'start' array.
   * @param desc
   *          the class descriptor of
 the annotation class.
   */
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LocalVariableAnnotationNode.java
No license file was found, but licenses were detected in source scan.

```
/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
```

```
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
/**
   * Constructs a new {@link ClassNode}. <i>Subclasses must not use this
   * constructor</i>. Instead, they must use the {@link #ClassNode(int)}
   * version.
   *
   * @throws IllegalStateException
   *             If a subclass calls this constructor.
    */

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/ClassNode.java
No license file was found, but licenses were detected in source scan.

/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
```

```
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
/**
   * Creates a new {@link GeneratorAdapter}. <i>Subclasses must not use this
   * constructor</i>. Instead, they must use the
   * {@link #GeneratorAdapter(int, MethodVisitor, int, String, String)}
   * version.
   *
   * @param mv
   *          the
 method visitor to which this adapter delegates calls.
   * @param access
   *          the method's access flags (see {@link Opcodes}).
   * @param name
   *          the method's name.
   * @param desc
   *          the method's descriptor (see {@link Type Type}).
   * @throws IllegalStateException
   *           If a subclass calls this constructor.
   */
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/GeneratorAdapter.java
No license file was found, but licenses were detected in source scan.

```
2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
```

* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
* contributors may be used to endorse or promote products derived from
* this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/package.html
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/package.html
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/package.html
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/package.html
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/package.html
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/package.html
No license file was found, but licenses were detected in source scan.

/***
* ASM XML Adapter
* Copyright (c) 2004-2011, Eugene Kuleshov
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
* contributors may be used to endorse or promote products derived from
* this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXClassAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXAnnotationAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/Processor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXFieldAdapter.java
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/ASMContentHandler.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXCodeAdapter.java
No license file was found, but licenses were detected in source scan.

/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2013 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*   contributors may be used to endorse or promote products derived from
*   this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)

* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/TypePath.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/TypeReference.java
No license file was found, but licenses were detected in source scan.

/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*   contributors may be used to endorse or promote products derived from
*   this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
/**
   * Creates a new {@link AnalyzerAdapter}. Subclasses must not use this
   * constructor. Instead, they must use the
   * {@link #AnalyzerAdapter(int, String, int, String, String, MethodVisitor)}
   * version.
   *
   * @param owner
   *

```
     the owner's class name.
   * @param access
   *          the method's access flags (see {@link Opcodes}).
   * @param name
   *          the method's name.
   * @param desc
   *          the method's descriptor (see {@link Type Type}).
   * @param mv
   *          the method visitor to which this adapter delegates calls. May
   *          be <tt>null</tt>.
   * @throws IllegalStateException
   *           If a subclass calls this constructor.
   */
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/AnalyzerAdapter.java
No license file was found, but licenses were detected in source scan.

```
/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
```

```
/**
   * Constructs a new {@link Textifier}. <i>Subclasses must not use this
   * constructor</i>. Instead, they must use the {@link #Textifier(int)}
   * version.
   *
   * @throws IllegalStateException
   *             If a subclass calls this constructor.
    */
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/Textifier.java
No license file was found, but licenses were detected in source scan.

```
/**
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
```

Found in path(s):
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/Textifiable.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/ASMifiable.java

No license file was found, but licenses were detected in source scan.

```
/***
* ASM: a very small and fast Java bytecode manipulation framework
* Copyright (c) 2000-2011 INRIA, France Telecom
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the copyright holders nor the names of its
*    contributors may be used to endorse or promote products derived from
*    this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
* INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
* CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/
```

Found in path(s):

```
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Label.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Type.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/AnnotationWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SimpleVerifier.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/NameMapping.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/Printer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/Shrinker.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/Method.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckAnnotationAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingSignatureAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingFieldAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Attribute.java
```

* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SourceInterpreter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MethodInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/MethodVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceFieldVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SourceValue.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/AdviceAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/Remapper.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicValue.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/FieldWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ByteVector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/AbstractInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Interpreter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/JumpInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/TableSwitchGenerator.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FieldNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FieldInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LabelNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ClassConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckSignatureAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicVerifier.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/CodeSizeEvaluator.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/InstructionAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/IntInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingClassAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MultiANewArrayInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassReader.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/VarInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingMethodAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Value.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/StaticInitMerger.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/AnnotationConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/AnnotationVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InsnNode.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureReader.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LdcInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LookupSwitchInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LineNumberNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/JarOptimizer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/LocalVariablesSorter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceAnnotationVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/Constant.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TypeAnnotationNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Handle.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TryCatchBlockNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ClassOptimizer.java

* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/ASMifier.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceClassVisitor.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TableSwitchInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Frame.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InvokeDynamicInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/AnalyzerException.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Subroutine.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/SerialVersionUIDAdder.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InnerClassNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/ParameterNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LocalVariableNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Analyzer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SmallSet.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingAnnotationAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TypeInsnNode.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceSignatureVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/IincInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/MethodOptimizer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckFieldAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Frame.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckMethodAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/SimpleRemapper.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/AnnotationNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/FieldVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Context.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceMethodVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/MethodConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Handler.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MethodNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InsnList.java
*
 /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/FieldConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/MethodWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicInterpreter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/TryCatchBlockSorter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Item.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Edge.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FrameNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ConstantPool.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Opcodes.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckClassAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureVisitor.java

1.254 jakarta-annotation-api 1.3.5

1.254.1 Available under license :

Eclipse Public License - v 2.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial content
Distributed under this Agreement, and

b) in the case of each subsequent Contributor:
i) changes to the Program, and
ii) additions to the Program;
where such changes and/or additions to the Program originate from and are Distributed by that particular Contributor. A Contribution "originates" from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include changes or additions to the Program that are not Modified Works.

"Contributor" means any person or entity that Distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions Distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement or any Secondary License (as applicable), including Contributors.

"Derivative Works" shall mean any work, whether in Source Code or other form, that is based on (or derived from) the Program and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship.

"Modified Works" shall mean any work in Source Code or other form that results from an addition to, deletion from, or modification of the contents of the Program, including, for purposes of clarity any new file

in Source Code form that
contains any contents of the Program. Modified
Works shall not include works that contain only declarations,
interfaces, types, classes, structures, or files of the Program solely
in each case in order to link to, bind by name, or subclass the Program
or Modified Works thereof.

"Distribute" means the acts of a) distributing or b) making available
in any manner that enables the transfer of a copy.

"Source Code" means the form of a Program preferred for making
modifications, including but not limited to software source code,
documentation source, and configuration files.

"Secondary License" means either the GNU General Public License,
Version 2.0, or any later versions of that license, including any
exceptions or additional permissions as identified by the initial
Contributor.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby
grants Recipient a non-exclusive, worldwide, royalty-free
copyright
license to reproduce, prepare Derivative Works of, publicly display,
publicly perform, Distribute and sublicense the Contribution of such
Contributor, if any, and such Derivative Works.

b) Subject to the terms of this Agreement, each Contributor hereby
grants Recipient a non-exclusive, worldwide, royalty-free patent
license under Licensed Patents to make, use, sell, offer to sell,
import and otherwise transfer the Contribution of such Contributor,
if any, in Source Code or other form. This patent license shall
apply to the combination of the Contribution and the Program if, at
the time the Contribution is added by the Contributor, such addition
of the Contribution causes such combination to be covered by the
Licensed Patents. The patent license shall not apply to any other
combinations which include the Contribution. No hardware per se is
licensed hereunder.

c) Recipient understands
that although each Contributor grants the
licenses to its Contributions set forth herein, no assurances are
provided by any Contributor that the Program does not infringe the
patent or other intellectual property rights of any other entity.
Each Contributor disclaims any liability to Recipient for claims
brought by any other entity based on infringement of intellectual
property rights or otherwise. As a condition to exercising the

rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to Distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant

the copyright license set forth in this Agreement.

e) Notwithstanding the terms of any Secondary License, no Contributor makes additional grants to any Recipient (other than those set forth in this Agreement) as a result of such Recipient's receipt of the Program under the terms of a Secondary License (if permitted under the terms of Section 3).

3. REQUIREMENTS

3.1 If a Contributor Distributes the Program in any form, then:

a) the Program must also be made available as Source Code, in accordance with section 3.2, and the Contributor must accompany the Program with a statement that the Source Code for the Program is available under this Agreement, and informs Recipients how to obtain it in a reasonable manner on or through a medium customarily used for software exchange; and

b) the Contributor may Distribute the Program under a license different than this Agreement, provided that such license:

i) effectively disclaims on behalf of all other Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all other Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) does not attempt to limit or alter the recipients' rights in the Source Code under section 3.2; and

iv) requires any subsequent distribution of the Program by any party to be under a license that satisfies the requirements of this section 3.

3.2 When the Program is Distributed as Source Code:

a) it must be made available under this Agreement, or if the Program (i) is combined with other material in a separate file or files made available under a Secondary License, and (ii) the initial Contributor attached to the Source Code the notice described in Exhibit A of this Agreement, then the Program may be made available under the terms of such Secondary Licenses, and

b) a copy of this Agreement must be included with each copy of the Program.

3.3 Contributors may not remove or alter any copyright, patent, trademark, attribution notices, disclaimers of warranty, or limitations of liability ("notices") contained within the Program from any copy of the Program which they Distribute, provided that Contributors may add their own appropriate notices.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance

claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other

software
or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves
the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be Distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to Distribute the Program (including its Contributions) under the new version.

Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel
or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. Nothing in this Agreement is intended to be enforceable by any entity that is not a Contributor or Recipient. No third-party beneficiary rights are created under this Agreement.

Exhibit A - Form of Secondary Licenses Notice

"This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License, v. 2.0 are satisfied: {name license(s), version(s), and exceptions or additional permissions here}."

Simply including a copy of this Agreement, including this Exhibit A is not sufficient to license the Source Code under Secondary Licenses.

If it is not possible or desirable to put the notice in a particular
file, then You may include the notice in a location (such as a LICENSE
file in a relevant directory) where a recipient would be likely
to
look for such a notice.

You may add additional accurate notices of copyright ownership.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor
Boston, MA 02110-1335
USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to
share and change it. By contrast, the GNU General Public License is
intended to guarantee your freedom to share and change free software--to
make sure the software is free for all its users. This General Public
License applies to most of the Free Software Foundation's software and
to any other program whose authors commit to using it. (Some other Free
Software Foundation software is covered by the GNU Library General
Public License instead.)
You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the
freedom to distribute copies of free software (and charge for this
service if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone
to deny you these rights or to ask you to surrender the rights. These
restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis
or for a fee, you must give the recipients all the rights that you have.
You must make sure that they, too, receive or can get the source code.

And you
must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software patents.
We wish to avoid the danger that redistributors of a free program will
individually obtain patent licenses, in effect making the program
proprietary. To prevent this, we have made it clear that any patent must
be licensed for everyone's free use or not licensed
at all.

The precise terms and conditions for copying, distribution and
modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a
notice placed by the copyright holder saying it may be distributed under
the terms of this General Public License. The "Program", below, refers
to any such program or work, and a "work based on the Program" means
either the Program or any derivative work under copyright law: that is
to say, a work containing the Program or a portion of it, either
verbatim or with modifications and/or translated into another language.
(Hereinafter, translation is included without limitation in the term
"modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of running
the Program is not restricted,
and the output from the Program is
covered only if its contents constitute a work based on the Program
(independent of having been made by running the Program). Whether that
is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source
code as you receive it, in any medium, provided that you conspicuously
and appropriately publish on each copy an appropriate copyright notice
and disclaimer of warranty; keep intact all the notices that refer to

this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications
or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how
to view a copy of this License.
(Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you;
rather, the intent is to
exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost

of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed
need not include anything that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will

automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have
their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible
for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular
circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that

system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH

YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF
TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1335 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this

when it starts in an interactive mode:

    Gnomovision version 69, Copyright (C) year name of author
    Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type
    `show w'. This is free software, and you are welcome to redistribute
    it under certain conditions; type `show c' for details.

The hypothetical commands `show
w' and `show c' should show the
appropriate parts of the General Public License. Of course, the commands
you use may be called something other than `show w' and `show c'; they
could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

    Yoyodyne, Inc., hereby disclaims all copyright interest in the
    program `Gnomovision' (which makes passes at compilers) written by
    James Hacker.

    signature of Ty Coon, 1 April 1989
    Ty Coon, President of Vice

This General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications
with the library. If this is what you want to do, use the GNU
Library
General Public License instead of this License.

CLASSPATH EXCEPTION

Linking this library statically or dynamically with other modules is
making a combined work based on this library. Thus, the terms and
conditions of the GNU General Public License version 2 cover the whole
combination.

As a special exception, the copyright holders of this library give you
permission to link this library with independent modules to produce an
executable, regardless of the license terms of these independent
modules, and to copy and distribute the resulting executable under
terms of your choice, provided that you also meet, for each linked
independent module, the terms and conditions of the license of that
module. An independent module is a module which is not derived from or
based on this library. If you modify this library, you may extend this

exception to your version of the library, but you are not obligated to
do so. If
you do not wish to do so, delete this exception statement
from your version.
Notices for Jakarta Annotations

This content is produced and maintained by the Jakarta Annotations project.

* Project home: https://projects.eclipse.org/projects/ee4j.ca

Trademarks

Jakarta Annotations is a trademark of the Eclipse Foundation.

Declared Project Licenses

This program and the accompanying materials are made available under the terms of the Eclipse Public License v. 2.0 which is available at http://www.eclipse.org/legal/epl-2.0. This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License v. 2.0 are satisfied: GNU General Public License, version 2 with the GNU Classpath Exception which is available at https://www.gnu.org/software/classpath/license.html.

SPDX-License-Identifier: EPL-2.0 OR GPL-2.0 WITH Classpath-exception-2.0

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/common-annotations-api

##
Third-party Content

Cryptography

Content may contain encryption software. The country in which you are currently may have restrictions on the import, possession, and use, and/or re-export to another country, of encryption software. BEFORE using any encryption software, please check the country's laws, regulations and policies concerning the import, possession, or use, and re-export of encryption software, to see if this is permitted.
/*
* Copyright (c) 2005, 2018 Oracle and/or its affiliates. All rights reserved.
*
* This program and the accompanying materials are made available under the
* terms of the Eclipse Public License v. 2.0, which is available at

* http://www.eclipse.org/legal/epl-2.0.
*
* This Source Code may also be made available under the following Secondary
* Licenses when the conditions for such availability set forth in the
* Eclipse Public License v. 2.0 are satisfied: GNU General Public License,
* version 2 with the GNU Classpath Exception, which is available at
* https://www.gnu.org/software/classpath/license.html.
*
* SPDX-License-Identifier: EPL-2.0 OR GPL-2.0 WITH Classpath-exception-2.0
*/

1.255 jakarta-el 3.0.3

1.255.1 Available under license :

Eclipse Public License - v 2.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial content
Distributed under this Agreement, and

b) in the case of each subsequent Contributor:
i) changes to the Program, and
ii) additions to the Program;
where such changes and/or additions to the Program originate from and are Distributed by that particular Contributor. A Contribution "originates" from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include changes or additions to the Program that are not Modified Works.

"Contributor" means any person or
entity that Distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions Distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement or any Secondary License (as applicable), including Contributors.

"Derivative Works" shall mean any work, whether in Source Code or other form, that is based on (or derived from) the Program and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship.

"Modified Works" shall mean any work in Source Code or other form that results from an addition to, deletion from, or modification of the contents of the Program, including, for purposes of clarity any new file in Source Code form that
contains any contents of the Program. Modified
Works shall not include works that contain only declarations, interfaces, types, classes, structures, or files of the Program solely in each case in order to link to, bind by name, or subclass the Program or Modified Works thereof.

"Distribute" means the acts of a) distributing or b) making available in any manner that enables the transfer of a copy.

"Source Code" means the form of a Program preferred for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Secondary License" means either the GNU General Public License, Version 2.0, or any later versions of that license, including any exceptions or additional permissions as identified by the initial Contributor.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free
copyright
license to reproduce, prepare Derivative Works of, publicly display, publicly perform, Distribute and sublicense the Contribution of such Contributor, if any, and such Derivative Works.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in Source Code or other form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other

combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to Distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

e) Notwithstanding the terms of any Secondary License, no Contributor makes additional grants to any Recipient (other than those set forth in this Agreement) as a result of such Recipient's receipt of the Program under the terms of a Secondary License (if permitted under the terms of Section 3).

3. REQUIREMENTS

3.1 If a Contributor Distributes the Program in any form, then:

a) the Program must also be made available as Source Code, in accordance with section 3.2, and the Contributor must accompany the Program with a statement that the Source Code for the Program is available under this Agreement, and informs Recipients how to obtain it in a reasonable manner on or through a medium customarily used for software exchange; and

b) the Contributor may Distribute the Program under a license different than this Agreement, provided that such license:

i) effectively disclaims on behalf of all other Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all other Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) does not attempt to limit or alter the recipients' rights in the Source Code under section 3.2; and

iv) requires any subsequent distribution of the Program by any party to be under a license that satisfies the requirements of this section 3.

3.2 When the Program is Distributed as Source Code:

a) it must be made available under this Agreement, or if the Program (i) is combined with other material in a separate file or files made available under a Secondary License, and (ii) the initial Contributor attached to the Source Code the notice described in Exhibit A of this Agreement, then the Program may be made available under the terms of such Secondary Licenses, and

b) a copy of this Agreement must be included with each copy of the Program.

3.3 Contributors may not remove or alter any copyright, patent, trademark, attribution notices, disclaimers of warranty, or limitations of liability ("notices") contained within the Program from any copy of the Program which they Distribute, provided that Contributors may add their own appropriate notices.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged

intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing
of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN
THIS AGREEMENT, AND TO THE EXTENT
PERMITTED BY APPLICABLE LAW, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be Distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to Distribute the Program (including its Contributions) under the new version.

Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. Nothing in this Agreement is intended to be enforceable by any entity that is not a Contributor or Recipient. No third-party beneficiary rights are created under this Agreement.

Exhibit A - Form of Secondary Licenses Notice

"This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License, v. 2.0 are satisfied: {name license(s), version(s), and exceptions or additional permissions here}."

Simply including a copy of this Agreement, including this Exhibit A is not sufficient to license the Source Code under Secondary Licenses.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor
Boston, MA 02110-1335
USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new

free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you
must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed
at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running

the Program is not restricted,
and the output from the Program is
covered only if its contents constitute a work based on the Program
(independent of having been made by running the Program). Whether that
is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source
code as you receive it, in any medium, provided that you conspicuously
and appropriately publish on each copy an appropriate copyright notice
and disclaimer of warranty; keep intact all the notices that refer to
this License and to the absence of any warranty; and give any other
recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of
it, thus forming a work based on the Program, and copy and distribute
such modifications
or work under the terms of Section 1 above, provided
that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any part
thereof, to be licensed as a whole at no charge to all third parties
under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a notice
that there is no warranty (or else, saying that you provide a
warranty) and that users may redistribute the program under these
conditions, and telling the user how
to view a copy of this License.
(Exception: if the Program itself is interactive but does not
normally print such an announcement, your work based on the Program
is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program, and
can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based on

the Program, the distribution of the whole must be on the terms of this
License, whose permissions for other licensees extend to the entire
whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you;
rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of a
storage or distribution medium does not bring the other work under the
scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections 1
and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your cost

of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to
distribute corresponding source code. (This alternative is allowed
only for noncommercial distribution and only if you received the
program in object code or executable form with such an offer, in
accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source code
means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to control
compilation and installation of the executable. However, as a special
exception, the source code distributed
need not include anything that is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies the
executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have
their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible
for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular

circumstance, the balance of the section is intended to
apply and the section as a whole is intended to apply in other
circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system, which is implemented
by public license practices. Many people have made generous
contributions to the wide range of software distributed through that
system in reliance on consistent application of that system; it is up to
the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be
a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted
in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License may
add an explicit geographical distribution limitation excluding those
countries, so that distribution is permitted only in or among countries
not thus excluded. In such case, this License incorporates the
limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new
versions of the General Public License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free
Software Foundation. If the Program does not specify a version
number of this License, you may choose any version ever published by the
Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the
author to ask for permission. For software which is copyrighted by the
Free Software Foundation, write to the Free Software Foundation; we
sometimes make exceptions for this. Our decision will be guided by the
two goals of preserving the free status of all derivatives of our free
software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER
EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF
TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of

MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1335 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type
`show w'. This is free software, and you are welcome to redistribute
it under certain conditions; type `show c' for details.

The hypothetical commands `show
w' and `show c' should show the
appropriate parts of the General Public License. Of course, the commands
you use may be called something other than `show w' and `show c'; they
could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
program `Gnomovision' (which makes passes at compilers) written by
James Hacker.

signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications
with the library. If this is what you want to do, use the GNU
Library
General Public License instead of this License.

CLASSPATH EXCEPTION

Linking this library statically or dynamically with other modules is
making a combined work based on this library. Thus, the terms and
conditions of the GNU General Public License version 2 cover the whole

combination.

As a special exception, the copyright holders of this library give you
permission to link this library with independent modules to produce an
executable, regardless of the license terms of these independent
modules, and to copy and distribute the resulting executable under
terms of your choice, provided that you also meet, for each linked
independent module, the terms and conditions of the license of that
module. An independent module is a module which is not derived from or
based on this library. If you modify this library, you may extend this
exception to your version of the library, but you are not obligated to
do so. If
you do not wish to do so, delete this exception statement
from your version.

Notices for Jakarta Expression Language

This content is produced and maintained by the Jakarta Expression Language project.

* Project home: https://projects.eclipse.org/projects/ee4j.el

Trademarks

Jakarta Expression Language is a trademark of the Eclipse
Foundation.

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Public License v. 2.0 which is available at
http://www.eclipse.org/legal/epl-2.0. This Source Code may also be made
available under the following Secondary Licenses when the conditions for such
availability set forth in the Eclipse Public License v. 2.0 are satisfied: GNU
General Public License, version 2 with the GNU Classpath Exception which is
available at https://www.gnu.org/software/classpath/license.html.

SPDX-License-Identifier:
EPL-2.0 OR GPL-2.0 WITH Classpath-exception-2.0

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/el-ri

Third-party Content

Cryptography

Content may contain encryption software. The country in which you are currently may have restrictions on the import, possession, and use, and/or re-export to another country, of encryption software. BEFORE using any encryption software, please check the country's laws, regulations and policies concerning the import, possession, or use, and re-export of encryption software, to see if this is permitted.

1.256 commons-codec 1.14

1.256.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or
(iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from)
the Work and for which the
editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication
on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant
of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as

of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed

as modifying the License.

You may add Your own
copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names
of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law
(such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing

the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your
sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache Commons Codec
Copyright 2002-2019 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (https://www.apache.org/).

src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java
contains test data from http://aspell.net/test/orig/batch0.tab.
Copyright (C) 2002 Kevin Atkinson (kevina@gnu.org)

==========

The content of package org.apache.commons.codec.language.bm has been translated
from the original php source code available at http://stevemorse.org/phoneticinfo.htm
with permission from the original authors.
Original source copyright:
Copyright (c) 2008 Alexander Beider & Stephen P. Morse.

1.257 ehcache 3.8.1

1.257.1 Available under license :

No license file was found, but licenses were detected in source scan.

<url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>

Found in path(s):
* /ehcache-3-8-1-sources-1-jar/META-INF/maven/org.ehcache.modules/ehcache-impl/pom.xml
* /ehcache-3-8-1-sources-1-jar/META-INF/maven/org.ehcache.modules/ehcache-core/pom.xml
* /ehcache-3-8-1-sources-1-jar/META-INF/maven/org.ehcache.modules/ehcache-107/pom.xml
* /ehcache-3-8-1-sources-1-jar/META-INF/maven/org.ehcache.modules/ehcache-xml/pom.xml
* /ehcache-3-8-1-sources-1-jar/META-INF/maven/org.ehcache.modules/ehcache-api/pom.xml
No license file was found, but licenses were detected in source scan.

~ Copyright Terracotta, Inc.
~
~ Licensed under the Apache License, Version 2.0 (the "License");
~ you may not use this file except in compliance with the License.
~ You may obtain a copy of the License at
~
~ http://www.apache.org/licenses/LICENSE
2.0
~
~ Unless required by applicable law or agreed to in writing, software
~ distributed under the License is distributed on an "AS IS" BASIS,
~ WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
~ See the License for the specific language governing permissions and
~ limitations under the License.

Found in path(s):
* /ehcache-3-8-1-sources-1-jar/ehcache-multi.xsd
* /ehcache-3-8-1-sources-1-jar/ehcache-core.xsd
* /ehcache-3-8-1-sources-1-jar/ehcache-107-ext.xsd
No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/DefaultConfigurationResolver.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/InvocationScopedEventSink.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/ResourceUnit.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/Jsr107Cache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/SizedResourcePoolImpl.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/CompactJavaSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107IdentityCopier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/OptionalServiceDependencies.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/spi/loaderwriter/DefaultCacheLoaderWriterProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/CacheResources.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngineProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/CloseUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/heap/SizeOfEngineProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/InternalStatus.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/ServiceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/PooledExecutionService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/BulkCacheLoadingException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/loaderwriter/LocalLoaderWriterStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/CacheIterationException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/CoreConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/OperationStatistic.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/DoubleSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/LatencyHistogramConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CacheServiceConfigurationParser.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/OnHeapStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/expiry/ExpiryPolicy.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/loaderwriter/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/WriteOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/disk/OffHeapDiskStoreProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/ClassInstanceProvider.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/config/loaderwriter/DefaultCacheLoaderWriterProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107Configuration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/copy/DefaultCopyProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/copy/DefaultCopyProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/store/DefaultStoreEventDispatcher.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/CharSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/WriteBehindProviderConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/persistence/CacheManagerPersistenceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/ServiceDependencies.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/Eviction.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Jsr107Service.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/OffHeapStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/HeuristicConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/LongSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/disk/factories/EhcachePersistentSegmentFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/DefaultConfiguration.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/serializer/DefaultSerializationProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/internal/util/ValueSuppliers.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/LookupOnlyOnHeapKey.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/ByteArraySerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/time/TimeSourceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/OnHeapKey.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/copy/CopyProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/ServiceCreationConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/ServiceProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/resilience/ResilienceStrategyProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/StoreEventDispatcher.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/JaxbHelper.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/events/EventDispatchTask.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/copy/DefaultCopyProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/CacheSpec.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/BinaryValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/WrappedCacheLoaderWriter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/portability/SerializerPortability.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DefaultStatisticsService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/units/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/PooledExecutionServiceConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/BinaryOffHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/ServiceConfigurationParser.java
*

/ehcache-3-8-1-sources-1-jar/org/ehcache/xml/XmlConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/TierStatistics.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/store/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/SimpleCoreServiceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/CacheDefinition.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/loaderwriter/DefaultCacheLoaderWriterConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/TransientStateRepository.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Unwrap.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/time/SystemTimeSource.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/PartitionedUnorderedExecutor.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/EhcacheExpiryWrapper.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/NullCompletionListener.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/core/InternalCache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/SimpleBackend.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/OffHeapStoreProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/AbstractOffHeapStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/BaseCacheConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/persistence/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DefaultTierStatistics.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/AbstractWriteBehind.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/CacheManagerBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/disk/DiskWriteThreadPool.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/config/Jsr107Configuration.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/persistence/DefaultDiskResourceServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/config/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/BulkCacheWritingException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/copy/IdentityCopier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/TimeSourceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/tiering/CachingTier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/SingleOperation.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/store/disk/EhcachePersistentConcurrentOffHeapClockCache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/SimpleCoreServiceCreationConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/CacheEvent.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/CacheLoadingException.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultSerializerConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/WriteBehindConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/EventFiring.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/serialization/DefaultSerializationProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/factories/EhcacheSegmentFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/resilience/RobustResilienceStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/StateTransitionException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/StateChangeListener.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/expiry/Expiry.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/CloseableStoreEventSink.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/WriteBehindProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/PooledExecutionServiceConfigurationParser.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/store/loaderwriter/LocalWriteBehindLoaderWriterStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/copy/ReadWriteCopier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/EventType.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/persistence/DefaultPersistenceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/EventListenerWrapper.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/FluentConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/OnHeapStoreProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/basic/NopStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CacheManagerServiceConfigurationParser.java
*
 /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/config/loaderwriter/writebehind/WriteBehindProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/events/StoreEvent.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/OffHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/SizedResourcePool.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/ClassInstanceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/units/EntryUnit.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/tiering/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/OnDemandExecutionService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheManagerListener.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterStoreProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/ConfigurationMerger.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/InternalRuntimeConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/ConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/ResourceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/listeners/exceptions/VisitorListenerException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/Service.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/expiry/Duration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriterConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/OutOfBandScheduledExecutor.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/event/DefaultCacheEventListenerConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/ServiceLocator.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/EhcacheManager.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/units/MemoryUnit.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/HigherCachingTierOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/ResourcePools.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/copy/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/WriteBehind.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/event/DefaultCacheEventDispatcherConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/PersistentUserManagedEhcache.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/PersistentUserManagedCache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/serialization/DefaultSerializationProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/CacheEventListenerConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/event/DefaultEventSourceConfiguration.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DelegatingOperationObserver.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/LowerCachingTierOperationsOutcome.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/tiering/AuthoritativeTier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/events/StoreEventSource.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/CacheConfigurationProperty.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/copy/SerializingCopier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/DefaultCacheManagerProviderService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/CacheConfigurationBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/XmlModel.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/ExpiryPolicyBuilder.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/store/offheap/EhcacheConcurrentOffHeapClockCache.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/internal/resilience/ThrowingResilienceStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/Cache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/OffHeapStoreUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/resilience/DefaultResilienceStrategyProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriterProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/expiry/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/disk/OffHeapDiskStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/persistence/package-info.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/DeleteAllOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/TierOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/ResourcePool.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/CachePersistenceException.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheEventDispatcher.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/MaintainableService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/DomUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/UserManagedCacheBuilder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/executor/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/loaderwriter/DefaultCacheLoaderWriterProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/CacheEventDispatcherFactoryImpl.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/InternalCacheManager.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/CacheTemplate.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/config/loaderwriter/writebehind/DefaultWriteBehindConfiguration.java
*

/ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/ExpiryPolicyToEhcacheExpiry.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/config/ConfigurationElementState.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/TimeSourceServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/WriteBehindConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/exceptions/StorePassThroughException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/events/StoreEventListener.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/DefaultCopyProviderConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/StoreEventSink.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultCopierConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/BasicOffHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/EhcacheOffHeapBackingMap.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/heap/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CompleteConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/DeleteOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/Status.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/UnsupportedTypeException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/heap/DefaultSizeOfEngineProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/OnHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/LocalPersistenceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/SpecIterator.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/exceptions/ExceptionFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/DefaultJsr107Service.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/serializer/DefaultSerializerConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/LifeCycledAdapter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/util/Pacer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/WriteBehindProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/event/CacheEventDispatcherFactoryConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/CacheEventDispatcherFactoryConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/CacheConfigurationChangeListener.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/time/TickingTimeSource.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/copy/Copier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/BaseOnHeapKey.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/events/CacheEventDispatcherImpl.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheEntryEvent.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/StringSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngine.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/serializer/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/persistence/FileBasedStateRepository.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/ServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultCacheEventListenerConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/persistence/PersistableResourceService.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/FluentCacheConfigurationBuilder.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/loaderwriter/writebehind/DefaultBatchingConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/FireableStoreEventHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/tiering/TieredStoreProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheEventListenerProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheStatisticsMXBean.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/ExpiryUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/PartitionedScheduledExecutor.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/AbstractValueHolder.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/WriteAllOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/PlainJavaSerializer.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/PersistentCacheManager.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/events/CacheEventNotificationListenerServiceProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/store/StoreConfigurationImpl.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/StatusTransitioner.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CoreServiceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/config/Jsr107CacheConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/osgi/EhcacheActivator.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultResilienceStrategyConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/WrapperStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/AbstractWrapperStoreProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/store/BaseStore.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/SerializerException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/CopiedOnHeapKey.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/event/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/LifeCycled.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterStoreProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/disk/OffHeapDiskStoreConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/OffHeapDiskStoreProviderConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/resilience/ResilienceStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/expiry/Expirations.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/ListenersConfig.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/UserManagedCacheConfiguration.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/core/exceptions/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/EventListenerAdaptors.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultWriteBehindConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/OperationObserver.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/disk/OffHeapDiskStoreProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/ResourceType.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/event/DefaultCacheEventListenerProviderFactory.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/StripedWriteBehind.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/KeyBasedOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/events/StoreEventFilter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/SerializationProvider.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/resilience/RobustLoaderWriterResilienceStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/CacheManagerProviderService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/StoreEventImpl.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/resilience/AbstractResilienceStrategy.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/loaderwriter/CacheWritingException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/CachingTierOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/Backend.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/OffHeapDiskStoreConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/ExecutionService.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/config/resilience/DefaultResilienceStrategyProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/tck/Eh107MBeanServerBuilder.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/core/resilience/DefaultRecoveryStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/tiering/LowerCachingTier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheLoaderWriter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/store/StoreEventSourceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/AuthoritativeTierOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/util/ClassLoading.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/persistence/UserManagedPersistenceContext.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/ListenerResources.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultCacheEventDispatcherConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/ChainedObserver.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/OffHeapMapStatistics.java
*
/ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/BatchingLocalHeapWriteBehindQueue.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DefaultStatisticsServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/NoopSizeOfEngine.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/DefaultExecutionServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/events/CacheEventAdapter.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/spi/resilience/DefaultResilienceStrategyProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/util/ThreadFactoryUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/events/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/BaseConfigParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DelegatedMappedOperationStatistics.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/package-info.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheEventListenerConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngineProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/PartitionedOrderedExecutor.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/CacheManagerConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/SwitchableEvictionAdvisor.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/resilience/RecoveryStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/multi/XmlMultiConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/StatefulSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/time/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107Expiry.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/store/StoreSupport.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/store/HashUtils.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/BulkOps.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheLoaderWriterProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/SerializedOnHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/collections/ConcurrentWeakIdentityHashMap.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/EhcacheCachingProvider.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/SizeOfEngineLimits.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/heap/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/DisabledCacheEventNotificationService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/PluralService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/StatisticsService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/heap/LimitExceededException.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/tiering/HigherCachingTier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/executor/ExecutorUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/UserManagedCache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/CacheManagerPersistenceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/StatsUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/DiskResourceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/time/TimeSource.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/LazyOffHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/resilience/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/tiering/CompoundCachingTier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheMXBean.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/Ehcache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107CacheManager.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/BatchOperation.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/persistence/DefaultLocalPersistenceServiceFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/events/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/ThreadPoolServiceCreationConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/executor/PooledExecutionServiceConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/DefaultSerializationProviderConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/ResourcePoolsImpl.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/tiering/TieredStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/builders/ResourcePoolsBuilder.java
*

/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/persistence/DefaultDiskResourceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/persistence/FileUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/util/CollectionUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CoreServiceCreationConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/HumanReadable.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/tiering/CompoundCachingTierProviderFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107ReverseConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/EvictionAdvisor.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/copy/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/ValueStatistic.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/NonBatchingLocalHeapWriteBehindQueue.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/FudgingInvocationScopedEventSink.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/config/CacheConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/DefaultTimeSourceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DefaultCacheStatistics.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/config/store/StoreStatisticsConfiguration.java
* /ehcache-3-8-1-sources-1-
jar/org/ehcache/impl/internal/store/offheap/portability/OffHeapValueHolderPortability.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/Builder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/CacheOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/Jsr107ServiceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/DelegatingOperationStatistic.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheEventDispatcherFactory.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/EhcacheRuntimeConfiguration.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/spi/persistence/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/ValueSupplier.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/StoreEvents.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/persistence/DefaultLocalPersistenceService.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/ChainedOperationObserver.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/osgi/SafeOsgi.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/StoreOperationOutcomes.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107Cache.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/IntegerSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/NullStoreEventDispatcher.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/holders/CopiedOnHeapValueHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/TransientStateHolder.java
*
/ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/heap/DefaultSizeOfEngineConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/store/disk/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/Jsr107CacheLoaderWriter.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/copy/DefaultCopierConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultCacheLoaderWriterConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/model/Expiry.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/serialization/Serializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/ServiceUtils.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/ThreadLocalStoreEventDispatcher.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/offheap/MemorySizeParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/CacheManager.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/service/FileBasedPersistenceContext.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/util/ByteBufferInputStream.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/Eh107MXBean.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CacheResourceConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/EhcacheBase.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/ConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/resilience/StoreAccessException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/service/DefaultSizeOfEngineConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/exceptions/XmlConfigurationException.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/OnHeapStore.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/ServiceCreationConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/persistence/StateRepository.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/Configuration.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/SuppliedValueStatistic.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/loaderwriter/writebehind/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/heap/SizeOfEngine.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/CacheEventListener.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/persistence/StateHolder.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/store/heap/KeyCopyBackend.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/ClassInstanceProviderConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/sizeof/listeners/EhcacheVisitorListener.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/events/CacheEvents.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/osgi/OsgiServiceLoader.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/ZeroOperationStatistic.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/Store.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/util/ServiceUtil.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/serialization/FloatSerializer.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/events/AbstractStoreEventDispatcher.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/copy/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/CacheConfigurationChangeEvent.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/resilience/DefaultResilienceStrategyConfiguration.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/SourceStatistic.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/spi/store/ConfigurationChangeSupport.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/config/AbstractResourcePool.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/event/EventOrdering.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/CacheStatistics.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/config/CacheRuntimeConfiguration.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/CoreCacheConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/jsr107/internal/Jsr107CacheConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/spi/service/package-info.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/core/statistics/Jsr107LatencyMonitor.java

* /ehcache-3-8-1-sources-1-jar/org/ehcache/xml/provider/DefaultSizeOfEngineProviderConfigurationParser.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/spi/event/DefaultCacheEventListenerProvider.java
No license file was found, but licenses were detected in source scan.

```
/*
* Licensed to the Apache Software Foundation (ASF) under one or more
* contributor license agreements.  See the NOTICE file distributed with
* this work for additional information regarding copyright ownership.
* The ASF licenses this file to You under the Apache License, Version 2.0
* (the "License"); you may not use this file except in compliance with
* the License.  You may obtain a copy of the License at
*
*      http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/commonslang/ArrayUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/commonslang/reflect/MemberUtils.java
*
 /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/commonslang/ClassUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/commonslang/reflect/MethodUtils.java
* /ehcache-3-8-1-sources-1-jar/org/ehcache/impl/internal/classes/commonslang/reflect/ConstructorUtils.java
No license file was found, but licenses were detected in source scan.

```
#
# Copyright Terracotta, Inc.
#
# Licensed under the Apache License, Version 2.0 (the "License");
# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
#
#     http://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.
#
```

org.ehcache.jsr107.internal.Jsr107CacheConfigurationParser

Found in path(s):
* /ehcache-3-8-1-sources-1-jar/META-INF/services/org.ehcache.xml.CacheServiceConfigurationParser

1.258 classmate 1.5.1

1.258.1 Available under license :

This copy of Java ClassMate library is licensed under Apache (Software) License,
version 2.0 ("the License").
See the License for details about distribution rights, and the specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0
Java ClassMate library was originally written by Tatu Saloranta (tatu.saloranta@iki.fi)

Other developers who have contributed code are:

* Brian Langel

1.259 commons-lang3 3.10

1.259.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or
(iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from)
the Work and for which the
editorial revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication
on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own
copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names
of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law
(such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a

result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your
sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Apache Commons Lang
Copyright 2001-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (https://www.apache.org/).

1.260 activation 1.2.2

1.260.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Notices for Jakarta Activation

This content is produced and maintained by Jakarta Activation project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaf

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Distribution License v. 1.0,
which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaf

Third-party Content

This project leverages the following third party content.

JUnit (4.12)

* License: Eclipse Public License

1.261 jakarta-validation-api 2.0.2

1.261.1 Available under license :

No license file was found, but licenses were detected in source scan.

~ Jakarta Bean Validation API
~
~ License: Apache License, Version 2.0
~ See the license.txt file in the root directory or <http://www.apache.org/licenses/LICENSE
<![CDATA[
Comments to: bean-validation-dev@eclipse.org.
Copyright © 2019 Eclipse Foundation.
Use is subject to EFSL; this spec is based on material that is licensed under the Apache License, version 2.0.]]>

Found in path(s):
* /jakarta-validation-api-2-0-2-sources-3-jar/META-INF/maven/jakarta.validation/jakarta.validation-api/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Jakarta Bean Validation API
*
* License: Apache License, Version 2.0
* See the license.txt file in the root directory or <http://www.apache.org/licenses/LICENSE-2.0>.

*/

Found in path(s):
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Validator.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/CascadableDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintTarget.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/FutureOrPresent.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Null.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintValidatorContext.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ExecutableDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/Default.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/MessageInterpolator.java
*
 /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/Unwrapping.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/ValueExtractor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/ValidationTarget.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/MethodDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/UnexpectedTypeException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/BeanDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Digits.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/bootstrap/ProviderSpecificBootstrap.java
*
 /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/UnwrapByDefault.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/NegativeOrZero.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintViolation.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintDefinitionException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ValidateUnwrappedValue.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/SupportedValidationTarget.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/ValidationProvider.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ElementKind.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/GroupConversionDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/ExtractedValue.java
*
 /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/bootstrap/GenericBootstrap.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/MethodType.java
* /jakarta-validation-api-2-0-2-sources-3-
jar/javax/validation/valueextraction/ValueExtractorDeclarationException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ConstructorDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/AssertTrue.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Path.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/PositiveOrZero.java
*

/jakarta-validation-api-2-0-2-sources-3-
jar/javax/validation/valueextraction/ValueExtractorDefinitionException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/BootstrapConfiguration.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ElementDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ContainerElementTypeDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/GroupDefinitionException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Min.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/ConvertGroup.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/Scope.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Max.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ReportAsSingleViolation.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ReturnValueDescriptor.java
*
/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ParameterNameProvider.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Pattern.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/NoProviderFoundException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Validation.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ValidatorContext.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/NotBlank.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Constraint.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Valid.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/CrossParameterDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ClockProvider.java
*
/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Configuration.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/ValidateOnExecution.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Size.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/PastOrPresent.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintViolationException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/bootstrap/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/TraversableResolver.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/ExecutableValidator.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ValidationProviderResolver.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ValidatorFactory.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ContainerDescriptor.java
*
/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ConstraintDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ParameterDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/NotNull.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/package-info.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/GroupSequence.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Negative.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintValidatorFactory.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ValidationException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/OverridesAttribute.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/BootstrapState.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Email.java

*
/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintDeclarationException.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/PropertyDescriptor.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintValidator.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/ExecutableType.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/AssertFalse.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Future.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/DecimalMax.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Positive.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/NotEmpty.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/ConfigurationState.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Payload.java
*
/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/DecimalMin.java
* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Past.java

1.262 hibernate-commons-annotations 5.1.0.Final

1.262.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion

of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under

the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a

derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a

copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.263 log4j-to-slf4j 2.13.3

1.263.1 Available under license :

Apache Log4j to SLF4J Adapter
Copyright 1999-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.264 javassist 3.24.0-GA

1.264.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Javassist, a Java-bytecode translator toolkit.
* Copyright (C) 2004 Bill Burke. All Rights Reserved.
*
* The contents of this file are subject to the Mozilla Public License Version
* 1.1 (the "License"); you may not use this file except in compliance with
* the License. Alternatively, the contents of this file may be used under
* the terms of the GNU Lesser General Public License Version 2.1 or later,
* or the Apache License Version 2.0.
*
* Software distributed under the License is distributed on an "AS IS" basis,
* WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License
* for the specific language governing rights and limitations under the
* License.
*/

Found in path(s):
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/MemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/AnnotationMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/StringMemberValue.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/Annotation.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/MemberValueVisitor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/ClassMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/DoubleMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/FloatMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/EnumMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/CharMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/ByteMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/BooleanMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/IntegerMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/ShortMemberValue.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/ArrayMemberValue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/LongMemberValue.java
No license file was found, but licenses were detected in source scan.

/*

* Javassist, a Java-bytecode translator toolkit.
* Copyright (C) 1999- Shigeru Chiba. All Rights Reserved.
*
* The contents of this file are subject to the Mozilla Public License Version
* 1.1 (the "License"); you may not use this file except in compliance with
* the License. Alternatively, the contents of this file may be used under
* the terms of the GNU Lesser General Public License Version 2.1 or later,
* or the Apache License Version 2.0.
*
* Software distributed under the License is distributed on an "AS IS" basis,
* WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License
* for the specific language governing rights and limitations under the
* License.
*/

Found in path(s):
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/StubGenerator.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/BinExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/SymbolTable.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/BadBytecode.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/web/Webserver.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/NestMembersAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformBefore.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/Proxy.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/SubroutineScanner.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/InstructionPrinter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/Callback.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/runtime/Inner.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtNewWrappedConstructor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/DefineClassHelper.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/ByteArrayClassPath.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/DuplicateMemberException.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/expr/NewArray.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtBehavior.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ExceptionTable.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/ClassMetaobject.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/ObjectImporter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/TypedBlock.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ProceedHandler.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ByteStream.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/MapMaker.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/ScopedClassPoolFactoryImpl.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/MethodFilter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Expr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/CannotCreateException.java
*

/javassist-3-24-0-ga-sources-5-jar/javassist/compiler/KeywordTable.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/Parser.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/Loader.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/DoubleConst.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/ConstructorCall.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Metalevel.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/IntQueue.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/Dump.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Symbol.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Frame.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/TokenId.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/AppletServer.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/CodeAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/InstanceOfExpr.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/AccessFlag.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/ExprEditor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtClassType.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Analyzer.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/Handler.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/AnnotationsAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/CannotInvokeException.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/LongVector.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Compiler.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/web/Viewer.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/FieldDecl.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtNewConstructor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/CastExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/SerialVersionUID.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/DefinePackageHelper.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Metaobject.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformAfter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/Descriptor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/JvstTypeChecker.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/AnnotationDefaultAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Variable.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/ScopedClassPoolFactory.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/LoaderClassPath.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ParameterAnnotationsAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/Instanceof.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/ASTree.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtNewMethod.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Sample.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/NestHostAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformAccessArrayField.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ExceptionsAttribute.java

* /javassist-3-24-0-ga-sources-5-jar/javassist/ClassPool.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/URLClassPath.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/TypeChecker.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/ArrayInit.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/ClassPath.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Loader.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformFieldAccess.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/Lex.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/CondExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/Mnemonic.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Keyword.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ConstPool.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/StackMapTable.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/RemoteRef.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/CompileError.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/MemberCodeGen.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/HotSwapper.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ConstantAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/HotSwapAgent.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/Bytecode.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/FieldAccess.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/AccessorMaker.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/SerializedProxy.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/InnerClassesAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/runtime/Cflow.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Subroutine.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/FactoryHelper.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/AnnotationImpl.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/NoFieldException.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformNew.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/Transformer.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/SyntheticAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/Reflection.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/SecurityActions.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/SyntaxError.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/reflect/CannotReflectException.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformCall.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/AssignExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtNewWrappedMethod.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/SourceFileAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtPrimitiveType.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/NewExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/DeprecatedAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/ASTList.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/Tracer.java

* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ClassFilePrinter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/BasicBlock.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/ClassPoolTail.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/CodeAnalyzer.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformWriteField.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/ProxyObjectOutputStream.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/ScopedClassPool.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/ClassMap.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/ProxyObjectInputStream.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/StackMap.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Declarator.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/ProxyObject.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtArray.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Util.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/Sample.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/ControlFlow.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/Cast.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtMethod.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/CtMember.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/CodeIterator.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/ScopedClassPoolRepository.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CodeConverter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Stmnt.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/NoSuchClassError.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/ClassClassPath.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformNewClass.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/JvstCodeGen.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/LineNumberAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Visitor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ByteArray.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/IntConst.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/framedump.java
*
 /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/CallExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/ProxyFactory.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/MethodCall.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/SignatureAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ClassFileWriter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/convert/TransformReadField.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/web/BadHttpRequest.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/TypeData.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtNewClass.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/EnclosingMethodAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/Modifier.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Pair.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/FramePrinter.java

*
/javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/MethodInfo.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/NotFoundException.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtClass.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/SoftValueHashMap.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtField.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/MemberResolver.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/CodeGen.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/Translator.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/Opcode.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/NewExpr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/annotation/AnnotationsWriter.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CtConstructor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/MethodHandler.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/Javac.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/LocalVariableTypeAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/LocalVariableAttribute.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/stackmap/TypeTag.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Type.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/runtime/DotClass.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/runtime/Desc.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/StringL.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/scopedpool/ScopedClassPoolRepositoryImpl.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/Member.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/expr/Expr.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/Proxy.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/RemoteException.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/Executor.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/MultiType.java
*
/javassist-3-24-0-ga-sources-5-jar/javassist/compiler/ast/MethodDecl.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/ClassFile.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/analysis/MultiArrayType.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/CannotCompileException.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/util/proxy/RuntimeSupport.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/AttributeInfo.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/bytecode/FieldInfo.java
* /javassist-3-24-0-ga-sources-5-jar/javassist/tools/rmi/ObjectNotFoundException.java

1.265 spring-web-mvc 5.2.8.RELEASE

1.265.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/RequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/InterceptorsBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/MatchableHandlerMapping.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/ViewResolverComposite.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/WebMvcConfigurerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/AbstractTemplateView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/Controller.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/tiles3/SpringLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/RequestMatchResult.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/WebMvcConfigurerComposite.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/ResourceTransformer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/MvcNamespaceHandler.java
*
 /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/StreamingResponseBody.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/DefaultServletHandlerBeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*

* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/HiddenInputTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/i18n/AbstractLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/theme/ThemeChangeInterceptor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/TagIdGenerator.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/AbstractUrlViewController.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/LastModified.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/support/RedirectAttributes.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/OptionWriter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/ConversionServiceExposingInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/SmartView.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/MediaTypeExpression.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/SimpleControllerHandlerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/handler/AbstractDetectingUrlHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/SimpleServletHandlerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/tiles3/SpringBeanPreparerFactory.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/HttpRequestHandlerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/RadioButtonsTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/tiles3/AbstractSpringPreparerFactory.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/ParamAware.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2010 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/DispatcherServletWebRequest.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2009 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

```
* limitations under the License.
*/
```

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/freemarker/FreeMarkerViewResolver.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* A contract for inspecting and potentially modifying request data values such
* as URL query parameters or form field values before they are rendered by a
* view or before a redirect.
*
* <p>Implementations may use this contract for example as part of a solution
* to provide data integrity, confidentiality,
 protection against cross-site
* request forgery (CSRF), and others or for other tasks such as automatically
* adding a hidden field to all forms and URLs.
*
* <p>View technologies that support this contract can obtain an instance to
* delegate to via {@link RequestContext#getRequestDataValueProcessor()}.
*
* @author Rossen Stoyanchev
* @since 3.1
*/
```

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/RequestDataValueProcessor.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
```

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/tiles3/SimpleSpringPreparerFactory.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ContentVersionStrategy.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/FixedVersionStrategy.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/ArgumentTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/RequestContextAwareTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/AbstractView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/EvalTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/ResourcesBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/GroovyMarkupConfigurerBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/MatrixVariableMapMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/NameValueExpression.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/ModelAndView.java
*
 /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/AbstractVersionStrategy.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/RequestPartMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/FrameworkServlet.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/ViewResolverRegistry.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/RequestResponseBodyMethodProcessor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/AbstractController.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/RequestResponseBodyAdviceChain.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/view/json/AbstractJackson2View.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractCheckedElementTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/feed/AbstractAtomFeedView.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/DefaultServletHttpRequestHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/TagWriter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/ViewResolversBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/ModelAndViewDefiningException.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/BindTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ResourceTransformerSupport.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractHtmlElementTag.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/TransformedResource.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/EscapeBodyTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/CheckboxesTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/document/AbstractPdfView.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/ContentNegotiatingViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/ErrorsTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/feed/AbstractFeedView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/RadioButtonTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/UrlTag.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/FormTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/theme/CookieThemeResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HandlerExceptionResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/ButtonTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ResourceResolverChain.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/ThemeTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/AbstractHandlerMethodAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/json/MappingJackson2JsonView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/TextareaTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/BeanNameViewResolver.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/AbstractMediaTypeExpression.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/handler/SimpleMappingExceptionResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/BindErrorsTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/document/AbstractPdfStamperView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/AbstractFormTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/ParamTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/AbstractNameValueExpression.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/CheckboxTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/ViewResolver.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/BindStatus.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/MessageTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/xml/MarshallingView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/RequestContextUtils.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractSingleCheckedElementTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/LabelTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/FreeMarkerConfigurerBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ServletRequestMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/freemarker/FreeMarkerView.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/OptionsTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/EditorAwareTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractHtmlInputElementTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/ValueFormatter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/TransformTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractMultiCheckedElementTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/xml/MappingJackson2XmlView.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/support/AbstractAnnotationConfigDispatcherServletInitializer.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/HtmlEscapeTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/NestedPathTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/DefaultResourceTransformerChain.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/GzipResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ResourceTransformerChain.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/ResourceBundleViewResolver.java

* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HandlerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/support/AbstractDispatcherServletInitializer.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/SelectedValueComparator.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/CorsRegistration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/XmlViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractHtmlElementBodyTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/AbstractMessageConverterMethodArgumentResolver.
java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/HandlerMethodMappingNamingStrategy.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/MappedInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/InputTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/DefaultResourceResolverChain.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/SelectTag.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/tags/form/AbstractDataBoundFormElementTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/OptionTag.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/script/RenderingContext.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/groovy/GroovyMarkupConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ResponseBodyEmitter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ServletResponseMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/HandlerMappingIntrospector.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/TilesConfigurerBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ResponseBodyAdvice.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/freemarker/FreeMarkerConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/ScriptTemplateConfigurerBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/InterceptorRegistry.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/View.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/mvc/method/annotation/MatrixVariableMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HttpServletBean.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/support/DefaultHandlerExceptionResolver.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/CompositeRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/WebContentGenerator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/AbstractMappingJacksonResponseBodyAdvice.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/UrlBasedViewResolverRegistration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/FlashMapManager.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/support/SessionFlashMapManager.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/form/PasswordInputTag.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/theme/AbstractThemeResolver.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/annotation/ModelAndViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/ArgumentAware.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/document/AbstractXlsxView.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/NoHandlerFoundException.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/groovy/GroovyMarkupViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/document/AbstractXlsxStreamingView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/HtmlEscapingAwareTag.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/groovy/GroovyMarkupConfig.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/VersionPathStrategy.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/RequestBodyAdviceAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/VersionStrategy.java
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/AnnotationDrivenBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/ConsumesRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/UrlFilenameViewController.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/CorsRegistry.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/MvcUriComponentsBuilder.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/RequestMethodsRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/ContentNegotiationConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/DefaultServerRequest.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RequestPredicates.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/i18n/AcceptHeaderLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ResourceHttpRequestHandler.java
*
 /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/HttpEntityMethodProcessor.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/HeadersRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/AbstractHandlerMethodMapping.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/PathMatchConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/RequestMappingHandlerAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/mvc/method/annotation/RequestMappingHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/ParamsRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/PatternsRequestCondition.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/annotation/ResponseStatusExceptionResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/AbstractMessageConverterMethodProcessor.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/RequestMappingInfoHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/view/AbstractTemplateViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/PathResourceLookupFunction.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/ViewControllerRegistry.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/ResourceHandlerRegistry.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/AppCacheManifestTransformer.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/SseEmitter.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/handler/AbstractHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/DefaultEntityResponseBuilder.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/WebMvcConfigurationSupport.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/condition/ProducesRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/RouterFunctionBuilder.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RouterFunctions.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ResponseBodyEmitterReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/RequestMappingInfo.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/ServerRequest.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");

* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* XSLT-driven View that allows for response context to be rendered as the
* result of an XSLT transformation.
*
* <p>The XSLT Source object is supplied as a parameter in the model and then
* {@link #locateSource detected} during response rendering. Users can either specify
* a specific entry in the
 model via the {@link #setSourceKey sourceKey} property or
* have Spring locate the Source object. This class also provides basic conversion
* of objects into Source implementations. See {@link #getSourceTypes() here}
* for more details.
*
* <p>All model parameters are passed to the XSLT Transformer as parameters.
* In addition the user can configure {@link #setOutputProperties output properties}
* to be passed to the Transformer.
*
* @author Rob Harrop
* @author Juergen Hoeller
* @since 2.0
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/xslt/XsltView.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ReactiveTypeHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/ResourceUrlProvider.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/AsyncSupportConfigurer.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/ServletUriComponentsBuilder.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/BeanNameUrlHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/HandlerExceptionResolverComposite.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/VersionResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/EntityResponse.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/AbstractHandlerExceptionResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/support/HandlerFunctionAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ExceptionHandlerExceptionResolver.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/DefaultRequestToViewNameTranslator.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ServletInvocableHandlerMethod.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HandlerExecutionChain.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/UrlBasedViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/PathResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/script/ScriptTemplateConfig.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/InterceptorRegistration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/HandlerFilterFunction.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/StreamingResponseBodyReturnValueHandler.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/HandlerInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/SessionAttributeMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/RequestContext.java

* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/ServletWrappingController.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/CachingResourceTransformer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/HandlerFunction.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/AbstractUrlHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RouterFunctionDsl.kt
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RouterFunction.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/ServerRequestExtensions.kt
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RenderingResponse.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/WebMvcConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/AbstractCachingViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/DelegatingWebMvcConfiguration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/SimpleUrlHandlerMapping.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/MvcNamespaceUtils.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/DispatcherServlet.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/CssLinkResourceTransformer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/support/RouterFunctionMapping.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/script/ScriptTemplateView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/CachingResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ViewMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/script/ScriptTemplateConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/RedirectView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/WebContentInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/ToStringVisitor.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/ServerResponse.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ResponseEntityExceptionHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/PathVariableMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/ResourceUrlEncodingFilter.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/mvc/condition/AbstractRequestCondition.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/i18n/LocaleChangeInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/ResourceHandlerFunction.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/config/annotation/DefaultServletHandlerConfigurer.java
*
/spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/RequestMappingInfoHandlerMethodMappingNamingStrategy.jav
a
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/WebJarsResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/EncodedResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/i18n/CookieLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/DefaultRenderingResponseBuilder.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/DeferredResultMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/support/AbstractFlashMapManager.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/DefaultServerRequestBuilder.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/function/RequestPredicate.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/ServerResponseExtensions.kt
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/resource/ResourceUrlProviderExposingInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/mvc/method/annotation/ViewNameMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-
jar/org/springframework/web/servlet/function/DefaultServerResponseBuilder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/

Found in path(s):
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/tiles3/TilesConfigurer.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/RequestAttributeMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/ViewControllerBeanDefinitionParser.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/HttpResource.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/tiles3/SpringWildcardServletTilesApplicationContext.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/JstlView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/RedirectAttributesMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/HttpHeadersReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/ServletForwardingController.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/CorsBeanDefinitionParser.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/UserRoleAuthorizationInterceptor.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/JsonViewResponseBodyAdvice.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/ResourceResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/RequestToViewNameTranslator.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/script/ScriptTemplateViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/LocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/InternalResourceView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/FlashMap.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ServletCookieValueMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/feed/AbstractRssFeedView.java
*
 /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ModelAndViewMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ExtendedServletRequestDataBinder.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/HandlerInterceptorAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/ParameterizableViewController.java

* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/InternalResourceViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/AbstractUrlBasedView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/tiles3/TilesView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/AbstractHandlerMethodExceptionResolver.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/RequestBodyAdvice.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/AsyncHandlerInterceptor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ServletRequestDataBinderFactory.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/condition/RequestConditionHolder.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/JsonViewRequestBodyAdvice.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/tags/Param.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/EnableWebMvc.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/RedirectViewControllerRegistration.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/LocaleContextResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/freemarker/FreeMarkerConfig.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/WebRequestHandlerInterceptorAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/theme/SessionThemeResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/handler/SimpleServletPostProcessor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/tiles3/TilesViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/ThemeResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/document/AbstractXlsView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/resource/AbstractResourceResolver.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/i18n/FixedLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/xslt/XsltViewResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ServletModelAttributeMethodProcessor.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ServletWebArgumentResolverAdapter.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/view/groovy/GroovyMarkupView.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/support/RedirectAttributesModelMap.java
* /spring-webmvc-5-2-8-release-sources-2-

jar/org/springframework/web/servlet/i18n/AbstractLocaleContextResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/ViewControllerRegistration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/JspAwareRequestContext.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/UriComponentsBuilderMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/CallableMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/PathVariableMapMethodArgumentResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/theme/FixedThemeResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/ResourceChainRegistration.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/AsyncTaskMethodReturnValueHandler.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/mvc/method/annotation/ModelAndViewResolverMethodReturnValueHandler.java
*
/spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/i18n/SessionLocaleResolver.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/support/JstlUtils.java
* /spring-webmvc-5-2-8-release-sources-2-jar/org/springframework/web/servlet/config/annotation/ResourceHandlerRegistration.java

1.266 spring-jdbc 5.2.8.RELEASE

1.266.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/ConnectionProperties.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/HsqlMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/ScriptException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/rowset/SqlRowSetMetaData.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/CannotReadScriptException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/SqlServerMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/UncategorizedScriptException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/DataFieldMaxValueIncrementer.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/namedparam/SqlParameterSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/init/ResourceDatabasePopulator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/AbstractJdbcCall.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SQLStateSQLExceptionTranslator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SingleColumnRowMapper.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/LazyConnectionDataSourceProxy.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/TransactionAwareDataSourceProxy.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/CustomSQLExceptionTranslatorRegistry.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/AbstractJdbcInsert.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/rowset/ResultSetWrappingSqlRowSet.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/JdbcTransactionObjectSupport.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/BeanPropertySqlParameterSource.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/SqlFunction.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/BeanPropertyRowMapper.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/AbstractSqlParameterSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/support/AbstractLobStreamingResultSetExtractor.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/PreparedStatementCreatorFactory.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/rowset/SqlRowSet.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/MapSqlParameterSource.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/namedparam/NamedParameterUtils.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/JdbcUtils.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/RdbmsOperation.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/KeyHolder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");

```
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Implement this interface when parameters need to be customized based
* on the connection. We might need to do this to make use of proprietary
* features, available only with a specific Connection type.
*
* @author Rod Johnson
* @author Thomas Risberg
* @see CallableStatementCreatorFactory#newCallableStatementCreator(ParameterMapper)
 * @see org.springframework.jdbc.object.StoredProcedure#execute(ParameterMapper)
*/
/**
  * Create a Map of input parameters, keyed by name.
  * @param con a JDBC connection. This is useful (and the purpose of this interface)
  * if we need to do something RDBMS-specific with a proprietary Connection
  * implementation class. This class conceals such proprietary details. However,
  * it is best to avoid using such proprietary RDBMS features if possible.
  * @return a Map of input parameters, keyed by name (never {@code null})
  * @throws SQLException if an SQLException is encountered setting
  * parameter values (that is, there's no need to catch SQLException)
  */
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ParameterMapper.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
```

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/ScriptParseException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SQLExceptionSubclassTranslator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/DefaultLobHandler.java
*
/spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/AbstractDriverBasedDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/Jdbc4SqlXmlHandler.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/lookup/BeanFactoryDataSourceLookup.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/PassThroughClob.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/PostgresCallMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ParameterDisposer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/SqlLobValue.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/SybaseCallMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/OracleCallMetaDataProvider.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/DelegatingDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/PassThroughBlob.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseFactoryBean.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/DataSourceInitializer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/config/InitializeDatabaseBeanDefinitionParser.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/SimpleJdbcInsert.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/config/EmbeddedDatabaseBeanDefinitionParser.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/CustomSQLErrorCodesTranslation.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/ConnectionProxy.java
*
/spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/lookup/AbstractRoutingDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/SqlServerCallMetaDataProvider.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");

```
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
  * Close this LobCreator session and free its temporarily created BLOBs and CLOBs.
  * Will not need to do anything if using PreparedStatement's standard methods,
  * but might be necessary to free database resources if using proprietary means.
  * <p><b>NOTE</b>: Needs to be invoked after the involved
 PreparedStatements have
  * been executed or the affected O/R mapping sessions have been flushed.
  * Otherwise, the database resources for the temporary BLOBs might stay allocated.
  */
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/LobCreator.java
No license file was found, but licenses were detected in source scan.

```
/**
* The classes in this package make JDBC easier to use and
* reduce the likelihood of common errors. In particular, they:
* <ul>
* <li>Simplify error handling, avoiding the need for try/catch/finally
* blocks in application code.
* <li>Present exceptions to application code in a generic hierarchy of
* unchecked exceptions, enabling applications to catch data access
* exceptions without being dependent on JDBC, and to ignore fatal
* exceptions there is no value in catching.
* <li>Allow the implementation of error handling to be modified
* to target different RDBMSes without introducing proprietary
* dependencies into application code.
* </ul>
*
* <p>This package and related packages are discussed in Chapter 9 of
* <a href="https://www.amazon.com/exec/obidos/tg/detail/-/0764543857/">Expert One-On-One J2EE Design and
Development</a>
* by Rod Johnson (Wrox, 2002).
*/
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/package-info.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Strategy interface for translating between {@link SQLException SQLExceptions}
* and Spring's data access strategy-agnostic {@link DataAccessException}
* hierarchy.
*
* <p>Implementations can be generic (for example, using
* {@link java.sql.SQLException#getSQLState() SQLState} codes for JDBC) or
 wholly
* proprietary (for example, using Oracle error codes) for greater precision.
*
* @author Rod Johnson
* @author Juergen Hoeller
* @see org.springframework.dao.DataAccessException
*/
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SQLExceptionTranslator.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
```

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/DriverManagerDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/SingleConnectionDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/GenericTableMetaDataProvider.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/SimpleDriverDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlReturnType.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/DatabasePopulatorUtils.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcTemplate.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/ScriptUtils.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/CallMetaDataProviderFactory.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/JdbcOperations.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/GenericCallMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/DataSourceFactory.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/StatementCreatorUtils.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/DataSourceTransactionManager.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcOperations.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/AbstractEmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/JdbcTemplate.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/MetaDataAccessException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/config/JdbcNamespaceHandler.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/SimpleDriverDataSourceFactory.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/XmlResultProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SqlValue.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/lookup/SingleDataSourceLookup.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/lookup/DataSourceLookupFailureException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/SmartDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/InterruptibleBatchPreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/AbstractSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/XmlCharacterStreamProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/SQLWarningException.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/lookup/JndiDataSourceLookup.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/GenericStoredProcedure.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/XmlBinaryStreamProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/xml/SqlXmlFeatureNotImplementedException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/BatchPreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlProvider.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-

jar/org/springframework/jdbc/core/namedparam/MapSqlParameterSourceExtensions.kt
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabase.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/ScriptStatementFailedException.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/MySQLMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/namedparam/NamedParameterBatchUpdateUtils.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/TableMetaDataProviderFactory.java

*
/spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/DerbyTableMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/HsqlTableMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/lookup/IsolationLevelDataSourceRouter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/RowCountCallbackHandler.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/rowset/ResultSetWrappingSqlRowSetMetaData.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlReturnResultSet.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/SqlXmlHandler.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/SimpleJdbcInsertOperations.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/ConnectionHolder.java
*
/spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/AbstractDataFieldMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/ArgumentTypePreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/JdbcBeanDefinitionReader.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/ParameterizedPreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/LobRetrievalFailureException.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlTypeValue.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/AbstractFallbackSQLExceptionTranslator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/StoredProcedure.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlInOutParameter.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/OracleSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/RowMapper.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ResultSetSupportingSqlParameter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/TableParameterMetaData.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/SqlUpdate.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/SQLErrorCodeSQLExceptionTranslator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/SimpleJdbcCallOperations.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/DerbyCallMetaDataProvider.java
*
/spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/PostgresTableMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/CustomSQLExceptionTranslatorRegistrar.java
* /spring-jdbc-5-2-8-release-sources-1-

jar/org/springframework/jdbc/support/incrementer/AbstractIdentityColumnMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/IncorrectResultSetColumnCountException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/SimpleConnectionHandle.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/MappingSqlQueryWithParameters.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/Db2LuwMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/H2EmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/SqlQuery.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/config/DatabasePopulatorConfigUtils.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/WebSphereDataSourceAdapter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/ConnectionHandle.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/IsolationLevelDataSourceAdapter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/AbstractDataSource.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/SqlParameterSourceUtils.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/MappingSqlQuery.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/UncategorizedSQLException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/SqlCall.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/UpdatableSqlQuery.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/simple/SimpleJdbcCall.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/CallParameterMetaData.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ArgumentPreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/PreparedStatementCallback.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseConfigurerFactory.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/metadata/OracleTableMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/SqlOperation.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SQLErrorCodesFactory.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseBuilder.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ConnectionCallback.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcDaoSupport.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/CallMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/embedded/OutputStreamFactory.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/PostgreSQLSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlParameterValue.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/PreparedStatementCreator.java

* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/PostgresSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/Db2CallMetaDataProvider.java
*
 /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/Db2MainframeMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/CallMetaDataContext.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/DatabaseStartupValidator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/CannotGetJdbcConnectionException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlParameter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/CallableStatementCreator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/DerbyEmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/CallableStatementCallback.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseFactory.java
*
 /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/DataSourceUtils.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/BadSqlGrammarException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/AbstractInterruptibleBatchPreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/HsqlSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlRowSetResultSetExtractor.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/lookup/MapDataSourceLookup.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/H2SequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/InvalidResultSetAccessException.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/SQLErrorCodes.java
*
 /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseType.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/CallableStatementCreatorFactory.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/SybaseAnywhereMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/RowMapperResultSetExtractor.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/TableMetaDataContext.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/embedded/HsqlEmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/incrementer/AbstractColumnMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ColumnMapRowMapper.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/JdbcDaoSupport.java
*
 /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/GeneratedKeyHolder.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/JdbcUpdateAffectedIncorrectNumberOfRowsException.java

* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/HanaCallMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/UserCredentialsDataSourceAdapter.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/SybaseMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/BatchUpdateUtils.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/ResultSetExtractor.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/HanaSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/core/namedparam/EmptySqlParameterSource.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlReturnUpdateCount.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/DerbyMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/SqlOutParameter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/TemporaryLobCreator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/AbstractSqlTypeValue.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/GenericSqlQuery.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/metadata/TableMetaDataProvider.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/config/SortedResourcesFactoryBean.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/JdbcAccessor.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/StatementCallback.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/object/BatchSqlUpdate.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/init/DatabasePopulator.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/LobHandler.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/DatabaseMetaDataCallback.java
*

/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/PreparedStatementSetter.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/RowCallbackHandler.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/datasource/lookup/DataSourceLookup.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/namedparam/ParsedSql.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/datasource/init/CompositeDatabasePopulator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2008 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/DB2SequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-
jar/org/springframework/jdbc/support/incrementer/DB2MainframeSequenceMaxValueIncrementer.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/xml/SqlXmlValue.java
*
/spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/DisposableSqlTypeValue.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/JdbcOperationsExtensions.kt
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/core/support/AbstractLobCreatingPreparedStatementCallback.java
* /spring-jdbc-5-2-8-release-sources-1-jar/org/springframework/jdbc/support/lob/AbstractLobHandler.java

1.267 spring-aop 5.2.8.RELEASE

1.267.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJWeaverMessageHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2006 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/InstantiationModelAwarePointcutAdvisor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/ThreadLocalTargetSource.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/SingletonMetadataAwareAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/aop/Advice.java
*

/spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/Joinpoint.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ProxyFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJAfterReturningAdvice.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/config/AspectJAutoProxyBeanDefinitionParser.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/MetadataAwareAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/ConstructorInterceptor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/SimpleMetadataAwareAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/MethodInvocation.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/autoproxy/TargetSourceCreator.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/Invocation.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/PrototypeAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJMethodBeforeAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/ProxyMethodInvocation.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/annotation/AspectJAdvisorFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJAfterAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJAfterThrowingAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/DefaultAopProxyFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/SingletonAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/TargetClassAware.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/NameMatchMethodPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/target/LazyInitTargetSourceCreator.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/PrototypeTargetSource.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ProxyFactoryBean.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/CglibAopProxy.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/autoproxy/AspectJAwareAdvisorAutoProxyCreator.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopContext.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/AbstractMonitoringInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/CustomizableTraceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/ReflectiveAspectJAdvisorFactory.java

* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/adapter/MethodBeforeAdviceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/autoproxy/AspectJPrecedenceComparator.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/autoproxy/AbstractAdvisorAutoProxyCreator.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/ExposeInvocationInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AopNamespaceHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AdvisorChainFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/adapter/AfterReturningAdviceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ProxyProcessorSupport.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/StaticMethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/AbstractPoolingTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/adapter/ThrowsAdviceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/annotation/AspectJProxyFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/TargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJExpressionPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/autoproxy/AutoProxyUtils.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/MethodInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AdvisorComponentDefinition.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/scope/ScopedProxyFactoryBean.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/dynamic/AbstractRefreshableTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/aop/AspectException.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/SimpleAspectInstanceFactory.java

* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/DefaultAdvisorChainFactory.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/MethodInvocationProceedingJoinPoint.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/BeanFactoryAspectJAdvisorsBuilder.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/TruePointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/ConstructorInvocation.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ProxyConfig.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/IntroductionInfoSupport.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/MethodBeforeAdvice.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/target/AbstractPrototypeBasedTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/DeclareParentsAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/AsyncExecutionAspectSupport.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/GlobalAdvisorAdapterRegistry.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/RegexpMethodPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/CommonsPool2TargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/Advised.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/RuntimeTestWalker.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/ConfigBeanDefinitionParser.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/DefaultAdvisorAutoProxyCreator.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/AbstractAspectJAdvisorFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/TrueMethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/BeanFactoryAspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/AsyncExecutionInterceptor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/AspectJAdviceParameterNameDiscoverer.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/ProxyCreationContext.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/ExposeBeanNameAdvisors.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/InstantiationModelAwarePointcutAdvisorImpl.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/NotAnAtAspectException.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/interceptor/SimpleAsyncUncaughtExceptionHandler.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/BeanFactoryAdvisorRetrievalHelper.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/target/AbstractBeanFactoryBasedTargetSourceCreator.java

* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/EmptyTargetSource.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/target/AbstractBeanFactoryBasedTargetSource.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/target/QuickTargetSourceCreator.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/DefaultAdvisorAdapterRegistry.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/DynamicMethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/AdvisorAdapterRegistry.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJPrecedenceInformation.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AopConfigUtils.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/AbstractAdvisingBeanPostProcessor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/HotSwappableTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/AbstractLazyCreationTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/TrueClassFilter.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/AbstractBeanFactoryAwareAdvisingPostProcessor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/annotation/AnnotationClassFilter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/IntroductionAwareMethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/AbstractRegexpMethodPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AopNamespaceUtils.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/StaticMethodMatcherPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ProxyCreatorSupport.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/AbstractSingletonProxyFactoryBean.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/SingletonTargetSource.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/BeforeAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AspectEntry.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/InterceptorAndDynamicMethodMatcher.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AdvisedSupportListener.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/AfterAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/IntroductionInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopInfrastructureBean.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/SpringProxy.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/RawTargetAccess.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJAopUtils.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/MethodBeforeAdviceAdapter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/DynamicIntroductionAdvice.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/config/SpringConfiguredBeanDefinitionParser.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/scope/DefaultScopedObject.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/ThreadLocalTargetSourceStats.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AdvisorEntry.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AdviceEntry.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/LazyInitTargetSource.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/AdvisorAdapterRegistrationManager.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/config/ScopedProxyBeanDefinitionDecorator.java

* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/IntroductionInfo.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/AopInvocationException.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/scope/ScopedObject.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/DebugInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/DynamicMethodMatcherPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/Pointcut.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/AfterReturningAdviceAdapter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/ConcurrencyThrottleInterceptor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/adapter/UnknownAdviceTypeException.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/target/dynamic/BeanFactoryRefreshableTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/PointcutComponentDefinition.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/IntroductionAdvisor.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/adapter/ThrowsAdviceAdapter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/SimpleBeanTargetSource.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/JdkRegexpMethodPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/StaticMethodMatcherPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopConfigException.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/dynamic/Refreshable.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/PointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/AfterReturningAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/target/PoolingConfig.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/PointcutEntry.java
*
 /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/adapter/AdvisorAdapter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopProxy.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopProxyFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/DefaultIntroductionAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/ClassFilters.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/MethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ObjenesisCglibAopProxy.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/ComposablePointcut.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/interceptor/AsyncUncaughtExceptionHandler.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/MethodMatchers.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/JdkDynamicAopProxy.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/NameMatchMethodPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/scope/ScopedProxyUtils.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/Pointcuts.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AdvisedSupport.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/AopUtils.java
* /spring-aop-5-2-8-release-sources-1-jar/org/aopalliance/intercept/Interceptor.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/annotation/AnnotationMatchingPointcut.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/AbstractAutoProxyCreator.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/RootClassFilter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/AopProxyUtils.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/framework/ReflectiveMethodInvocation.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/ControlFlowPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/annotation/AspectMetadata.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/annotation/AnnotationMethodMatcher.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJProxyUtils.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AbstractAspectJAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/TypePatternClassFilter.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/ClassFilter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/AbstractGenericPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/AspectComponentDefinition.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/config/SimpleBeanFactoryAwareAspectInstanceFactory.java
*
/spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/LazySingletonAspectInstanceFactoryDecorator.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/DefaultBeanFactoryPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/aspectj/annotation/AnnotationAwareAspectJAutoProxyCreator.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/config/AbstractInterceptorDrivenBeanDefinitionDecorator.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/AbstractBeanFactoryPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/AbstractPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/Advisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/PerformanceMonitorInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/DelegatingIntroductionInterceptor.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJAroundAdvice.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/AbstractTraceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/interceptor/SimpleTraceInterceptor.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/support/DelegatePerTargetObjectIntroductionInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectJExpressionPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/aspectj/AspectInstanceFactory.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/interceptor/JamonPerformanceMonitorInterceptor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/config/MethodLocatingFactoryBean.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/BeanNameAutoProxyCreator.java
*
/spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/AbstractExpressionPointcut.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/DefaultPointcutAdvisor.java
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/support/ExpressionPointcut.java
* /spring-aop-5-2-8-release-sources-1-
jar/org/springframework/aop/framework/autoproxy/InfrastructureAdvisorAutoProxyCreator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2008 the original author or authors.

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-aop-5-2-8-release-sources-1-jar/org/springframework/aop/ThrowsAdvice.java

1.268 spring-orm 5.2.8.RELEASE

1.268.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaSystemException.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/persistenceunit/ClassFileTransformerAdapter.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SpringSessionSynchronization.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SpringJtaSessionContext.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/vendor/SpringHibernateJpaPersistenceProvider.java

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/hibernate5/HibernateOptimisticLockingFailureException.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateJdbcException.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/hibernate5/HibernateObjectRetrievalFailureException.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateQueryException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaTransactionManager.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/HibernateJpaVendorAdapter.java
* /spring-orm-5-2-8-release-sources-

jar/org/springframework/orm/hibernate5/support/OpenSessionInViewFilter.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/HibernateJpaDialect.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/LocalSessionFactoryBuilder.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/ExtendedEntityManagerCreator.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/EntityManagerFactoryUtils.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SpringBeanContainer.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SessionFactoryUtils.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/LocalSessionFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaDialect.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateSystemException.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/support/SharedEntityManagerBean.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaVendorAdapter.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/ConfigurableJtaPlatform.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/support/OpenEntityManagerInViewFilter.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/support/AsyncRequestInterceptor.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/DefaultJpaDialect.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/persistenceunit/MutablePersistenceUnitInfo.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/support/OpenSessionInterceptor.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/persistenceunit/SpringPersistenceUnitInfo.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/HibernateJpaSessionFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateCallback.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SessionHolder.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SpringFlushSynchronization.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/EntityManagerHolder.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/EclipseLinkJpaDialect.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/persistenceunit/PersistenceUnitReader.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateExceptionTranslator.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/support/AsyncRequestInterceptor.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateOperations.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/Database.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/EntityManagerFactoryAccessor.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/LocalEntityManagerFactoryBean.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/hibernate5/support/OpenSessionInViewInterceptor.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/SpringSessionContext.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateTemplate.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/support/OpenEntityManagerInViewInterceptor.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/LocalContainerEntityManagerFactoryBean.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/ObjectRetrievalFailureException.java
* /spring-orm-5-2-8-release-sources-
jar/org/springframework/orm/jpa/persistenceunit/DefaultPersistenceUnitManager.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/AbstractEntityManagerFactoryBean.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/ObjectOptimisticLockingFailureException.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/EclipseLinkJpaVendorAdapter.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/support/HibernateDaoSupport.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/vendor/AbstractJpaVendorAdapter.java
No license file was found, but licenses were detected in source scan.

/*

```
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/support/PersistenceAnnotationBeanPostProcessor.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/hibernate5/HibernateTransactionManager.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaObjectRetrievalFailureException.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/persistenceunit/PersistenceUnitManager.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/JpaOptimisticLockingFailureException.java
*
 /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/EntityManagerProxy.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/EntityManagerFactoryInfo.java
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/persistenceunit/PersistenceUnitPostProcessor.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
  * Create a transactional EntityManager proxy for the given EntityManagerFactory.
  * @param emf the EntityManagerFactory to obtain EntityManagers from as needed
  * @param properties the properties to be passed into the
  * {@code createEntityManager} call (may be {@code null})
  * @param entityManagerInterfaces
 the interfaces to be implemented by the
  * EntityManager. Allows the addition or specification of proprietary interfaces.
  * @return a shareable transactional EntityManager proxy
  */
```

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/SharedEntityManagerCreator.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-orm-5-2-8-release-sources-jar/org/springframework/orm/jpa/persistenceunit/SmartPersistenceUnitInfo.java

1.269 spring-jcl 5.2.8.RELEASE

1.269.1 Available under license :

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

==========

SPRING FRAMEWORK 5.2.8.RELEASE SUBCOMPONENTS:

Spring Framework 5.2.8.RELEASE includes a number of subcomponents
with separate copyright notices and license terms. The product that
includes this file does not necessarily use all the open source
subcomponents referred to below. Your use of the source
code for these subcomponents is subject to the terms and
conditions of the following licenses.

>>> ASM 7.1 (org.ow2.asm:asm:7.1, org.ow2.asm:asm-commons:7.1):

Copyright (c) 2000-2011 INRIA, France Telecom
All rights reserved.

Redistribution and use in source and
binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 1999-2009, OW2 Consortium <https://www.ow2.org/>

>>> CGLIB 3.3 (cglib:cglib:3.3):

Per the LICENSE file in the CGLIB JAR distribution downloaded from
https://github.com/cglib/cglib/releases/download/RELEASE_3_3_0/cglib-3.3.0.jar,
CGLIB 3.3 is licensed under the Apache License, version 2.0, the text of which
is included above.

>>> Objenesis 3.1 (org.objenesis:objenesis:3.1):

Per the LICENSE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html, Objenesis 3.1 is licensed under the
Apache License, version 2.0, the text of which is included
above.

Per the NOTICE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html and corresponding to section 4d of the
Apache License, Version 2.0, in this case for Objenesis:

Objenesis
Copyright 2006-2019 Joe Walnes, Henri Tremblay, Leonardo Mesquita

==========

To the extent any open source components are licensed under the EPL and/or other similar licenses that require the source code and/or modifications to source code to be made available (as would be noted above), you may obtain a copy of the source code corresponding to the binaries for such open source components and modifications thereto, if any, (the "Source Files"), by downloading the Source Files from https://spring.io/projects, Pivotal's website at https://network.pivotal.io/open-source, or by sending a request, with your name and address to: Pivotal Software, Inc., 875 Howard Street, 5th floor, San Francisco, CA 94103,
Attention: General Counsel. All such requests should clearly specify: OPEN SOURCE FILES REQUEST, Attention General Counsel. Pivotal can mail a copy of the Source Files to you on a CD or equivalent physical medium.

This offer to obtain a copy of the Source Files is valid for three years from the date you acquired this Software product. Alternatively, the Source Files may accompany the Software.
Spring Framework 5.2.8.RELEASE
Copyright (c) 2002-2020 Pivotal, Inc.

This product is licensed to you under the Apache License, Version 2.0 (the "License"). You may not use this product except in compliance with the License.

This product may include a number of subcomponents with separate copyright notices and license terms. Your use of the source code for these subcomponents is subject to the terms and conditions of the subcomponent's license, as noted in the license.txt file.

1.270 spring-aspects 5.2.8.RELEASE

1.270.1 Available under license :

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

==========

SPRING FRAMEWORK 5.2.8.RELEASE SUBCOMPONENTS:

Spring Framework 5.2.8.RELEASE includes a number of subcomponents
with separate copyright notices and license terms. The product that
includes this file does not necessarily use all the open source
subcomponents referred to below. Your use of the source
code for these subcomponents is subject to the terms and
conditions of the following licenses.

>>> ASM 7.1 (org.ow2.asm:asm:7.1, org.ow2.asm:asm-commons:7.1):

Copyright (c) 2000-2011 INRIA, France Telecom
All rights reserved.

Redistribution and use in source and
binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF

THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 1999-2009, OW2 Consortium <https://www.ow2.org/>

>>> CGLIB 3.3 (cglib:cglib:3.3):

Per the LICENSE file in the CGLIB JAR distribution downloaded from
https://github.com/cglib/cglib/releases/download/RELEASE_3_3_0/cglib-3.3.0.jar,
CGLIB 3.3 is licensed under the Apache License, version 2.0, the text of which
is included above.

>>> Objenesis 3.1 (org.objenesis:objenesis:3.1):

Per the LICENSE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html, Objenesis 3.1 is licensed under the
Apache License, version 2.0, the text of which is included
above.

Per the NOTICE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html and corresponding to section 4d of the
Apache License, Version 2.0, in this case for Objenesis:

Objenesis
Copyright 2006-2019 Joe Walnes, Henri Tremblay, Leonardo Mesquita

==========

To the extent any open source components are licensed under the EPL and/or
other similar licenses that require the source code and/or modifications to
source code to be made available (as would be noted above), you may obtain a
copy of the source code corresponding to the binaries for such open source
components and modifications thereto, if any, (the "Source Files"), by
downloading the Source Files from https://spring.io/projects, Pivotal's website
at https://network.pivotal.io/open-source, or by sending a request, with your
name and address to: Pivotal Software, Inc., 875 Howard Street, 5th floor, San
Francisco, CA 94103,
Attention: General Counsel. All such requests should
clearly specify: OPEN SOURCE FILES REQUEST, Attention General Counsel. Pivotal
can mail a copy of the Source Files to you on a CD or equivalent physical
medium.

This offer to obtain a copy of the Source Files is valid for three years from
the date you acquired this Software product. Alternatively, the Source Files
may accompany the Software.

Spring Framework 5.2.8.RELEASE
Copyright (c) 2002-2020 Pivotal, Inc.

This product is licensed to you under the Apache License, Version 2.0
(the "License"). You may not use this product except in compliance with
the License.

This product may include a number of subcomponents with separate
copyright notices and license terms. Your use of the source code for
these subcomponents is subject to the terms and conditions of the
subcomponent's license, as noted in the license.txt file.

1.271 spring-data-jpa 2.3.3.RELEASE

1.271.1 Available under license :

Spring Data JPA 2.3.3 (Neumann SR3)
Copyright (c) [2011-2019] Pivotal Software, Inc.

This product is licensed to you under the Apache License, Version 2.0 (the "License").
You may not use this product except in compliance with the License.

This product may include a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for the these subcomponents is subject to the terms and
conditions of the subcomponent's license, as noted in the LICENSE file.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

==========

To the extent any open source subcomponents are licensed under the EPL and/or other
similar licenses that require the source code and/or modifications to
source code to be made available (as would be noted above), you may obtain a
copy of the source code corresponding to the binaries for such open source
components and modifications thereto, if any, (the "Source Files"), by
downloading the Source Files from https://www.springsource.org/download,
or by sending a request, with your name and address to: VMware, Inc., 3401 Hillview
Avenue, Palo Alto, CA 94304,
United States of America or email info@vmware.com. All
such requests should clearly specify: OPEN SOURCE FILES REQUEST, Attention General
Counsel. VMware shall mail a copy of the Source Files to you on a CD or equivalent
physical medium. This offer to obtain a copy of the Source Files is valid for three
years from the date you acquired this Software product.

1.272 spring-expression 5.2.8.RELEASE

1.272.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/InternalParseException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/TypeLocator.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/MethodFilter.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/EvaluationException.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ConstructorResolver.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/TokenKind.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/ReflectivePropertyAccessor.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/SpelExpression.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/ast/PropertyOrFieldReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpMinus.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OperatorNot.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Elvis.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/ast/CompoundExpression.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Assign.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/MethodReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/FloatLiteral.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/QualifiedIdentifier.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/RealLiteral.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpGE.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/TypeReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OperatorPower.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpMultiply.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Projection.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpModulus.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpEQ.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Ternary.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/InlineMap.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpInc.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpNE.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/PropertyAccessor.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/StringLiteral.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/ReflectiveConstructorResolver.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpLE.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/StandardTypeComparator.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/ValueRef.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpOr.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OperatorMatches.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/InlineList.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpPlus.java
*

/spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/FunctionReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpAnd.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/TypeCode.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/standard/InternalSpelExpressionParser.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OperatorBetween.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/Tokenizer.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpLT.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpDec.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpGT.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/NullLiteral.java
*
/spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OperatorInstanceof.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/IntLiteral.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Identifier.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/VariableReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/BeanReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/BooleanLiteral.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/OpDivide.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Literal.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/LongLiteral.java
*
/spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Selection.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/SpelNodeImpl.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/ast/ConstructorReference.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Indexer.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/Operator.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/CompiledExpression.java

* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/Token.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/support/ReflectiveConstructorExecutor.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/AccessException.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/common/ExpressionUtils.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/Expression.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/TypeConverter.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/SpelParseException.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/TypeComparator.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/OperatorOverloader.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/support/StandardTypeLocator.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ParseException.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/SpelParserConfiguration.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ParserContext.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/MethodExecutor.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/MethodResolver.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ConstructorExecutor.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/common/TemplateParserContext.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ExpressionInvocationTargetException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2009 the original author or authors.

```
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ExpressionParser.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/CompilablePropertyAccessor.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/SpelExpressionParser.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/SpelCompilerMode.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
```

*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/ReflectionHelper.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/StandardTypeConverter.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/DataBindingMethodResolver.java
*
 /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/StandardOperatorOverloader.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/SpelEvaluationException.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/common/CompositeStringExpression.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/common/LiteralExpression.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/SimpleEvaluationContext.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/ExpressionException.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/DataBindingPropertyAccessor.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/FormatHelper.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/StandardEvaluationContext.java
*
 /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/Operation.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/common/TemplateAwareExpressionParser.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/BeanResolver.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/CodeFlow.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ExpressionState.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/ast/AstUtils.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/SpelMessage.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/ReflectiveMethodResolver.java
* /spring-expression-5-2-8-release-sources-1-
jar/org/springframework/expression/spel/support/BooleanTypedValue.java
*

/spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/standard/SpelCompiler.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/TypedValue.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/EvaluationContext.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/support/ReflectiveMethodExecutor.java
* /spring-expression-5-2-8-release-sources-1-jar/org/springframework/expression/spel/SpelNode.java

1.273 spring-tx 5.2.8.RELEASE

1.273.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2008 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/ResourceHolder.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/RecordCreator.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/support/PersistenceExceptionTranslator.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/config/TxAdviceBeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/context/ResourceAdapterApplicationContext.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/UncategorizedDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionSystemException.java
*
 /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/BeanFactoryTransactionAttributeSourceAdvisor.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/context/BootstrapContextAwareProcessor.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/support/ResourceAdapterFactoryBean.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/jca/cci/connection/ConnectionSpecConnectionFactoryAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/support/SimpleBootstrapContext.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DataAccessResourceFailureException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/OptimisticLockingFailureException.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/TransactionAttributeSourceAdvisor.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/ConcurrencyFailureException.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/DelegatingConnectionFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/object/EisOperation.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/CallbackPreferringPlatformTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DataRetrievalFailureException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/NonTransientDataAccessResourceException.java

* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/NonTransientDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/TransientDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/support/CommAreaRecord.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/TransactionCallbackWithoutResult.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/CciOperations.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/event/TransactionPhase.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/AbstractPlatformTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionAspectSupport.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/PlatformTransactionManager.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionInterceptor.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/annotation/ProxyTransactionManagementConfiguration.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/annotation/EnableTransactionManagement.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionalOperator.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/dao/support/PersistenceExceptionTranslationInterceptor.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/annotation/TransactionManagementConfigurer.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/work/WorkManagerTaskExecutor.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/reactive/AbstractReactiveTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/TransactionSynchronizationManager.java

*
 /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/jta/WebSphereUowTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/TransactionAttributeSourcePointcut.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/Transactional.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/ReactiveTransactionManager.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/object/MappingRecordOperation.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/context/SpringContextResourceAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/CannotCreateRecordException.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/work/SimpleTaskWorkManager.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/DefaultTransactionAttribute.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/annotation/TransactionManagementConfigurationSelector.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/context/BootstrapContextAware.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/endpoint/GenericMessageEndpointFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/CciLocalTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/SimpleTransactionFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/TransactionCallback.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/RollbackRuleAttribute.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/DefaultTransactionDefinition.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/object/SimpleRecordOperation.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/support/DataAccessUtils.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/SimpleTransactionStatus.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/HeuristicCompletionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/endpoint/GenericMessageEndpointManager.java

* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/support/ChainedPersistenceExceptionTranslator.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/endpoint/AbstractMessageEndpointFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/ResourceHolderSynchronization.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/RecordTypeNotSupportedException.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/InteractionCallback.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/Isolation.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/support/DaoSupport.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/JtaTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/ResourceHolderSupport.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/ConnectionCallback.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/WebLogicJtaTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/AbstractFallbackTransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/NameMatchTransactionAttributeSource.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/ConnectionFactoryUtils.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/IncorrectResultSizeDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/JtaTransactionObject.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/support/CciDaoSupport.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/ConnectionHolder.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/config/TransactionManagementConfigUtils.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/CciTemplate.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/MatchAlwaysTransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/SimpleTransactionScope.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/CciOperationNotSupportedException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/RuleBasedTransactionAttribute.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/SingleConnectionFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/TransactionSynchronization.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/config/AnnotationDrivenBeanDefinitionParser.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/SpringJtaSynchronizationAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/TransactionAwareConnectionFactoryProxy.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/object/MappingCommAreaOperation.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/TransactionTemplate.java
*
/spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/InvalidTimeoutException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/event/TransactionalEventListenerFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/core/RecordExtractor.java

* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/CannotGetCciConnectionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/support/LocalConnectionFactoryBean.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/ResourceTransactionDefinition.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/TransactionSynchronizationUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/RecoverableDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/NoTransactionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/QueryTimeoutException.java
*
 /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/TransactionAttributeSourceEditor.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/NestedTransactionNotSupportedException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/connection/NotSupportedRecordFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/PessimisticLockingFailureException.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/dao/IncorrectUpdateSemanticsDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/DelegatingTransactionDefinition.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/config/TxNamespaceHandler.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/InvalidDataAccessResourceUsageException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/TypeMismatchDataAccessException.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/UserTransactionAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/ResourceTransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/CannotAcquireLockException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/CannotSerializeTransactionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/InvalidIsolationLevelException.java

* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/ManagedTransactionAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DataIntegrityViolationException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/CannotCreateTransactionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionUsageException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionTimedOutException.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/IllegalTransactionStateException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/NoRollbackRuleAttribute.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/dao/annotation/PersistenceExceptionTranslationAdvisor.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DuplicateKeyException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/InvalidDataAccessApiUsageException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/TransactionFactory.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/cci/InvalidResultSetAccessException.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/support/TransactionSynchronizationAdapter.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/jta/JtaAfterCompletionSynchronization.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/TransactionSuspensionNotSupportedException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/TransientDataAccessResourceException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/DeadlockLoserDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/CleanupFailureDataAccessException.java
* /spring-tx-5-2-8-release-sources-1-
jar/org/springframework/transaction/interceptor/DelegatingTransactionAttribute.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/UnexpectedRollbackException.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/jca/work/DelegatingWork.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/EmptyResultDataAccessException.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/PermissionDeniedDataAccessException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionalProxy.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/dao/annotation/PersistenceExceptionTranslationPostProcessor.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/config/JtaTransactionManagerBeanDefinitionParser.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/SavepointManager.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/SmartTransactionObject.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/event/TransactionalEventListener.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionExecution.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/GenericReactiveTransaction.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/TransactionAnnotationParser.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/MethodMapTransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/JtaTransactionAnnotationParser.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionContext.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionSynchronizationUtils.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/AbstractTransactionManagementConfiguration.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/AnnotationTransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionStatus.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/StaticTransactionDefinition.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionSynchronization.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/event/ApplicationListenerMethodTransactionalAdapter.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionCallback.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionContextHolder.java
* /spring-tx-5-2-8-release-sources-1-

jar/org/springframework/transaction/interceptor/CompositeTransactionAttributeSource.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/WithoutTransactionOperations.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/TransactionDefinition.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/DefaultTransactionStatus.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/ReactiveResourceSynchronization.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionContextManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/AbstractTransactionStatus.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionSynchronizationManager.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/ReactiveTransaction.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionProxyFactoryBean.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionAttributeEditor.java
*
 /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/config/JtaTransactionManagerFactoryBean.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/support/TransactionOperations.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/Propagation.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/reactive/TransactionalOperatorImpl.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/interceptor/TransactionAttribute.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/SpringTransactionAnnotationParser.java
* /spring-tx-5-2-8-release-sources-1-jar/org/springframework/transaction/annotation/Ejb3TransactionAnnotationParser.java

1.274 spring-security-config 5.3.4.RELEASE

1.274.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2009-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/SecurityNamespaceHandler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/debug/SecurityDebugBeanFactoryPostProcessor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/ChannelSecurityConfigurer.java

* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/PortMapperConfigurer.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/DefaultLoginPageConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/HttpSecurityBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/AnonymousConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/RequestCacheConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/AbstractSecurityBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/userdetails/UserDetailsServiceConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configuration/SpringWebMvcImportSelector.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/provisioning/InMemoryUserDetailsManagerConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/userdetails/AbstractDaoAuthenticationConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/builders/AuthenticationManagerBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/JeeConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/FormLoginConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/servlet/configuration/EnableWebMvcSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/SecurityConfigurer.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/EnableGlobalMethodSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/SecurityConfigurerAdapter.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/AbstractConfiguredSecurityBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/ProviderManagerBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configuration/EnableGlobalAuthentication.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/SecurityBuilder.java

* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/provisioning/JdbcUserDetailsManagerConfigurer.java
*
 /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/PermitAllSupport.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/AbstractHttpConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/userdetails/UserDetailsAwareConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/AlreadyBuiltException.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/AbstractConfigAttributeRequestMatcherRegistry.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/userdetails/DaoAuthenticationConfigurer.java
*
 /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/GlobalMethodSecurityAspectJAutoProxyRegistrar.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/ObjectPostProcessor.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configuration/AutowiredWebSecurityConfigurersIgnoreParents.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/builders/FilterComparator.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/AbstractInterceptUrlConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/provisioning/UserDetailsManagerConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/WebSecurityConfigurer.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/ReactiveMethodSecuritySelector.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configuration/GlobalAuthenticationConfigurerAdapter.java
*
 /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/reactive/EnableWebFluxSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/core/userdetails/UserDetailsMapFactoryBean.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/EnableReactiveMethodSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/oauth2/client/ImplicitGrantConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/server/SecurityWebFiltersOrder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/core/userdetails/ReactiveUserDetailsServiceResourceFactoryBean.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/provisioning/UserDetailsManagerResourceFactoryBean.java
*
 /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/server/AbstractServerWebExchangeMatcherRegistry.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/X509Dsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/session/SessionConcurrencyDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/OAuth2ClientBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/server/ServerHttpSecurity.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/FrameOptionsDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/ReferrerPolicyDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/XssProtectionConfigDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/PortMapperDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/FormLoginDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/AuthorizeRequestsDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/CsrfDsl.kt
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/resourceserver/JwtDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/AuthenticationConfigBuilder.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/RequestCacheDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/OAuth2LoginBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/SecurityMarker.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/resourceserver/OpaqueTokenDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/HttpSecurityDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/LogoutDsl.kt
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/Saml2Dsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/login/RedirectionEndpointDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/login/UserInfoEndpointDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/login/TokenEndpointDsl.kt
* /spring-security-config-5-3-4-release-sources-

jar/org/springframework/security/config/web/servlet/session/SessionFixationDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/client/AuthorizationCodeGrantDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/SecurityFilters.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/SecurityReactorContextConfiguration.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/HttpPublicKeyPinningDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/HttpStrictTransportSecurityDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/ContentTypeOptionsDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/Elements.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/ContentSecurityPolicyDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/headers/CacheControlDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/oauth2/client/ClientRegistrationsBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/SessionManagementDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/HttpSecurityBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/oauth2/server/resource/OAuth2ResourceServer
Configurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/AbstractRequestMatcherDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/builders/WebSecurity.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/OAuth2LoginDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/ExceptionHandlingDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/CsrfBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/HttpConfigurationBuilder.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/CorsDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/OAuth2ClientDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/AnonymousDsl.kt
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/web/servlet/oauth2/login/AuthorizationEndpointDsl.kt

* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/OAuth2ResourceServerDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/HttpBasicDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/OAuth2ResourceServerBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/RequiresChannelDsl.kt
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/web/servlet/HeadersDsl.kt
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/RememberMeConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/RememberMeBeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and

* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/method/MethodConfigUtils.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/WebConfigUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/ldap/LdapUserServiceBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/JdbcUserServiceBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/AuthenticationProviderBeanDefinitionParser.java
*
 /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/FilterChainBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/PasswordEncoderParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/HttpFirewallBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/ChannelAttributeFactory.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/BeanIds.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/method/ProtectPointcutPostProcessor.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/package-info.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/package-info.java
*

/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/ldap/ContextSourceSettingPostProcessor.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/MatcherType.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/method/InterceptMethodsBeanDefinitionDecorator.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/package-info.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/FilterChainMapBeanDefinitionDecorator.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/AbstractUserDetailsServiceBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/ldap/package-info.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/method/package-info.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/ldap/LdapProviderBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/FilterInvocationSecurityMetadataSourceParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/SessionCreationPolicy.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/PortMappingsBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/UserDetailsServiceFactoryBean.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/messaging/MessageSecurityMetadataSourceRegistry.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/DebugBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/authentication/UserServiceBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/DefaultFilterChainValidator.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/method/MethodSecurityMetadataSourceBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/core/GrantedAuthorityDefaults.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/rsocket/RSocketSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/rsocket/RSocketSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/rsocket/EnableRSocketSecurity.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/rsocket/SecuritySocketAcceptorInterceptorConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/rsocket/PayloadInterceptorOrder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/oauth2/client/OAuth2LoginConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/servlet/configuration/WebMvcSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/HeadersBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configuration/WebMvcSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-

jar/org/springframework/security/config/annotation/method/configuration/Jsr250MetadataSourceConfiguration.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/AbstractRequestMatcherRegistry.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/openid/OpenIDLoginConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/method/configuration/GlobalMethodSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/OAuth2ClientConfiguration.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/AbstractAuthenticationFilterConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/authentication/configuration/InitializeAuthenticationProviderBeanManagerConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/oauth2/client/OAuth2ClientConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/HeadersConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/WebSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/OAuth2ImportSelector.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/crypto/RsaKeyConversionServicePostProcessor.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/HttpBasicConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/LogoutConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/CsrfConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/saml2/Saml2LoginConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/reactive/ServerHttpSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/reactive/ReactiveOAuth2ClientImportSelector.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/authentication/configuration/AuthenticationConfiguration.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/socket/AbstractSecurityWebSocketMessageBrokerConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/builders/HttpSecurity.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/authentication/configuration/InitializeUserDetailsBeanManager

Configurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/ReactiveMethodSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/configuration/ObjectPostProcessorConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/SessionManagementConfigurer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/Customizer.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/ldap/LdapServerBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/reactive/WebFluxSecurityConfiguration.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/LogoutBeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/MethodSecurityMetadataSourceAdvisorRegistrar.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/websocket/WebSocketMessageBrokerSecurityBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/method/configuration/GlobalMethodSecuritySelector.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/web/configurers/oauth2/client/OAuth2ClientConfigurerUtils.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/annotation/authentication/configurers/ldap/LdapAuthenticationProviderCon

figurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/WebSecurityConfigurerAdapter.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configuration/EnableWebSecurity.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/ExpressionUrlAuthorizationConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/FormLoginBeanDefinitionParser.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/method/GlobalMethodSecurityBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/ServletApiConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/oauth2/client/CommonOAuth2Provider.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/authentication/AuthenticationManagerBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/http/CorsBeanDefinitionParser.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/UrlAuthorizationConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/configuration/AutowireBeanFactoryObjectPostProcessor.java
*
/spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/core/userdetails/UserDetailsResourceFactoryBean.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/SecurityContextConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/ExceptionHandlingConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/CorsConfigurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/annotation/web/configurers/X509Configurer.java
* /spring-security-config-5-3-4-release-sources-
jar/org/springframework/security/config/authentication/AuthenticationManagerFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2012-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/GrantedAuthorityDefaultsParserUtils.java
* /spring-security-config-5-3-4-release-sources-jar/org/springframework/security/config/http/HandlerMappingIntrospectorFactoryBean.java

1.275 spring-framework 5.2.8.RELEASE

1.275.1 Available under license :

Spring Framework ${version}
Copyright (c) 2002-${copyright} Pivotal, Inc.

This product is licensed to you under the Apache License, Version 2.0
(the "License"). You may not use this product except in compliance with
the License.

This product may include a number of subcomponents with separate
copyright notices and license terms. Your use of the source code for
these subcomponents is subject to the terms and conditions of the
subcomponent's license, as noted in the license.txt file.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

==========

SPRING FRAMEWORK ${version} SUBCOMPONENTS:

Spring Framework ${version} includes a number of subcomponents
with separate copyright notices and license terms. The product that
includes this file does not necessarily use all the open source
subcomponents referred to below. Your use of the source
code for these subcomponents is subject to the terms and
conditions of the following licenses.

>>> ASM 7.1 (org.ow2.asm:asm:7.1, org.ow2.asm:asm-commons:7.1):

Copyright (c) 2000-2011 INRIA, France Telecom
All rights reserved.

Redistribution and use in source and binary
forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 1999-2009, OW2 Consortium <https://www.ow2.org/>

>>> CGLIB 3.3 (cglib:cglib:3.3):

Per the LICENSE file in the CGLIB JAR distribution downloaded from
https://github.com/cglib/cglib/releases/download/RELEASE_3_3_0/cglib-3.3.0.jar,
CGLIB 3.3 is licensed under the Apache License, version 2.0, the text of which
is included above.

>>> Objenesis 3.1 (org.objenesis:objenesis:3.1):

Per the LICENSE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html, Objenesis 3.1 is licensed under the
Apache License, version 2.0, the text of which is included above.

Per
the NOTICE file in the Objenesis ZIP distribution downloaded from
http://objenesis.org/download.html and corresponding to section 4d of the
Apache License, Version 2.0, in this case for Objenesis:

Objenesis
Copyright 2006-2019 Joe Walnes, Henri Tremblay, Leonardo Mesquita

==========

To the extent any open source components are licensed under the EPL and/or
other similar licenses that require the source code and/or modifications to
source code to be made available (as would be noted above), you may obtain a
copy of the source code corresponding to the binaries for such open source
components and modifications thereto, if any, (the "Source Files"), by
downloading the Source Files from https://spring.io/projects, Pivotal's website
at https://network.pivotal.io/open-source, or by sending a request, with your
name and address to: Pivotal Software, Inc., 875 Howard Street, 5th floor, San
Francisco, CA 94103,
Attention: General Counsel. All such requests should
clearly specify: OPEN SOURCE FILES REQUEST, Attention General Counsel. Pivotal
can mail a copy of the Source Files to you on a CD or equivalent physical
medium.

This offer to obtain a copy of the Source Files is valid for three years from
the date you acquired this Software product. Alternatively, the Source Files
may accompany the Software.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.276 spring-beans 5.2.8.RELEASE

1.276.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanInfoFactory.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/groovy/GroovyDynamicElementReader.groovy
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/TimeZoneEditor.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/SimpleTypeConverter.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/ExtendedBeanInfoFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");

* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/ConstructorArgumentEntry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/DocumentLoader.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/AbstractComponentDefinition.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/LocaleEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/NamespaceHandler.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/support/MutableSortDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ComponentDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/wiring/BeanWiringInfoResolver.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PropertyResourceConfigurer.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/EmptyReaderEventListener.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/BeanDefinitionDecorator.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/FactoryBeanNotInitializedException.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyEditorRegistry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/NullSourceExtractor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CharsetEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ProblemReporter.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/HierarchicalBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/PropertyEntry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/InputSourceEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/QualifierEntry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Configurable.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/BeanDefinitionParsingException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanFactoryAware.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/support/SortDefinition.java
* /spring-beans-5-2-8-release-sources-1-

jar/org/springframework/beans/factory/parsing/PassThroughSourceExtractor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/SecurityContextProvider.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/MethodReplacer.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/XmlBeanDefinitionStoreException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanIsNotAFactoryException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanReference.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/BeanCurrentlyInCreationException.java
*
/spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/BeanCreationNotAllowedException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanIsAbstractException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionValidationException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/wiring/ClassNameBeanWiringInfoResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanExpressionException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/ConversionNotSupportedException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CurrencyEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/SimplePropertyNamespaceHandler.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyEditorRegistrar.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2006 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/BeanEntry.java
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/ParameterResolutionDelegate.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyBatchUpdateException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PropertyPlaceholderConfigurer.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/annotation/AnnotationBeanUtils.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/groovy/GroovyBeanDefinitionReader.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/AutowiredPropertyMarker.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/InjectionPoint.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyValue.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/DelegatingEntityResolver.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/InstantiationAwareBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/TypedStringValue.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ConfigurableBeanFactory.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/DefaultBeanNameGenerator.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/TypeConverterDelegate.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/PluggableSchemaResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ReplaceOverride.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/propertyeditors/StringArrayPropertyEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/propertyeditors/CustomCollectionEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/StringTrimmerEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/BeansDtdResolver.java

*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanDefinitionVisitor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/AutowiredAnnotationBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/RootBeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/groovy/GroovyBeanDefinitionWrapper.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/AutowireUtils.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/AnnotatedGenericBeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/YamlMapFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/AbstractNestablePropertyAccessor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/StaticListableBeanFactory.java
*
/spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/AbstractBeanDefinitionReader.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/BeanFactoryPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Autowired.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/DisposableBeanAdapter.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/BeanDefinitionBuilder.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/TypeConverterSupport.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/ResourceEntityResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/ExtendedBeanInfo.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/MethodOverrides.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CustomMapEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyDescriptorUtils.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/RuntimeBeanReference.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/UUIDEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanMetadataElement.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/InitDestroyAnnotationBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanFactoryUtils.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/CglibSubclassingInstantiationStrategy.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/AutowireCapableBeanFactory.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/GenericBeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ConstructorArgumentValues.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/YamlPropertiesFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PreferencesPlaceholderConfigurer.java

* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/TypeConverter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/ZoneIdEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/Scope.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/serviceloader/ServiceListFactoryBean.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanNameAware.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/UtilNamespaceHandler.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/SmartInstantiationAwareBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/URLEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/NamespaceHandlerResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/support/ResourceEditorRegistrar.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/InputStreamEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/SourceExtractor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/NamedBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/ReaderEditor.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/BeanDefinitionCustomizer.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/ImplicitlyAppearedSingletonException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanInitializationException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/FileEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/NullValueInNestedPathException.java
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/SmartInitializingSingleton.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/AbstractSimpleBeanDefinitionParser.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/NotReadablePropertyException.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/AnnotatedBeanDefinition.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2010 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionRegistryPostProcessor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Qualifier.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/BeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2009 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Autowire.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/support/ArgumentConvertingMethodInvoker.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionReaderUtils.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/BeanDefinitionDefaults.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/XmlBeanDefinitionReader.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/PropertiesBeanDefinitionReader.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ConstructorResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/CachedIntrospectionResults.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/AbstractBeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ParseState.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Lookup.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/DefaultListableBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/InjectionMetadata.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/SimpleAutowireCandidateResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/YamlProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/ListableBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/AbstractAutowireCapableBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanUtils.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Value.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionValueResolver.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/DefaultSingletonBeanRegistry.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/AutowireCandidateResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/BeanDefinitionParserDelegate.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ReaderContext.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/FactoryBean.java
* /spring-beans-5-2-8-release-sources-1-

jar/org/springframework/beans/factory/support/FactoryBeanRegistrySupport.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/DependencyDescriptor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/GenericTypeAwareAutowireCandidateResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/AbstractBeanFactory.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanWrapperImpl.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/CompositeComponentDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionOverrideException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/URIEditor.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/Aware.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/DestructionAwareBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyAccessorFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyAccessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/NamedBeanHolder.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/annotation/Required.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/QualifierAnnotationAutowireCandidateResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CustomDateEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/NoSuchBeanDefinitionException.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/wiring/BeanConfigurerSupport.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/support/PagedListHolder.java
* /spring-beans-5-2-8-release-sources-1-

jar/org/springframework/beans/factory/annotation/AnnotationBeanWiringInfoResolver.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/SimpleConstructorNamespaceHandler.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/BeanFactoryAnnotationUtils.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/InvalidPropertyException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/RequiredAnnotationBeanPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/CustomScopeConfigurer.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/AutowireCandidateQualifier.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/Mergeable.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyValues.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/TypeMismatchException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/AbstractBeanDefinitionParser.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/InstantiationStrategy.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/PathEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/DefaultNamespaceHandlerResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyAccessException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CustomBooleanEditor.java
*
/spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/SimpleBeanDefinitionRegistry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ManagedArray.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/InitializingBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/DefaultDocumentLoader.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/BeanComponentDefinition.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PropertyOverrideConfigurer.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/DirectFieldAccessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanCreationException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyEditorRegistrySupport.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/DefaultBeanDefinitionDocumentReader.java
*
/spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/UnsatisfiedDependencyException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/CannotLoadBeanClassException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanExpressionContext.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/XmlBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ManagedSet.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/ObjectFactory.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/support/PropertyComparator.java

* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/AbstractFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ManagedList.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/SmartFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/SimpleSecurityContextProvider.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanFactoryExtensions.kt
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/ParserContext.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ManagedMap.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/parsing/FailFastProblemReporter.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanInstantiationException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PlaceholderConfigurerSupport.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/CustomEditorConfigurer.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CustomNumberEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/MutablePropertyValues.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/MergedBeanDefinitionPostProcessor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/FieldRetrievingFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyMatches.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/BeanDefinitionResource.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/ObjectProvider.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/BeanNotOfRequiredTypeException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/NoUniqueBeanDefinitionException.java
*
/spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/MethodInvokingFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/InstantiationAwareBeanPostProcessorAdapter.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/DisposableBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/BeanDefinitionRegistry.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/AbstractPropertyAccessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanDefinitionStoreException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/NotWritablePropertyException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/MethodInvocationException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/support/SimpleInstantiationStrategy.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanMetadataAttribute.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/BeanDefinitionHolder.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/annotation/CustomAutowireConfigurer.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/EmbeddedValueResolver.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/PropertyPathFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/ClassEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/ResourceBundleEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ProviderCreatingFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/wiring/BeanWiringInfo.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/Location.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/XmlReaderContext.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/PropertiesEditor.java
*
 /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/NullBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ConfigurableListableBeanFactory.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/BeanExpressionResolver.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeansException.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/CharacterEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/propertyeditors/ByteArrayPropertyEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/FatalBeanException.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ServiceLocatorFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/AbstractSingleBeanDefinitionParser.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/serviceloader/AbstractServiceLoaderBasedFactoryBean.java
*

/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/xml/NamespaceHandlerSupport.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ChildBeanDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/MethodOverride.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/ConfigurablePropertyAccessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/ClassArrayEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/ObjectFactoryCreatingFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/BeanDefinitionReader.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/AliasDefinition.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/LookupOverride.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyAccessorUtils.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/PropertiesFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/BeanClassLoaderAware.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/Problem.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/ListFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanMetadataAttributeAccessor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ImportDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/DeprecatedBeanWarner.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/config/RuntimeBeanNameReference.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/ManagedProperties.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/MethodInvokingBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/ListableBeanFactoryExtensions.kt
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/propertyeditors/CharArrayPropertyEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/MapFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/DocumentDefaultsDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/BeanWrapper.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/propertyeditors/PatternEditor.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/GenericTypeAwarePropertyDescriptor.java
*
/spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/SetFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/DefaultsDefinition.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/parsing/ReaderEventListener.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/support/BeanNameGenerator.java
*
 /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/serviceloader/ServiceFactoryBean.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/PropertyValuesEditor.java
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/serviceloader/ServiceLoaderFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-beans-5-2-8-release-sources-1-
jar/org/springframework/beans/factory/xml/BeanDefinitionDocumentReader.java
* /spring-beans-5-2-8-release-sources-1-jar/org/springframework/beans/factory/config/SingletonBeanRegistry.java

1.277 postgresql-jdbc 42.2.14

1.277.1 Available under license :

Copyright (c) 1997, PostgreSQL Global Development Group
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Additional License files can be found in the 'licenses' folder located in the same directory as the LICENSE file (i.e. this file)

- Software produced outside the ASF which is available under other licenses (not Apache-2.0)

BSD-2-Clause
* com.ongres.scram:client:2.1
* com.ongres.scram:common:2.1
* com.ongres.stringprep:saslprep:1.1
* com.ongres.stringprep:stringprep:1.1
Copyright 2017, OnGres.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS;

OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2019, OnGres.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.278 spring-context 5.2.8.RELEASE

1.278.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/AnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/MessageSourceResourceBundleLocator.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/PropertySources.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/ContextLifecycleScheduledTaskRegistrar.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/annotation/Validated.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/BasicOperation.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AsyncConfigurerSupport.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/SpringModelMBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteInvocationFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/metadata/ManagedOperationParameter.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteInvocationExecutor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at

*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/ModelExtensions.kt
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/ModelMapExtensions.kt
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/support/StandardScriptUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiLocatorDelegate.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/groovy/GroovyObjectCustomizer.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiClientInterceptorUtils.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/TemporalAccessorPrinter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/weblogic/WebLogicLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/TemporalAccessorParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Primary.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheEvaluationContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/ExecutorBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteInvocationUtils.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiPropertySource.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/CachePut.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/KeyGenerator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/Printer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/SimpleKeyGenerator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/ScheduledTasksBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ScopeMetadataResolver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/MonthDayFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/CompositeCacheManager.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/YearMonthFormatter.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/TaskScheduler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/PeriodFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/DurationFormatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/GenericXmlApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/Schedules.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/PropertyOverrideBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/bsh/BshScriptFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/SchedulingConfiguration.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/CacheEvict.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/annotation/ManagedNotifications.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/Cacheable.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/support/FormatterPropertyEditorAdapter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/Caching.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/Parser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/AbstractPropertyLoadingBeanDefinitionParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2009 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/LifecycleProcessor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2006 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/MapBindingResult.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2005 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/ManagedOperation.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/Phased.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/config/LocalStatelessSessionBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/SchedulingException.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/InvalidInvocationException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/MBeanExporterListener.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/instrument/classloading/LoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ApplicationContextEvent.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/weaving/LoadTimeWeaverAware.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/LocaleContextMessageInterpolator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/TriggerContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/HierarchicalMessageSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/config/ContextNamespaceHandler.java
*
 /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/DefaultRemoteInvocationFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/SpringConfiguredBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ejb/access/EjbAccessException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/context/Theme.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/context/ThemeSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/ScriptSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/notification/UnableToSendNotificationException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/SchedulerBeanDefinitionParser.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/RemoteConnectFailureException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ejb/config/JeeNamespaceHandler.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/soap/SoapFaultException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiLookupFailureException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ScopeMetadata.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/TaskNamespaceHandler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationContextException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/UrlBasedRemoteAccessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/metadata/InvalidMetadataException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/RemoteInvocationFailureException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/RemoteLookupFailureException.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/context/support/SimpleTheme.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/RemoteProxyFailureException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/naming/SelfNaming.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/MBeanInfoRetrievalException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/Formatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/annotation/AnnotationMBeanExporter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/MBeanConnectFailureException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiInvocationHandler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/AutodetectCapableMBeanInfoAssembler.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ContextRefreshedEvent.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/number/AbstractNumberFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ContextStoppedEvent.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scripting/support/RefreshableScriptTargetSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/BindingResultUtils.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/LoadTimeWeavingConfigurer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/MessageCodesResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/SchedulingAwareRunnable.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/RemoteInvocationTraceInterceptor.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/EnableMBeanExport.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/LiveBeansViewMBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/MBeanExportException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/UnableToRegisterMBeanException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/context/HierarchicalThemeSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/MBeanServerNotFoundException.java
* /spring-context-5-2-8-release-sources-1-

jar/org/springframework/scheduling/support/DelegatingErrorHandlingRunnable.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/RemoteInvocationBasedAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationContextAware.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/ejb/config/JndiLookupBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/NoSuchMessageException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/JmxException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/DefaultRemoteInvocationExecutor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/JmxAttributeSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiClientInterceptor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/BindingErrorProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/Trigger.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/rmi/CodebaseAwareObjectInputStream.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/assembler/MBeanInfoAssembler.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/config/RemoteStatelessSessionBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/InvocationFailureException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationConfigBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiBasedExporter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/FormatterRegistrar.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ui/context/support/UiApplicationContextUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ContextClosedEvent.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ContextStartedEvent.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* {@link FactoryBean} that obtains a WebSphere {@link javax.management.MBeanServer}
```

```
* reference through WebSphere's proprietary {@code AdminServiceFactory} API,
* available on WebSphere 5.1 and higher.
*
* <p>Exposes the {@code MBeanServer} for bean references.
*
* <p>This {@code FactoryBean} is
 a direct alternative to {@link MBeanServerFactoryBean},
* which uses standard JMX 1.2 API to access the platform's {@link MBeanServer}.
*
* <p>See the javadocs for WebSphere's
* <a
href="https://www.ibm.com/support/knowledgecenter/SSEQTJ_9.0.0/com.ibm.websphere.javadoc.doc/web/apidocs
/com/ibm/websphere/management/AdminServiceFactory.html">{@code AdminServiceFactory}</a>
* and
* <a
href="https://www.ibm.com/support/knowledgecenter/SSEQTJ_9.0.0/com.ibm.websphere.javadoc.doc/web/apidocs
/com/ibm/websphere/management/MBeanFactory.html">{@code MBeanFactory}</a>.
*
* @author Juergen Hoeller
* @author Rob Harrop
* @since 2.0.3
* @see javax.management.MBeanServer
* @see MBeanServerFactoryBean
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/support/WebSphereMBeanServerFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-
```

jar/org/springframework/validation/beanvalidation/OptionalValidatorFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/ReadablePartialPrinter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/LocalDateTimeParser.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/FilterType.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Description.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/MillisecondInstantPrinter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/i18n/TimeZoneAwareLocaleContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/LocalDateParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/CustomizableThreadFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/ReadableInstantPrinter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/LocalTimeParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/DateTimeParser.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/MessageSourceResourceBundle.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Lazy.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/i18n/LocaleContext.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ClassPathXmlApplicationContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/DateTimeFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/EventPublicationInterceptor.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/JodaTimeFormatterRegistrar.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/Task.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/MetricType.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Condition.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/NotificationListenerHolder.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/EnvironmentAware.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/support/MethodInvokingRunnable.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/SourceFilteringListener.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/naming/ObjectNamingStrategy.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/DelegatingMessageSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/ScheduledTask.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/groovy/GroovyScriptEvaluator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/BeanFactoryCacheOperationSourceAdvisor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/DateTimeFormatterFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/LoadTimeWeaverBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/IntervalTask.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationScopeMetadataResolver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/access/SimpleRemoteSlsbInvokerInterceptor.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/JmxMetadataUtils.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/MBeanExportBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/AbstractRefreshableConfigApplicationContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/weaving/LoadTimeWeaverAwareProcessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ApplicationListenerDetector.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/stereotype/Indexed.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/AbstractMBeanInfoAssembler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/SimpleCacheManager.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/MessageSourceResolvable.java
*
 /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ScheduledExecutorTask.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/expression/BeanExpressionContextAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheInterceptor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/DateTimeFormatAnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/MBeanProxyFactoryBean.java

* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ContextAnnotationAutowireCandidateResolver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/access/AbstractRemoteSlsbInvokerInterceptor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiObjectTargetSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/concurrent/ConcurrentMapCacheFactoryBean.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/NullValue.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/support/FormattingConversionServiceFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/number/NumberStyleFormatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ConcurrentTaskScheduler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ConversionServiceFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/DateTimeContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/config/CacheNamespaceHandler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/NamedCacheResolver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/TaskExecutorFactoryBean.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/bsh/BshScriptEvaluator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/websphere/WebSphereLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/expression/MapAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/AsyncConfigurer.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/Jsr310DateTimeFormatAnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/i18n/SimpleLocaleContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/AbstractXmlApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/CronTask.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/FixedRateTask.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/weblogic/WebLogicClassPreProcessorAdapter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/JodaTimeContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/expression/AnnotatedElementKey.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/JodaDateTimeFormatAnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/support/StandardScriptEvaluator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/stereotype/Component.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/ConnectorDelegate.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ejb/access/LocalSlsbInvokerInterceptor.java
*

/spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/glassfish/GlassFishLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/expression/EnvironmentAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/ScriptFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/tomcat/TomcatLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/SimpleInstrumentableClassLoader.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/SimpleThrowawayClassLoader.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/ManagedResource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheErrorHandler.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/NotificationListenerBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/stereotype/Controller.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/SimpleLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/stereotype/Service.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/TriggerTask.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/JndiRmiProxyFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/DefaultManagedTaskScheduler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/naming/MetadataNamingStrategy.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/support/StaticScriptSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/Jsr330ScopeMetadataResolver.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/format/number/CurrencyStyleFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/SimpleCacheErrorHandler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/expression/BeanFactoryAccessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ReschedulingRunnable.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/ScheduledTaskHolder.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/CustomValidatorBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/TypeMismatchNamingException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/number/NumberFormatAnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/FixedDelayTask.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/DefaultMessageCodesResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/DateFormatterRegistrar.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AspectJAutoProxyRegistrar.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/DateTimeFormatterFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/ManagedNotification.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/stereotype/Repository.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiProxyFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AnnotationAsyncExecutionInterceptor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/SimpleValueWrapper.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/i18n/SimpleTimeZoneAwareLocaleContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/ManagedMetric.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/support/BindingAwareModelMap.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteExporter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/number/money/MonetaryAmountFormatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/EmbeddedValueResolutionSupport.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/ExtendedModelMap.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/MethodExclusionMBeanInfoAssembler.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ScopedProxyMode.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/AbstractJmxAttribute.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/NoOpCache.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/PostProcessorRegistrationDelegate.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/number/money/Jsr354NumberFormatAnnotationFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-

jar/org/springframework/context/annotation/LoadTimeWeavingConfiguration.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ConfigurableApplicationContext.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/MethodValidationInterceptor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/AbstractResourceBasedMessageSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ThreadPoolTaskExecutor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/SimpleKey.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/groovy/GroovyScriptFactory.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/config/AbstractJndiLocatingBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Configuration.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/ScheduledAnnotationBeanPostProcessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationBeanNameGenerator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ComponentScan.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ExecutorConfigurationSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/concurrent/ConcurrentMapCacheManager.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/expression/StandardBeanExpressionResolver.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/annotation/ManagedAttribute.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/MBeanExportConfiguration.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ConcurrentTaskExecutor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ConfigurationClassBeanDefinitionReader.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/NoOpCacheManager.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/CommonAnnotationBeanPostProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/AutoProxyRegistrar.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheAspectSupport.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/AbstractApplicationContext.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/AbstractRefreshableApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/DeferredImportSelector.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/RegistrationPolicy.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/InterfaceBasedMBeanInfoAssembler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationConfigApplicationContext.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/FullyQualifiedAnnotationBeanNameGenerator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/beanvalidation/MethodValidationPostProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/PropertySource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationClassPostProcessor.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/concurrent/ConcurrentMapCache.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationClassParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/concurrent/DefaultManagedTaskExecutor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ClassPathScanningCandidateComponentProvider.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/index/CandidateComponentsIndex.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ScannedGenericBeanDefinition.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ImportSelector.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationListener.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/StaticMessageSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/instrument/classloading/jboss/JBossLoadTimeWeaver.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/ModelMap.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/Async.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ParserStrategyUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/beanvalidation/SpringValidatorAdapter.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/support/TaskUtils.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/PropertyPlaceholderBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationConfigApplicationContextExtensions.kt
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/config/ScheduledTaskRegistrar.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/SimpleThreadScope.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/support/SimpleJndiBeanFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/ConnectorServerFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/support/StandardScriptFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/ShadowingClassLoader.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ClassPathBeanDefinitionScanner.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/SmartLifecycle.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/ConcurrentModel.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/StaticApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/BeanDefinitionDsl.kt
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/event/ApplicationListenerMethodAdapter.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/event/SimpleApplicationEventMulticaster.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationEventPublisher.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/Model.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/MessageSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotationConfigRegistry.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/InstantFormatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ApplicationContextAwareProcessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/annotation/AnnotationJmxAttributeSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationClass.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ResourceBundleMessageSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/Cache.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/ApplicationEventMulticaster.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ReloadableResourceBundleMessageSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/MBeanClientInterceptor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/event/EventListenerMethodProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ResourceLoaderAware.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/SpringCacheAnnotationParser.java

* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/InstrumentationLoadTimeWeaver.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/CacheManager.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/Scheduled.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/GenericApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/EventListener.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/weaving/DefaultContextLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/AbstractCacheManager.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ImportBeanDefinitionRegistrar.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AnnotatedBeanDefinitionReader.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiTemplateEditor.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Import.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/support/MBeanServerConnectionFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/EventExpressionEvaluator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheProxyFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/CacheOperationSourcePointcut.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/MBeanServerFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/DataBinder.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/event/AbstractApplicationEventMulticaster.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/GenericApplicationContextExtensions.kt
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheOperationSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/ObjectError.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationEvent.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/AbstractMessageSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/DefaultMessageSourceResolvable.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationClassUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/AbstractCacheInvoker.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/AnnotationCacheOperationSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/CacheAnnotationParser.java
*
 /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/CompositeCacheOperationSource.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/DefaultManagedAwareThreadFactory.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/websphere/WebSphereClassPreDefinePlugin.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/MetadataMBeanInfoAssembler.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/config/ScriptBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/EnableLoadTimeWeaving.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/EnableAspectJAutoProxy.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ConfigurationClassEnhancer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/ScriptCompilationException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/joda/JodaTimeContextHolder.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/AbstractCachingConfiguration.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/DefaultBindingErrorProcessor.java
*
 /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/ReflectiveLoadTimeWeaver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiRegistryFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/LocalValidatorFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/BeanMethod.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/SimpleHttpServerFactoryBean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/rmi/RemoteInvocationSerializingExporter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/support/ScheduledMethodRunnable.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/MessageSourceAccessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/EmbeddedValueResolverAware.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemotingSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AsyncAnnotationBeanPostProcessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/notification/NotificationPublisher.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/EnableScheduling.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiServiceExporter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/expression/MethodBasedEvaluationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/BeanAnnotationHelper.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/AbstractErrors.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationMethod.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/MBeanExporter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiLocatorSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/FileSystemXmlApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiTemplate.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/SimpleCacheResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/ApplicationObjectSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/CacheExpressionRootObject.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/config/ScriptingDefaultsParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/index/CandidateComponentsIndexLoader.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationContextInitializer.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/support/CronSequenceGenerator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ComponentScanAnnotationParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/DateTimeConverters.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/DependsOn.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/ObjectNameManager.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/MethodNameBasedMBeanInfoAssembler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/naming/IdentityNamingStrategy.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ThreadPoolTaskScheduler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/config/MBeanServerBeanDefinitionParser.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/MBeanExportOperations.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/CacheOperationInvocationContext.java

* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheEvictOperation.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiObjectLocator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/WeavingTransformer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/BindingResult.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/access/NotificationListenerRegistrar.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AsyncAnnotationAdvisor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/SchedulingTaskExecutor.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/ProxyCachingConfiguration.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/AbstractFallbackCacheOperationSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConditionEvaluator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/FieldError.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/ContextTypeMatchClassLoader.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/MonthFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/SmartValidator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/JodaTimeConverters.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/AbstractReflectiveMBeanInfoAssembler.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/weblogic/WebLogicClassLoaderAdapter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/AbstractPropertyBindingResult.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/expression/CachedExpressionEvaluator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/JndiRmiClientInterceptor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/GenericGroovyApplicationContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/config/LangNamespaceUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/DefaultLifecycleProcessor.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/access/SimpleRemoteStatelessSessionProxyFactoryBean.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/ui/context/support/ResourceBundleThemeSource.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/support/DefaultFormattingConversionService.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/support/BindingAwareConcurrentModel.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Profile.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/EventExpressionRootObject.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/config/CacheManagementConfigUtils.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/ResourceOverridingShadowingClassLoader.java

* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/config/AnnotationDrivenCacheBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ProfileCondition.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/BindException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/DateTimeFormatterFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/RemoteAccessException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/DirectFieldBindingResult.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/JndiRmiServiceExporter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/AnnotationConfigUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/AbstractCacheResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/CachingConfigurer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/ValidationUtils.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/notification/ModelMBeanNotificationPublisher.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/AdviceModeImportSelector.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/weaving/AspectJWeavingEnabler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/CachingConfigurerSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scripting/support/ScriptFactoryPostProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ImportRegistry.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/metadata/ManagedAttribute.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/remoting/support/RemoteInvocationBasedExporter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiObjectFactoryBean.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/context/i18n/LocaleContextHolder.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ScheduledExecutorFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ejb/access/AbstractSlsbInvokerInterceptor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/annotation/DateTimeFormat.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/SchedulingConfigurer.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ThreadPoolExecutorFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/EnableCaching.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/MessageSourceSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/instrument/classloading/websphere/WebSphereClassLoaderAdapter.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/concurrent/ForkJoinPoolFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/annotation/NumberFormat.java
* /spring-context-5-2-8-release-sources-1-

jar/org/springframework/format/datetime/standard/DateTimeFormatterRegistrar.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/bsh/BshScriptUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ScopedProxyCreator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/support/PeriodicTrigger.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/support/PropertySourcesPlaceholderConfigurer.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/Validator.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/ui/context/support/DelegatingThemeSource.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AsyncConfigurationSelector.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/support/LiveBeansView.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/EnableAsync.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/annotation/AsyncResult.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/BeanValidationPostProcessor.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/expression/BeanFactoryResolver.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/GenericApplicationListener.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/support/AbstractValueAdaptingCache.java
*
/spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/TaskManagementConfigUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/config/CacheAdviceParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/AbstractAsyncConfiguration.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/Lifecycle.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/annotation/ProxyAsyncConfiguration.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/Errors.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheOperation.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/MessageCodeFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Bean.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/CacheOperationExpressionEvaluator.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConditionContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConfigurationCondition.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/MessageSourceAware.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CachePutOperation.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/NameMatchCacheOperationSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteInvocation.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/datetime/standard/DateTimeContextHolder.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/support/RemoteInvocationResult.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/interceptor/VariableNotAvailableException.java

*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/jndi/JndiCallback.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/rmi/RmiInvocationWrapper.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Scope.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/JmxUtils.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/BeanPropertyBindingResult.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/cache/annotation/CachingConfigurationSelector.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/ejb/access/LocalStatelessSessionProxyFactoryBean.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/SmartApplicationListener.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/DateFormatter.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/standard/YearFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/DefaultEventListenerFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/support/ResourceScriptSource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/support/MBeanRegistrationSupport.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/event/GenericApplicationListenerAdapter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/context/annotation/ComponentScanBeanDefinitionParser.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/SimpleReflectiveMBeanInfoAssembler.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/assembler/AbstractConfigurableMBeanInfoAssembler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/FormatterRegistry.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/support/SimpleTriggerContext.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheableOperation.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/AdviceMode.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/support/FormattingConversionService.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/naming/KeyNamingStrategy.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/validation/AbstractBindingResult.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ConflictingBeanDefinitionException.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/notification/NotificationPublisherAware.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ImportAware.java
*
/spring-context-5-2-8-release-sources-1-jar/org/springframework/context/ApplicationEventPublisherAware.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Abstract the invocation of a cache operation.
*
* <p>Does not provide a way to transmit checked exceptions but
* provide a special exception that should be used to wrap any
* exception that was thrown by the underlying invocation.
* Callers are expected to handle this issue type specifically.
*
 * @author Stephane Nicoll
* @since 4.1
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/interceptor/CacheOperationInvoker.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/format/number/money/CurrencyUnitFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/ScriptEvaluator.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/validation/beanvalidation/SpringConstraintValidatorFactory.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/PayloadApplicationEvent.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ImportResource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/cache/annotation/CacheConfig.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/PeriodFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/YearMonthFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/DurationFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/annotation/ManagedOperation.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/ComponentScans.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/annotation/ManagedNotification.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/number/PercentStyleFormatter.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Role.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scripting/config/LangNamespaceHandler.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/annotation/ManagedResource.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/event/EventListenerFactory.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/format/datetime/joda/MonthDayFormatter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scripting/support/StandardScriptEvalException.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/annotation/ManagedOperationParameter.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/scheduling/config/AnnotationDrivenBeanDefinitionParser.java
*
 /spring-context-5-2-8-release-sources-1-jar/org/springframework/jmx/export/annotation/ManagedMetric.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/scheduling/support/CronTrigger.java
* /spring-context-5-2-8-release-sources-1-
jar/org/springframework/jmx/export/annotation/ManagedOperationParameters.java
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/remoting/RemoteTimeoutException.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Indicates that a component is only eligible for registration when all
* {@linkplain #value specified conditions} match.
*
* <p>A <em>condition</em> is any state that can be determined programmatically
* before the bean definition is due to be registered (see {@link Condition} for details).
*
*
 <p>The {@code @Conditional} annotation may be used in any of the following ways:
* <ul>
* <li>as a type-level annotation on any class directly or indirectly annotated with
* {@code @Component}, including {@link Configuration @Configuration} classes</li>
* <li>as a meta-annotation, for the purpose of composing custom stereotype
* annotations</li>
* <li>as a method-level annotation on any {@link Bean @Bean} method</li>
* </ul>
*
* <p>If a {@code @Configuration} class is marked with {@code @Conditional},
* all of the {@code @Bean} methods, {@link Import @Import} annotations, and
* {@link ComponentScan @ComponentScan} annotations associated with that
* class will be subject to the conditions.
*
* <p><strong>NOTE</strong>: Inheritance of {@code @Conditional} annotations
* is not supported; any conditions from superclasses or from overridden
* methods will not be considered. In order to enforce these semantics,
* {@code @Conditional} itself is not declared as
* {@link java.lang.annotation.Inherited
 @Inherited}; furthermore, any
* custom <em>composed annotation</em> that is meta-annotated with
* {@code @Conditional} must not be declared as {@code @Inherited}.
*
```

* @author Phillip Webb
* @author Sam Brannen
* @since 4.0
* @see Condition
*/

Found in path(s):
* /spring-context-5-2-8-release-sources-1-jar/org/springframework/context/annotation/Conditional.java

1.279 tomcat-embed-websocket 9.0.37

1.279.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or
(iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as
of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own

copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names
of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law
(such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only
on Your own behalf and on Your
sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Apache Tomcat
Copyright 1999-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

1.280 spring-web 5.2.8.RELEASE

1.280.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2007 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/SessionStatus.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/HttpMediaTypeException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/ServerHttpResponse.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/UnknownHttpStatusCodeException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/handler/WebHandlerDecorator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ResourceHttpMessageReader.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/AbstractServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/InterceptingClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/ServletRequestAttributes.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpStatus.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/reactive/ForwardedHeaderFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/FormHttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/feed/AbstractWireFeedHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/InternalPathPatternParser.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/CorsFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ControllerAdvice.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextScope.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/support/BasicAuthenticationInterceptor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/RequestParamMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/MultipartBodyBuilder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/MappingJackson2XmlHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/support/ServerDefaultCodecsImpl.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ChannelSendOperator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/cbor/Jackson2CborEncoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/DeferredResult.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/PathPatternRouteMatcher.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/OncePerRequestFilter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/HandlerMethodArgumentResolverComposite.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ResourceHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/HtmlUtils.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/commons/CommonsMultipartFile.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/protobuf/ProtobufEncoder.java
* /spring-web-5-2-8-release-sources-1-

jar/org/springframework/http/converter/xml/AbstractJaxb2HttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/JettyClientHttpConnector.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/FormHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/MultipartResolutionDelegate.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/AbstractWebArgumentResolverAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpRequestInitializer.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/codec/support/DefaultServerCodecConfigurer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/ServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/xml/XmlEventDecoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ServerCodecConfigurer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/support/HttpAccessor.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/session/InMemoryWebSessionStore.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/annotation/ModelFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/CorsConfiguration.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/support/ClientDefaultCodecsImpl.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/HttpStatusCodeException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/PathContainer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/HttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/AbstractListenerWriteFlushProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/CacheControl.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RestOperations.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/filter/reactive/ServerWebExchangeContextFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpRange.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2SmileEncoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/CrossOrigin.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/protobuf/ProtobufDecoder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/client/MessageBodyClientHttpResponseWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/WebUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/OkHttp3ClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/adapter/ForwardedHeaderTransformer.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/HttpHeadResponseDecorator.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/UrlBasedCorsConfigurationSource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/xml/JaxbContextContainer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/CorsWebFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RestControllerAdvice.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/MediaTypeFileExtensionResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/SimpleClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/HtmlCharacterEntityDecoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RestOperationsExtensions.kt
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/BufferedImageHttpMessageConverter.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/MediaTypeFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/GenericWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/HttpClientErrorException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/ServerWebExchangeDecorator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/support/InvocableHandlerMethod.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/HttpServerErrorException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/AbstractListenerReadPublisher.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/cbor/MappingJackson2CborHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RestClientResponseException.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/ContentCachingResponseWrapper.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/ByteArrayHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ContextCleanupListener.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/SourceHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UrlPathHelper.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/AnnotationConfigWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/adapter/DefaultServerWebExchange.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/FixedContentNegotiationStrategy.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/RequestHandledEvent.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestMapping.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/DecoderHttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ClientCodecConfigurer.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/protobuf/ProtobufHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/AsyncHandlerMethodReturnValueHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/codec/support/DefaultClientCodecConfigurer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/handler/DefaultWebFilterChain.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/Jaxb2RootElementHttpMessageConverter.java
*

/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/AbstractRequestLoggingFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/cbor/Jackson2CborDecoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriTemplate.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/xml/Jaxb2XmlEncoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/annotation/MapMethodProcessor.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/SessionAttributes.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestMethod.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/RequestContextFilter.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/HttpMessageNotWritableException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/HttpSessionMutexListener.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/WebFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/WebFilterChain.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/DestructionCallbackBindingListener.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/AbstractClientHttpRequestFactoryWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/CommonsRequestLoggingFilter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/HttpMessageConversionException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/RequestContextListener.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartResolver.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpMessage.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/bind/support/SpringWebConstraintValidatorFactory.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2010 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextResourceLoader.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextPropertySource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/feed/AtomFeedHttpMessageConverter.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/ServerHttpAsyncRequestControl.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletConfigPropertySource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/jsf/FacesContextUtils.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ConfigurableWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/support/HandlerMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AbstractClientHttpRequest.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/AbstractJaxWsServiceExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpEntity.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/InterceptingClientHttpRequestFactory.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ZeroCopyHttpOutputMessage.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/annotation/ExpressionValueMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/JettyResourceFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/LocalJaxWsServiceFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/jsf/DelegatingNavigationHandlerProxy.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/FacesRequestAttributes.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/HttpMessageDecoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/AbstractRefreshableWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ServletConfigAware.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/support/RestGatewaySupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/CaptureVariablePathElement.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/HandlerTypePredicate.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ContextPathCompositeHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/TagUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpOutputMessage.java

* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/support/BasicAuthorizationInterceptor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/ServletContextAttributeExporter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/InitBinderDataBinderFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/DefaultUriTemplateHandler.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/support/AllEncompassingFormHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/DefaultSslInfo.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/reactive/ClientHttpResponseDecorator.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/ModelAttributeMethodProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/SpringServletContainerInitializer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/MissingMatrixVariableException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/HttpPutFormContentFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/Netty4ClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ServerSentEvent.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/SimpleBufferingAsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/JsonbHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/HttpComponentsClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/InterceptingAsyncClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/HttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/HttpSessionRequiredException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/HttpMessageNotReadableException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/MissingRequestHeaderException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServletHttpHandlerAdapter.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/CodecConfigurerFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/SimpleBufferingClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/MappingJackson2HttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestParam.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/PathVariable.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/GsonHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/DefaultRequestPath.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/MatrixVariable.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/ServletServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/HttpMessageEncoder.java
*

/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/jsf/el/WebApplicationContextFacesELResolver.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/StandardServletEnvironment.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/AbstractGenericHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/RelativeRedirectResponseWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/HiddenHttpMethodFilter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/MarshallingHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/adapter/AbstractReactiveWebInitializer.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/accept/ParameterContentNegotiationStrategy.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/Netty4ClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/ReactorHttpHandlerAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/UndertowHeadersAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpInputMessage.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextResource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpMethod.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebExchangeBindException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriTemplateHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/ServletRequestHandledEvent.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/SimpleStreamingAsyncClientHttpRequest.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/commons/CommonsMultipartResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/LiteralPathElement.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ServletContextAware.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestPart.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/TomcatHeadersAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/FormContentFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/HtmlCharacterEntityReferences.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/caucho/HessianExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/ContentNegotiationStrategy.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/CaptureTheRestPathElement.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/StandardServletMultipartResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebRequestDataBinder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/SslInfo.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/HandlerMethodReturnValueHandlerComposite.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/multipart/FilePart.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/handler/FilteringWebHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/ObjectToStringHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/SimpleHttpInvokerServiceExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartFileResource.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/WebAsyncUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/HttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/WebApplicationInitializer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ExceptionHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/ExceptionHandlerMethodResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartFile.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/bind/ServletRequestParameterPropertyValues.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/WebAsyncTask.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/HttpComponentsHttpInvokerRequestExecutor.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/AbstractMultipartHttpServletRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/bind/UnsatisfiedServletRequestParameterException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/MissingRequestCookieException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/AbstractXmlHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/WildcardPathElement.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/JavaScriptUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/ResponseErrorHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/HttpRequestMethodNotSupportedException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/BufferingClientHttpRequestFactory.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/DefaultServerWebExchangeBuilder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/CallableInterceptorChain.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/OpaqueUriComponents.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ContextLoaderListener.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/JettyHeadersAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/RelativeRedirectFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/GenericHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/ServletServerHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/AbstractContextLoaderInitializer.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestHeader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/LoggingCodecSupport.java
* /spring-web-5-2-8-release-sources-1-

jar/org/springframework/web/util/pattern/SingleCharWildcardedPathElement.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/json/MappingJacksonValue.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/commons/CommonsFileUploadSupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ClientHttpConnector.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/session/CookieWebSessionIdResolver.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/ResourceRegionHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/AbstractListenerServerHttpResponse.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/session/HeaderWebSessionIdResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/CookieGenerator.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/reactive/ClientHttpRequestDecorator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/JettyHttpHandlerAdapter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/protobuf/ExtensionRegistryInitializer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/CharacterEncodingFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/GenericFilterBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/StreamingHttpOutputMessage.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/protobuf/ProtobufCodecSupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/ForwardedHeaderFilter.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/SessionAttributesHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/codec/protobuf/ProtobufHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/HttpHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/SeparatorPathElement.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/ServerHttpResponseDecorator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/support/ModelAndViewContainer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/InvalidMediaTypeException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpLogging.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/XmlWebApplicationContext.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/accept/AbstractMappingContentNegotiationStrategy.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/caucho/SimpleHessianServiceExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/ServerErrorException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2SmileDecoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/ResponseExtractor.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpRequestInterceptor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/caucho/HessianServiceExporter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/SimpleHttpInvokerRequestExecutor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/Jackson2ObjectMapperFactoryBean.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/WebDataBinder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/AbstractCookieValueMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/UndertowHttpHandlerAdapter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/xml/Jaxb2CollectionHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/reactive/HiddenHttpMethodFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/WebSession.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/PathElement.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/GroovyWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/AbstractJsonHttpMessageConverter.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/ContentCachingRequestWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/HeaderContentNegotiationStrategy.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RequestCallback.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/CompositeUriComponentsContributor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/DeferredResultInterceptorChain.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/RequestHeaderMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/AbstractRequestAttributes.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/CorsProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/JettyClientHttpRequest.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/SimpleJaxWsServiceExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/MissingPathVariableException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/support/AsyncHttpAccessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/NettyHeadersAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/support/MultipartFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/InterceptingAsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/DefaultMultipartHttpServletRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ContextLoader.java
*

/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2JsonEncoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/ExtractingResponseErrorHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/HttpComponentsAsyncClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/HttpComponentsClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ResponseBody.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/AbstractNamedValueMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/ServletWebRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/UnsupportedMediaTypeStatusException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/AsyncRestTemplate.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/RequestParamMapMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/AbstractClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/StandardServletAsyncWebRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/jaxws/SimpleHttpServerJaxWsServiceExporter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/StandardMultipartHttpServletRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/NestedServletException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/bind/support/ConfigurableWebBindingInitializer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestBody.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/ErrorsMethodArgumentResolver.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/i18n/FixedLocaleContextResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/SimpleStreamingClientHttpRequest.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.

```
*/
/**
  * Return the web session for the current request. Always guaranteed  to
  * return an instance either matching to the session id requested by the
  * client, or with a new session id either because the client did not
  * specify one or because the underlying session had expired. Use of this
  * method
 does not automatically create a session. See {@link WebSession}
  * for more details.
  */
```

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/ServerWebExchange.java
No license file was found, but licenses were detected in source scan.

```
# This file maps Internet media types to unique file extension(s).
# Although created for httpd, this file is used by many software systems
# and has been placed in the public domain for unlimited redistribution.
#
# The table below contains both registered and (common) unregistered types.
# A type that has no unique extension can be ignored -- they are listed
# here to guide configurations toward known types and to make it easier to
# identify "new" types.  File extensions are also commonly used to indicate
# content languages and encodings, so choose them carefully.
#
# Internet media types should be registered as described in RFC 4288.
# The registry is at <https://www.iana.org/assignments/media-types/>.
#
# This file was retrieved from
https://svn.apache.org/viewvc/httpd/httpd/trunk/docs/conf/mime.types?revision=1752884&view=co
#
# MIME type (lowercased)   Extensions
# ============================================ ==========
#
 application/1d-interleaved-parityfec
# application/3gpdash-qoe-report+xml
# application/3gpp-ims+xml
# application/a2l
# application/activemessage
# application/alto-costmap+json
# application/alto-costmapfilter+json
# application/alto-directory+json
# application/alto-endpointcost+json
# application/alto-endpointcostparams+json
# application/alto-endpointprop+json
# application/alto-endpointpropparams+json
# application/alto-error+json
# application/alto-networkmap+json
```

```
# application/alto-networkmapfilter+json
# application/aml
application/andrew-inset   ez
# application/applefile
application/applixware    aw
# application/atf
# application/atfx
application/atom+xml    atom
application/atomcat+xml    atomcat
# application/atomdeleted+xml
# application/atomicmail
application/atomsvc+xml    atomsvc
# application/atxml
# application/auth-policy+xml
# application/bacnet-xdd+zip
# application/batch-smtp
# application/beep+xml
# application/calendar+json
# application/calendar+xml
#
 application/call-completion
# application/cals-1840
# application/cbor
# application/ccmp+xml
application/ccxml+xml    ccxml
# application/cdfx+xml
application/cdmi-capability   cdmia
application/cdmi-container   cdmic
application/cdmi-domain    cdmid
application/cdmi-object    cdmio
application/cdmi-queue    cdmiq
# application/cdni
# application/cea
# application/cea-2018+xml
# application/cellml+xml
# application/cfw
# application/cms
# application/cnrp+xml
# application/coap-group+json
# application/commonground
# application/conference-info+xml
# application/cpl+xml
# application/csrattrs
# application/csta+xml
# application/cstadata+xml
# application/csvm+json
application/cu-seeme    cu
# application/cybercash
```

```
# application/dash+xml
# application/dashdelta
application/davmount+xml   davmount
# application/dca-rft
# application/dcd
# application/dec-dx
# application/dialog-info+xml
# application/dicom
# application/dii
# application/dit
# application/dns
application/docbook+xml    dbk
#
 application/dskpp+xml
application/dssc+der    dssc
application/dssc+xml    xdssc
# application/dvcs
application/ecmascript    ecma
# application/edi-consent
# application/edi-x12
# application/edifact
# application/efi
# application/emergencycalldata.comment+xml
# application/emergencycalldata.deviceinfo+xml
# application/emergencycalldata.providerinfo+xml
# application/emergencycalldata.serviceinfo+xml
# application/emergencycalldata.subscriberinfo+xml
application/emma+xml    emma
# application/emotionml+xml
# application/encaprtp
# application/epp+xml
application/epub+zip    epub
# application/eshop
# application/example
application/exi     exi
# application/fastinfoset
# application/fastsoap
# application/fdt+xml
# application/fits
# application/font-sfnt
application/font-tdpfr    pfr
application/font-woff    woff
# application/framework-attributes+xml
# application/geo+json
application/gml+xml    gml
application/gpx+xml    gpx
application/gxf     gxf
# application/gzip
```

```
#
 application/h224
# application/held+xml
# application/http
application/hyperstudio    stk
# application/ibe-key-request+xml
# application/ibe-pkg-reply+xml
# application/ibe-pp-data
# application/iges
# application/im-iscomposing+xml
# application/index
# application/index.cmd
# application/index.obj
# application/index.response
# application/index.vnd
application/inkml+xml    ink inkml
# application/iotp
application/ipfix    ipfix
# application/ipp
# application/isup
# application/its+xml
application/java-archive   jar
application/java-serialized-object  ser
application/java-vm    class
application/javascript    js
# application/jose
# application/jose+json
# application/jrd+json
application/json    json
# application/json-patch+json
# application/json-seq
application/jsonml+json    jsonml
# application/jwk+json
# application/jwk-set+json
# application/jwt
# application/kpml-request+xml
# application/kpml-response+xml
# application/ld+json
# application/lgr+xml
# application/link-format
#
 application/load-control+xml
application/lost+xml    lostxml
# application/lostsync+xml
# application/lxf
application/mac-binhex40   hqx
application/mac-compactpro   cpt
# application/macwriteii
```

application/mads+xml mads
application/marc mrc
application/marcxml+xml mrcx
application/mathematica ma nb mb
application/mathml+xml mathml
application/mathml-content+xml
application/mathml-presentation+xml
application/mbms-associated-procedure-description+xml
application/mbms-deregister+xml
application/mbms-envelope+xml
application/mbms-msk+xml
application/mbms-msk-response+xml
application/mbms-protection-description+xml
application/mbms-reception-report+xml
application/mbms-register+xml
application/mbms-register-response+xml
application/mbms-schedule+xml
application/mbms-user-service-description+xml
application/mbox mbox
application/media-policy-dataset+xml
application/media_control+xml
application/mediaservercontrol+xml mscml
application/merge-patch+json
application/metalink+xml metalink
application/metalink4+xml meta4
application/mets+xml mets
#
application/mf4
application/mikey
application/mods+xml mods
application/moss-keys
application/moss-signature
application/mosskey-data
application/mosskey-request
application/mp21 m21 mp21
application/mp4 mp4s
application/mpeg4-generic
application/mpeg4-iod
application/mpeg4-iod-xmt
application/mrb-consumer+xml
application/mrb-publish+xml
application/msc-ivr+xml
application/msc-mixer+xml
application/msword doc dot
application/mxf mxf
application/nasdata
application/news-checkgroups
application/news-groupinfo

```
# application/news-transmission
# application/nlsml+xml
# application/nss
# application/ocsp-request
# application/ocsp-response
application/octet-stream bin dms lrf mar so dist distz pkg bpk dump elc deploy
application/oda	oda
# application/odx
application/oebps-package+xml	opf
application/ogg	ogx
application/omdoc+xml	omdoc
application/onenote	onetoc
 onetoc2 onetmp onepkg
application/oxps	oxps
# application/p2p-overlay+xml
# application/parityfec
application/patch-ops-error+xml	xer
application/pdf	pdf
# application/pdx
application/pgp-encrypted	pgp
# application/pgp-keys
application/pgp-signature	asc sig
application/pics-rules	prf
# application/pidf+xml
# application/pidf-diff+xml
application/pkcs10	p10
# application/pkcs12
application/pkcs7-mime	p7m p7c
application/pkcs7-signature	p7s
application/pkcs8	p8
application/pkix-attr-cert	ac
application/pkix-cert	cer
application/pkix-crl	crl
application/pkix-pkipath	pkipath
application/pkixcmp	pki
application/pls+xml	pls
# application/poc-settings+xml
application/postscript	ai eps ps
# application/ppsp-tracker+json
# application/problem+json
# application/problem+xml
# application/provenance+xml
# application/prs.alvestrand.titrax-sheet
application/prs.cww	cww
# application/prs.hpub+zip
#
 application/prs.nprend
# application/prs.plucker
```

```
# application/prs.rdf-xml-crypt
# application/prs.xsf+xml
application/pskc+xml    pskcxml
# application/qsig
# application/raptorfec
# application/rdap+json
application/rdf+xml    rdf
application/reginfo+xml    rif
application/relax-ng-compact-syntax  rnc
# application/remote-printing
# application/reputon+json
application/resource-lists+xml   rl
application/resource-lists-diff+xml  rld
# application/rfc+xml
# application/riscos
# application/rlmi+xml
application/rls-services+xml   rs
application/rpki-ghostbusters   gbr
application/rpki-manifest   mft
application/rpki-roa    roa
# application/rpki-updown
application/rsd+xml    rsd
application/rss+xml    rss
application/rtf     rtf
# application/rtploopback
# application/rtx
# application/samlassertion+xml
# application/samlmetadata+xml
application/sbml+xml    sbml
# application/scaip+xml
# application/scim+json
application/scvp-cv-request   scq
application/scvp-cv-response   scs
application/scvp-vp-request   spq
application/scvp-vp-response   spp
application/sdp     sdp
#
 application/sep+xml
# application/sep-exi
# application/session-info
# application/set-payment
application/set-payment-initiation  setpay
# application/set-registration
application/set-registration-initiation  setreg
# application/sgml
# application/sgml-open-catalog
application/shf+xml    shf
# application/sieve
```

```
# application/simple-filter+xml
# application/simple-message-summary
# application/simplesymbolcontainer
# application/slate
# application/smil
application/smil+xml    smi smil
# application/smpte336m
# application/soap+fastinfoset
# application/soap+xml
application/sparql-query   rq
application/sparql-results+xml   srx
# application/spirits-event+xml
# application/sql
application/srgs    gram
application/srgs+xml    grxml
application/sru+xml    sru
application/ssdl+xml    ssdl
application/ssml+xml    ssml
# application/tamp-apex-update
# application/tamp-apex-update-confirm
# application/tamp-community-update
#
 application/tamp-community-update-confirm
# application/tamp-error
# application/tamp-sequence-adjust
# application/tamp-sequence-adjust-confirm
# application/tamp-status-query
# application/tamp-status-response
# application/tamp-update
# application/tamp-update-confirm
application/tei+xml    tei teicorpus
application/thraud+xml    tfi
# application/timestamp-query
# application/timestamp-reply
application/timestamped-data   tsd
# application/ttml+xml
# application/tve-trigger
# application/ulpfec
# application/urc-grpsheet+xml
# application/urc-ressheet+xml
# application/urc-targetdesc+xml
# application/urc-uisocketdesc+xml
# application/vcard+json
# application/vcard+xml
# application/vemmi
# application/vividence.scriptfile
# application/vnd.3gpp-prose+xml
# application/vnd.3gpp-prose-pc3ch+xml
```

```
# application/vnd.3gpp.access-transfer-events+xml
# application/vnd.3gpp.bsf+xml
# application/vnd.3gpp.mid-call+xml
application/vnd.3gpp.pic-bw-large  plb
application/vnd.3gpp.pic-bw-small  psb
application/vnd.3gpp.pic-bw-var   pvb
#
 application/vnd.3gpp.sms
# application/vnd.3gpp.sms+xml
# application/vnd.3gpp.srvcc-ext+xml
# application/vnd.3gpp.srvcc-info+xml
# application/vnd.3gpp.state-and-event-info+xml
# application/vnd.3gpp.ussd+xml
# application/vnd.3gpp2.bcmcsinfo+xml
# application/vnd.3gpp2.sms
application/vnd.3gpp2.tcap   tcap
# application/vnd.3lightssoftware.imagescal
application/vnd.3m.post-it-notes  pwn
application/vnd.accpac.simply.aso  aso
application/vnd.accpac.simply.imp  imp
application/vnd.acucobol   acu
application/vnd.acucorp    atc acutc
application/vnd.adobe.air-application-installer-package+zip air
# application/vnd.adobe.flash.movie
application/vnd.adobe.formscentral.fcdt  fcdt
application/vnd.adobe.fxp   fxp fxpl
# application/vnd.adobe.partial-upload
application/vnd.adobe.xdp+xml   xdp
application/vnd.adobe.xfdf   xfdf
# application/vnd.aether.imp
# application/vnd.ah-barcode
application/vnd.ahead.space   ahead
application/vnd.airzip.filesecure.azf  azf
application/vnd.airzip.filesecure.azs  azs
application/vnd.amazon.ebook   azw
#
 application/vnd.amazon.mobi8-ebook
application/vnd.americandynamics.acc  acc
application/vnd.amiga.ami   ami
# application/vnd.amundsen.maze+xml
application/vnd.android.package-archive  apk
# application/vnd.anki
application/vnd.anser-web-certificate-issue-initiation cii
application/vnd.anser-web-funds-transfer-initiation fti
application/vnd.antix.game-component  atx
# application/vnd.apache.thrift.binary
# application/vnd.apache.thrift.compact
# application/vnd.apache.thrift.json
```

```
# application/vnd.api+json
application/vnd.apple.installer+xml  mpkg
application/vnd.apple.mpegurl   m3u8
# application/vnd.arastra.swi
application/vnd.aristanetworks.swi  swi
# application/vnd.artsquare
application/vnd.astraea-software.iota  iota
application/vnd.audiograph   aep
# application/vnd.autopackage
# application/vnd.avistar+xml
# application/vnd.balsamiq.bmml+xml
# application/vnd.balsamiq.bmpr
#
 application/vnd.bekitzur-stech+json
# application/vnd.biopax.rdf+xml
application/vnd.blueice.multipass  mpm
# application/vnd.bluetooth.ep.oob
# application/vnd.bluetooth.le.oob
application/vnd.bmi    bmi
application/vnd.businessobjects   rep
# application/vnd.cab-jscript
# application/vnd.canon-cpdl
# application/vnd.canon-lips
# application/vnd.cendio.thinlinc.clientconf
# application/vnd.century-systems.tcp_stream
application/vnd.chemdraw+xml   cdxml
# application/vnd.chess-pgn
application/vnd.chipnuts.karaoke-mmd  mmd
application/vnd.cinderella   cdy
# application/vnd.cirpack.isdn-ext
# application/vnd.citationstyles.style+xml
application/vnd.claymore   cla
application/vnd.cloanto.rp9   rp9
application/vnd.clonk.c4group   c4g c4d c4f c4p c4u
application/vnd.cluetrust.cartomobile-config  c11amc
application/vnd.cluetrust.cartomobile-config-pkg c11amz
# application/vnd.coffeescript
# application/vnd.collection+json
# application/vnd.collection.doc+json
# application/vnd.collection.next+json
#
 application/vnd.comicbook+zip
# application/vnd.commerce-battelle
application/vnd.commonspace   csp
application/vnd.contact.cmsg   cdbcmsg
# application/vnd.coreos.ignition+json
application/vnd.cosmocaller   cmc
application/vnd.crick.clicker   clkx
```

application/vnd.crick.clicker.keyboard clkk
application/vnd.crick.clicker.palette clkp
application/vnd.crick.clicker.template clkt
application/vnd.crick.clicker.wordbank clkw
application/vnd.criticaltools.wbs+xml wbs
application/vnd.ctc-posml pml
application/vnd.ctct.ws+xml
application/vnd.cups-pdf
application/vnd.cups-postscript
application/vnd.cups-ppd ppd
application/vnd.cups-raster
application/vnd.cups-raw
application/vnd.curl
application/vnd.curl.car car
application/vnd.curl.pcurl pcurl
application/vnd.cyan.dean.root+xml
application/vnd.cybank
application/vnd.dart dart
application/vnd.data-vision.rdz rdz
application/vnd.debian.binary-package
application/vnd.dece.data uvf uvvf
uvd uvvd
application/vnd.dece.ttml+xml uvt uvvt
application/vnd.dece.unspecified uvx uvvx
application/vnd.dece.zip uvz uvvz
application/vnd.denovo.fcselayout-link fe_launch
application/vnd.desmume.movie
application/vnd.dir-bi.plate-dl-nosuffix
application/vnd.dm.delegation+xml
application/vnd.dna dna
application/vnd.document+json
application/vnd.dolby.mlp mlp
application/vnd.dolby.mobile.1
application/vnd.dolby.mobile.2
application/vnd.doremir.scorecloud-binary-document
application/vnd.dpgraph dpg
application/vnd.dreamfactory dfac
application/vnd.drive+json
application/vnd.ds-keypoint kpxx
application/vnd.dtg.local
application/vnd.dtg.local.flash
application/vnd.dtg.local.html
application/vnd.dvb.ait ait
application/vnd.dvb.dvbj
application/vnd.dvb.esgcontainer
application/vnd.dvb.ipdcdftnotifaccess
application/vnd.dvb.ipdcesgaccess
application/vnd.dvb.ipdcesgaccess2

```
# application/vnd.dvb.ipdcesgpdd
# application/vnd.dvb.ipdcroaming
#
 application/vnd.dvb.iptv.alfec-base
# application/vnd.dvb.iptv.alfec-enhancement
# application/vnd.dvb.notif-aggregate-root+xml
# application/vnd.dvb.notif-container+xml
# application/vnd.dvb.notif-generic+xml
# application/vnd.dvb.notif-ia-msglist+xml
# application/vnd.dvb.notif-ia-registration-request+xml
# application/vnd.dvb.notif-ia-registration-response+xml
# application/vnd.dvb.notif-init+xml
# application/vnd.dvb.pfr
application/vnd.dvb.service   svc
# application/vnd.dxr
application/vnd.dynageo    geo
# application/vnd.dzr
# application/vnd.easykaraoke.cdgdownload
# application/vnd.ecdis-update
application/vnd.ecowin.chart   mag
# application/vnd.ecowin.filerequest
# application/vnd.ecowin.fileupdate
# application/vnd.ecowin.series
# application/vnd.ecowin.seriesrequest
# application/vnd.ecowin.seriesupdate
# application/vnd.emclient.accessrequest+xml
application/vnd.enliven    nml
# application/vnd.enphase.envoy
# application/vnd.eprints.data+xml
application/vnd.epson.esf   esf
application/vnd.epson.msf   msf
application/vnd.epson.quickanime  qam
application/vnd.epson.salt   slt
application/vnd.epson.ssf   ssf
#
 application/vnd.ericsson.quickcall
application/vnd.eszigno3+xml   es3 et3
# application/vnd.etsi.aoc+xml
# application/vnd.etsi.asic-e+zip
# application/vnd.etsi.asic-s+zip
# application/vnd.etsi.cug+xml
# application/vnd.etsi.iptvcommand+xml
# application/vnd.etsi.iptvdiscovery+xml
# application/vnd.etsi.iptvprofile+xml
# application/vnd.etsi.iptvsad-bc+xml
# application/vnd.etsi.iptvsad-cod+xml
# application/vnd.etsi.iptvsad-npvr+xml
# application/vnd.etsi.iptvservice+xml
```

```
# application/vnd.etsi.iptvsync+xml
# application/vnd.etsi.iptvueprofile+xml
# application/vnd.etsi.mcid+xml
# application/vnd.etsi.mheg5
# application/vnd.etsi.overload-control-policy-dataset+xml
# application/vnd.etsi.pstn+xml
# application/vnd.etsi.sci+xml
# application/vnd.etsi.simservs+xml
# application/vnd.etsi.timestamp-token
# application/vnd.etsi.tsl+xml
# application/vnd.etsi.tsl.der
#
 application/vnd.eudora.data
application/vnd.ezpix-album    ez2
application/vnd.ezpix-package   ez3
# application/vnd.f-secure.mobile
# application/vnd.fastcopy-disk-image
application/vnd.fdf     fdf
application/vnd.fdsn.mseed   mseed
application/vnd.fdsn.seed   seed dataless
# application/vnd.ffsns
# application/vnd.filmit.zfc
# application/vnd.fints
# application/vnd.firemonkeys.cloudcell
application/vnd.flographit   gph
application/vnd.fluxtime.clip   ftc
# application/vnd.font-fontforge-sfd
application/vnd.framemaker   fm frame maker book
application/vnd.frogans.fnc   fnc
application/vnd.frogans.ltf   ltf
application/vnd.fsc.weblaunch   fsc
application/vnd.fujitsu.oasys   oas
application/vnd.fujitsu.oasys2   oa2
application/vnd.fujitsu.oasys3   oa3
application/vnd.fujitsu.oasysgp   fg5
application/vnd.fujitsu.oasysprs  bh2
# application/vnd.fujixerox.art-ex
# application/vnd.fujixerox.art4
application/vnd.fujixerox.ddd   ddd
application/vnd.fujixerox.docuworks  xdw
application/vnd.fujixerox.docuworks.binder xbd
#
 application/vnd.fujixerox.docuworks.container
# application/vnd.fujixerox.hbpl
# application/vnd.fut-misnet
application/vnd.fuzzysheet   fzs
application/vnd.genomatix.tuxedo  txd
# application/vnd.geo+json
```

```
# application/vnd.geocube+xml
application/vnd.geogebra.file   ggb
application/vnd.geogebra.tool   ggt
application/vnd.geometry-explorer  gex gre
application/vnd.geonext    gxt
application/vnd.geoplan    g2w
application/vnd.geospace   g3w
# application/vnd.gerber
# application/vnd.globalplatform.card-content-mgt
# application/vnd.globalplatform.card-content-mgt-response
application/vnd.gmx    gmx
application/vnd.google-earth.kml+xml  kml
application/vnd.google-earth.kmz  kmz
# application/vnd.gov.sk.e-form+xml
# application/vnd.gov.sk.e-form+zip
# application/vnd.gov.sk.xmldatacontainer+xml
application/vnd.grafeq    gqf gqs
# application/vnd.gridmp
application/vnd.groove-account   gac
application/vnd.groove-help   ghf
application/vnd.groove-identity-message  gim
application/vnd.groove-injector   grv
application/vnd.groove-tool-message  gtm
application/vnd.groove-tool-template  tpl
application/vnd.groove-vcard   vcg
#
 application/vnd.hal+json
application/vnd.hal+xml    hal
application/vnd.handheld-entertainment+xml zmm
application/vnd.hbci    hbci
# application/vnd.hcl-bireports
# application/vnd.hdt
# application/vnd.heroku+json
application/vnd.hhe.lesson-player  les
application/vnd.hp-hpgl    hpgl
application/vnd.hp-hpid    hpid
application/vnd.hp-hps    hps
application/vnd.hp-jlyt    jlt
application/vnd.hp-pcl    pcl
application/vnd.hp-pclxl   pclxl
# application/vnd.httphone
application/vnd.hydrostatix.sof-data  sfd-hdstx
# application/vnd.hyperdrive+json
# application/vnd.hzn-3d-crossword
# application/vnd.ibm.afplinedata
# application/vnd.ibm.electronic-media
application/vnd.ibm.minipay   mpy
application/vnd.ibm.modcap   afp listafp list3820
```

application/vnd.ibm.rights-management irm
application/vnd.ibm.secure-container sc
application/vnd.iccprofile icc
 icm
application/vnd.ieee.1905
application/vnd.igloader igl
application/vnd.immervision-ivp ivp
application/vnd.immervision-ivu ivu
application/vnd.ims.imsccv1p1
application/vnd.ims.imsccv1p2
application/vnd.ims.imsccv1p3
application/vnd.ims.lis.v2.result+json
application/vnd.ims.lti.v2.toolconsumerprofile+json
application/vnd.ims.lti.v2.toolproxy+json
application/vnd.ims.lti.v2.toolproxy.id+json
application/vnd.ims.lti.v2.toolsettings+json
application/vnd.ims.lti.v2.toolsettings.simple+json
application/vnd.informedcontrol.rms+xml
application/vnd.informix-visionary
application/vnd.infotech.project
application/vnd.infotech.project+xml
application/vnd.innopath.wamp.notification
application/vnd.insors.igm igm
application/vnd.intercon.formnet xpw xpx
application/vnd.intergeo i2g
application/vnd.intertrust.digibox
application/vnd.intertrust.nncp
application/vnd.intu.qbo qbo
application/vnd.intu.qfx qfx
#
 application/vnd.iptc.g2.catalogitem+xml
application/vnd.iptc.g2.conceptitem+xml
application/vnd.iptc.g2.knowledgeitem+xml
application/vnd.iptc.g2.newsitem+xml
application/vnd.iptc.g2.newsmessage+xml
application/vnd.iptc.g2.packageitem+xml
application/vnd.iptc.g2.planningitem+xml
application/vnd.ipunplugged.rcprofile rcprofile
application/vnd.irepository.package+xml irp
application/vnd.is-xpr xpr
application/vnd.isac.fcs fcs
application/vnd.jam jam
application/vnd.japannet-directory-service
application/vnd.japannet-jpnstore-wakeup
application/vnd.japannet-payment-wakeup
application/vnd.japannet-registration
application/vnd.japannet-registration-wakeup
application/vnd.japannet-setstore-wakeup

```
# application/vnd.japannet-verification
# application/vnd.japannet-verification-wakeup
application/vnd.jcp.javame.midlet-rms  rms
application/vnd.jisp    jisp
application/vnd.joost.joda-archive  joda
# application/vnd.jsk.isdn-ngn
application/vnd.kahootz    ktz
 ktr
application/vnd.kde.karbon   karbon
application/vnd.kde.kchart   chrt
application/vnd.kde.kformula   kfo
application/vnd.kde.kivio   flw
application/vnd.kde.kontour   kon
application/vnd.kde.kpresenter   kpr kpt
application/vnd.kde.kspread   ksp
application/vnd.kde.kword   kwd kwt
application/vnd.kenameaapp   htke
application/vnd.kidspiration   kia
application/vnd.kinar    kne knp
application/vnd.koan    skp skd skt skm
application/vnd.kodak-descriptor  sse
application/vnd.las.las+xml   lasxml
# application/vnd.liberty-request+xml
application/vnd.llamagraphics.life-balance.desktop lbd
application/vnd.llamagraphics.life-balance.exchange+xml lbe
application/vnd.lotus-1-2-3   123
application/vnd.lotus-approach   apr
application/vnd.lotus-freelance   pre
application/vnd.lotus-notes   nsf
application/vnd.lotus-organizer   org
application/vnd.lotus-screencam   scm
application/vnd.lotus-wordpro   lwp
application/vnd.macports.portpkg  portpkg
# application/vnd.mapbox-vector-tile
# application/vnd.marlin.drm.actiontoken+xml
#
 application/vnd.marlin.drm.conftoken+xml
# application/vnd.marlin.drm.license+xml
# application/vnd.marlin.drm.mdcf
# application/vnd.mason+json
# application/vnd.maxmind.maxmind-db
application/vnd.mcd    mcd
application/vnd.medcalcdata   mc1
application/vnd.mediastation.cdkey  cdkey
# application/vnd.meridian-slingshot
application/vnd.mfer    mwf
application/vnd.mfmp    mfm
# application/vnd.micro+json
```

```
application/vnd.micrografx.flo   flo
application/vnd.micrografx.igx   igx
# application/vnd.microsoft.portable-executable
# application/vnd.miele+json
application/vnd.mif    mif
# application/vnd.minisoft-hp3000-save
# application/vnd.mitsubishi.misty-guard.trustweb
application/vnd.mobius.daf   daf
application/vnd.mobius.dis   dis
application/vnd.mobius.mbk   mbk
application/vnd.mobius.mqy   mqy
application/vnd.mobius.msl   msl
application/vnd.mobius.plc   plc
application/vnd.mobius.txf   txf
application/vnd.mophun.application  mpn
application/vnd.mophun.certificate  mpc
#
 application/vnd.motorola.flexsuite
# application/vnd.motorola.flexsuite.adsi
# application/vnd.motorola.flexsuite.fis
# application/vnd.motorola.flexsuite.gotap
# application/vnd.motorola.flexsuite.kmr
# application/vnd.motorola.flexsuite.ttc
# application/vnd.motorola.flexsuite.wem
# application/vnd.motorola.iprm
application/vnd.mozilla.xul+xml   xul
# application/vnd.ms-3mfdocument
application/vnd.ms-artgalry   cil
# application/vnd.ms-asf
application/vnd.ms-cab-compressed  cab
# application/vnd.ms-color.iccprofile
application/vnd.ms-excel   xls xlm xla xlc xlt xlw
application/vnd.ms-excel.addin.macroenabled.12  xlam
application/vnd.ms-excel.sheet.binary.macroenabled.12 xlsb
application/vnd.ms-excel.sheet.macroenabled.12  xlsm
application/vnd.ms-excel.template.macroenabled.12 xltm
application/vnd.ms-fontobject   eot
application/vnd.ms-htmlhelp   chm
application/vnd.ms-ims    ims
application/vnd.ms-lrm    lrm
# application/vnd.ms-office.activex+xml
application/vnd.ms-officetheme   thmx
#
 application/vnd.ms-opentype
# application/vnd.ms-package.obfuscated-opentype
application/vnd.ms-pki.seccat   cat
application/vnd.ms-pki.stl   stl
# application/vnd.ms-playready.initiator+xml
```

application/vnd.ms-powerpoint ppt pps pot
application/vnd.ms-powerpoint.addin.macroenabled.12 ppam
application/vnd.ms-powerpoint.presentation.macroenabled.12 pptm
application/vnd.ms-powerpoint.slide.macroenabled.12 sldm
application/vnd.ms-powerpoint.slideshow.macroenabled.12 ppsm
application/vnd.ms-powerpoint.template.macroenabled.12 potm
application/vnd.ms-printdevicecapabilities+xml
application/vnd.ms-printing.printticket+xml
application/vnd.ms-printschematicket+xml
application/vnd.ms-project mpp mpt
application/vnd.ms-tnef
application/vnd.ms-windows.devicepairing
application/vnd.ms-windows.nwprinting.oob
application/vnd.ms-windows.printerpairing
application/vnd.ms-windows.wsd.oob
application/vnd.ms-wmdrm.lic-chlg-req
application/vnd.ms-wmdrm.lic-resp
#
application/vnd.ms-wmdrm.meter-chlg-req
application/vnd.ms-wmdrm.meter-resp
application/vnd.ms-word.document.macroenabled.12 docm
application/vnd.ms-word.template.macroenabled.12 dotm
application/vnd.ms-works wps wks wcm wdb
application/vnd.ms-wpl wpl
application/vnd.ms-xpsdocument xps
application/vnd.msa-disk-image
application/vnd.mseq mseq
application/vnd.msign
application/vnd.multiad.creator
application/vnd.multiad.creator.cif
application/vnd.music-niff
application/vnd.musician mus
application/vnd.muvee.style msty
application/vnd.mynfc taglet
application/vnd.ncd.control
application/vnd.ncd.reference
application/vnd.nervana
application/vnd.netfpx
application/vnd.neurolanguage.nlu nlu
application/vnd.nintendo.nitro.rom
application/vnd.nintendo.snes.rom
application/vnd.nitf ntf nitf
application/vnd.noblenet-directory nnd
application/vnd.noblenet-sealer nns
application/vnd.noblenet-web nnw
application/vnd.nokia.catalogs
#

application/vnd.nokia.conml+wbxml
application/vnd.nokia.conml+xml
application/vnd.nokia.iptv.config+xml
application/vnd.nokia.isds-radio-presets
application/vnd.nokia.landmark+wbxml
application/vnd.nokia.landmark+xml
application/vnd.nokia.landmarkcollection+xml
application/vnd.nokia.n-gage.ac+xml
application/vnd.nokia.n-gage.data ngdat
application/vnd.nokia.n-gage.symbian.install n-gage
application/vnd.nokia.ncd
application/vnd.nokia.pcd+wbxml
application/vnd.nokia.pcd+xml
application/vnd.nokia.radio-preset rpst
application/vnd.nokia.radio-presets rpss
application/vnd.novadigm.edm edm
application/vnd.novadigm.edx edx
application/vnd.novadigm.ext ext
application/vnd.ntt-local.content-share
application/vnd.ntt-local.file-transfer
application/vnd.ntt-local.ogw_remote-access
application/vnd.ntt-local.sip-ta_remote
application/vnd.ntt-local.sip-ta_tcp_stream
application/vnd.oasis.opendocument.chart odc
application/vnd.oasis.opendocument.chart-template otc
application/vnd.oasis.opendocument.database odb
application/vnd.oasis.opendocument.formula odf
application/vnd.oasis.opendocument.formula-template odft
application/vnd.oasis.opendocument.graphics odg
application/vnd.oasis.opendocument.graphics-template otg
application/vnd.oasis.opendocument.image odi
application/vnd.oasis.opendocument.image-template oti
application/vnd.oasis.opendocument.presentation odp
application/vnd.oasis.opendocument.presentation-template otp
application/vnd.oasis.opendocument.spreadsheet ods
application/vnd.oasis.opendocument.spreadsheet-template ots
application/vnd.oasis.opendocument.text odt
application/vnd.oasis.opendocument.text-master odm
application/vnd.oasis.opendocument.text-template ott
application/vnd.oasis.opendocument.text-web oth
#
application/vnd.obn
application/vnd.oftn.l10n+json
application/vnd.oipf.contentaccessdownload+xml
application/vnd.oipf.contentaccessstreaming+xml
application/vnd.oipf.cspg-hexbinary
application/vnd.oipf.dae.svg+xml
#

application/vnd.oipf.dae.xhtml+xml
application/vnd.oipf.mippvcontrolmessage+xml
application/vnd.oipf.pae.gem
application/vnd.oipf.spdiscovery+xml
application/vnd.oipf.spdlist+xml
application/vnd.oipf.ueprofile+xml
application/vnd.oipf.userprofile+xml
application/vnd.olpc-sugar xo
application/vnd.oma-scws-config
application/vnd.oma-scws-http-request
application/vnd.oma-scws-http-response
application/vnd.oma.bcast.associated-procedure-parameter+xml
application/vnd.oma.bcast.drm-trigger+xml
application/vnd.oma.bcast.imd+xml
application/vnd.oma.bcast.ltkm
application/vnd.oma.bcast.notification+xml
application/vnd.oma.bcast.provisioningtrigger
application/vnd.oma.bcast.sgboot
application/vnd.oma.bcast.sgdd+xml
application/vnd.oma.bcast.sgdu
application/vnd.oma.bcast.simple-symbol-container
application/vnd.oma.bcast.smartcard-trigger+xml
application/vnd.oma.bcast.sprov+xml
application/vnd.oma.bcast.stkm
application/vnd.oma.cab-address-book+xml
#
application/vnd.oma.cab-feature-handler+xml
application/vnd.oma.cab-pcc+xml
application/vnd.oma.cab-subs-invite+xml
application/vnd.oma.cab-user-prefs+xml
application/vnd.oma.dcd
application/vnd.oma.dcdc
application/vnd.oma.dd2+xml dd2
application/vnd.oma.drm.risd+xml
application/vnd.oma.group-usage-list+xml
application/vnd.oma.lwm2m+json
application/vnd.oma.lwm2m+tlv
application/vnd.oma.pal+xml
application/vnd.oma.poc.detailed-progress-report+xml
application/vnd.oma.poc.final-report+xml
application/vnd.oma.poc.groups+xml
application/vnd.oma.poc.invocation-descriptor+xml
application/vnd.oma.poc.optimized-progress-report+xml
application/vnd.oma.push
application/vnd.oma.scidm.messages+xml
application/vnd.oma.xcap-directory+xml
application/vnd.omads-email+xml
application/vnd.omads-file+xml

application/vnd.omads-folder+xml
application/vnd.omaloc-supl-init
application/vnd.onepager
application/vnd.openblox.game+xml
#
 application/vnd.openblox.game-binary
application/vnd.openeye.oeb
application/vnd.openofficeorg.extension oxt
application/vnd.openxmlformats-officedocument.custom-properties+xml
application/vnd.openxmlformats-officedocument.customxmlproperties+xml
application/vnd.openxmlformats-officedocument.drawing+xml
application/vnd.openxmlformats-officedocument.drawingml.chart+xml
application/vnd.openxmlformats-officedocument.drawingml.chartshapes+xml
application/vnd.openxmlformats-officedocument.drawingml.diagramcolors+xml
application/vnd.openxmlformats-officedocument.drawingml.diagramdata+xml
application/vnd.openxmlformats-officedocument.drawingml.diagramlayout+xml
application/vnd.openxmlformats-officedocument.drawingml.diagramstyle+xml
application/vnd.openxmlformats-officedocument.extended-properties+xml
application/vnd.openxmlformats-officedocument.presentationml.commentauthors+xml
application/vnd.openxmlformats-officedocument.presentationml.comments+xml
application/vnd.openxmlformats-officedocument.presentationml.handoutmaster+xml
#
 application/vnd.openxmlformats-officedocument.presentationml.notesmaster+xml
application/vnd.openxmlformats-officedocument.presentationml.notesslide+xml
application/vnd.openxmlformats-officedocument.presentationml.presentation pptx
application/vnd.openxmlformats-officedocument.presentationml.presentation.main+xml
application/vnd.openxmlformats-officedocument.presentationml.presprops+xml
application/vnd.openxmlformats-officedocument.presentationml.slide sldx
application/vnd.openxmlformats-officedocument.presentationml.slide+xml
application/vnd.openxmlformats-officedocument.presentationml.slidelayout+xml
application/vnd.openxmlformats-officedocument.presentationml.slidemaster+xml
application/vnd.openxmlformats-officedocument.presentationml.slideshow ppsx
application/vnd.openxmlformats-officedocument.presentationml.slideshow.main+xml
application/vnd.openxmlformats-officedocument.presentationml.slideupdateinfo+xml
#
 application/vnd.openxmlformats-officedocument.presentationml.tablestyles+xml
application/vnd.openxmlformats-officedocument.presentationml.tags+xml
application/vnd.openxmlformats-officedocument.presentationml.template potx
application/vnd.openxmlformats-officedocument.presentationml.template.main+xml
application/vnd.openxmlformats-officedocument.presentationml.viewprops+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.calcchain+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.chartsheet+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.comments+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.connections+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.dialogsheet+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.externallink+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.pivotcachedefinition+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.pivotcacherecords+xml

```
#
 application/vnd.openxmlformats-officedocument.spreadsheetml.pivottable+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.querytable+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.revisionheaders+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.revisionlog+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.sharedstrings+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.sheet xlsx
# application/vnd.openxmlformats-officedocument.spreadsheetml.sheet.main+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.sheetmetadata+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.styles+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.table+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.tablesinglecells+xml
application/vnd.openxmlformats-officedocument.spreadsheetml.template xltx
# application/vnd.openxmlformats-officedocument.spreadsheetml.template.main+xml
#
 application/vnd.openxmlformats-officedocument.spreadsheetml.usernames+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.volatiledependencies+xml
# application/vnd.openxmlformats-officedocument.spreadsheetml.worksheet+xml
# application/vnd.openxmlformats-officedocument.theme+xml
# application/vnd.openxmlformats-officedocument.themeoverride+xml
# application/vnd.openxmlformats-officedocument.vmldrawing
# application/vnd.openxmlformats-officedocument.wordprocessingml.comments+xml
application/vnd.openxmlformats-officedocument.wordprocessingml.document docx
# application/vnd.openxmlformats-officedocument.wordprocessingml.document.glossary+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.document.main+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.endnotes+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.fonttable+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.footer+xml
#
 application/vnd.openxmlformats-officedocument.wordprocessingml.footnotes+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.numbering+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.settings+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.styles+xml
application/vnd.openxmlformats-officedocument.wordprocessingml.template dotx
# application/vnd.openxmlformats-officedocument.wordprocessingml.template.main+xml
# application/vnd.openxmlformats-officedocument.wordprocessingml.websettings+xml
# application/vnd.openxmlformats-package.core-properties+xml
# application/vnd.openxmlformats-package.digital-signature-xmlsignature+xml
# application/vnd.openxmlformats-package.relationships+xml
# application/vnd.oracle.resource+json
# application/vnd.orange.indata
# application/vnd.osa.netdeploy
application/vnd.osgeo.mapguide.package  mgp
# application/vnd.osgi.bundle
application/vnd.osgi.dp    dp
application/vnd.osgi.subsystem   esa
#
```

application/vnd.otps.ct-kip+xml
application/vnd.oxli.countgraph
application/vnd.pagerduty+json
application/vnd.palm pdb pqa oprc
application/vnd.panoply
application/vnd.paos.xml
application/vnd.pawaafile paw
application/vnd.pcos
application/vnd.pg.format str
application/vnd.pg.osasli ei6
application/vnd.piaccess.application-licence
application/vnd.picsel efif
application/vnd.pmi.widget wg
application/vnd.poc.group-advertisement+xml
application/vnd.pocketlearn plf
application/vnd.powerbuilder6 pbd
application/vnd.powerbuilder6-s
application/vnd.powerbuilder7
application/vnd.powerbuilder7-s
application/vnd.powerbuilder75
application/vnd.powerbuilder75-s
application/vnd.preminet
application/vnd.previewsystems.box box
application/vnd.proteus.magazine mgz
application/vnd.publishare-delta-tree qps
application/vnd.pvi.ptid1 ptid
application/vnd.pwg-multiplexed
application/vnd.pwg-xhtml-print+xml
application/vnd.qualcomm.brew-app-res
#
application/vnd.quarantainenet
application/vnd.quark.quarkxpress qxd qxt qwd qwt qxl qxb
application/vnd.quobject-quoxdocument
application/vnd.radisys.moml+xml
application/vnd.radisys.msml+xml
application/vnd.radisys.msml-audit+xml
application/vnd.radisys.msml-audit-conf+xml
application/vnd.radisys.msml-audit-conn+xml
application/vnd.radisys.msml-audit-dialog+xml
application/vnd.radisys.msml-audit-stream+xml
application/vnd.radisys.msml-conf+xml
application/vnd.radisys.msml-dialog+xml
application/vnd.radisys.msml-dialog-base+xml
application/vnd.radisys.msml-dialog-fax-detect+xml
application/vnd.radisys.msml-dialog-fax-sendrecv+xml
application/vnd.radisys.msml-dialog-group+xml
application/vnd.radisys.msml-dialog-speech+xml
application/vnd.radisys.msml-dialog-transform+xml

```
# application/vnd.rainstor.data
# application/vnd.rapid
# application/vnd.rar
application/vnd.realvnc.bed   bed
application/vnd.recordare.musicxml  mxl
application/vnd.recordare.musicxml+xml  musicxml
#
 application/vnd.renlearn.rlprint
application/vnd.rig.cryptonote   cryptonote
application/vnd.rim.cod    cod
application/vnd.rn-realmedia   rm
application/vnd.rn-realmedia-vbr  rmvb
application/vnd.route66.link66+xml  link66
# application/vnd.rs-274x
# application/vnd.ruckus.download
# application/vnd.s3sms
application/vnd.sailingtracker.track  st
# application/vnd.sbm.cid
# application/vnd.sbm.mid2
# application/vnd.scribus
# application/vnd.sealed.3df
# application/vnd.sealed.csf
# application/vnd.sealed.doc
# application/vnd.sealed.eml
# application/vnd.sealed.mht
# application/vnd.sealed.net
# application/vnd.sealed.ppt
# application/vnd.sealed.tiff
# application/vnd.sealed.xls
# application/vnd.sealedmedia.softseal.html
# application/vnd.sealedmedia.softseal.pdf
application/vnd.seemail    see
application/vnd.sema    sema
application/vnd.semd    semd
application/vnd.semf    semf
application/vnd.shana.informed.formdata  ifm
application/vnd.shana.informed.formtemplate itp
application/vnd.shana.informed.interchange iif
application/vnd.shana.informed.package  ipk
application/vnd.simtech-mindmapper  twd
 twds
# application/vnd.siren+json
application/vnd.smaf    mmf
# application/vnd.smart.notebook
application/vnd.smart.teacher   teacher
# application/vnd.software602.filler.form+xml
# application/vnd.software602.filler.form-xml-zip
application/vnd.solent.sdkm+xml   sdkm sdkd
```

application/vnd.spotfire.dxp dxp
application/vnd.spotfire.sfs sfs
application/vnd.sss-cod
application/vnd.sss-dtf
application/vnd.sss-ntf
application/vnd.stardivision.calc sdc
application/vnd.stardivision.draw sda
application/vnd.stardivision.impress sdd
application/vnd.stardivision.math smf
application/vnd.stardivision.writer sdw vor
application/vnd.stardivision.writer-global sgl
application/vnd.stepmania.package smzip
application/vnd.stepmania.stepchart sm
application/vnd.street-stream
application/vnd.sun.wadl+xml
application/vnd.sun.xml.calc sxc
application/vnd.sun.xml.calc.template stc
application/vnd.sun.xml.draw sxd
application/vnd.sun.xml.draw.template std
application/vnd.sun.xml.impress sxi
application/vnd.sun.xml.impress.template sti
application/vnd.sun.xml.math sxm
application/vnd.sun.xml.writer sxw
application/vnd.sun.xml.writer.global sxg
application/vnd.sun.xml.writer.template stw
application/vnd.sus-calendar sus
susp
application/vnd.svd svd
application/vnd.swiftview-ics
application/vnd.symbian.install sis sisx
application/vnd.syncml+xml xsm
application/vnd.syncml.dm+wbxml bdm
application/vnd.syncml.dm+xml xdm
application/vnd.syncml.dm.notification
application/vnd.syncml.dmddf+wbxml
application/vnd.syncml.dmddf+xml
application/vnd.syncml.dmtnds+wbxml
application/vnd.syncml.dmtnds+xml
application/vnd.syncml.ds.notification
application/vnd.tao.intent-module-archive tao
application/vnd.tcpdump.pcap pcap cap dmp
application/vnd.tmd.mediaflex.api+xml
application/vnd.tml
application/vnd.tmobile-livetv tmo
application/vnd.trid.tpt tpt
application/vnd.triscape.mxs mxs
application/vnd.trueapp tra
#

application/vnd.truedoc
application/vnd.ubisoft.webplayer
application/vnd.ufdl ufd ufdl
application/vnd.uiq.theme utz
application/vnd.umajin umj
application/vnd.unity unityweb
application/vnd.uoml+xml uoml
application/vnd.uplanet.alert
application/vnd.uplanet.alert-wbxml
application/vnd.uplanet.bearer-choice
application/vnd.uplanet.bearer-choice-wbxml
application/vnd.uplanet.cacheop
application/vnd.uplanet.cacheop-wbxml
application/vnd.uplanet.channel
application/vnd.uplanet.channel-wbxml
application/vnd.uplanet.list
application/vnd.uplanet.list-wbxml
application/vnd.uplanet.listcmd
application/vnd.uplanet.listcmd-wbxml
application/vnd.uplanet.signal
application/vnd.uri-map
application/vnd.valve.source.material
application/vnd.vcx vcx
application/vnd.vd-study
application/vnd.vectorworks
application/vnd.vel+json
#
application/vnd.verimatrix.vcas
application/vnd.vidsoft.vidconference
application/vnd.visio vsd vst vss vsw
application/vnd.visionary vis
application/vnd.vividence.scriptfile
application/vnd.vsf vsf
application/vnd.wap.sic
application/vnd.wap.slc
application/vnd.wap.wbxml wbxml
application/vnd.wap.wmlc wmlc
application/vnd.wap.wmlscriptc wmlsc
application/vnd.webturbo wtb
application/vnd.wfa.p2p
application/vnd.wfa.wsc
application/vnd.windows.devicepairing
application/vnd.wmc
application/vnd.wmf.bootstrap
application/vnd.wolfram.mathematica
application/vnd.wolfram.mathematica.package
application/vnd.wolfram.player nbp
application/vnd.wordperfect wpd

application/vnd.wqd wqd
application/vnd.wrq-hp3000-labelled
application/vnd.wt.stf stf
application/vnd.wv.csp+wbxml
application/vnd.wv.csp+xml
application/vnd.wv.ssp+xml
application/vnd.xacml+json
application/vnd.xara xar
application/vnd.xfdl xfdl
application/vnd.xfdl.webform
#
application/vnd.xmi+xml
application/vnd.xmpie.cpkg
application/vnd.xmpie.dpkg
application/vnd.xmpie.plan
application/vnd.xmpie.ppkg
application/vnd.xmpie.xlim
application/vnd.yamaha.hv-dic hvd
application/vnd.yamaha.hv-script hvs
application/vnd.yamaha.hv-voice hvp
application/vnd.yamaha.openscoreformat osf
application/vnd.yamaha.openscoreformat.osfpvg+xml osfpvg
application/vnd.yamaha.remote-setup
application/vnd.yamaha.smaf-audio saf
application/vnd.yamaha.smaf-phrase spf
application/vnd.yamaha.through-ngn
application/vnd.yamaha.tunnel-udpencap
application/vnd.yaoweme
application/vnd.yellowriver-custom-menu cmp
application/vnd.zul zir zirz
application/vnd.zzazz.deck+xml zaz
application/voicexml+xml vxml
application/vq-rtcpxr
application/watcherinfo+xml
application/whoispp-query
application/whoispp-response
application/widget wgt
application/winhlp hlp
application/wita
application/wordperfect5.1
application/wsdl+xml wsdl
application/wspolicy+xml wspolicy
application/x-7z-compressed 7z
application/x-abiword abw
application/x-ace-compressed ace
#
application/x-amf
application/x-apple-diskimage dmg

application/x-authorware-bin aab x32 u32 vox
application/x-authorware-map aam
application/x-authorware-seg aas
application/x-bcpio bcpio
application/x-bittorrent torrent
application/x-blorb blb blorb
application/x-bzip bz
application/x-bzip2 bz2 boz
application/x-cbr cbr cba cbt cbz cb7
application/x-cdlink vcd
application/x-cfs-compressed cfs
application/x-chat chat
application/x-chess-pgn pgn
application/x-compress
application/x-conference nsc
application/x-cpio cpio
application/x-csh csh
application/x-debian-package deb udeb
application/x-dgc-compressed dgc
application/x-director dir dcr dxr cst cct cxt w3d fgd swa
application/x-doom wad
application/x-dtbncx+xml ncx
application/x-dtbook+xml dtb
application/x-dtbresource+xml res
application/x-dvi dvi
application/x-envoy evy
application/x-eva eva
application/x-font-bdf bdf
#
application/x-font-dos
application/x-font-framemaker
application/x-font-ghostscript gsf
application/x-font-libgrx
application/x-font-linux-psf psf
application/x-font-otf otf
application/x-font-pcf pcf
application/x-font-snf snf
application/x-font-speedo
application/x-font-sunos-news
application/x-font-ttf ttf ttc
application/x-font-type1 pfa pfb pfm afm
application/x-font-vfont
application/x-freearc arc
application/x-futuresplash spl
application/x-gca-compressed gca
application/x-glulx ulx
application/x-gnumeric gnumeric
application/x-gramps-xml gramps

application/x-gtar gtar
application/x-gzip
application/x-hdf hdf
application/x-install-instructions install
application/x-iso9660-image iso
application/x-java-jnlp-file jnlp
application/x-latex latex
application/x-lzh-compressed lzh lha
application/x-mie mie
application/x-mobipocket-ebook prc
mobi
application/x-ms-application application
application/x-ms-shortcut lnk
application/x-ms-wmd wmd
application/x-ms-wmz wmz
application/x-ms-xbap xbap
application/x-msaccess mdb
application/x-msbinder obd
application/x-mscardfile crd
application/x-msclip clp
application/x-msdownload exe dll com bat msi
application/x-msmediaview mvb m13 m14
application/x-msmetafile wmf wmz emf emz
application/x-msmoney mny
application/x-mspublisher pub
application/x-msschedule scd
application/x-msterminal trm
application/x-mswrite wri
application/x-netcdf nc cdf
application/x-nzb nzb
application/x-pkcs12 p12 pfx
application/x-pkcs7-certificates p7b spc
application/x-pkcs7-certreqresp p7r
application/x-rar-compressed rar
application/x-research-info-systems ris
application/x-sh sh
application/x-shar shar
application/x-shockwave-flash swf
application/x-silverlight-app xap
application/x-sql sql
application/x-stuffit sit
application/x-stuffitx sitx
application/x-subrip srt
application/x-sv4cpio sv4cpio
application/x-sv4crc sv4crc
application/x-t3vm-image t3
application/x-tads gam
application/x-tar tar

application/x-tcl tcl
application/x-tex tex
application/x-tex-tfm tfm
application/x-texinfo texinfo
texi
application/x-tgif obj
application/x-ustar ustar
application/x-wais-source src
application/x-www-form-urlencoded
application/x-x509-ca-cert der crt
application/x-xfig fig
application/x-xliff+xml xlf
application/x-xpinstall xpi
application/x-xz xz
application/x-zmachine z1 z2 z3 z4 z5 z6 z7 z8
application/x400-bp
application/xacml+xml
application/xaml+xml xaml
application/xcap-att+xml
application/xcap-caps+xml
application/xcap-diff+xml xdf
application/xcap-el+xml
application/xcap-error+xml
application/xcap-ns+xml
application/xcon-conference-info+xml
application/xcon-conference-info-diff+xml
application/xenc+xml xenc
application/xhtml+xml xhtml
xht
application/xhtml-voice+xml
application/xml xml xsl
application/xml-dtd dtd
application/xml-external-parsed-entity
application/xml-patch+xml
application/xmpp+xml
application/xop+xml xop
application/xproc+xml xpl
application/xslt+xml xslt
application/xspf+xml xspf
application/xv+xml mxml xhvml xvml xvm
application/yang yang
application/yin+xml yin
application/zip zip
application/zlib
audio/1d-interleaved-parityfec
audio/32kadpcm
audio/3gpp
audio/3gpp2

audio/ac3
audio/adpcm adp
audio/amr
audio/amr-wb
audio/amr-wb+
audio/aptx
audio/asc
audio/atrac-advanced-lossless
audio/atrac-x
audio/atrac3
audio/basic au snd
audio/bv16
audio/bv32
audio/clearmode
audio/cn
audio/dat12
audio/dls
audio/dsr-es201108
audio/dsr-es202050
audio/dsr-es202211
audio/dsr-es202212
audio/dv
audio/dvi4
audio/eac3
audio/encaprtp
audio/evrc
audio/evrc-qcp
audio/evrc0
audio/evrc1
#
audio/evrcb
audio/evrcb0
audio/evrcb1
audio/evrcnw
audio/evrcnw0
audio/evrcnw1
audio/evrcwb
audio/evrcwb0
audio/evrcwb1
audio/evs
audio/example
audio/fwdred
audio/g711-0
audio/g719
audio/g722
audio/g7221
audio/g723
audio/g726-16

```
# audio/g726-24
# audio/g726-32
# audio/g726-40
# audio/g728
# audio/g729
# audio/g7291
# audio/g729d
# audio/g729e
# audio/gsm
# audio/gsm-efr
# audio/gsm-hr-08
# audio/ilbc
# audio/ip-mr_v2.5
# audio/isac
# audio/l16
# audio/l20
# audio/l24
# audio/l8
# audio/lpc
audio/midi     mid midi kar rmi
# audio/mobile-xmf
audio/mp4     m4a mp4a
# audio/mp4a-latm
# audio/mpa
# audio/mpa-robust
audio/mpeg     mpga mp2 mp2a mp3 m2a m3a
# audio/mpeg4-generic
# audio/musepack
audio/ogg     oga ogg spx
# audio/opus
# audio/parityfec
# audio/pcma
# audio/pcma-wb
# audio/pcmu
# audio/pcmu-wb
# audio/prs.sid
# audio/qcelp
# audio/raptorfec
# audio/red
# audio/rtp-enc-aescm128
# audio/rtp-midi
# audio/rtploopback
# audio/rtx
audio/s3m     s3m
audio/silk     sil
#
 audio/smv
# audio/smv-qcp
```

```
# audio/smv0
# audio/sp-midi
# audio/speex
# audio/t140c
# audio/t38
# audio/telephone-event
# audio/tone
# audio/uemclip
# audio/ulpfec
# audio/vdvi
# audio/vmr-wb
# audio/vnd.3gpp.iufp
# audio/vnd.4sb
# audio/vnd.audiokoz
# audio/vnd.celp
# audio/vnd.cisco.nse
# audio/vnd.cmles.radio-events
# audio/vnd.cns.anp1
# audio/vnd.cns.inf1
audio/vnd.dece.audio    uva uvva
audio/vnd.digital-winds    eol
# audio/vnd.dlna.adts
# audio/vnd.dolby.heaac.1
# audio/vnd.dolby.heaac.2
# audio/vnd.dolby.mlp
# audio/vnd.dolby.mps
# audio/vnd.dolby.pl2
# audio/vnd.dolby.pl2x
# audio/vnd.dolby.pl2z
# audio/vnd.dolby.pulse.1
audio/vnd.dra     dra
audio/vnd.dts     dts
audio/vnd.dts.hd    dtshd
# audio/vnd.dvb.file
# audio/vnd.everad.plj
# audio/vnd.hns.audio
audio/vnd.lucent.voice    lvp
audio/vnd.ms-playready.media.pya  pya
# audio/vnd.nokia.mobile-xmf
# audio/vnd.nortel.vbk
audio/vnd.nuera.ecelp4800   ecelp4800
audio/vnd.nuera.ecelp7470   ecelp7470
audio/vnd.nuera.ecelp9600   ecelp9600
#
 audio/vnd.octel.sbc
# audio/vnd.qcelp
# audio/vnd.rhetorex.32kadpcm
audio/vnd.rip     rip
```

```
# audio/vnd.sealedmedia.softseal.mpeg
# audio/vnd.vmx.cvsd
# audio/vorbis
# audio/vorbis-config
audio/webm	weba
audio/x-aac	aac
audio/x-aiff	aif aiff aifc
audio/x-caf	caf
audio/x-flac	flac
audio/x-matroska	mka
audio/x-mpegurl	m3u
audio/x-ms-wax	wax
audio/x-ms-wma	wma
audio/x-pn-realaudio	ram ra
audio/x-pn-realaudio-plugin	rmp
# audio/x-tta
audio/x-wav	wav
audio/xm	xm
chemical/x-cdx	cdx
chemical/x-cif	cif
chemical/x-cmdf	cmdf
chemical/x-cml	cml
chemical/x-csml	csml
# chemical/x-pdb
chemical/x-xyz	xyz
image/bmp	bmp
image/cgm	cgm
# image/dicom-rle
# image/emf
# image/example
# image/fits
image/g3fax	g3
image/gif	gif
image/ief	ief
# image/jls
# image/jp2
image/jpeg	jpeg jpg jpe
# image/jpm
# image/jpx
image/ktx	ktx
# image/naplps
image/png	png
image/prs.btif	btif
#
 image/prs.pti
# image/pwg-raster
image/sgi	sgi
image/svg+xml	svg svgz
```

```
# image/t38
image/tiff	tiff tif
# image/tiff-fx
image/vnd.adobe.photoshop	psd
# image/vnd.airzip.accelerator.azv
# image/vnd.cns.inf2
image/vnd.dece.graphic	uvi uvvi uvg uvvg
image/vnd.djvu	djvu djv
image/vnd.dvb.subtitle	sub
image/vnd.dwg	dwg
image/vnd.dxf	dxf
image/vnd.fastbidsheet	fbs
image/vnd.fpx	fpx
image/vnd.fst	fst
image/vnd.fujixerox.edmics-mmr	mmr
image/vnd.fujixerox.edmics-rlc	rlc
# image/vnd.globalgraphics.pgb
# image/vnd.microsoft.icon
# image/vnd.mix
# image/vnd.mozilla.apng
image/vnd.ms-modi	mdi
image/vnd.ms-photo	wdp
image/vnd.net-fpx	npx
# image/vnd.radiance
# image/vnd.sealed.png
# image/vnd.sealedmedia.softseal.gif
# image/vnd.sealedmedia.softseal.jpg
# image/vnd.svf
# image/vnd.tencent.tap
# image/vnd.valve.source.texture
image/vnd.wap.wbmp	wbmp
image/vnd.xiff	xif
# image/vnd.zbrush.pcx
image/webp	webp
# image/wmf
image/x-3ds	3ds
image/x-cmu-raster	ras
image/x-cmx	cmx
image/x-freehand	fh
 fhc fh4 fh5 fh7
image/x-icon	ico
image/x-mrsid-image	sid
image/x-pcx	pcx
image/x-pict	pic pct
image/x-portable-anymap	pnm
image/x-portable-bitmap	pbm
image/x-portable-graymap	pgm
image/x-portable-pixmap	ppm
```

image/x-rgb rgb
image/x-tga tga
image/x-xbitmap xbm
image/x-xpixmap xpm
image/x-xwindowdump xwd
message/cpim
message/delivery-status
message/disposition-notification
message/example
message/external-body
message/feedback-report
message/global
message/global-delivery-status
message/global-disposition-notification
message/global-headers
message/http
message/imdn+xml
message/news
message/partial
message/rfc822 eml mime
message/s-http
message/sip
message/sipfrag
message/tracking-status
message/vnd.si.simp
message/vnd.wfa.wsc
model/example
model/gltf+json
model/iges igs iges
model/mesh msh mesh silo
model/vnd.collada+xml dae
model/vnd.dwf dwf
#
model/vnd.flatland.3dml
model/vnd.gdl gdl
model/vnd.gs-gdl
model/vnd.gs.gdl
model/vnd.gtw gtw
model/vnd.moml+xml
model/vnd.mts mts
model/vnd.opengex
model/vnd.parasolid.transmit.binary
model/vnd.parasolid.transmit.text
model/vnd.rosette.annotated-data-model
model/vnd.valve.source.compiled-map
model/vnd.vtu vtu
model/vrml wrl vrml
model/x3d+binary x3db x3dbz

```
# model/x3d+fastinfoset
model/x3d+vrml     x3dv x3dvz
model/x3d+xml      x3d x3dz
# model/x3d-vrml
# multipart/alternative
# multipart/appledouble
# multipart/byteranges
# multipart/digest
# multipart/encrypted
# multipart/example
# multipart/form-data
# multipart/header-set
# multipart/mixed
# multipart/parallel
# multipart/related
# multipart/report
# multipart/signed
# multipart/voice-message
# multipart/x-mixed-replace
# text/1d-interleaved-parityfec
text/cache-manifest    appcache
text/calendar      ics ifb
text/css      css
text/csv      csv
# text/csv-schema
#
 text/directory
# text/dns
# text/ecmascript
# text/encaprtp
# text/enriched
# text/example
# text/fwdred
# text/grammar-ref-list
text/html      html htm
# text/javascript
# text/jcr-cnd
# text/markdown
# text/mizar
text/n3      n3
# text/parameters
# text/parityfec
text/plain      txt text conf def list log in
# text/provenance-notation
# text/prs.fallenstein.rst
text/prs.lines.tag    dsc
# text/prs.prop.logic
# text/raptorfec
```

```
# text/red
# text/rfc822-headers
text/richtext     rtx
# text/rtf
# text/rtp-enc-aescm128
# text/rtploopback
# text/rtx
text/sgml     sgml sgm
# text/t140
text/tab-separated-values   tsv
text/troff     t tr roff man me ms
text/turtle     ttl
# text/ulpfec
text/uri-list     uri uris urls
text/vcard     vcard
# text/vnd.a
# text/vnd.abc
text/vnd.curl     curl
text/vnd.curl.dcurl     dcurl
text/vnd.curl.mcurl     mcurl
text/vnd.curl.scurl     scurl
# text/vnd.debian.copyright
# text/vnd.dmclientscript
text/vnd.dvb.subtitle     sub
# text/vnd.esmertec.theme-descriptor
text/vnd.fly     fly
text/vnd.fmi.flexstor     flx
text/vnd.graphviz     gv
text/vnd.in3d.3dml     3dml
text/vnd.in3d.spot     spot
#
 text/vnd.iptc.newsml
# text/vnd.iptc.nitf
# text/vnd.latex-z
# text/vnd.motorola.reflex
# text/vnd.ms-mediapackage
# text/vnd.net2phone.commcenter.command
# text/vnd.radisys.msml-basic-layout
# text/vnd.si.uricatalogue
text/vnd.sun.j2me.app-descriptor  jad
# text/vnd.trolltech.linguist
# text/vnd.wap.si
# text/vnd.wap.sl
text/vnd.wap.wml     wml
text/vnd.wap.wmlscript     wmls
text/x-asm     s asm
text/x-c     c cc cxx cpp h hh dic
text/x-fortran     f for f77 f90
```

text/x-java-source java
text/x-nfo nfo
text/x-opml opml
text/x-pascal p pas
text/x-setext etx
text/x-sfv sfv
text/x-uuencode uu
text/x-vcalendar vcs
text/x-vcard vcf
text/xml
text/xml-external-parsed-entity
video/1d-interleaved-parityfec
video/3gpp 3gp
video/3gpp-tt
video/3gpp2 3g2
video/bmpeg
video/bt656
video/celb
video/dv
video/encaprtp
#
video/example
video/h261 h261
video/h263 h263
video/h263-1998
video/h263-2000
video/h264 h264
video/h264-rcdo
video/h264-svc
video/h265
video/iso.segment
video/jpeg jpgv
video/jpeg2000
video/jpm jpm jpgm
video/mj2 mj2 mjp2
video/mp1s
video/mp2p
video/mp2t
video/mp4 mp4 mp4v mpg4
video/mp4v-es
video/mpeg mpeg mpg mpe m1v m2v
video/mpeg4-generic
video/mpv
video/nv
video/ogg ogv
video/parityfec
video/pointer
video/quicktime qt mov

```
# video/raptorfec
# video/raw
# video/rtp-enc-aescm128
# video/rtploopback
# video/rtx
# video/smpte292m
# video/ulpfec
# video/vc1
# video/vnd.cctv
video/vnd.dece.hd    uvh uvvh
video/vnd.dece.mobile    uvm uvvm
# video/vnd.dece.mp4
video/vnd.dece.pd    uvp uvvp
video/vnd.dece.sd    uvs uvvs
video/vnd.dece.video    uvv uvvv
# video/vnd.directv.mpeg
# video/vnd.directv.mpeg-tts
# video/vnd.dlna.mpeg-tts
video/vnd.dvb.file    dvb
video/vnd.fvt     fvt
# video/vnd.hns.video
# video/vnd.iptvforum.1dparityfec-1010
#
 video/vnd.iptvforum.1dparityfec-2005
# video/vnd.iptvforum.2dparityfec-1010
# video/vnd.iptvforum.2dparityfec-2005
# video/vnd.iptvforum.ttsavc
# video/vnd.iptvforum.ttsmpeg2
# video/vnd.motorola.video
# video/vnd.motorola.videop
video/vnd.mpegurl    mxu m4u
video/vnd.ms-playready.media.pyv  pyv
# video/vnd.nokia.interleaved-multimedia
# video/vnd.nokia.videovoip
# video/vnd.objectvideo
# video/vnd.radgamettools.bink
# video/vnd.radgamettools.smacker
# video/vnd.sealed.mpeg1
# video/vnd.sealed.mpeg4
# video/vnd.sealed.swf
# video/vnd.sealedmedia.softseal.mov
video/vnd.uvvu.mp4    uvu uvvu
video/vnd.vivo     viv
# video/vp8
video/webm     webm
video/x-f4v     f4v
video/x-fli     fli
video/x-flv     flv
```

video/x-m4v m4v
video/x-matroska mkv mk3d mks
video/x-mng mng
video/x-ms-asf asf asx
video/x-ms-vob vob
video/x-ms-wm wm
video/x-ms-wmv wmv
video/x-ms-wmx wmx
video/x-ms-wvx wvx
video/x-msvideo avi
video/x-sgi-movie movie
video/x-smv smv
x-conference/x-cooltalk ice

Found
in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/mime.types
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/RequestScope.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/annotation/RequestScope.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ModelAttribute.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/HttpRequestHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RequestAttribute.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/MissingServletRequestPartException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/RequestHeaderMapMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/RequestContextHolder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/DeleteMapping.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/TimeoutDeferredResultProcessingInterceptor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpRequestExecution.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/WebRequestInterceptor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/SessionScope.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/WebAppRootListener.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebBindingInitializer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/CorsConfigurationSource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/PatchMapping.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/PutMapping.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/WebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/FacesWebRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/httpinvoker/HttpInvokerRequestExecutor.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/annotation/ApplicationScope.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/GetMapping.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/session/WebSessionManager.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/json/SpringHandlerInstantiator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/PostMapping.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/CompositeFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/SessionAttribute.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/WebHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/AsyncRequestTimeoutException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ReactiveHttpOutputMessage.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/session/WebSessionIdResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/CorsConfigurationSource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextLiveBeansView.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/CookieValue.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/WebExceptionHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ReactiveHttpInputMessage.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/annotation/SessionScope.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartHttpServletRequest.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AbstractClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/jsf/DelegatingPhaseListenerMulticaster.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/IntrospectorCleanupListener.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/SimpleSessionStatus.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/bind/MissingServletRequestParameterException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/HttpInvokerClientConfiguration.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/HttpMediaTypeNotAcceptableException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/ConfigurableWebEnvironment.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/ServletRequestBindingException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/MediaTypeEditor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/SpringBeanAutowiringSupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/jsf/DecoratingNavigationHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ValueConstants.java
*

/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/ResourceAccessException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/JaxWsSoapFaultException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/InitBinder.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/ResponseStatus.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/OkHttp3ClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/MappingJacksonInputMessage.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/MethodArgumentNotValidException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AbstractAsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/HandlerMethodReturnValueHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/HttpRequestHandlerServlet.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/HttpMediaTypeNotSupportedException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/AbstractUriTemplateHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/HttpComponentsAsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/caucho/HessianClientInterceptor.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/SessionAttributeStore.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/ServletRequestDataBinder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/DeferredResultProcessingInterceptorAdapter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/HttpComponentsStreamingClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/HttpInvokerClientInterceptor.java

* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/AsyncWebRequestInterceptor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/RequestPartServletServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/TimeoutCallableProcessingInterceptor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/ContextExposingHttpServletRequest.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/CorsProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/AsyncRestOperations.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AsyncClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/caucho/HessianProxyFactoryBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/Netty4ClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/CallableProcessingInterceptorAdapter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/StringMultipartFileEditor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/support/ProxyFactoryBean.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/HttpInvokerProxyFactoryBean.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/AbstractBufferingAsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AsyncClientHttpRequestExecution.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/ServletContextAwareProcessor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/StaticWebApplicationContext.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/i18n/LocaleContextResolver.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/feed/RssChannelHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebDataBinderFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/WebApplicationObjectSupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AbstractBufferingClientHttpRequest.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/MethodArgumentTypeMismatchException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/DefaultDataBinderFactory.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/MaxUploadSizeExceededException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/smile/MappingJackson2SmileHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/DefaultSessionAttributeStore.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/session/WebSessionStore.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/LiveBeansViewServlet.java
* /spring-web-5-2-8-release-sources-1-

jar/org/springframework/web/context/support/ServletContextParameterFactoryBean.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/support/HttpRequestWrapper.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/support/UriComponentsContributor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/ServletServerHttpAsyncRequestControl.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/RequestPath.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/jsf/el/SpringBeanFacesELResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebExchangeDataBinder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/SessionStatusMethodArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/EscapedErrors.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/multipart/Part.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/SubSequence.java
*
/spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/CallableProcessingInterceptor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/MethodArgumentConversionNotSupportedException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/AbstractRequestAttributesScope.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/JaxWsPortProxyFactoryBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/OkHttp3AsyncClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/WildcardTheRestPathElement.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/HttpInvokerServiceExporter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/RestController.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/SimpleClientHttpRequestFactory.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpCookie.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/request/async/DeferredResultProcessingInterceptor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/NativeWebRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/multipart/MultipartException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/json/GsonFactoryBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/support/WebArgumentResolver.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/support/InterceptingAsyncHttpAccessor.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/BufferingClientHttpResponseWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/AsyncClientHttpRequestInterceptor.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/PatternParseException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/RequestAttributes.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/OkHttp3ClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/multipart/FormFieldPart.java
* /spring-web-5-2-8-release-sources-1-

jar/org/springframework/web/context/support/ServletContextAttributeFactoryBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/remoting/jaxws/JaxWsPortClientInterceptor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/AsyncWebRequest.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/BufferingClientHttpRequestWrapper.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/ServerWebInputException.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/AsyncRequestCallback.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/method/annotation/ModelMethodProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/DelegatingFilterProxy.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/multipart/support/ByteArrayMultipartFileEditor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/json/GsonBuilderUtils.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/client/HttpComponentsAsyncClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/ServletRequestUtils.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/jaxws/LocalJaxWsServiceFactoryBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2005 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/ServletContextRequestLoggingFilter.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2009 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*

* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/bind/annotation/Mapping.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ReactorServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/support/BaseDefaultCodecs.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/DefaultServerHttpRequestBuilder.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/support/BaseCodecConfigurer.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/Jackson2ObjectMapperBuilder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/PathPatternParser.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/UndertowServerHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/CorsUtils.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/json/AbstractJackson2HttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/AbstractHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/ServletContextPropertyUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/ResponseStatusException.java
*

/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2CodecSupport.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/handler/ExceptionHandlingWebHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ResponseCookie.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/AbstractJackson2Encoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/ServletPathExtensionContentNegotiationStrategy.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/HandlerMethod.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/UnknownContentTypeException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServletServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/multipart/MultipartHttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/RequestEntity.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/MediaType.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/support/ServletContextResourcePatternResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/AbstractJackson2Decoder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/WriteResultPublisher.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/ResourceHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ReadOnlyHttpHeaders.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServletServerHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/filter/ShallowEtagHeaderFilter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ContentDisposition.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ReactorResourceFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/accept/ContentNegotiationManager.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/AbstractServerHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/DefaultUriBuilderFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriComponentsBuilder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/HttpComponentsClientHttpRequestFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/FormHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/TomcatHttpHandlerAdapter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/async/WebAsyncManager.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/AbstractListenerWriteProcessor.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/DefaultPathContainer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServerHttpRequestDecorator.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/DefaultCorsProcessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/RegexPathElement.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ReactorClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/method/ControllerAdviceBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/DefaultCorsProcessor.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/converter/StringHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriComponents.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/UndertowServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/HttpHeaders.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/i18n/AcceptHeaderLocaleContextResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriBuilderFactory.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/ServerSentEventHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/converter/protobuf/ProtobufJsonFormatHttpMessageConverter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServerHttpResponse.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/accept/MappingMediaTypeFileExtensionResolver.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/ResponseEntity.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/server/reactive/ReactorServerHttpResponse.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/pattern/PathPattern.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2Tokenizer.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/NotAcceptableStatusException.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/codec/ServerSentEventHttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RestTemplate.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/http/codec/multipart/SynchronossPartHttpMessageReader.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/DefaultResponseErrorHandler.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/accept/ContentNegotiationManagerFactoryBean.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/MethodNotAllowedException.java
*
 /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/xml/Jaxb2XmlDecoder.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/handler/ResponseStatusExceptionHandler.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/JettyClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/context/support/WebApplicationContextUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/ClientHttpResponse.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/adapter/HttpWebHandlerAdapter.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/remoting/httpinvoker/AbstractHttpInvokerRequestExecutor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/adapter/WebHttpHandlerBuilder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/json/Jackson2JsonDecoder.java
*
 /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/accept/PathExtensionContentNegotiationStrategy.java
* /spring-web-5-2-8-release-sources-1-
jar/org/springframework/web/server/MediaTypeNotSupportedStatusException.java

* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/multipart/MultipartHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/EncoderHttpMessageWriter.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/UriBuilder.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/RestClientException.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/client/HttpMessageConverterExtractor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/CorsUtils.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ReactorClientHttpConnector.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/util/HierarchicalUriComponents.java
*
/spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/reactive/ReactorClientHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/server/session/DefaultWebSessionManager.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/context/request/WebRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/web/cors/reactive/UrlBasedCorsConfigurationSource.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/client/support/InterceptingHttpAccessor.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/server/reactive/ServerHttpRequest.java
* /spring-web-5-2-8-release-sources-1-jar/org/springframework/http/codec/CodecConfigurer.java

1.281 objenesis 3.1

1.281.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.282 commons-pool 1.6

1.282.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or
(iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from)

the Work and for which the
editorial revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication
on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant
of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate

as
of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own
copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work

by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Apache Commons Pool
Copyright 2001-2012 The Apache Software Foundation

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

1.283 mpdecimal 2.4.2

1.283.1 Available under license :

```
/*
* Copyright (c) 2008-2016 Stefan Krah. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
```

* documentation and/or other materials provided with the distribution.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS "AS IS" AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED
 TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

DOCUMENTATION LICENSE
==========

Copyright 2010-2016 Stefan Krah. All rights reserved.

Redistribution and use in source (RST) and 'compiled' forms (HTML, PDF,
PostScript and so forth) with or without modification, are permitted
provided that the following conditions are met:

1. Redistributions of source code (RST) must retain the above
   copyright notice, this list of conditions and the following
   disclaimer as the first lines of this file unmodified.

2. Modified documents must carry a notice that modification has
   occurred. This notice must also be present in any compiled form.

3. Redistributions in compiled form (converted to HTML, PDF,
   PostScript and other formats) must reproduce the above copyright
   notice, this list of conditions and the following disclaimer
   in the documentation and/or other materials provided with the
   distribution.

THIS DOCUMENTATION IS PROVIDED BY THE AUTHOR "AS IS" AND ANY EXPRESS OR
IMPLIED WARRANTIES,
 INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN
NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR

OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

DISTRIBUTOR NOTES
==========

The license is the standard FreeBSD Documentation License with an added clause that requires a user notice for modifications. The following modification notices are sufficient:

RST files

The modification notice may be added below the license:

Copyright 2010-2016 Stefan Krah. All rights reserved.
...
...
IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

This file was modified in 2016 by DISTRIBUTOR.

HTML files

The modification notice may be added to the copyright footer:

Copyright 2010-2016 Stefan Krah, modified 2016 by DISTRIBUTOR.

1.284 txw2 2.3.3

1.284.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Notices for Eclipse Implementation of JAXB

This content is produced and maintained by the Eclipse Implementation of JAXB project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaxb-impl

Trademarks

Eclipse Implementation of JAXB is a trademark of the Eclipse Foundation.

Copyright

All content is the property of the respective authors or their employers. For more information regarding authorship of content, please consult the listed source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms of the Eclipse Distribution License v. 1.0 which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaxb-ri

* https://github.com/eclipse-ee4j/jaxb-istack-commons
* https://github.com/eclipse-ee4j/jaxb-dtd-parser
* https://github.com/eclipse-ee4j/jaxb-fi
*
https://github.com/eclipse-ee4j/jaxb-stax-ex
* https://github.com/eclipse-ee4j/jax-rpc-ri

Third-party Content

This project leverages the following third party content.

Apache Ant (1.10.2)

* License: Apache-2.0 AND W3C AND LicenseRef-Public-Domain

Apache Ant (1.10.2)

* License: Apache-2.0 AND W3C AND LicenseRef-Public-Domain

Apache Felix (1.2.0)

* License: Apache License, 2.0

args4j (2.33)

* License: MIT License

dom4j (1.6.1)

* License: Custom license based on Apache 1.1

file-management (3.0.0)

* License: Apache-2.0
* Project: https://maven.apache.org/shared/file-management/
* Source:
https://svn.apache.org/viewvc/maven/shared/tags/file-management-3.0.0/

JUnit (4.12)

* License: Eclipse Public License

JUnit (4.12)

* License: Eclipse Public License

maven-compat (3.5.2)

* License: Apache-2.0
* Project: https://maven.apache.org/ref/3.5.2/maven-compat/
* Source:
  https://mvnrepository.com/artifact/org.apache.maven/maven-compat/3.5.2

maven-core
(3.5.2)

* License: Apache-2.0
* Project: https://maven.apache.org/ref/3.5.2/maven-core/index.html
* Source: https://mvnrepository.com/artifact/org.apache.maven/maven-core/3.5.2

maven-plugin-annotations (3.5)

* License: Apache-2.0
* Project: https://maven.apache.org/plugin-tools/maven-plugin-annotations/
* Source:
  https://github.com/apache/maven-plugin-tools/tree/master/maven-plugin-annotations

maven-plugin-api (3.5.2)

* License: Apache-2.0

maven-resolver-api (1.1.1)

* License: Apache-2.0

maven-resolver-api (1.1.1)

* License: Apache-2.0

maven-resolver-connector-basic (1.1.1)

* License: Apache-2.0

maven-resolver-impl (1.1.1)

* License: Apache-2.0

maven-resolver-spi (1.1.1)

* License: Apache-2.0

maven-resolver-transport-file (1.1.1)

* License: Apache-2.0
* Project: https://maven.apache.org/resolver/maven-resolver-transport-file/
* Source:

https://github.com/apache/maven-resolver/tree/master/maven-resolver-transport-file

maven-resolver-util (1.1.1)

* License: Apache-2.0

maven-settings
(3.5.2)

* License: Apache-2.0
* Source:
https://mvnrepository.com/artifact/org.apache.maven/maven-settings/3.5.2

OSGi Service Platform Core Companion Code (6.0)

* License: Apache License, 2.0

plexus-archiver (3.5)

* License: Apache-2.0
* Project: https://codehaus-plexus.github.io/plexus-archiver/
* Source: https://github.com/codehaus-plexus/plexus-archiver

plexus-io (3.0.0)

* License: Apache-2.0

plexus-utils (3.1.0)

* License: Apache- 2.0 or Apache- 1.1 or BSD or Public Domain or Indiana
University Extreme! Lab Software License V1.1.1 (Apache 1.1 style)

relaxng-datatype (1.0)

* License: New BSD license

Sax (0.2)

* License: SAX-PD
* Project: http://www.megginson.com/downloads/SAX/
* Source: http://sourceforge.net/project/showfiles.php?group_id=29449

testng (6.14.2)

* License: Apache-2.0 AND (MIT OR GPL-1.0+)
* Project: https://testng.org/doc/index.html
* Source: https://github.com/cbeust/testng

wagon-http-lightweight (3.0.0)

* License: Pending
*
 Project: https://maven.apache.org/wagon/
* Source:
  https://mvnrepository.com/artifact/org.apache.maven.wagon/wagon-http-lightweight/3.0.0

xz for java (1.8)

* License: LicenseRef-Public-Domain

Cryptography

Content may contain encryption software. The country in which you are currently
may have restrictions on the import, possession, and use, and/or re-export to
another country, of encryption software. BEFORE using any encryption software,
please check the country's laws, regulations and policies concerning the import,
possession, or use, and re-export of encryption software, to see if this is
permitted.

1.285 jaxb-runtime 2.3.3

1.285.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

 - Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

 - Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

 - Neither the name of the Eclipse Foundation, Inc. nor the names of its
   contributors may be used to endorse or promote products derived
   from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE
 DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,

EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Notices for Eclipse Implementation of JAXB

This content is produced and maintained by the Eclipse Implementation of JAXB project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaxb-impl

Trademarks

Eclipse Implementation of JAXB is a trademark of the Eclipse Foundation.

Copyright

All content is the property of the respective authors or their employers. For more information regarding authorship of content, please consult the listed source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms of the Eclipse Distribution License v. 1.0 which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaxb-ri
* https://github.com/eclipse-ee4j/jaxb-istack-commons
* https://github.com/eclipse-ee4j/jaxb-dtd-parser
* https://github.com/eclipse-ee4j/jaxb-fi
*
https://github.com/eclipse-ee4j/jaxb-stax-ex
* https://github.com/eclipse-ee4j/jax-rpc-ri

Third-party Content

This project leverages the following third party content.

Apache Ant (1.10.2)

* License: Apache-2.0 AND W3C AND LicenseRef-Public-Domain

Apache Ant (1.10.2)

* License: Apache-2.0 AND W3C AND LicenseRef-Public-Domain

Apache Felix (1.2.0)

* License: Apache License, 2.0

args4j (2.33)

* License: MIT License

dom4j (1.6.1)

* License: Custom license based on Apache 1.1

file-management (3.0.0)

* License: Apache-2.0
* Project: https://maven.apache.org/shared/file-management/
* Source:
  https://svn.apache.org/viewvc/maven/shared/tags/file-management-3.0.0/

JUnit (4.12)

* License: Eclipse Public License

JUnit (4.12)

* License: Eclipse Public License

maven-compat (3.5.2)

* License: Apache-2.0
* Project: https://maven.apache.org/ref/3.5.2/maven-compat/
* Source:
  https://mvnrepository.com/artifact/org.apache.maven/maven-compat/3.5.2

maven-core
(3.5.2)

* License: Apache-2.0
* Project: https://maven.apache.org/ref/3.5.2/maven-core/index.html
* Source: https://mvnrepository.com/artifact/org.apache.maven/maven-core/3.5.2

maven-plugin-annotations (3.5)

* License: Apache-2.0
* Project: https://maven.apache.org/plugin-tools/maven-plugin-annotations/
* Source:
  https://github.com/apache/maven-plugin-tools/tree/master/maven-plugin-annotations

maven-plugin-api (3.5.2)

* License: Apache-2.0

maven-resolver-api (1.1.1)

* License: Apache-2.0

maven-resolver-api (1.1.1)

* License: Apache-2.0

maven-resolver-connector-basic (1.1.1)

* License: Apache-2.0

maven-resolver-impl (1.1.1)

* License: Apache-2.0

maven-resolver-spi (1.1.1)

* License: Apache-2.0

maven-resolver-transport-file (1.1.1)

* License: Apache-2.0
* Project: https://maven.apache.org/resolver/maven-resolver-transport-file/
* Source:
  https://github.com/apache/maven-resolver/tree/master/maven-resolver-transport-file

maven-resolver-util (1.1.1)

* License: Apache-2.0

maven-settings
(3.5.2)

* License: Apache-2.0
* Source:
  https://mvnrepository.com/artifact/org.apache.maven/maven-settings/3.5.2

OSGi Service Platform Core Companion Code (6.0)

* License: Apache License, 2.0

plexus-archiver (3.5)

* License: Apache-2.0
* Project: https://codehaus-plexus.github.io/plexus-archiver/
* Source: https://github.com/codehaus-plexus/plexus-archiver

plexus-io (3.0.0)

* License: Apache-2.0

plexus-utils (3.1.0)

* License: Apache- 2.0 or Apache- 1.1 or BSD or Public Domain or Indiana
  University Extreme! Lab Software License V1.1.1 (Apache 1.1 style)

relaxng-datatype (1.0)

* License: New BSD license

Sax (0.2)

* License: SAX-PD
* Project: http://www.megginson.com/downloads/SAX/
* Source: http://sourceforge.net/project/showfiles.php?group_id=29449

testng (6.14.2)

* License: Apache-2.0 AND (MIT OR GPL-1.0+)
* Project: https://testng.org/doc/index.html
* Source: https://github.com/cbeust/testng

wagon-http-lightweight (3.0.0)

* License: Pending
*
 Project: https://maven.apache.org/wagon/
* Source:
  https://mvnrepository.com/artifact/org.apache.maven.wagon/wagon-http-lightweight/3.0.0

xz for java (1.8)

* License: LicenseRef-Public-Domain

Cryptography

Content may contain encryption software. The country in which you are currently may have restrictions on the import, possession, and use, and/or re-export to another country, of encryption software. BEFORE using any encryption software, please check the country's laws, regulations and policies concerning the import, possession, or use, and re-export of encryption software, to see if this is permitted.

1.286 spring-context-support 5.2.8.RELEASE

1.286.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailAuthenticationException.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/transaction/AbstractTransactionSupportingCacheManager.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/DelegatingWork.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/DelegatingTimerListener.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/DelegatingJob.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailParseException.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/JobMethodInvocationFailedException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/MethodInvokingJobDetailFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheRemoveOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheRemoveAllInterceptor.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/transaction/TransactionAwareCacheDecorator.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheRemoveEntryInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AbstractJCacheOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AbstractCacheInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SchedulerAccessor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/JCacheOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/LocalDataSourceJobStore.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/ResourceLoaderClassLoadHelper.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/MimeMessagePreparator.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailPreparationException.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/TimerManagerAccessor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/MimeMailMessage.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/ScheduledTimerListener.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/SmartMimeMessage.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailException.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/transaction/TransactionAwareCacheManagerProxy.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/ehcache/EhCacheManagerFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/ui/freemarker/FreeMarkerConfigurationFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailMessage.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SchedulerAccessorBean.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/JCacheCache.java
* /spring-context-support-5-2-8-release-sources-
jar/org/springframework/cache/caffeine/CaffeineCacheManager.java
* /spring-context-support-5-2-8-release-sources-
jar/org/springframework/cache/ehcache/EhCacheCacheManager.java
*
 /spring-context-support-5-2-8-release-sources-
jar/org/springframework/cache/jcache/config/AbstractJCacheConfiguration.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/JCacheCacheManager.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/caffeine/CaffeineCache.java
* /spring-context-support-5-2-8-release-sources-
jar/org/springframework/scheduling/commonj/WorkManagerTaskExecutor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/ehcache/EhCacheCache.java
No license file was found, but licenses were detected in source scan.

################################################################################
# Copyright 2002-2019 the original author or authors.
#
# Licensed under the Apache License, Version 2.0 (the "License");
# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
#
#      https://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.
################################################################################
```

```
###############################################################################
#
# Defaults for the Java Activation Framework (revised).
#
# Modified extensions registered
 in this file:
# text/plain   java c c++ cpp pl cc h
# image/png    png
# image/svg+xml   svg
#
###############################################################################

text/html    html htm HTML HTM
text/plain    txt text TXT TEXT java c c++ cpp pl cc h
image/gif    gif GIF
image/ief    ief
image/jpeg    jpeg jpg jpe JPG
image/tiff    tiff tif
image/x-xwindowdump   xwd
application/postscript   ai eps ps
application/rtf    rtf
application/x-tex   tex
application/x-texinfo   texinfo texi
application/x-troff   t tr roff
audio/basic    au
audio/midi    midi mid
audio/x-aifc    aifc
audio/x-aiff    aif aiff
audio/x-mpeg    mpeg mpg
audio/x-wav    wav
video/mpeg    mpeg mpg mpe
video/quicktime    qt mov
video/x-msvideo    avi

###############################################################################
#
# Additional file types adapted from
# http://sites.utoronto.ca/webdocs/HTMLdocs/Book/Book-3ed/appb/mimetype.html
# kindly re-licensed to Apache Software License 2.0 by
 Ian Graham.
#
###############################################################################

# TEXT TYPES

text/x-speech    talk
text/css    css
text/csv    csv
```

```
# IMAGE TYPES

# X-Windows bitmap (b/w)
image/x-xbitmap    xbm
# X-Windows pixelmap (8-bit color)
image/x-xpixmap    xpm
# Portable Network Graphics
image/png    png
# Scalable Vector Graphics
image/svg+xml   svg
# Image Exchange Format (RFC 1314)
image/ief    ief
# RGB
image/rgb    rgb
# Group III Fax (RFC 1494)
image/g3fax    g3f
# X Windowdump format
image/x-xwindowdump   xwd
# Macintosh PICT format
image/x-pict    pict
# PPM (UNIX PPM package)
image/x-portable-pixmap   ppm
# PGM (UNIX PPM package)
image/x-portable-graymap  pgm
# PBM (UNIX PPM package)
image/x-portable-bitmap   pbm
# PNM (UNIX PPM package)
image/x-portable-anymap   pnm
# Microsoft Windows bitmap
image/x-ms-bmp    bmp
# CMU raster
image/x-cmu-raster   ras
# Kodak Photo-CD
image/x-photo-cd   pcd
# Computer Graphics Metafile
image/cgm    cgm
# CALS Type 1
 or 2
image/x-cals    mil cal
# Fractal Image Format (Iterated Systems)
image/fif    fif
# QuickSilver active image (Micrografx)
image/x-mgx-dsf    dsf
# CMX vector image (Corel)
image/x-cmx    cmx
# Wavelet-compressed (Summus)
image/wavelet    wi
```

```
# AutoCad Drawing (SoftSource)
image/vnd.dwg    dwg
# AutoCad DXF file (SoftSource)
image/vnd.dxf    dxf
# Simple Vector Format (SoftSource)
image/vnd.svf    svf

# AUDIO/VOICE/MUSIC RELATED TYPES

# """basic""audio - 8-bit u-law PCM"
audio/basic    au snd
# Macintosh audio format (AIpple)
audio/x-aiff    aif aiff aifc
# Microsoft audio
audio/x-wav    wav
# MPEG audio
audio/x-mpeg    mpa abs mpega
# MPEG-2 audio
audio/x-mpeg-2    mp2a mpa2
# compressed speech (Echo Speech Corp.)
audio/echospeech   es
# Toolvox speech audio (Voxware)
audio/voxware    vox
# RapidTransit compressed audio (Fast Man)
application/fastman   lcc
# Realaudio (Progressive Networks)
application/x-pn-realaudio  ra ram
# MIDI music data
x-music/x-midi    mmid
# Koan music
 data (SSeyo)
application/vnd.koan   skp
# Speech synthesis data (MVP Solutions)
text/x-speech    talk

# VIDEO TYPES

# MPEG video
video/mpeg    mpeg mpg mpe
# MPEG-2 video
video/mpeg-2    mpv2 mp2v
# Macintosh Quicktime
video/quicktime    qt mov
# Microsoft video
video/x-msvideo    avi
# SGI Movie format
video/x-sgi-movie   movie
# VDOlive streaming video (VDOnet)
```

video/vdo vdo
Vivo streaming video (Vivo software)
video/vnd.vivo viv

SPECIAL HTTP/WEB APPLICATION TYPES

Proxy autoconfiguration (Netscape browsers)
application/x-ns-proxy-autoconfig pac
Netscape Cooltalk chat data (Netscape)
x-conference/x-cooltalk ice

TEXT-RELATED

PostScript
application/postscript ai eps ps
Microsoft Rich Text Format
application/rtf rtf
Adobe Acrobat PDF
application/pdf pdf
Maker Interchange Format (FrameMaker)
application/vnd.mif mif
Troff document
application/x-troff t tr roff
Troff document with MAN macros
application/x-troff-man man
Troff document with
ME macros
application/x-troff-me me
Troff document with MS macros
application/x-troff-ms ms
LaTeX document
application/x-latex latex
Tex/LateX document
application/x-tex tex
GNU TexInfo document
application/x-texinfo texinfo texi
TeX dvi format
application/x-dvi dvi
MS word document
application/msword doc DOC
Office Document Architecture
application/oda oda
Envoy Document
application/envoy evy

ARCHIVE/COMPRESSED ARCHIVES

Gnu tar format

```
application/x-gtar   gtar
# 4.3BSD tar format
application/x-tar   tar
# POSIX tar format
application/x-ustar   ustar
# Old CPIO format
application/x-bcpio   bcpio
# POSIX CPIO format
application/x-cpio   cpio
# UNIX sh shell archive
application/x-shar   shar
# DOS/PC - Pkzipped archive
application/zip    zip
# Macintosh Binhexed archive
application/mac-binhex40  hqx
# Macintosh Stuffit Archive
application/x-stuffit   sit sea
# Fractal Image Format
application/fractals   fif
# "Binary UUencoded"
application/octet-stream  bin
 uu
# PC executable
application/octet-stream  exe
# "WAIS ""sources"""
application/x-wais-source  src wsrc
# NCSA HDF data format
application/hdf    hdf

# DOWNLOADABLE PROGRAM/SCRIPTS

# Javascript program
text/javascript    js ls mocha
# UNIX bourne shell program
application/x-sh   sh
# UNIX c-shell program
application/x-csh   csh
# Perl program
application/x-perl   pl
# Tcl (Tool Control Language) program
application/x-tcl   tcl

# ANIMATION/MULTIMEDIA

# FutureSplash vector animation (FutureWave)
application/futuresplash  spl
# mBED multimedia data (mBED)
application/mbedlet   mbd
```

```
# PowerMedia multimedia (RadMedia)
application/x-rad-powermedia  rad

# PRESENTATION

# PowerPoint presentation (Microsoft)
application/mspowerpoint  ppz
# ASAP WordPower (Software Publishing Corp.)
application/x-asap   asp
# Astound Web Player multimedia data (GoldDisk)
application/astound   asn

# SPECIAL EMBEDDED OBJECT

# OLE script e.g. Visual Basic (Ncompass)
application/x-olescript   axs
#
 OLE Object (Microsoft/NCompass)
application/x-oleobject   ods
# OpenScape OLE/OCX objects (Business@Web)
x-form/x-openscape   opp
# Visual Basic objects (Amara)
application/x-webbasic   wba
# Specialized data entry forms (Alpha Software)
application/x-alpha-form  frm
# client-server objects (Wayfarer Communications)
x-script/x-wfxclient   wfx

# GENERAL APPLICATIONS

# Undefined binary data (often executable progs)
application/octet-stream  exe com
# Pointcast news data (Pointcast)
application/x-pcn   pcn
# Excel spreadsheet (Microsoft)
application/vnd.ms-excel  xls
# PowerPoint (Microsoft)
application/vnd.ms-powerpoint  ppt
# Microsoft Project (Microsoft)
application/vnd.ms-project  mpp
# SourceView document (Dataware Electronics)
application/vnd.svd   svd
# Net Install - software install (20/20 Software)
application/x-net-install  ins
# Carbon Copy - remote control/access (Microcom)
application/ccv    ccv
# Spreadsheets (Visual Components)
workbook/formulaone   vts
```

```
# 2D/3D DATA/VIRTUAL
 REALITY TYPES

# VRML data file
x-world/x-vrml    wrl vrml
# WIRL - VRML data (VREAM)
x-world/x-vream    vrw
# Play3D 3d scene data (Play3D)
application/x-p3d   p3d
# Viscape Interactive 3d world data (Superscape)
x-world/x-svr    svr
# WebActive 3d data (Plastic Thought)
x-world/x-wvr    wvr
# QuickDraw3D scene data (Apple)
x-world/x-3dmf    3dmf

# SCIENTIFIC/MATH/CAD TYPES

# Mathematica notebook
application/mathematica   ma
# Computational meshes for numerical simulations
x-model/x-mesh    msh
# Vis5D 5-dimensional data
application/vis5d   v5d
# IGES models -- CAD/CAM (CGM) data
application/iges   igs
# Autocad WHIP vector drawings
drawing/x-dwf    dwf

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/mime.types
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2011 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
```

*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SchedulerContextAware.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheRemoveAllOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/ehcache/EhCacheManagerUtils.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/JavaMailSender.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailSender.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/InternetAddressEditor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/QuartzJobBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/ui/freemarker/FreeMarkerTemplateUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/ui/freemarker/FreeMarkerConfigurationFactory.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/TimerManagerFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AbstractFallbackJCacheOperationSource.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheResultOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/JCacheAspectSupport.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/DefaultJCacheOperationSource.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/DefaultCacheKeyInvocationContext.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SpringBeanJobFactory.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SchedulerFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/ConfigurableMimeFileTypeMap.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/MimeMessageHelper.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/commonj/TimerManagerTaskScheduler.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/SimpleExceptionCacheResolver.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/JCacheInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AnnotationJCacheOperationSource.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/JCacheManagerFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/config/JCacheConfigurer.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/ehcache/EhCacheFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SimpleTriggerFactoryBean.java
*
 /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CachePutOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/DefaultCacheMethodDetails.java

* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/LocalTaskExecutorThreadPool.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/JCacheOperationSourcePointcut.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/javamail/JavaMailSenderImpl.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheResultInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/CronTriggerFactoryBean.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/SimpleThreadPoolTaskExecutor.java
*
/spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AbstractJCacheKeyOperation.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/BeanFactoryJCacheOperationSourceAdvisor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/DefaultCacheInvocationContext.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/MailSendException.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/config/JCacheConfigurerSupport.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/AdaptableJobFactory.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CachePutInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/config/ProxyJCacheConfiguration.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/scheduling/quartz/JobDetailFactoryBean.java
*
/spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/AbstractKeyCacheInterceptor.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/JCacheOperationSource.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/CacheResolverAdapter.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/mail/SimpleMailMessage.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/ui/freemarker/SpringTemplateLoader.java
* /spring-context-support-5-2-8-release-sources-jar/org/springframework/cache/jcache/interceptor/KeyGeneratorAdapter.java

1.287 zstd 1.3.8+dfsg-3+deb10u2

1.287.1 Available under license :

Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: Zstd
Source: https://github.com/facebook/zstd

Files-Excluded: appveyor.yml
circle.yml
build/*
programs/windres/*
.travis.yml
.buckversion
.buckconfig
.circleci/*

Files: *
Copyright: 2013-2018, Yann Collet
2016, Przemyslaw Skibinski
2016-2018, Facebook, Inc.
License: BSD-3-clause and GPL-2
Comment: Starting from 1.3.1 zstd's patent claim is removed
see: https://github.com/facebook/zstd/pull/801

Files: zlibWrapper/examples/*.c
Copyright: 1995-2006, 2011 Jean-loup Gailly
License: zlib

Files: zlibWrapper/gz*.c
Copyright: (C) 2004, 2005, 2010, 2011, 2012, 2013 Mark Adler
License: zlib

License: zlib
This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.
.
Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:
.
1. The origin of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software
in a product, an acknowledgement in the product documentation would be
appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Files: contrib/linux-kernel/fs/squashfs/*
Copyright: 2017 Facebook
License: GPL-2+
This program is free software; you can redistribute it and/or
modify it under the terms of the GNU General Public License
as published by the Free Software Foundation; either version 2,

or (at your option) any later version.
.
This program is distributed
in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
On Debian systems you can find a full copy of the GNU General Public
License version 2 at /usr/share/common-licenses/GPL-2.

Files: lib/dictBuilder/divsufsort.*
Copyright: 2003-2008, Yuta Mori
License: Expat

Files: examples/*
Copyright: 2016-present, Yann Collet, Facebook, Inc.
License: BSD-3-clause and GPL-2

Files: debian/*
Copyright: 2015-2016 Kevin Murray <spam@kdmurray.id.au>
License: Expat

License: Expat
Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom
the Software is furnished to do so, subject to
the following conditions:
.
The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.
.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

License: GPL-2
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License, v2, as

published by the Free Software Foundation
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty
 of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.
.
On Debian systems, the complete text of the GNU General Public
License version 2 can be found in `/usr/share/common-licenses/GPL-2'.

License: BSD-3-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
   * Redistributions of source code must retain the above copyright
     notice, this list of conditions and the following disclaimer.
   * Redistributions in binary form must reproduce the above copyright
     notice, this list of conditions and the following disclaimer in the
     documentation and/or other materials provided with the distribution.
   *
 Neither the name of cereal nor the
     names of its contributors may be used to endorse or promote products
     derived from this software without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL RANDOLPH VOORHIES OR SHANE GRANT BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.288 libpciaccess 0.11.0

1.288.1 Available under license :

(C) Copyright IBM Corporation 2006, 2007
(C) Copyright Eric Anholt 2006
All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy

of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation on the rights to use, copy, modify, merge, publish, distribute, sub license, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice (including the next paragraph) shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL IBM AND/OR THEIR SUPPLIERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright 2007, 2008, 2009 Sun Microsystems, Inc. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

Copyright (c) 2008 Juan Romero Pardines
Copyright (c) 2008 Mark Kettenis

Permission to use, copy, modify, and distribute this software
for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (C) 2000 The XFree86 Project, Inc. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to
deal in the Software without restriction, including
without limitation the
rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
sell copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
XFREE86 PROJECT BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the XFree86 Project shall
not be used in advertising or otherwise to promote the sale, use or other
dealings in this Software
without prior written authorization from the
XFree86 Project.

1.289 spring-webflux 5.2.8.RELEASE

1.289.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/RequestMappingHandlerMapping.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/RequestMappingHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/condition/ParamsRequestCondition.java
*
 /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/AbstractHandlerMethodMapping.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/ResponseEntityResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/BodyInserters.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/ModelAttributeMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/DefaultClientResponseBuilder.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/server/DefaultServerRequest.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/DefaultWebClient.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/DefaultWebClientBuilder.java
*
 /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/condition/ConsumesRequestCondition.java

* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/CorsRegistry.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ControllerMethodResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/WebFluxConfigurationSupport.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/DelegatingWebFluxConfiguration.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/client/ReactorNettyWebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/handler/AbstractHandlerMapping.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/HeadersRequestCondition.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/DefaultServerResponseBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/DefaultClientResponse.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/ProducesRequestCondition.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ClientResponse.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/AppCacheManifestTransformer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/upgrade/JettyRequestUpgradeStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/DefaultServerRequestBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/RequestMappingInfo.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RouterFunctionBuilder.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/RedirectView.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RequestPredicates.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/PatternsRequestCondition.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/upgrade/ReactorNettyRequestUpgradeStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/AbstractMessageWriterResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/WebSocketMessage.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/PathResourceLookupFunction.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/upgrade/TomcatRequestUpgradeStrategy.java

* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/server/RouterFunctions.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/RequestAttributeMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/server/ServerRequest.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/WebClientUtils.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/WebClient.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/ResourceUrlProvider.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/condition/RequestMethodsRequestCondition.java
*
 /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/server/upgrade/UndertowRequestUpgradeStrategy.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/condition/RequestConditionHolder.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/method/annotation/RequestParamMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/CloseStatus.java
*
 /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/UrlBasedViewResolverRegistration.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/script/ScriptTemplateViewResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/DefaultRendering.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/HandlerResult.java
* /spring-webflux-5-2-8-release-sources-1-

jar/org/springframework/web/reactive/function/client/WebClientException.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/WebFluxConfigurerComposite.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/VersionStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/HandlerFunction.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/DefaultRenderingBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ModelInitializer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/SessionAttributeMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/freemarker/FreeMarkerViewResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/accept/ParameterContentTypeResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/ResourceHandlerFunction.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ArgumentResolverConfigurer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/ResourceChainRegistration.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ExpressionValueMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/UndertowWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/MatrixVariableMethodArgumentResolver.java

*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/PathVariableMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/MatrixVariableMapMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/WebSocketHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/CompositeRequestCondition.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/client/TomcatWebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/support/ServerResponseResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/UnsupportedMediaTypeException.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/accept/RequestedContentTypeResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/handler/WebFluxResponseStatusExceptionHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/PathVariableMapMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/ResourceResolverChain.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/script/RenderingContext.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/ResourceHandlerRegistry.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/ToStringVisitor.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/RequestHeaderMapMethodArgumentResolver.java
*
/spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/Rendering.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/freemarker/FreeMarkerConfigurer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/HttpMessageWriterView.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/CorsRegistration.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/WebFluxConfigurer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/FixedVersionStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/DefaultResourceTransformerChain.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/accept/HeaderContentTypeResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/NettyWebSocketSessionSupport.java
*

/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/AbstractWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/ViewResolverRegistry.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/ReactorNettyWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/RequestUpgradeStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/support/WebSocketHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/upgrade/DefaultServerEndpointConfig.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/handler/AbstractUrlHandlerMapping.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/SyncInvocableHandlerMethod.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/HandlerMethodArgumentResolverComposite.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/WebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/support/HandlerFunctionAdapter.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/TomcatWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/ResourceTransformerSupport.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/AbstractPrefixVersionStrategy.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/accept/FixedContentTypeResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/WebSocketService.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/RequestCondition.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/ViewResolverSupport.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/UndertowWebSocketHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/HttpResource.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/SimpleHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/accept/RequestedContentTypeResolverBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/DefaultHandlerStrategiesBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/ContentVersionStrategy.java
*

/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/DefaultClientRequestBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/client/JettyWebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/AbstractMediaTypeExpression.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/client/StandardWebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RenderingResponse.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ResponseBodyResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/JettyWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/AbstractNameValueExpression.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/AbstractUrlBasedView.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/InitBinderBindingContext.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/TransformedResource.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/ViewResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/server/support/HandshakeWebSocketService.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/PathMatchConfigurer.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/BodyInserter.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/UnknownHttpStatusCodeException.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RouterFunction.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/AbstractListenerWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/HandshakeInfo.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ErrorsMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/AbstractNamedValueArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/ResourceTransformerChain.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/NameValueExpression.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/DefaultResourceResolverChain.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ExchangeFunction.java

*
 /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/CookieValueMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/GzipResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/BindingContext.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/BodyExtractor.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/SyncHandlerMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/StandardWebSocketSession.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/HandlerFilterFunction.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/AbstractNamedValueSyncArgumentResolver.java
*
 /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/SessionStatusMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/BindStatus.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/RequestParamMapMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/RequestHeaderMethodArgumentResolver.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/ServerResponse.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/BodyExtractors.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RequestPredicate.java
*

/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/script/ScriptTemplateConfig.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/DefaultExchangeStrategiesBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/EntityResponse.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ContinuationHandlerMethodArgumentResolver.jav
a
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/support/ServerRequestWrapper.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/config/EnableWebFlux.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/WebClientResponseException.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/CssLinkResourceTransformer.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/DefaultRenderingResponseBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ModelMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/JettyWebSocketHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/HandlerStrategies.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ExchangeFilterFunction.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/support/ClientResponseWrapper.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/script/ScriptTemplateConfigurer.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/RequestContext.java
*
/spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/ResourceWebHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/WebSessionMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/server/ServerWebExchangeExtensions.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/ServerWebExchangeMethodArgumentResolver.jav
a
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/RequestBodyMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/ServerRequestExtensions.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/HandlerMethodArgumentResolverSupport.java
* /spring-webflux-5-2-8-release-sources-1-

jar/org/springframework/web/reactive/result/view/script/ScriptTemplateView.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/support/RouterFunctionMapping.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/CachingResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/adapter/StandardWebSocketHandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/View.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/ViewResolutionResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/WebClientExtensions.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/AbstractMessageReaderArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/PathResourceResolver.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/HandlerResultHandlerSupport.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/condition/AbstractRequestCondition.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/SessionAttributesHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/UrlBasedViewResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RenderingResponseExtensions.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ExchangeStrategies.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/WebJarsResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/ServerResponseExtensions.kt
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ExchangeFilterFunctions.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/RequestPartMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/socket/client/UndertowWebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/RequestMappingInfoHandlerMapping.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/RouterFunctionDsl.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/HttpEntityMethodArgumentResolver.java
* /spring-webflux-5-2-8-release-sources-1-

jar/org/springframework/web/reactive/result/method/InvocableHandlerMethod.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ExchangeFunctions.java
*
/spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/function/client/ClientRequest.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/AbstractView.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/ResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/VersionResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/EncodedResourceResolver.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/client/ClientResponseExtensions.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/CoRouterFunctionDsl.kt
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/annotation/PrincipalMethodArgumentResolver.java
*
/spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/view/freemarker/FreeMarkerView.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/DispatcherHandler.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/function/server/DefaultEntityResponseBuilder.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/CachingResourceTransformer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/handler/SimpleUrlHandlerMapping.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* A contract for inspecting and potentially modifying request data values such
* as URL query parameters or form field values before they are rendered by a
* view or before a redirect.

```
*
* <p>Implementations may use this contract for example as part of a solution
* to provide data integrity, confidentiality,
 protection against cross-site
* request forgery (CSRF), and others or for other tasks such as automatically
* adding a hidden field to all forms and URLs.
*
* <p>View technologies that support this contract can obtain an instance to
* delegate to via {@link RequestContext#getRequestDataValueProcessor()}.
*
* @author Rossen Stoyanchev
* @since 5.0
*/
```

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/RequestDataValueProcessor.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*      https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/condition/MediaTypeExpression.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/socket/client/WebSocketClient.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/resource/AbstractResourceResolver.java
*
 /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/result/view/freemarker/FreeMarkerConfig.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/HandlerAdapter.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/HandlerResultHandler.java
* /spring-webflux-5-2-8-release-sources-1-

jar/org/springframework/web/reactive/resource/ResourceTransformer.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/config/ResourceHandlerRegistration.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/resource/AbstractFileNameVersionStrategy.java
* /spring-webflux-5-2-8-release-sources-1-jar/org/springframework/web/reactive/HandlerMapping.java
* /spring-webflux-5-2-8-release-sources-1-
jar/org/springframework/web/reactive/result/method/HandlerMethodArgumentResolver.java

1.290 spring-test 5.2.8.RELEASE

1.290.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2014 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/web/WebDelegatingSmartContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/GenericXmlContextLoader.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DelegatingSmartContextLoader.java
*
 /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/MockMvcConfigurerAdapter.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/GenericPropertiesContextLoader.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DefaultTestContextBootstrapper.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/MergedTestPropertySources.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2016 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/web/socket/MockServerContainerContextCustomizerFactory.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ActiveProfilesResolver.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/Rollback.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/jdbc/SqlConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/Commit.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/SpringRunner.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/DelegatingServletOutputStream.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/ResultHandler.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/RequestMatcher.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/request/RequestPostProcessor.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/web/WebTestContextBootstrapper.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/DispatcherServletCustomizer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/htmlunit/WebRequestMatcher.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/cache/ContextCacheUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunAfterTestClassCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextCustomizer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/jdbc/SqlGroup.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/UrlRegexRequestMatcher.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/ResponseCreator.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestContextBootstrapper.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunAfterTestMethodCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextCustomizerFactory.java
No license file was found, but licenses were detected in source scan.

/*

* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/mock/http/server/reactive/MockServerHttpRequest.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/transaction/TestContextTransactionUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/AbstractRequestExpectationManager.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/DynamicPropertyRegistry.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/mock/web/reactive/function/server/MockServerRequest.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockHttpServletRequest.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DynamicValuesPropertySource.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DynamicPropertiesContextCustomizerFactory.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/mock/http/client/reactive/MockClientHttpResponse.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/HtmlUnitRequestBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/HttpHandlerConnector.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/request/MockHttpServletRequestBuilder.java
*
 /spring-test-5-2-8-release-sources-1-
jar/org/springframework/mock/http/server/reactive/MockServerHttpResponse.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/mock/http/client/reactive/MockClientHttpRequest.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/WebTestClient.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/DynamicPropertySource.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestPropertySource.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/StandaloneMockMvcBuilder.java

* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/DynamicPropertiesContextCustomizer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/http/MockHttpOutputMessage.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/htmlunit/MockMvcWebConnectionBuilderSupport.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2018 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/BootstrapWith.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/RequestExpectation.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/DirtiesContextTestExecutionListener.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/BootstrapUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockBodyContent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/setup/MockMvcBuilders.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/statements/RunBeforeTestExecutionCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/FluxExchangeResult.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/web/GenericGroovyXmlWebContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/AbstractMockServerSpec.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/server/MockWebSession.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/setup/ConfigurableMockMvcBuilder.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/TestDispatcherServlet.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockRequestDispatcher.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockJspWriter.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/SmartRequestBuilder.java
* /spring-test-5-2-8-release-sources-1-

jar/org/springframework/test/context/web/AnnotationConfigWebContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/JsonPathExpectationsHelper.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/AbstractMockMvcBuilder.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DependencyInjectionTestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/XmlExpectationsHelper.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/reactive/server/DefaultRouterFunctionSpec.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/transaction/TestTransaction.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockHttpSession.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/SimpleRequestExpectationManager.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AbstractDelegatingSmartContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/RequestExpectationManager.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/ApplicationContextInitializerUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DirtiesContextBeforeModesTestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockMultipartFile.java
*
/spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/SpringFailOnTimeout.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/DelegatingWebConnection.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/HeaderAssertions.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/DefaultControllerSpec.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/server/MockServerWebExchange.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockPageContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AbstractTestContextBootstrapper.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/GenericGroovyXmlContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/DefaultMvcResult.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/ExpectedCount.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockSessionCookieConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/PrintingResultHandler.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/rules/SpringClassRule.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/DefaultActiveProfilesResolver.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/env/MockEnvironment.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/transaction/TransactionContext.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockExpressionEvaluator.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/web/socket/MockServerContainer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/JsonExpectationsHelper.java

*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/rules/SpringMethodRule.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvcBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/jdbc/JdbcTestUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/ResultActions.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/WiretapConnector.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/cache/ContextCache.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/DefaultBootstrapContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/result/StatusResultMatchersExtensions.kt
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/transaction/TransactionContextHolder.java
*
/spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunAfterTestExecutionCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockFilterChain.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/UnorderedRequestExpectationManager.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockServletConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockPart.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MvcResult.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/SystemProfileValueSource.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/PassThroughFilterChain.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/ForwardRequestPostProcessor.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/DefaultRequestExpectation.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/MockWebResponseBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/ContextLoaderUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/DelegatingServletInputStream.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/ProfileValueUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockFilterConfig.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunPrepareTestInstanceCallbacks.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2020 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/**
* Kotlin compliant `WebTestClient.BodySpec` for expectations on the response body decoded
* to a single Object, see [KT-5464](https://youtrack.jetbrains.com/issue/KT-5464) for
* more details.
* @since 5.0.6
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/WebTestClientExtensions.kt
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2015 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/web/GenericXmlWebContextLoader.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunBeforeTestMethodCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/statements/SpringRepeat.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/BootstrapContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/RunBeforeTestClassCallbacks.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/ResponseActions.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AbstractDirtiesContextTestExecutionListener.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2019 the original author or authors.

*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/MockMvcWebConnection.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvcResultMatchersDsl.kt
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/jdbc/SqlScriptsTestExecutionListener.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvcResultHandlersDsl.kt
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/event/annotation/PrepareTestInstance.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/RequestResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/ExchangeResult.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/XpathResultMatchers.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/reactive/server/DefaultWebTestClientBuilder.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/AbstractTransactionalJUnit4SpringContextTests.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/StubWebApplicationContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/result/FlashAttributeResultMatchers.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/match/MockRestRequestMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/MetaAnnotationUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/reactive/server/WebTestClientConfigurer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockHttpServletRequestDsl.kt
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/Repeat.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/event/annotation/AfterTestExecution.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/match/XpathRequestMatchers.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/reactive/server/DefaultMockServerSpec.java
* /spring-test-5-2-8-release-sources-1-

jar/org/springframework/test/context/support/AbstractGenericContextLoader.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/match/JsonPathRequestMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/MockMvcResultHandlers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/TestPropertySourceUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/MockMvcClientHttpRequestFactory.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockHttpServletResponse.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/web/AbstractGenericWebContextLoader.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/MockMultipartHttpServletRequestDsl.kt
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextHierarchy.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/DefaultWebTestClient.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/annotation/AfterTestMethod.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/htmlunit/HostRequestMatcher.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AnnotationConfigContextLoaderUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/AbstractJUnit4SpringContextTests.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/DirtiesContext.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestExecutionListeners.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/match/ContentRequestMatchers.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/response/MockRestResponseCreators.java
*
/spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/request/ConfigurableSmartRequestBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockMultipartHttpServletRequest.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/transaction/TransactionalTestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/ModelAndViewAssert.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/ContentResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/EnabledIf.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/jdbc/Sql.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/CacheAwareContextLoaderDelegate.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/annotation/BeforeTestMethod.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/XpathAssertions.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/StatusAssertions.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/transaction/BeforeTransaction.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/HeaderValueHolder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/TestAnnotationUtils.java
* /spring-test-5-2-8-release-sources-1-

jar/org/springframework/test/context/web/WebMergedContextConfiguration.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/AfterTestClassEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestPropertySources.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/HeaderResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/ViewResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/ResultMatcher.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/DisabledIf.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/testng/AbstractTestNGSpringContextTests.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/jndi/SimpleNamingContextBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextConfiguration.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/cache/DefaultContextCache.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockCookie.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockAsyncContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AbstractTestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/DefaultTestContext.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/JsonPathResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/BeforeTestExecutionEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/jndi/SimpleNamingContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/testng/AbstractTransactionalTestNGSpringContextTests.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/SpringExtension.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/annotation/ProfileValueSourceConfiguration.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/BeforeTestMethodEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvcExtensions.kt
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/MockServerConfigurer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/client/MockRestServiceServer.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/AnnotationConfigContextLoader.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/support/TestPropertySourceAttributes.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/annotation/BeforeTestClass.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/event/annotation/BeforeTestExecution.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/transaction/AfterTransaction.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/BeforeTestClassEvent.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/request/MockMvcRequestBuilders.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/web/MockServletContext.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/cache/DefaultCacheAwareContextLoaderDelegate.java
* /spring-test-5-2-8-release-sources-1-

jar/org/springframework/test/context/event/EventPublishingTestExecutionListener.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/IfProfileValue.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/XpathExpectationsHelper.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/ModelResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/jdbc/SqlMergeMode.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestContextManager.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/util/TestContextResourceUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/web/WebAppConfiguration.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit4/SpringJUnit4ClassRunner.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/annotation/AfterTestClass.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/Timed.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/jdbc/MergedSqlConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/AfterTestMethodEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/ReflectionTestUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/StatusResultMatchers.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/TestContextEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvc.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/result/MockMvcResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/TestConstructor.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/AssertionErrors.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ActiveProfiles.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/TestConstructorUtils.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/AfterTestExecutionEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/CookieResultMatchers.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/result/HandlerResultMatchers.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/event/PrepareTestInstanceEvent.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/jndi/ExpectedLookupTemplate.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/PatternMappingFilterProxy.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/AbstractContextLoader.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2012 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/annotation/ProfileValueSource.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/env/MockPropertySource.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2017 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/http/MockHttpInputMessage.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/SpringJUnitConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/RequestBuilder.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/ApplicationContextSpec.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/webdriver/MockMvcHtmlUnitDriverBuilder.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/MockMvcBuilderSupport.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit4/statements/ProfileValueChecker.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/MockMvcWebClientBuilder.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/request/MockMultipartHttpServletRequestBuilder.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/setup/SharedHttpSessionConfigurer.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/web/socket/MockServerContainerContextCustomizer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/DisabledIfCondition.java
*
 /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/http/client/MockAsyncClientHttpRequest.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/setup/DefaultMockMvcBuilder.java

* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/servlet/setup/MockMvcConfigurer.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/http/client/MockClientHttpResponse.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/client/response/DefaultResponseCreator.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/JsonPathAssertions.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/util/AopTestUtils.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit/jupiter/AbstractExpressionEvaluatingCondition.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextLoader.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/mock/http/client/MockClientHttpRequest.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/web/servlet/htmlunit/webdriver/WebConnectionHtmlUnitDriver.java
* /spring-test-5-2-8-release-sources-1-
jar/org/springframework/test/context/junit/jupiter/web/SpringJUnitWebConfig.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/MergedContextConfiguration.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/ContextConfigurationAttributes.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/junit/jupiter/EnabledIfCondition.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/web/reactive/server/EntityExchangeResult.java
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/support/ActiveProfilesUtils.java
*
/spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/web/ServletTestExecutionListener.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2002-2013 the original author or authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /spring-test-5-2-8-release-sources-1-jar/org/springframework/test/context/SmartContextLoader.java

1.291 zstd 1.4.4+dfsg-3ubuntu0.1

1.291.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we

want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1

above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause
any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable

source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution
and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source
code, even though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the

Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in

certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY

YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate

parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.
BSD License

For Zstandard software

Copyright (c) 2016-present, Facebook, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name Facebook nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON

ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
/*
* Copyright (c) 2018-present, Yann Collet, Facebook, Inc.
* All rights reserved.
*
* This source code is licensed under both the BSD-style license (found in the
* LICENSE file in the root directory of this source tree) and the GPLv2 (found
* in the COPYING file in the root directory of this source tree).
* You may select, at your option, one of the above-listed licenses.
*/

/* checkTag : validation tool for libzstd
* command :
* $ ./checkTag tag
* checkTag validates tags of following format : v[0-9].[0-9].[0-9]{any}
* The tag is then compared to zstd version number.
* They are compatible if first 3 digits are identical.
* Anything beyond that is free, and doesn't impact validation.
* Example : tag v1.8.1.2 is compatible with version 1.8.1
* When tag and version are not compatible, program exits with error code 1.
* When they are compatible, it exists with a code 0.
* checkTag is intended to be used in automated testing environment.
*/

1.292 libtasn 4.16.0-2

1.292.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be

consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and

modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any

warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library

creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the

user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise

permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by

all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is

copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>

Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to

any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to

avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a

menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any

non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided,

in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of

it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The

work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will

be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.

Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it

under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
@c The GNU Free Documentation License.
@center Version 1.3, 3 November 2008

@c This file is intended to be included within another document,
@c hence no sectioning command or @node.

@display
Copyright @copyright{} 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
@uref{http://fsf.org/}

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
@end display

@enumerate 0
@item
PREAMBLE

The purpose of this License is to make a manual, textbook, or other
functional and useful document @dfn{free} in the sense of freedom: to
assure everyone the effective freedom to copy and redistribute it,
with or without modifying it, either commercially or noncommercially.
Secondarily, this License preserves for the author and publisher a way
to get credit for their work, while not being considered responsible
for modifications made by others.

This License is a kind of ``copyleft'', which means that derivative
works of the document
must themselves be free in the same sense. It
complements the GNU General Public License, which is a copyleft

license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

@item
APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The ``Document'', below, refers
to any such manual or work. Any member of the public is a licensee, and is addressed as ``you''. You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A ``Modified Version'' of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A ``Secondary Section'' is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political
position regarding
them.

The ``Invariant Sections'' are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The ``Cover Texts'' are certain short passages of text that are listed,
as Front-Cover Texts or Back-Cover Texts, in the notice that says that
the Document is released under this License. A Front-Cover Text may
be at most 5 words, and a Back-Cover Text may be at most 25 words.

A ``Transparent'' copy of the Document means a machine-readable copy,
represented in a format whose specification is available to the
general public, that is suitable for revising the document
straightforwardly with generic text editors or (for
 images composed of
pixels) generic paint programs or (for drawings) some widely available
drawing editor, and that is suitable for input to text formatters or
for automatic translation to a variety of formats suitable for input
to text formatters. A copy made in an otherwise Transparent file
format whose markup, or absence of markup, has been arranged to thwart
or discourage subsequent modification by readers is not Transparent.
An image format is not Transparent if used for any substantial amount
of text. A copy that is not ``Transparent'' is called ``Opaque''.

Examples of suitable formats for Transparent copies include plain
ASCII without markup, Texinfo input format, La@TeX{} input
format, SGML or XML using a publicly available
DTD, and standard-conforming simple HTML,
PostScript or PDF designed for human modification. Examples
of transparent image formats include PNG, XCF and
JPG@. Opaque formats include proprietary formats that can be
read and edited only by proprietary word
 processors, SGML or
XML for which the DTD and/or processing tools are
not generally available, and the machine-generated HTML,
PostScript or PDF produced by some word processors for
output purposes only.

The ``Title Page'' means, for a printed book, the title page itself,
plus such following pages as are needed to hold, legibly, the material
this License requires to appear in the title page. For works in
formats which do not have any title page as such, ``Title Page'' means
the text near the most prominent appearance of the work's title,
preceding the beginning of the body of the text.

The ``publisher'' means any person or entity that distributes copies
of the Document to the public.

A section ``Entitled XYZ'' means a named subunit of the Document whose
title either is precisely XYZ or contains XYZ in parentheses following
text that translates XYZ in another language. (Here XYZ stands for a
specific section name mentioned below, such as ``Acknowledgements'',
``Dedications'', ``Endorsements'',

or ``History".)  To ``Preserve the Title"
of such a section when you modify the Document means that it remains a
section ``Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which
states that this License applies to the Document. These Warranty
Disclaimers are considered to be included by reference in this
License, but only as regards disclaiming warranties: any other
implication that these Warranty Disclaimers may have is void and has
no effect on the meaning of this License.

@item
VERBATIM COPYING

You may copy and distribute the Document in any medium, either
commercially or noncommercially, provided that this License, the
copyright notices, and the license notice saying this License applies
to the Document are reproduced in all copies, and that you add no other
conditions whatsoever to those of this License. You may not use
technical measures to obstruct or control the reading or further
copying of the copies
you make or distribute. However, you may accept
compensation in exchange for copies. If you distribute a large enough
number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and
you may publicly display copies.

@item
COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have
printed covers) of the Document, numbering more than 100, and the
Document's license notice requires Cover Texts, you must enclose the
copies in covers that carry, clearly and legibly, all these Cover
Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on
the back cover. Both covers must also clearly and legibly identify
you as the publisher of these copies. The front cover must present
the full title with all words of the title equally prominent and
visible. You may add other material on the covers in addition.
Copying with changes limited to the covers, as long as they preserve
the
title of the Document and satisfy these conditions, can be treated
as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit
legibly, you should put the first ones listed (as many as fit
reasonably) on the actual cover, and continue the rest onto adjacent

pages.

If you publish or distribute Opaque copies of the Document numbering
more than 100, you must either include a machine-readable Transparent
copy along with each Opaque copy, or state in or with each Opaque copy
a computer-network location from which the general network-using
public has access to download using public-standard network protocols
a complete Transparent copy of the Document, free of added material.
If you use the latter option, you must take reasonably prudent steps,
when you begin distribution of Opaque copies in quantity, to ensure
that this Transparent copy will remain thus accessible at the stated
location until at least one year after the last time you distribute
 an
Opaque copy (directly or through your agents or retailers) of that
edition to the public.

It is requested, but not required, that you contact the authors of the
Document well before redistributing any large number of copies, to give
them a chance to provide you with an updated version of the Document.

@item
MODIFICATIONS

You may copy and distribute a Modified Version of the Document under
the conditions of sections 2 and 3 above, provided that you release
the Modified Version under precisely this License, with the Modified
Version filling the role of the Document, thus licensing distribution
and modification of the Modified Version to whoever possesses a copy
of it. In addition, you must do these things in the Modified Version:

@enumerate A
@item
Use in the Title Page (and on the covers, if any) a title distinct
from that of the Document, and from those of previous versions
(which should, if there were any, be listed in the History section
of the Document). You may use the same
 title as a previous version
if the original publisher of that version gives permission.

@item
List on the Title Page, as authors, one or more persons or entities
responsible for authorship of the modifications in the Modified
Version, together with at least five of the principal authors of the
Document (all of its principal authors, if it has fewer than five),
unless they release you from this requirement.

@item
State on the Title page the name of the publisher of the

Modified Version, as the publisher.

@item
Preserve all the copyright notices of the Document.

@item
Add an appropriate copyright notice for your modifications
adjacent to the other copyright notices.

@item
Include, immediately after the copyright notices, a license notice
giving the public permission to use the Modified Version under the
terms of this License, in the form shown in the Addendum below.

@item
Preserve in that license notice the full lists of Invariant Sections
and required Cover Texts given in the
Document's license notice.

@item
Include an unaltered copy of this License.

@item
Preserve the section Entitled ``History'', Preserve its Title, and add
to it an item stating at least the title, year, new authors, and
publisher of the Modified Version as given on the Title Page. If
there is no section Entitled ``History'' in the Document, create one
stating the title, year, authors, and publisher of the Document as
given on its Title Page, then add an item describing the Modified
Version as stated in the previous sentence.

@item
Preserve the network location, if any, given in the Document for
public access to a Transparent copy of the Document, and likewise
the network locations given in the Document for previous versions
it was based on. These may be placed in the ``History'' section.
You may omit a network location for a work that was published at
least four years before the Document itself, or if the original
publisher of the version it refers to gives permission.

@item
For any
section Entitled ``Acknowledgements'' or ``Dedications'', Preserve
the Title of the section, and preserve in the section all the
substance and tone of each of the contributor acknowledgements and/or
dedications given therein.

@item

Preserve all the Invariant Sections of the Document,
unaltered in their text and in their titles. Section numbers
or the equivalent are not considered part of the section titles.

@item
Delete any section Entitled ``Endorsements''. Such a section
may not be included in the Modified Version.

@item
Do not retitle any existing section to be Entitled ``Endorsements'' or
to conflict in title with any Invariant Section.

@item
Preserve any Warranty Disclaimers.
@end enumerate

If the Modified Version includes new front-matter sections or
appendices that qualify as Secondary Sections and contain no material
copied from the Document, you may at your option designate some or all
of these sections as invariant. To do this, add their titles to the
list of Invariant
Sections in the Modified Version's license notice.
These titles must be distinct from any other section titles.

You may add a section Entitled ``Endorsements'', provided it contains
nothing but endorsements of your Modified Version by various
parties---for example, statements of peer review or that the text has
been approved by an organization as the authoritative definition of a
standard.

You may add a passage of up to five words as a Front-Cover Text, and a
passage of up to 25 words as a Back-Cover Text, to the end of the list
of Cover Texts in the Modified Version. Only one passage of
Front-Cover Text and one of Back-Cover Text may be added by (or
through arrangements made by) any one entity. If the Document already
includes a cover text for the same cover, previously added by you or
by arrangement made by the same entity you are acting on behalf of,
you may not add another; but you may replace the old one, on explicit
permission from the previous publisher that added the old
one.

The author(s) and publisher(s) of the Document do not by this License
give permission to use their names for publicity for or to assert or
imply endorsement of any Modified Version.

@item
COMBINING DOCUMENTS

You may combine the Document with other documents released under this
License, under the terms defined in section 4 above for modified
versions, provided that you include in the combination all of the
Invariant Sections of all of the original documents, unmodified, and
list them all as Invariant Sections of your combined work in its
license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and
multiple identical Invariant Sections may be replaced with a single
copy. If there are multiple Invariant Sections with the same name but
different contents, make the title of each such section unique by
adding at the end of it, in parentheses, the name of the original
author or publisher of that section if
 known, or else a unique number.
Make the same adjustment to the section titles in the list of
Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled ``History''
in the various original documents, forming one section Entitled
``History''; likewise combine any sections Entitled ``Acknowledgements'',
and any sections Entitled ``Dedications''. You must delete all
sections Entitled ``Endorsements.''

@item
COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents
released under this License, and replace the individual copies of this
License in the various documents with a single copy that is included in
the collection, provided that you follow the rules of this License for
verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute
it individually under this License, provided you insert a copy of this
License
 into the extracted document, and follow this License in all
other respects regarding verbatim copying of that document.

@item
AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate
and independent documents or works, in or on a volume of a storage or
distribution medium, is called an ``aggregate'' if the copyright
resulting from the compilation is not used to limit the legal rights
of the compilation's users beyond what the individual works permit.
When the Document is included in an aggregate, this License does not
apply to the other works in the aggregate which are not themselves

derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these
copies of the Document, then if the Document is less than one half of
the entire aggregate, the Document's Cover Texts may be placed on
covers that bracket the Document within the aggregate, or the
electronic equivalent of covers if the Document is in electronic
form.
Otherwise they must appear on printed covers that bracket the whole
aggregate.

@item
TRANSLATION

Translation is considered a kind of modification, so you may
distribute translations of the Document under the terms of section 4.
Replacing Invariant Sections with translations requires special
permission from their copyright holders, but you may include
translations of some or all Invariant Sections in addition to the
original versions of these Invariant Sections. You may include a
translation of this License, and all the license notices in the
Document, and any Warranty Disclaimers, provided that you also include
the original English version of this License and the original versions
of those notices and disclaimers. In case of a disagreement between
the translation and the original version of this License or a notice
or disclaimer, the original version will prevail.

If a section in the Document is Entitled ``Acknowledgements",
``Dedications", or ``History", the requirement
(section 4) to Preserve
its Title (section 1) will typically require changing the actual
title.

@item
TERMINATION

You may not copy, modify, sublicense, or distribute the Document
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense, or distribute it is void, and
will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license
from a particular copyright holder is reinstated (a) provisionally,
unless and until the copyright holder explicitly and finally
terminates your license, and (b) permanently, if the copyright holder
fails to notify you of the violation by some reasonable means prior to
60 days after the cessation.

Moreover, your license from a particular copyright holder is
reinstated permanently if the copyright holder notifies you of the
violation by some reasonable means, this is the first time you have
received notice of violation of this License (for
 any work) from that
copyright holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the
licenses of parties who have received copies or rights from you under
this License. If your rights have been terminated and not permanently
reinstated, receipt of a copy of some or all of the same material does
not give you any rights to use it.

@item
FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions
of the GNU Free Documentation License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns. See
@uref{http://www.gnu.org/copyleft/}.

Each version of the License is given a distinguishing version number.
If the Document specifies that a particular numbered version of this
License ``or any later version'' applies to it, you have the option of
following the terms and
 conditions either of that specified version or
of any later version that has been published (not as a draft) by the
Free Software Foundation. If the Document does not specify a version
number of this License, you may choose any version ever published (not
as a draft) by the Free Software Foundation. If the Document
specifies that a proxy can decide which future versions of this
License can be used, that proxy's public statement of acceptance of a
version permanently authorizes you to choose that version for the
Document.

@item
RELICENSING

``Massive Multiauthor Collaboration Site'' (or ``MMC Site'') means any
World Wide Web server that publishes copyrightable works and also
provides prominent facilities for anybody to edit those works. A
public wiki that anybody can edit is an example of such a server. A
``Massive Multiauthor Collaboration'' (or ``MMC'') contained in the
site means any set of copyrightable works thus published on the MMC
site.

``CC-BY-SA'' means the Creative Commons
 Attribution-Share Alike 3.0
license published by Creative Commons Corporation, a not-for-profit
corporation with a principal place of business in San Francisco,
California, as well as future copyleft versions of that license
published by that same organization.

``Incorporate'' means to publish or republish a Document, in whole or
in part, as part of another Document.

An MMC is ``eligible for relicensing'' if it is licensed under this
License, and if all works that were first published under this License
somewhere other than this MMC, and subsequently incorporated in whole
or in part into the MMC, (1) had no cover texts or invariant sections,
and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site
under CC-BY-SA on the same site at any time before August 1, 2009,
provided the MMC is eligible for relicensing.

@end enumerate

@page
@heading ADDENDUM: How to use this License for your documents

To use this License
 in a document you have written, include a copy of
the License in the document and put the following copyright and
license notices just after the title page:

@smallexample
@group
 Copyright (C) @var{year} @var{your name}.
 Permission is granted to copy, distribute and/or modify this document
 under the terms of the GNU Free Documentation License, Version 1.3
 or any later version published by the Free Software Foundation;
 with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
 Texts. A copy of the license is included in the section entitled ``GNU
 Free Documentation License''.
@end group
@end smallexample

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts.''@: line with this:

@smallexample
@group
   with the Invariant Sections being @var{list their titles}, with

the Front-Cover Texts being @var{list}, and with the Back-Cover Texts
being @var{list}.
@end group
@end smallexample

If you have Invariant
Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
@c End:
LICENSING
=========

The libtasn1 library is released under the GNU Lesser General Public
License (LGPL) version 2.1 or later; see [COPYING.LESSER](doc/COPYING.LESSER)
for the license terms.

The GNU LGPL applies to the main libtasn1 library, while the
included applications library are under the GNU GPL version 3.
The libtasn1 library is located in the lib directory, while the applications
in src/.

The documentation in doc/ is under the GNU FDL license 1.3.

For any copyright year range specified as YYYY-ZZZZ in this package
note that the range specifies every single year in that closed interval.

1.293 libestr 0.1.9

1.293.1 Available under license :

libestr is available under the terms of the GNU LGPL v2.1 or above (full
text below).

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that

there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have
is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library,
the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the
library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free

programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the
library" and a "work that uses the library". The
former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright
law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of

running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what
the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that
you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute

square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by

this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice
for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted,
and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed
it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with

this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission.
For software which is
copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED
BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest

possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public
 License).

 To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

  liblognorm, a fast samples-based log normalization library
  Copyright (C) 2010 Rainer Gerhards

  This library is free software; you can redistribute it and/or
  modify it under the terms of the GNU Lesser General Public
  License as published by the Free Software Foundation; either
  version 2.1 of the License, or (at your option) any later version.

  This library is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
  Lesser General Public License for more details.

  You should have received a copy of the GNU Lesser General Public
   License along with this library; if not, write to the Free Software
  Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

1.294 grpc-go 1.9.1

1.294.1 Available under license :

Copyright (c) 2015 Lars Kanis

MIT License

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,

EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2014 gRPC authors.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2011 Petteri Aimonen <jpa at nanopb.mail.kapsi.fi>

This software is provided 'as-is', without any express or
implied warranty. In no event will the authors be held liable
for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any
purpose, including commercial applications, and to alter it and
redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.

2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.

3. This notice may not be removed or altered from any source distribution.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or
Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent,
as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of,
the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide,
non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a

cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form,
provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within
the Source form or
documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for any such Derivative Works as a whole, provided Your use, the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally

submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015-2017 gRPC authors.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain
a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.295 libdrm 2.4.45

1.295.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.296 cryptsetup 1.7.5

1.296.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free

program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause

any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

In addition, as a special exception, the copyright holders give
permission to link the code of portions of this program with the
OpenSSL library under certain conditions as described in each
individual source file, and distribute linked combinations
including the two.

You must obey the GNU General Public License in all respects
for all of the code used other than OpenSSL. If you modify
file(s) with this exception, you may extend this exception to your
version of the file(s), but you are not obligated to do so. If you
do not wish to do so, delete this exception statement from your
version. If you delete this exception statement from all source
files in the program, then also delete it here.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a

"work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium,
provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the

Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it

contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified

executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then

the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free

Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

In addition, as a special exception, the copyright holders give
permission to link the code of portions of this program with the
OpenSSL library under certain conditions as described in each
individual source file, and distribute linked combinations
including the two.

You must obey the GNU Lesser General Public License in all respects
for all of the code used other than OpenSSL. If you modify
file(s) with this exception, you may extend this exception to your
version
of the file(s), but you are not obligated to do so. If you
do not wish to do so, delete this exception statement from your
version. If you delete this exception statement from all source
files in the program, then also delete it here.

1.297 util-linux 2.28

1.297.1 Available under license :

NR START END SECTORS SIZE NAME UUID
1 32 7679 7648 3.7M 8f8378c0-01
2 7680 16383 8704 4.3M 8f8378c0-02
5 7936 12799 4864 2.4M
6 12544 16127 3584 1.8M

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less

of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the

Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be
reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for

that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may

distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)
will operate
properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy

from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not

signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY

AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License

along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of

a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under

this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to

decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we
stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that

patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The
"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally
available free
programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated

conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is
 covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

 You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

 Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
 section 10
makes it unnecessary.

 3. Protecting Users' Legal Rights From Anti-Circumvention Law.

 No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

 When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

 4. Conveying Verbatim Copies.

 You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
 publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all

recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the

machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source

as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any
tangible personal property which is normally used for personal, family,
or household purposes, or (2) anything designed or sold for incorporation
into a dwelling. In determining whether a product is a consumer product,
doubtful cases shall be resolved in favor of coverage. For a particular
product received by a particular user, "normally used" refers to a
typical or common use of that class of product, regardless of the status
of the particular user or of the way in which the particular user
actually uses, or expects or is expected to use, the product. A product
is a consumer product regardless of whether the product has substantial
commercial, industrial or non-consumer uses, unless such uses represent
the only significant mode of use of the product.

"Installation Information" for a User Product means any methods,
procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from
a modified version of its Corresponding Source. The information must
suffice to ensure that the continued functioning of the modified object
code is in no case prevented or interfered with solely because
modification has been made.

If you convey an object code work under this section in, or with, or
specifically for use in, a User Product, and the conveying occurs as
part of a transaction in which the right of possession and use of the
User Product is transferred to the recipient in perpetuity or for a
fixed term (regardless of how the transaction is characterized), the
Corresponding Source conveyed under this section must be accompanied
by the Installation Information. But this requirement does not apply
if neither you nor any third party retains the ability to install
modified object code on the User Product (for example, the work has
been installed in
ROM).

The requirement to provide Installation Information does not include a
requirement to continue to provide support service, warranty, or updates
for a work that has been modified or installed by the recipient, or for
the User Product in which it has been modified or installed. Access to a
network may be denied when the modification itself materially and
adversely affects the operation of the network or violates the rules and
protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided,
in accord with this section must be in a format that is publicly
documented (and with an implementation available to the public in

source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under

this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims

owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is

conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided
above cannot be given local legal effect according to their terms,
reviewing courts shall apply local law that most closely approximates
an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate

parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

 You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

 The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want
 to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/licenses/why-not-lgpl.html>.
WEV @@ WEV[B "1
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
 DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
x ?"U@,5 @mISmIN<GimCN7g1u|E
43mI,5WEV @@ WEV @mImImIAmImImI0mImImI*mImI
A0mImImI...
lost+found...

;9GimCN7g

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~WEV @@
WEV[B "1
This library is free software; you can redistribute it and/or
modify it under the terms of the Modified BSD License.

The complete text of the license is available in the
../Documentation/licenses/COPYING.BSD-3-Clause file.
Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later file.
/*
* Copyright (c) 1989 The Regents of the University of California.
* All rights reserved.

*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*
 without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.298 logback-core 1.2.3

1.298.1 Available under license :

Found license 'Eclipse Public License 1.0' in '* Copyright (C) 1999-2015, QOS.ch. All rights reserved. * This program and the accompanying materials are dual-licensed under * either the terms of the Eclipse Public License v1.0 as published by * under the terms of the GNU Lesser General Public License version 2.1 * as published by the Free Software Foundation.'

Found license 'GNU Lesser General Public License' in '* Copyright (C) 1999-2015, QOS.ch. All rights reserved. * This program and the accompanying materials are dual-licensed under * either the terms of the Eclipse Public License v1.0 as published by * under the terms of the GNU Lesser General Public License version 2.1 * as published by the Free Software Foundation.'

1.299 sqlite 3.31.1-4ubuntu0.2

1.299.1 Available under license :

No license file was found, but licenses were detected in source scan.

proprietary. The TH3 code is only accessible to SQLite developers.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/qmplan.html
No license file was found, but licenses were detected in source scan.

```
#!/usr/bin/tclsh.docsrc
#### Import of wapp.tcl
# Copyright (c) 2017 D. Richard Hipp
#
# This program is free software; you can redistribute it and/or
# modify it under the terms of the Simplified BSD License (also
# known as the "2-Clause License" or "FreeBSD License".)
#
# This program is distributed in the hope that it will be useful,
# but without any warranty; without even the implied warranty of
# merchantability or fitness for a particular purpose.
#
#-------------------------------------------------------------------------
#
# Design rules:
#
#   (1)  All identifiers in the global namespace begin with "wapp"
#
#   (2)  Indentifiers intended for internal use only begin with "wappInt"
#

# Add text to the end of the HTTP reply.  No interpretation or transformation
# of the text is performs.  The argument should be enclosed within {...}
#
proc wapp {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add
 text to the page under construction.  Do no escaping on the text.
#
# Though "unsafe" in general, there are uses for this kind of thing.
# For example, if you want to return the complete, unmodified content of
# a file:
#
#       set fd [open content.html rb]
#       wapp-unsafe [read $fd]
#       close $fd
```

```
#
# You could do the same thing using ordinary "wapp" instead of "wapp-unsafe".
# The difference is that wapp-safety-check will complain about the misuse
# of "wapp", but it assumes that the person who write "wapp-unsafe" understands
# the risks.
#
# Though occasionally necessary, the use of this interface should be minimized.
#
proc wapp-unsafe {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add text to the end of the reply under construction.  The following
# substitutions are made:
#
#     %html(...)         Escape text for inclusion in HTML
#     %url(...)          Escape text for use as a URL
#     %qp(...)           Escape text for use as a URI query parameter
#
     %string(...)       Escape text for use within a JSON string
#     %unsafe(...)       No transformations of the text
#
# The substitutions above terminate at the first ")" character.  If the
# text of the TCL string in ... contains ")" characters itself, use instead:
#
#     %html%(...)%
#     %url%(...)%
#     %qp%(...)%
#     %string%(...)%
#     %unsafe%(...)%
#
# In other words, use "%(...)%" instead of "(...)" to include the TCL string
# to substitute.
#
# The %unsafe substitution should be avoided whenever possible, obviously.
# In addition to the substitutions above, the text also does backslash
# escapes.
#
proc wapp-subst {txt} {
 global wapp
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# Works like wapp-subst, but also removes whitespace from the beginning
# of lines.
```

```
#
proc wapp-trim {txt} {
 global wapp
 regsub -all {\n\s+} [string
 trim $txt] \n txt
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# There must be a wappInt-enc-NAME routine for each possible substitution
# in wapp-subst.  Thus there are routines for "html", "url", "qp", and "unsafe".
#
#    wappInt-enc-html          Escape text so that it is safe to use in the
#                              body of an HTML document.
#
#    wappInt-enc-url           Escape text so that it is safe to pass as an
#                              argument to href= and src= attributes in HTML.
#
#    wappInt-enc-qp            Escape text so that it is safe to use as the
#                              value of a query parameter in a URL or in
#                              post data or in a cookie.
#
#    wappInt-enc-string        Escape ", ', \, and < for using inside of a
#                              javascript string literal.
  The < character
#                              is escaped to prevent "</script>" from causing
#                              problems in embedded javascript.
#
#    wappInt-enc-unsafe        Perform no encoding at all.  Unsafe.
#
proc wappInt-enc-html {txt} {
 return [string map {& &amp; < &lt; > &gt; \" &quot; \\ &#92;} $txt]
}
proc wappInt-enc-unsafe {txt} {
 return $txt
}
proc wappInt-enc-url {s} {
 if {[regsub -all {[^-{}@~?=#_.:/a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-qp {s} {
 if {[regsub -all {[^-{}_.a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
```

```
  set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
  set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-string {s} {
 return [string map {\\ \\\\ \" \\\" ' \\' < \\u003c} $s]
}

# This is a
 helper routine for wappInt-enc-url and wappInt-enc-qp.  It returns
# an appropriate %HH encoding for the single character c.  If c is a unicode
# character, then this routine might return multiple bytes:  %HH%HH%HH
#
proc wappInt-%HHchar {c} {
 if {$c==" "} {return +}
 return [regsub -all .. [binary encode hex [encoding convertto utf-8 $c]] {%&}]
}



# Undo the www-url-encoded format.
#
# HT: This code stolen from ncgi.tcl
#
proc wappInt-decode-url {str} {
 set str [string map [list + { } "\\" "\\\\" \[ \\\[ \] \\\]] $str]
 regsub -all -- \
    {%([Ee][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])} \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2\3]]} str
 regsub -all -- \
    {%([CDcd][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])}                    \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2]]} str
 regsub -all -- {%([0-7][A-Fa-f0-9])} $str {\\u00\1} str
 return [subst -novar $str]
}

# Reset the document back to an empty string.
#
proc
 wapp-reset {} {
 global wapp
 dict set wapp .reply {}
}

# Change the mime-type of the result document.
#
```

```
proc wapp-mimetype {x} {
 global wapp
 dict set wapp .mimetype $x
}

# Change the reply code.
#
proc wapp-reply-code {x} {
 global wapp
 dict set wapp .reply-code $x
}

# Set a cookie
#
proc wapp-set-cookie {name value} {
 global wapp
 dict lappend wapp .new-cookies $name $value
}

# Unset a cookie
#
proc wapp-clear-cookie {name} {
 wapp-set-cookie $name {}
}

# Add extra entries to the reply header
#
proc wapp-reply-extra {name value} {
 global wapp
 dict lappend wapp .reply-extra $name $value
}

# Specifies how the web-page under construction should be cached.
# The argument should be one of:
#
#    no-cache
#    max-age=N            (for some integer number of seconds, N)
#    private,max-age=N
#
proc wapp-cache-control {x} {
 wapp-reply-extra Cache-Control $x
}

# Redirect to a different web page
#
proc wapp-redirect {uri} {
 wapp-reply-code {307 Redirect}
 wapp-reply-extra
```

```
 Location $uri
}

# Return the value of a wapp parameter
#
proc wapp-param {name {dflt {}}} {
 global wapp
 if {![dict exists $wapp $name]} {return $dflt}
 return [dict get $wapp $name]
}

# Return true if a and only if the wapp parameter $name exists
#
proc wapp-param-exists {name} {
 global wapp
 return [dict exists $wapp $name]
}

# Set the value of a wapp parameter
#
proc wapp-set-param {name value} {
 global wapp
 dict set wapp $name $value
}

# Return all parameter names that match the GLOB pattern, or all
# names if the GLOB pattern is omitted.
#
proc wapp-param-list {{glob {*}}} {
 global wapp
 return [dict keys $wapp $glob]
}

# By default, Wapp does not decode query parameters and POST parameters
# for cross-origin requests.  This is a security restriction, designed to
# help prevent cross-site request forgery (CSRF) attacks.
#
# As a consequence of this restriction, URLs for sites generated by Wapp
# that contain query parameters will not work as URLs
 found in other
# websites.  You cannot create a link from a second website into a Wapp
# website if the link contains query planner, by default.
#
# Of course, it is sometimes desirable to allow query parameters on external
# links.  For URLs for which this is safe, the application should invoke
# wapp-allow-xorigin-params.  This procedure tells Wapp that it is safe to
# go ahead and decode the query parameters even for cross-site requests.
#
```

```
# In other words, for Wapp security is the default setting.  Individual pages
# need to actively disable the cross-site request security if those pages
# are safe for cross-site access.
#
proc wapp-allow-xorigin-params {} {
 global wapp
 if {![dict exists $wapp .qp] && ![dict get $wapp SAME_ORIGIN]} {
   wappInt-decode-query-params
 }
}

# Set the content-security-policy.
#
# The default content-security-policy is very strict:  "default-src 'self'"
# The default policy prohibits the use of in-line javascript or CSS.
#
# Provide an alternative
 CSP as the argument.  Or use "off" to disable
# the CSP completely.
#
proc wapp-content-security-policy {val} {
 global wapp
 if {$val=="off"} {
   dict unset wapp .csp
 } else {
   dict set wapp .csp $val
 }
}

# Examine the bodys of all procedures in this program looking for
# unsafe calls to various Wapp interfaces.  Return a text string
# containing warnings. Return an empty string if all is ok.
#
# This routine is advisory only.  It misses some constructs that are
# dangerous and flags others that are safe.
#
proc wapp-safety-check {} {
 set res {}
 foreach p [info procs] {
   set ln 0
   foreach x [split [info body $p] \n] {
     incr ln
     if {[regexp {^[ \t]*wapp[ \t]+([^\n]+)} $x all tail]
      && [string index $tail 0]!="\173"
      && [regexp {[[$]} $tail]
     } {
       append res "$p:$ln: unsafe \"wapp\" call: \"[string trim $x]\"\n"
     }
```

```
    if {[regexp {^[ \t]*wapp-(subst|trim)[ \t]+[^\173]} $x all cx]} {
      append res "$p:$ln: unsafe \"wapp-$cx\"
 call: \"[string trim $x]\"\n"
    }
  }
 }
 return $res
}

# Return a string that descripts the current environment.  Applications
# might find this useful for debugging.
#
proc wapp-debug-env {} {
 global wapp
 set out {}
 foreach var [lsort [dict keys $wapp]] {
  if {[string index $var 0]=="."} continue
  append out "$var = [list [dict get $wapp $var]]\n"
 }
 append out "\[pwd\] = [list [pwd]]\n"
 return $out
}

# Tracing function for each HTTP request.  This is overridden by wapp-start
# if tracing is enabled.
#
proc wappInt-trace {} {}

# Start up a listening socket.  Arrange to invoke wappInt-new-connection
# for each inbound HTTP connection.
#
#    port           Listen on this TCP port.  0 means to select a port
#                   that is not currently in use
#
#    wappmode       One of "scgi", "server", or "local".
#
proc wappInt-start-listener {port wappmode} {
 if {$wappmode=="scgi"} {
  set type SCGI
  set server [list wappInt-new-connection
 wappInt-scgi-readable $wappmode]
 } else {
  set type HTTP
  set server [list wappInt-new-connection wappInt-http-readable $wappmode]
 }
 if {$wappmode=="local"} {
  set x [socket -server $server -myaddr 127.0.0.1 $port]
 } else {
```

```
  set x [socket -server $server $port]
 }
 set coninfo [chan configure $x -sockname]
 set port [lindex $coninfo 2]
 if {$wappmode=="local"} {
  wappInt-start-browser http://127.0.0.1:$port/
 } else {
  puts "Listening for $type requests on TCP port $port"
 }
}

# Start a web-browser and point it at $URL
#
proc wappInt-start-browser {url} {
 global tcl_platform
 if {$tcl_platform(platform)=="windows"} {
  exec cmd /c start $url &
 } elseif {$tcl_platform(os)=="Darwin"} {
  exec open $url &
 } elseif {[catch {exec xdg-open $url}]} {
  exec firefox $url &
 }
}

# This routine is a "socket -server" callback.  The $chan, $ip, and $port
# arguments are added by the socket command.
#
# Arrange to invoke $callback when content is available
 on the new socket.
# The $callback will process inbound HTTP or SCGI content.
#
proc wappInt-new-connection {callback wappmode chan ip port} {
 upvar #0 wappInt-$chan W
 set W [dict create REMOTE_ADDR $ip REMOTE_PORT $port WAPP_MODE $wappmode \
       .header {}]
 fconfigure $chan -blocking 0 -translation binary
 fileevent $chan readable [list $callback $chan]
}

# Close an input channel
#
proc wappInt-close-channel {chan} {
 if {$chan=="stdout"} {
  # This happens after completing a CGI request
  exit 0
 } else {
  unset ::wappInt-$chan
  close $chan
```

```
 }
}

# Process new text received on an inbound HTTP request
#
proc wappInt-http-readable {chan} {
 if {[catch [list wappInt-http-readable-unsafe $chan] msg]} {
   puts stderr "$msg\n$::errorInfo"
   wappInt-close-channel $chan
 }
}
proc wappInt-http-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if {![dict exists $W .toread]} {
   # If the .toread key is not set, that means we are still reading
    # the header
   set line [string trimright [gets $chan]]
   set n [string length $line]
   if {$n>0} {
     if {[dict get $W .header]=="" || [regexp {^\s+} $line]} {
       dict append W .header $line
     } else {
       dict append W .header \n$line
     }
     if {[string length [dict get $W .header]]>100000} {
       error "HTTP request header too big - possible DOS attack"
     }
   } elseif {$n==0} {
     # We have reached the blank line that terminates the header.
     global argv0
     set a0 [file normalize $argv0]
     dict set W SCRIPT_FILENAME $a0
     dict set W DOCUMENT_ROOT [file dir $a0]
     if {[wappInt-parse-header $chan]} {
       catch {close $chan}
       return
     }
     set len 0
     if {[dict exists $W CONTENT_LENGTH]} {
       set len [dict get $W CONTENT_LENGTH]
     }
     if {$len>0} {
       # Still need to read the query content
       dict set W .toread $len
     } else {
       # There is no query content, so handle
 the request immediately
       set wapp $W
```

```
      wappInt-handle-request $chan 0
    }
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Decode the HTTP request header.
#
# This routine is always running inside of a [catch], so if
# any problems arise, simply raise an error.
#
proc wappInt-parse-header {chan} {
 upvar #0 wappInt-$chan W
 set hdr [split [dict get $W .header] \n]
 if {$hdr==""} {return 1}
 set req [lindex $hdr 0]
 dict set W REQUEST_METHOD [set method [lindex $req 0]]
 if {[lsearch {GET HEAD POST} $method]<0} {
  error "unsupported request method:
 \"[dict get $W REQUEST_METHOD]\""
 }
 set uri [lindex $req 1]
 set split_uri [split $uri ?]
 set uri0 [lindex $split_uri 0]
 if {![regexp {^/[-.a-z0-9_/]*$} $uri0]} {
  error "invalid request uri: \"$uri0\""
 }
 dict set W REQUEST_URI $uri0
 dict set W PATH_INFO $uri0
 set uri1 [lindex $split_uri 1]
 dict set W QUERY_STRING $uri1
 set n [llength $hdr]
 for {set i 1} {$i<$n} {incr i} {
  set x [lindex $hdr $i]
  if {![regexp {^(.+): +(.*)$} $x all name value]} {
    error "invalid header line: \"$x\""
  }
```

```
  set name [string toupper $name]
  switch -- $name {
    REFERER {set name HTTP_REFERER}
    USER-AGENT {set name HTTP_USER_AGENT}
    CONTENT-LENGTH {set name CONTENT_LENGTH}
    CONTENT-TYPE {set name CONTENT_TYPE}
    HOST {set name HTTP_HOST}
    COOKIE {set name HTTP_COOKIE}
    ACCEPT-ENCODING {set name HTTP_ACCEPT_ENCODING}
    default {set name .hdr:$name}
  }
  dict set W $name $value
 }
 return 0
}

# Decode the QUERY_STRING
 parameters from a GET request or the
# application/x-www-form-urlencoded CONTENT from a POST request.
#
# This routine sets the ".qp" element of the ::wapp dict as a signal
# that query parameters have already been decoded.
#
proc wappInt-decode-query-params {} {
 global wapp
 dict set wapp .qp 1
 if {[dict exists $wapp QUERY_STRING]} {
  foreach qterm [split [dict get $wapp QUERY_STRING] &] {
    set qsplit [split $qterm =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][a-z0-9]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex $qsplit 1]]
    }
  }
 }
 if {[dict exists $wapp CONTENT_TYPE] && [dict exists $wapp CONTENT]} {
  set ctype [dict get $wapp CONTENT_TYPE]
  if {$ctype=="application/x-www-form-urlencoded"} {
    foreach qterm [split [string trim [dict get $wapp CONTENT]] &] {
      set qsplit [split $qterm =]
      set nm [lindex $qsplit 0]
      if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
        dict set wapp $nm [wappInt-decode-url
[lindex $qsplit 1]]
      }
    }
  } elseif {[string match multipart/form-data* $ctype]} {
    regexp {^(.*?)\r\n(.*)$} [dict get $wapp CONTENT] all divider body
```

```
    set ndiv [string length $divider]
    while {[string length $body]} {
      set idx [string first $divider $body]
      set unit [string range $body 0 [expr {$idx-3}]]
      set body [string range $body [expr {$idx+$ndiv+2}] end]
      if {[regexp {^Content-Disposition: form-data; (.*?)\r\n\r\n(.*)$} \
           $unit unit hdr content] &&
          [regexp {name="(.*)"; filename="(.*)"\r\nContent-Type: (.*?)$}\
            $hdr hr name filename mimetype]} {
        dict set wapp $name.filename \
          [string map [list \\\" \" \\\\ \\] $filename]
        dict set wapp $name.mimetype $mimetype
        dict set wapp $name.content $content
      }
    }
  }
 }
}

# Invoke application-supplied methods to generate a reply to
# a single HTTP request.
#
# This routine always
 runs within [catch], so handle exceptions by
# invoking [error].
#
proc wappInt-handle-request {chan useCgi} {
 global wapp
 dict set wapp .reply {}
 dict set wapp .mimetype {text/html; charset=utf-8}
 dict set wapp .reply-code {200 Ok}
 dict set wapp .csp {default-src 'self'}

 # Set up additional CGI environment values
 #
 if {![dict exists $wapp HTTP_HOST]} {
   dict set wapp BASE_URL {}
 } elseif {[dict exists $wapp HTTPS]} {
   dict set wapp BASE_URL https://[dict get $wapp HTTP_HOST]
 } else {
   dict set wapp BASE_URL http://[dict get $wapp HTTP_HOST]
 }
 if {![dict exists $wapp REQUEST_URI]} {
   dict set wapp REQUEST_URI /
 } elseif {[regsub {\?.*} [dict get $wapp REQUEST_URI] {} newR]} {
   # Some servers (ex: nginx) append the query parameters to REQUEST_URI.
   # These need to be stripped off
   dict set wapp REQUEST_URI $newR
```

```
}
if {[dict exists $wapp SCRIPT_NAME]} {
  dict append wapp BASE_URL [dict get $wapp SCRIPT_NAME]
} else {
  dict set wapp
SCRIPT_NAME {}
}
if {![dict exists $wapp PATH_INFO]} {
  # If PATH_INFO is missing (ex: nginx) the construct it
  set URI [dict get $wapp REQUEST_URI]
  set skip [string length [dict get $wapp SCRIPT_NAME]]
  dict set wapp PATH_INFO [string range $URI $skip end]
}
if {[regexp {^/([^/]+)(.*)$} [dict get $wapp PATH_INFO] all head tail]} {
  dict set wapp PATH_HEAD $head
  dict set wapp PATH_TAIL [string trimleft $tail /]
} else {
  dict set wapp PATH_INFO {}
  dict set wapp PATH_HEAD {}
  dict set wapp PATH_TAIL {}
}
dict set wapp SELF_URL [dict get $wapp BASE_URL]/[dict get $wapp PATH_HEAD]

# Parse query parameters from the query string, the cookies, and
# POST data
#
if {[dict exists $wapp HTTP_COOKIE]} {
  foreach qterm [split [dict get $wapp HTTP_COOKIE] {;}] {
    set qsplit [split [string trim $qterm] =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex
$qsplit 1]]
    }
  }
}
set same_origin 0
if {[dict exists $wapp HTTP_REFERER]} {
  set referer [dict get $wapp HTTP_REFERER]
  set base [dict get $wapp BASE_URL]
  if {$referer==$base || [string match $base/* $referer]} {
    set same_origin 1
  }
}
dict set wapp SAME_ORIGIN $same_origin
if {$same_origin} {
  wappInt-decode-query-params
}
```

```
# Invoke the application-defined handler procedure for this page
# request.  If an error occurs while running that procedure, generate
# an HTTP reply that contains the error message.
#
wapp-before-dispatch-hook
wappInt-trace
set mname [dict get $wapp PATH_HEAD]
if {[catch {
  if {$mname!="" && [llength [info proc wapp-page-$mname]]>0} {
    wapp-page-$mname
  } else {
    wapp-default
  }
} msg]} {
  if {[wapp-param WAPP_MODE]=="local" || [wapp-param WAPP_MODE]=="server"} {
    puts "ERROR: $::errorInfo"
  }
  wapp-reset
  wapp-reply-code "500 Internal Server Error"
  wapp-mimetype
text/html
  wapp-trim {
    <h1>Wapp Application Error</h1>
    <pre>%html($::errorInfo)</pre>
  }
  dict unset wapp .new-cookies
}

# Transmit the HTTP reply
#
if {$chan=="stdout"} {
  puts $chan "Status: [dict get $wapp .reply-code]\r"
} else {
  puts $chan "HTTP/1.1 [dict get $wapp .reply-code]\r"
  puts $chan "Server: wapp\r"
  puts $chan "Connection: close\r"
}
if {[dict exists $wapp .reply-extra]} {
  foreach {name value} [dict get $wapp .reply-extra] {
    puts $chan "$name: $value\r"
  }
}
if {[dict exists $wapp .csp]} {
  puts $chan "Content-Security-Policy: [dict get $wapp .csp]\r"
}
set mimetype [dict get $wapp .mimetype]
puts $chan "Content-Type: $mimetype\r"
```

```
 if {[dict exists $wapp .new-cookies]} {
   foreach {nm val} [dict get $wapp .new-cookies] {
     if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
       if {$val==""} {
         puts $chan "Set-Cookie: $nm=; HttpOnly; Path=/; Max-Age=1\r"
       } else {
         set
 val [wappInt-enc-url $val]
         puts $chan "Set-Cookie: $nm=$val; HttpOnly; Path=/\r"
       }
     }
   }
 }
 if {[string match text/* $mimetype]} {
   set reply [encoding convertto utf-8 [dict get $wapp .reply]]
   if {[regexp {\ygzip\y} [wapp-param HTTP_ACCEPT_ENCODING]]} {
     catch {
       set x [zlib gzip $reply]
       set reply $x
       puts $chan "Content-Encoding: gzip\r"
     }
   }
 } else {
   set reply [dict get $wapp .reply]
 }
 puts $chan "Content-Length: [string length $reply]\r"
 puts $chan \r
 puts $chan $reply
 flush $chan
 wappInt-close-channel $chan
}

# This routine runs just prior to request-handler dispatch.  The
# default implementation is a no-op, but applications can override
# to do additional transformations or checks.
#
proc wapp-before-dispatch-hook {} {return}

# Process a single CGI request
#
proc wappInt-handle-cgi-request {} {
 global wapp env
 foreach key {
   CONTENT_LENGTH
   CONTENT_TYPE
   DOCUMENT_ROOT
   HTTP_ACCEPT_ENCODING
```

```
   HTTP_COOKIE
  HTTP_HOST
  HTTP_REFERER
  HTTP_USER_AGENT
  HTTPS
  PATH_INFO
  QUERY_STRING
  REMOTE_ADDR
  REQUEST_METHOD
  REQUEST_URI
  REMOTE_USER
  SCRIPT_FILENAME
  SCRIPT_NAME
  SERVER_NAME
  SERVER_PORT
  SERVER_PROTOCOL
 } {
  if {[info exists env($key)]} {
    dict set wapp $key $env($key)
  }
 }
 set len 0
 if {[dict exists $wapp CONTENT_LENGTH]} {
  set len [dict get $wapp CONTENT_LENGTH]
 }
 if {$len>0} {
  fconfigure stdin -translation binary
  dict set wapp CONTENT [read stdin $len]
 }
 dict set wapp WAPP_MODE cgi
 fconfigure stdout -translation binary
 wappInt-handle-request stdout 1
}

# Process new text received on an inbound SCGI request
#
proc wappInt-scgi-readable {chan} {
 if {[catch [list wappInt-scgi-readable-unsafe $chan] msg]} {
  puts stderr "$msg\n$::errorInfo"
  wappInt-close-channel $chan
 }
}
proc wappInt-scgi-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if
 {![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
  # the header.
```

```
  #
  # An SGI header is short.  This implementation assumes the entire
  # header is available all at once.
  #
  set req [read $chan 15]
  set n [string length $req]
  scan $req %d:%s len hdr
  incr len [string length "$len:,"]
  append hdr [read $chan [expr {$len-15}]]
  foreach {nm val} [split $hdr \000] {
    if {$nm==""} break
    dict set W $nm $val
  }
  set len 0
  if {[dict exists $W CONTENT_LENGTH]} {
    set len [dict get $W CONTENT_LENGTH]
  }
  if {$len>0} {
    # Still need to read the query content
    dict set W .toread $len
  } else {
    # There is no query content, so handle the request immediately
    set wapp $W
    wappInt-handle-request $chan 0
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read
 $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Start up the wapp framework.  Parameters are a list passed as the
# single argument.
#
#    -server $PORT         Listen for HTTP requests on this TCP port $PORT
#
#    -local $PORT          Listen for HTTP requests on 127.0.0.1:$PORT
#
#    -scgi $PORT           Listen for SCGI requests on TCP port $PORT
```

```
#
#    -cgi                Handle a single CGI request
#
# With no arguments, the behavior is called "auto".  In "auto" mode,
# if the GATEWAY_INTERFACE environment variable indicates CGI, then run
# as CGI.  Otherwise, start an HTTP server bound to the loopback address
# only, on an arbitrary TCP port, and automatically launch a web browser
# on that TCP port.
#
# Additional
 options:
#
#    -trace              "puts" each request URL as it is handled, for
#                        debugging
#
#    -lint               Run wapp-safety-check on the application instead
#                        of running the application itself
#
#    -Dvar=value         Set TCL global variable "var" to "value"
#
#
proc wapp-start {arglist} {
 global env
 set mode auto
 set port 0
 set n [llength $arglist]
 for {set i 0} {$i<$n} {incr i} {
  set term [lindex $arglist $i]
  if {[string match --* $term]} {set term [string range $term 1 end]}
  switch -glob -- $term {
    -server {
      incr i;
      set mode "server"
      set port [lindex $arglist $i]
    }
    -local {
      incr i;
      set mode "local"
      set port [lindex $arglist $i]
    }
    -scgi {
      incr i;
      set mode "scgi"
      set port [lindex $arglist $i]
    }
    -cgi {
      set mode "cgi"
    }
```

```
    -trace {
      proc wappInt-trace {} {

    set q [wapp-param QUERY_STRING]
        set uri [wapp-param BASE_URL][wapp-param PATH_INFO]
        if {$q!=""} {append uri ?$q}
        puts $uri
      }
    }
    -lint {
      set res [wapp-safety-check]
      if {$res!=""} {
        puts "Potential problems in this code:"
        puts $res
        exit 1
      } else {
        exit
      }
    }
    -D*=* {
      if {[regexp {^.D([^=]+)=(.*)$} $term all var val]} {
        set ::$var $val
      }
    }
    default {
      error "unknown option: $term"
    }
  }
}
if {($mode=="auto"
     && [info exists env(GATEWAY_INTERFACE)]
     && [string match CGI/1.* $env(GATEWAY_INTERFACE)])
  || $mode=="cgi"
} {
  wappInt-handle-cgi-request
  return
}
if {$mode=="scgi"} {
  wappInt-start-listener $port scgi
} elseif {$mode=="server"} {
  wappInt-start-listener $port server
} else {
  wappInt-start-listener $port local
}
vwait ::forever
}

# Call this version
```

```
 1.0
package provide wapp 1.0

#### End of wapp.tcl

# Generate all header content for the output document
#
proc search_header {} {
 wapp-trim {
<!DOCTYPE html>
<html><head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="content-type" content="text/html; charset=UTF-8">
<link href="sqlite.css" rel="stylesheet">
<title>Search SQLite Documentation</title>
<!-- path= -->
</head>
<body>
<div class=nosearch>
<a href="index.html">
<img class="logo" src="images/sqlite370_banner.gif" alt="SQLite" border="0">
</a>
<div><!-- IE hack to prevent disappearing logo --></div>
<div class="tagline desktoponly">
Small. Fast. Reliable.<br>Choose any three.
</div>
<div class="menu mainmenu">
<ul>
<li><a href="index.html">Home</a>
<li class='mobileonly'><a href="javascript:void(0)" onclick='toggle_div("submenu")'>Menu</a>
<li class='wideonly'><a href='about.html'>About</a>
<li class='desktoponly'><a href="docs.html">Documentation</a>
<li class='desktoponly'><a href="download.html">Download</a>
<li
 class='wideonly'><a href='copyright.html'>License</a>
<li class='desktoponly'><a href="support.html">Support</a>
<li class='desktoponly'><a href="prosupport.html">Purchase</a>
<li class='search' id='search_menubutton'>
<a href="javascript:void(0)" onclick='toggle_search()'>Search</a>
</ul>
</div>
<div class="menu submenu" id="submenu">
<ul>
<li><a href='about.html'>About</a>
<li><a href='docs.html'>Documentation</a>
<li><a href='download.html'>Download</a>
<li><a href='support.html'>Support</a>
<li><a href='prosupport.html'>Purchase</a>
```

```
</ul>
</div>
<div class="searchmenu" id="searchmenu">
<form method="GET" action="search">
<select name="s" id="searchtype">
<option value="d">Search Documentation</option>
<option value="c">Search Changelog</option>
</select>
<input type="text" name="q" id="searchbox" value="">
<input type="submit" value="Go">
</form>
</div>
</div>
<script>
function toggle_div(nm) {
var w = document.getElementById(nm);
if( w.style.display=="block"
 ){
w.style.display = "none";
}else{
w.style.display = "block";
}
}
function toggle_search() {
var w = document.getElementById("searchmenu");
if( w.style.display=="block" ){
w.style.display = "none";
} else {
w.style.display = "block";
setTimeout(function(){
document.getElementById("searchbox").focus()
}, 30);
}
}
function div_off(nm){document.getElementById(nm).style.display="none";}
window.onbeforeunload = function(e){div_off("submenu");}
/* Disable the Search feature if we are not operating from CGI, since */
/* Search is accomplished using CGI and will not work without it. */
if( !location.origin.match || !location.origin.match(/http/) ){
document.getElementById("search_menubutton").style.display = "none";
}
/* Used by the Hide/Show button beside syntax diagrams, to toggle the */
function hideorshow(btn,obj){
var x = document.getElementById(obj);
var b = document.getElementById(btn);
if( x.style.display!='none' ){
x.style.display = 'none';
b.innerHTML='show';
```

```
}else{
x.style.display
 = '';
b.innerHTML='hide';
}
return false;
}
</script>
</div>
 }
}

#--------------------------------------------------------------------------
# Add an entry to the log database for the current query. Which
# returns $nRes results.
#
proc search_add_log_entry {nRes} {
 if {[wapp-param-exists donotlog]} return
 sqlite3 db2 [file dir [wapp-param SCRIPT_FILENAME]]/search.d/searchlog.db
 db2 timeout 10000
 set ip [wapp-param REMOTE_ADDR]
 set query [wapp-param q]
 db2 eval {
   PRAGMA synchronous=OFF;
   PRAGMA journal_mode=OFF;
   BEGIN;
     CREATE TABLE IF NOT EXISTS log(
       ip,                -- IP query was made from
       query,               -- Fts5 query string
       nres,               -- Number of results
       timestamp DEFAULT CURRENT_TIMESTAMP
     );
     INSERT INTO log(ip, query, nres) VALUES($ip, $query, $nRes);
   COMMIT;
 }
 db2 close
}

#--------------------------------------------------------------------------
# This command
 is similar to the builtin Tcl [time] command, except that
# it only ever runs the supplied script once. Also, instead of returning
# a string like "xxx microseconds per iteration", it returns "x.yy ms" or
# "x.yy s", depending on the magnitude of the time spent running the
# command. For example:
#
#   % ttime {after 1500}
#   1.50 s
```

```
#   % ttime {after 45}
#   45.02 ms
#
proc ttime {script} {
 set t [lindex [time [list uplevel $script]] 0]
 if {$t>1000000} { return [format "%.2f s" [expr {$t/1000000.0}]] }
 return [format "%.2f ms" [expr {$t/1000.0}]]
}

#-------------------------------------------------------------------------
# Do a search of the change log
#
proc searchchanges {} {
 set q [wapp-param q]
 if {$q==""} {return {}}
 if {[regexp -all \x22 $q] % 2} { append q \x22 }
 set x ""
 foreach word [split $q " "] {
  append x " \"[string map [list "\"" "\"\""] $word]\""
 }
 set q [string trim $x]
 set open {<span style="background-color:#d9f2e6">}
 set close {</span>}
  set query {
  SELECT url, version, idx, highlight(change, 3, $open, $close) AS text
  FROM change($q) ORDER BY rowid ASC
 }
 wapp-trim {
  <p>Change log entries mentioning: <b>%html($q)</b>
  <table border=0>
 }
 set s2 "style=\"margin-top:0\""
 set s1 "style=\"font-size:larger; text-align:left\" class=nounderline"
 set prev ""
 db eval $query {
  if {$prev!=$version} {
    wapp-trim {
      <tr> <td %unsafe($s1) valign=top> <a href='%url($url)'>%html($version)</a>
      <td> <ul %unsafe($s2)>
    }
    set prev $version
  }
  wapp-subst {<li value=%html($idx)> (%html($idx)) %unsafe($text)\n}
 }
 wapp-trim {
  </table>
  <center><p>You can also see the <a href=changes.html>entire
  changelog as a single page</a> if you wish.</center>
```

```
 }
}

#---------------------------------------------------------------------------
# Do a search over all documentation other than the change log
#
proc searchresults {} {
 set q [wapp-param q]
 if {$q==""} {return
 ""}

 # Count the "" characters in $::A(q). If there is an odd number of
 # occurences, add a " to the end of the query so that fts5 can parse
 # it without error.
 if {[regexp -all \x22 $q] % 2} { append q \x22 }

 # Set iStart to the index of the first result to display. Results are
 # indexed starting at zero from most to least relevant.
 #
 set iStart 0
 catch {set iStart [expr {[wapp-param i 0]*10}]}

 # Grab a list of rowid results.
 #
 set sql {
  SELECT rowid FROM page WHERE page MATCH $q
  ORDER BY srank(page) DESC,
  rank * COALESCE(
    (SELECT percent FROM weight WHERE id=page.rowid), 100
  );
 }
 if {[catch { set lRowid [db eval $sql] }]} {
  set x ""
  foreach word [split $q " "] {
    append x " \"[string map [list "\"" "\"\""] $word]\""
  }
  set q [string trim $x]
  set lRowid [db eval $sql]
 }

 set lRes [list]
 foreach rowid $lRowid {
  if {$rowid > 1000} {
    set parent [expr $rowid / 1000]
    lappend subsections($parent)
 $rowid
  } else {
    lappend lRes $rowid
```

```
  }
}

set nRes [llength $lRes]
set lRes [lrange $lRes $iStart [expr $iStart+9]]

# Add an entry to the log database.
#
search_add_log_entry $nRes

# If there are no results, return a message to that effect.
#
if {[llength $lRes] == 0} {
  wapp-subst {<p>No Results for: <b>%html($q)</b>\n}
}

# HTML markup used to highlight keywords within FTS5 generated snippets.
#
set open {<span style="background-color:#d9f2e6">}
set close {</span>}
set ellipsis {<b> ... </b>}

# Grab the required data
#
db eval [string map [list %LIST% [join $lRowid ,]] {
  SELECT
    rowid AS parentid,
    snippet(page, 0, $open, $close, $ellipsis, 6)  AS s_apis,
    snippet(page, 2, $open, $close, '', 40)        AS s_title1,
    snippet(page, 3, $open, $close, $ellipsis, 40) AS s_title2,
    snippet(page, 4, $open, $close, $ellipsis, 40) AS s_content,
    url, rank
  FROM page($q)
  WHERE rowid
IN (%LIST%)
}] X {
  foreach k [array names X] { set data($X(parentid),$k) [set X($k)] }
}

set i1 [expr {$iStart+1}]
set i2 [expr {($nRes < $iStart+10) ? $nRes : $iStart+10}]
wapp-trim {
  <table border=0>
  <p>Search results %html($i1)..%html($i2) of %html($nRes) for: <b>%html($q)</b>
}

foreach rowid $lRes {
```

```
  foreach a {parentid s_apis s_title1 s_content url rank} {
    set $a $data($rowid,$a)
  }

  if {[info exists subsections($parentid)]} {
    set childid [lindex $subsections($parentid) 0]
    set link $data($childid,url)
    set hdr $data($childid,s_title2)

    if {$hdr==""} {
      set s_content ""
    } else {
      set s_content [subst {
        <b><a style=color:#044a64 href=$link>$hdr</a></b>
      }]
    }

    append s_content " $data($childid,s_content)"
  }

  wapp-trim {<tr>
    <td valign=top style="line-height:150%">
      <div style="white-space:wrap;font-size:larger" class=nounderline>
        <a href="%url($url)">%unsafe($s_title1)</a>

        <div style="float:right;font-size:smaller;color:#BBB">(%url($url))</div>
      </div>
        <div style="margin-left: 10ex; font:larger monospace">%unsafe($s_apis)</div>
      <div style="margin-left: 4ex; margin-bottom:1.5em">
        %unsafe($s_content)
      </div>
    </td>
  }
}
wapp-subst {</table>\n}


# If the query returned more than 10 results, add up to 10 links to
# each set of 10 results (first link to results 1-10, second to 11-20,
# third to 21-30, as required).
#
if {$nRes>10} {
  set s(0) {border:solid #044a64 1px;padding:1ex;margin:1ex;line-height:300%;}
  set s(1) "$s(0);background:#044a64;color:white"
  wapp-subst {<center><p>\n}
  for {set i 0} {$i < 10 && ($i*10)<$nRes} {incr i} {
    set style $s([expr {($iStart/10)==$i}])
    wapp-trim {
```

```
      <a style="%html($style)"
        href="search?q=%qp($q)&i=%qp($i)">%html([expr $i+1])</a>
    }
  }
  wapp-subst {</center>\n}
 }
}

# This is the main entry point into the search result page generator
#
proc wapp-default {} {
 wapp-content-security-policy {default-src 'self' 'unsafe-inline'}
 wapp-allow-xorigin-params
 if {[wapp-param-exists env]} {
  search_header
  wapp-trim {
   <h1>Environment Dump For Debugging</h1>
   <pre>%html([wapp-debug-env])</pre>
  }
  return
 }

 # When running using the built-in webserver in Wapp (in other words,
 # when not running as CGI) any filename that contains a "." loads
 # directly from the filesystem.
 if {[wapp-param WAPP_MODE]!="cgi"
  && [string match *.* [wapp-param PATH_INFO]]
 } {
  set altfile [file dir [wapp-param SCRIPT_FILENAME]][wapp-param PATH_INFO]
  set fd [open $altfile rb]
  fconfigure $fd -translation binary
  wapp-unsafe [read $fd]
  close $fd
  switch -glob -- $altfile {
   *.html {
    wapp-mimetype text/html
   }
   *.css {
    wapp-mimetype text/css
   }
   *.gif {
    wapp-mimetype
 image/gif
   }
  }
  return
 }
```

```
 search_header
 sqlite3 db [file dir [wapp-param SCRIPT_FILENAME]]/search.d/search.db
 set searchType [wapp-param s d]
 if {$searchType=="c"} {
   set cmd searchchanges
 } else {
   set cmd searchresults
 }
 db transaction {
   set t [ttime {$cmd}]
 }
 wapp-trim {
   <center>
   <p>Page generated by <a href='fts5.html'>FTS5</a> in about %html($t).
   </center>
   <script>
     window.addEventListener('load', function() {
       var w = document.getElementById("searchmenu");
       w.style.display = "block";
       w = document.getElementById("searchtype");
       w.value = "%string($searchType)"
       setTimeout(function(){
         var s = document.getElementById("searchbox");
         s.value = "%string([wapp-param q])"
         s.focus();
         s.select();
       }, 30);
     });
   </script>
 }
}
wapp-start $argv
```

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/search
No license file was found, but licenses were detected in source scan.

SQLite is high-quality, public domain software. The goal of
members can also request their own private, proprietary extensions

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/consortium.html
No license file was found, but licenses were detected in source scan.

<h2>SQLite Is Public Domain</h2>
Public Domain
public domain
the public domain and originals of

author, and all of those authors have public domain dedications
domain and ensure that the code does not become contaminated with proprietary
SQLite is in the public domain and does not require a license.
the public domain.
have the legal right to dedicate the SQLite to the public domain, and

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/copyright.html
No license file was found, but licenses were detected in source scan.

public domain. No claim of ownership is made

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/faq.html
No license file was found, but licenses were detected in source scan.

<html>
<body bgcolor="white">
FOR IMMEDIATE RELEASE:

<h2 align="center">SQLite Consortium Launches With Mozilla And Symbian As Charter Members</h2>

<h3 align="center">Ensures independent technical direction for world's
most deployed SQL database engine</h3>

Charlotte, North Carolina - December 12, 2007 - The SQLite Consortium,
a new membership association dedicated to maintaining SQLite as a fully open
and independent product, was formally announced today. Mozilla and Symbian Ltd.
have joined the SQLite Consortium as charter members.

SQLite is a compact, high efficiency, high reliability, embeddable SQL database
engine. The source code to SQLite is in the public domain and is available with
no associated fees. SQLite is the most deployed SQL database engine in the world
and is currently used in a wide range of commercial software products and electronic
devices from leading manufacturers.
 SQLite is found today in many mobile phones,
MP3 players, set-top boxes, and PCs.

The mission of the SQLite Consortium is to continue developing and enhancing
SQLite as a product that anyone may use without paying royalties or licensing fees.
Members of the SQLite Consortium provide funding to enable this mission and in
return receive enterprise-level technical support. Technical control and direction
of SQLite remains entirely with the SQLite developers.

Mozilla, developer of the popular open-source Firefox web browser, and Symbian,
the market-leading open operating system for advanced data-enabled smartphones,
both deploy the SQLite database engine in their products. As charter members of

the Consortium, Mozilla and Symbian are ensuring the development and support of SQLite as a freely accessible and public domain software asset.

"SQLite has become a popular embedded database because it is lightweight, fast, and open source," said Michael Schroepfer,
Vice President of Engineering, Mozilla.
"As a charter member of the SQLite Consortium, Mozilla is excited to help ensure SQLite remains a vibrant and open technology, in line with our mission to promote choice and innovation on the Internet."

"The SQLite Consortium will help set the standards for database management which are essential in smartphone functionality and will also help create a pool of developers, highly-skilled in SQLite for future mobile phone development, " said Bruce Carney, Director, Developer Programmes & Services, Symbian.
"Our involvement with the SQL Consortium not only demonstrates Symbian's commitment to open standards in the industry, but as mobile phones become increasingly powerful and smartphones become increasingly popular, we are focused on ensuring that desktop developers, who move to the mobile space, have the easiest and most productive experience possible."

SQLite is a winner of the 2005 Google/O'Reilly Open Source Award. Additional information
regarding the SQLite Consortium is available at the SQLite website, http://www.sqlite.org/.

# # #

About SQLite

SQLite is a software library that implements a self-contained, embeddable, serverless, zero-configuration, transactional SQL database engine. The code for SQLite is in the public domain and is free for any use, commercial or private. SQLite is currently found in countless software titles and electronic devices.

SQLite was originally developed and released 2000 by Dr. D. Richard Hipp. The code continues to be maintained and enhanced by an international team of developers under Hipp's direction.

CONTACT INFORMATION:
SQLite Consortium
Dr. D. Richard Hipp
6200 Maple Cove Lane
Charlotte, NC 28269
Email: drh@sqlite.org

http://www.sqlite.org/
Tel: +1.704.948.4565

About Mozilla

Mozilla is a global community dedicated to building free, open source products

and technologies that improve the online experience for people everywhere.
Mozilla works in the open with a highly disciplined, transparent and cooperative
development process, under the umbrella of the non-profit Mozilla Foundation.
As a wholly owned subsidiary, the Mozilla Corporation organizes the development
and marketing of Mozilla products. This unique structure has enabled Mozilla to
financially support and cultivate competitive, viable community innovation.
For more information, visit www.mozilla.com.

CONTACT INFORMATION:
Mozilla Corporation
Jessica Waight
Tel: +1.415.345.4754
Email: jwaight@outcastpr.com

About Symbian Limited

Symbian is a software licensing company that develops and licenses Symbian OS,
the market-leading open operating system for advanced, data-enabled mobile phones
known as smartphones.

Symbian licenses Symbian OS to the world's leading handset manufacturers
and has built close co-operative business
relationships with leading companies
across the mobile industry. During Q3 2007, 20.4 million Symbian smartphones
were sold worldwide to over 250 major network operators, bringing the total
number of Symbian smartphones shipped up to 30 September 2007 to 165 million.

Symbian has its headquarters in London, United Kingdom, with offices in the
United States, United Kingdom, Asia (India, P.R. China, and Korea) and Japan.
For more information, please visit www.symbian.com.

CONTACT INFORMATION:
Symbian Global Press Office
Karen Hamblen
+44 207 154 1707
press@symbian.com

</body></html>

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/pressrelease-20071212.html
No license file was found, but licenses were detected in source scan.

<html>
<head>
<title>SQLite Consortium Agreement</title>
</head>
<body bgcolor="white">
<h1 align="center">
SQLite Consortium Agreement
</h1>

This SQLite Consortium Agreement ("Agreement") is made and
entered into as of the _____ day of _____, 2007 ("Effective Date")
by and between _____ (the "Company"), and
Hipp, Wyrick & Company, Inc., a Georgia Corporation with
headquarters at 6200 Maple Cove Lane, Charlotte, NC ("Hwaci").

WHEREAS, Hwaci is the developer of a serverless, embeddable, public
domain SQL database engine available at
http://www.sqlite.org/
("SQLite"); and

WHEREAS, Company wishes to support the independent development of
the SQLite database engine to insure the continuing reliability,
vitality, and independence of SQLite, and in connection therewith,
Company wishes to provide funds for ongoing research, development,
and
 maintenance of the SQLite code base, operation of the SQLite
website, protection and maintenance of the SQLite
trademark, as well as for promotion of SQLite at conferences and
trade shows; and

WHEREAS, Company wishes to receive benefits in the form of
services from Hwaci in consideration for their support of SQLite; and

WHEREAS, Company and Hwaci each wish SQLite to be supported and
maintained as an independent, community-driven project, and to
ensure the SQLite development team remains independent.

NOW, THEREFORE, in consideration of the mutual promises contained
herein, the parties agree as follows:

<h2>1.0 Definitions</h2>

<h3>1.1 SQLite Developers</h3>

The "SQLite Developers" are the employees or contractors of Hwaci engaged
in the development of SQLite, including without limitation the
SQLite Architect.

<h3>1.2 SQLite Architect</h3>
The "SQLite Architect" is the SQLite Developer with ultimate
responsibility and authority over changes
and maintenance of the
SQLite code. The current SQLite Architect is the original designer
and developer of SQLite, D. Richard Hipp. Hwaci may change the
SQLite Architect from time to time upon approval by Company.

<h3>1.3 Consortium Member</h3>
A "Consortium Member" is a company or organization, including
but not limited to Company, which has entered into an agreement
with Hwaci which is substantially similar to this Agreement.

<h2>2.0 Agreement<h2>

<h3>2.1 Responsibilities And Obligations Of SQLite Developers</h3>

<h4>2.1.1 General Support</h4>
The SQLite Developers shall provide, without limit,
timely and accurate answers, advice, and instruction
in response to questions and comments from Company about SQLite
submitted by email or by telephone at any time day or night.

<h4>2.1.2 Debugging Support</h4>
The SQLite Developers shall at Company's request provide
Company with direct assistance
in debugging applications that are built upon or use SQLite.
The combined
time for Debugging Support and Custom
Development for Company is limited to 330 hours per year.

<h4>2.1.3 Custom Development</h4>
The SQLite Developers shall at the request of Company
write new extensions or enhancements
to SQLite according to Company's specifications. These extensions
and enhancements may be proprietary to Company or open source or
with the consent of both Company and the SQLite Architect may
be folded into the public domain SQLite source tree.
The time devoted to Custom Development for Company is limited 220 hours
per year.

<h4>2.1.4 Custom Builds</h4>
The SQLite Developers shall at Company's request provide Company
with specialized builds of SQLite according to Company's specifications.

<h4>2.1.5 Legacy Support</h4>
The SQLite Developers shall at Company's request provide support
and bug-fix patches for any historical version of SQLite.

<h4>2.1.6 Custom Testing</h4>
The SQLite Developers shall at Company's request set up and
run
acceptance tests according Company's specifications that are specifically
designed to exercise SQLite as configured and used by Company.
These acceptance tests shall be run and shall pass prior to any release
of SQLite.

<h4>2.1.7 Priority Bug Fixes</h4>
The SQLite Developers shall assign highest priority to fixing bugs
in SQLite that are reported by Company or in which Company has
expressed a specific interest.

<h4>2.1.8 Code Quality</h4>
The SQLite Developers shall at all times keep the SQLite source
code well commented and documented and clearly structured and
organized so that an experienced and competent programmer can
understand it and support it after no more than a few months of study.

<h4>2.1.9 Backwards Compatibility</h4>
The SQLite Developers recognize that Company uses SQLite
in mission-critical applications and therefore shall work diligently
to ensure continuing bug-free correct operation and backwards
compatibility with prior releases.

<h4>2.1.10
Test Coverage</h4>
The SQLite Developers shall maintain the SQLite test suite such
that no less than 95% source code coverage is provided.

<h4>2.1.11 Website</h4>
The SQLite Developers shall maintain the SQLite website at

http://www.sqlite.org/
in good working order and all SQLite source code shall
be made freely available at such website.

<h3>2.2 Responsibilities And Obligations Of The SQLite Architect</h3>

<h4>2.2.1 Private Briefings</h4>
The SQLite Architect shall, at the request of Company,
provide Company with private notification and briefings
of any new bugs or new features in SQLite that might
effect Company's products.

<h4>2.2.2 Direction</h4>
The SQLite Architect shall coordinate the activities of SQLite
Developers and shall publish from time to time a roadmap of
proposed future changes and enhancements to SQLite.

<h4>2.2.3 Oversight</h4>
The SQLite Architect shall personally
review all changes to
the SQLite Source Code and take responsibility for the quality
and correctness of those changes.

<h4>2.2.4 Continuity</h4>
The initial SQLite Architect shall be the original developer
of SQLite, D. Richard Hipp. The role of SQLite Architect shall
not be assigned to another during the term of this Agreement except
due to the disability of Dr. Hipp and with approval of Company.

<h3>2.3 Responsibilities And Obligations Of Hwaci</h3>

<h4>2.3.1 Employer</h4>
Hwaci shall act as the employer of the SQLite Developers and
SQLite Architect and shall make all tax and legal filings
and tax withholding required by employers. Hwaci shall provide
Company with W-9 information upon request.

<h4>2.3.2 Responsible Party</h4>
All obligations of the SQLite Developers set forth in this
agreement are deemed obligations of Hwaci. Hwaci shall recruit,
employ, and supervise SQLite Developers in such a way that the

responsibilities and obligations of the SQLite
Developers set
forth in this agreement are upheld.

<h4>2.3.3 Multiple Developers</h4>
Hwaci shall recruit and employ as many SQLite Developers for as
many hours as can be reasonably achieved using the funds received
from Consortium Members under this agreement.
So that support for SQLite will not be interrupted by the
disability or withdrawal of any one SQLite Developer, Hwaci will
keep at least two knowledgeable and competent SQLite Developers
on staff.

<h4>2.3.4 Mentorship</h4>
Hwaci shall work to encourage independent
programmers from around the world
to become familiar with SQLite internals so that there will be a
pool of talent able to support SQLite in the future.

<h4>2.3.5 Audits</h4>
Hwaci shall keep and maintain complete and accurate records
of the use of development funds provided by Company
and shall allow Company, or its representative, a certified
public accountant mutually acceptable to Hwaci and Company,
during office hours and at reasonable
intervals, no more than
once every 12 months, to inspect and make extracts or copies
of such records solely for the purpose of ascertaining Hwaci's
compliance with the objectives and requirements of this agreement.

<h4>2.3.6 Disaster Planning</h4>
Hwaci shall maintain backup copies of all
SQLite source files and documentation, current and historical,
at at least two separate locations separated from each
other and from the primary on-line SQLite repository
by at least 400 kilometers.

<h4>2.3.7 Trademark</h4>
Hwaci shall maintain ownership of the SQLite trademark and
the sqlite.org domain name and shall purchase bandwidth and
server space for the
http://www.sqlite.org/ website.

<h4>2.3.8 No Take-overs or Buy-outs</h4>

Neither Hwaci nor the SQLite Architect shall relinquish development
control of SQLite during the term of this Agreement, by acquisition or merger
or by any other means,
except with the consent of Company.

<h4>2.3.9
New Consortium Members</h4>
New Consortium Members may be accepted into the consortium from
time to time under identical terms as this agreement, or under
substantially similar terms that have been approved by existing
Consortium Members.

<h4>2.3.10 Adequate Staff</h4>
Hwaci shall recruit and employ a sufficient number of qualified
SQLite Developers to easily cover all custom development,
debugging, and general support service obligations for all
Consortium Members while still providing ample time for
the SQLite Developers to engage in general maintenance
and extension of SQLite.

<h4>2.3.11 Use Of Funds</h4>
Hwaci shall use the funds provided hereunder
solely for the development and maintenance of SQLite as set forth in
this Agreement.
Interest on funds received in advance and held in trust will
be reinvested and used for the same purposes as the principal.

<h3>2.4 Responsibilities And Obligations Of Company</h3>

<h4>2.4.1 Funding</h4>
Company
shall provide funding for the ongoing support and
maintenance of SQLite as set forth in section 3.0 "Fees".

<h4>2.4.2 Copyright Disclaimer</h4>
Company acknowledges that SQLite source code and documentation
published on the SQLite website
is in the public domain and that nothing in this agreement shall change
that fact.

<h2>3.0 Fees</h2>

In consideration of the performance

by Hwaci, the SQLite Developers, and the SQLite Architect
of the obligations described herein,
Company shall pay Hwaci at least US $75,000 per year in advance
either annually, quarterly, or monthly, at Company's discretion.

<h2>4.0 Confidentiality</h2>

<h3>4.1 Definition of Confidential Information</h3>

"Confidential Information" means any Company proprietary information,
technical data, trade secrets or know-how, including, but not limited to,
research, product plans, products, services, customers, customer lists,
markets, software, developments,
inventions, processes, formulas,
technology, designs, drawings, engineering, hardware configuration
information, marketing, finances or other business information
disclosed by Company either directly or indirectly in writing,
orally or by drawings or inspection of parts or equipment.

<h3>4.2 Non-Use and Non-Disclosure.</h3>

Hwaci shall not, during or subsequent to the term of this Agreement,
use Company's Confidential Information for any purpose whatsoever
other than the performance of the Services or disclose
Company's Confidential Information to any third party. The parties
acknowledge that Confidential Information will remain the sole
property of Company. Hwaci shall take all reasonable precautions
to prevent any unauthorized disclosure of Confidential Information
including, but not limited to, having each employee or
consultant of Hwaci, if any, with access to any
Confidential Information, execute a nondisclosure agreement
containing provisions in Company's
favor substantially similar
to this Agreement. Confidential Information does not include
information that: (i) is known to Hwaci at the time of
disclosure to Hwaci by Company as evidenced by written
records of Hwaci; (ii) has become publicly known and made
generally available through no wrongful act of Hwaci; or
(iii) has been received by Hwaci from a third party who is
authorized to make such disclosure.

<h4>4.2.1 Disclosure Required by Law</h4>
In the event any Confidential Information is required to be disclosed
by Hwaci under the terms of a valid and effective subpoena or order
issued by a court of competent jurisdiction, or by a demand or
information request from an executive or administrative agency
or other governmental authority, Hwaci shall, unless prohibited
by the terms of a subpoena, order, or demand, promptly notify

Company of the existence, terms and circumstances surrounding
such demand or request, shall consult with Company on the
advisability of
taking legally available steps to resist
or narrow such demand or request, and, if disclosure of
such Confidential Information is required, shall exercise
its reasonable best efforts to narrow the scope of disclosure
and obtain an order or other reliable assurance that
confidential treatment will be accorded to such
Confidential Information. To the extent that Hwaci
is prohibited from notifying Company of a subpoena,
order or demand, by the terms of same, Hwaci shall exercise
its reasonable efforts to narrow the scope of disclosure.

<h3>4.3 Return of Materials.</h3>

Upon the termination of this Agreement, or upon Company's
earlier request, Hwaci shall deliver to Company all of
Company's property or Confidential Information that Hwaci
may have in Hwaci's possession or control.

<h2>5.0 Intellectual Property</h2>

<h3>5.1 No Assignment</h3>

Company acknowledges that all copyrightable material, notes,
records, drawings, designs, inventions, improvements, developments,

discoveries and trade secrets made, generated, conceived, or
reduced to practice by Hwaci related to SQLite
will remain the property of Hwaci. Nothing in this Agreement
will be construed to transfer any intellectual property right
of Hwaci to Company.

<h3>5.2 Availability and Public Domain Dedication</h3>

The SQLite Developers and Hwaci shall,
subject to their discretion as to the quality
and suitability of the SQLite source code and documentation
for public release, make
the SQLite source code and documentation
publicly available as downloadable files
and make a public statement ceding all intellectual
property rights, including but not limited to copyright
and patent rights, in the SQLite source code and documentation
to the public domain.
To the extent that the SQLite Developers and Hwaci
elect not to release the SQLite

source code and documentation
publicly, they shall provide copies thereof to
Company and hereby grants to Company, under all of the
SQLite
 Developers' and Hwaci's
rights
including but not limited to copyright and patent rights,
in and to the SQLite source code and documentation,
perpetual, irrevocable,
worldwide, non-exclusive, sublicenseable license to use,
copy, prepare derivative works of, publicly perform and
display the SQLite source code and documentation
and derivative works thereof.

<h3>5.3 Trademark</h3>

Hwaci shall use the name "SQLite" only to apply to the
publicly available project known by such name as of the
Effective Date. Hwaci may in its discretion file such
trademark applications or registrations as it deems
appropriate to protect or record its rights therein,
and may set such policies as it deems appropriate for
licensing the use of the trademark.

<h2>6.0 Representations And Warranties</h3>

<h3>6.1 Intellectual Property Clearances.</h3>

Hwaci hereby represents and warrants that Hwaci shall
enter into agreements with the SQLite Developers sufficient
to enable Hwaci to
 undertake the obligations of Section 5.

<h3>6.2 Disclaimer.</h3>

THE WORK PRODUCT AND ALL MATERIAL PROVIDED BY HWACI AND
COMPANY ARE PROVIDED "AS IS." NEITHER PARTY MAKES ANY
REPRESENTATIONS OR WARRANTIES OF ANY KIND, WHETHER ORAL
OR WRITTEN, WHETHER EXPRESS, IMPLIED, OR ARISING BY STATUTE,
CUSTOM, COURSE OF DEALING OR TRADE USAGE, WITH RESPECT TO
THE SUBJECT MATTER HEREOF, IN CONNECTION WITH THIS AGREEMENT.
EACH PARTY SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED
WARRANTIES OR CONDITIONS OF TITLE, MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

<h2>7.0 Term And Termination</h2>

<h3>7.1 Term.</h3>

This Agreement will commence on the Effective Date and
will continue until 12 months after the Effective Date.
Thereafter, the parties may by mutual consent renew
this Agreement subject to agreement on fees to be paid by
Company for sponsorship for additional periods.

<h3>7.2 Termination.</h3>

If either party materially defaults in
the performance
of any of its material obligations hereunder and if any
such default is not corrected within 30 days after notice
in writing, then the non-defaulting party, at its option,
may, in addition to any other remedies it may have, thereupon
terminate this Agreement by giving written notice of
termination to the defaulting party.

<h3>7.3 Survival.</h3>

Upon such termination all rights and duties of the
parties toward each other will cease except:
Sections 4 (Confidentiality), 5 (Intellectual Property),
and 8 (Miscellaneous) will survive termination of this Agreement.

<h2>8. Miscellaneous</h2>

<h3>8.1 Nonassignment/Binding Agreement.</h3>

The parties acknowledge that the unique nature of
Hwaci's services are substantial consideration for the
parties' entering into this Agreement. Neither this
Agreement nor any rights under this Agreement may be
assigned or otherwise transferred by Hwaci, in whole
or in part, whether voluntarily or by operation
of law,
without the prior written consent of Company, which
consent will not be unreasonably withheld.
Subject to the foregoing, this Agreement will be binding
upon and will inure to the benefit of the parties and
their respective successors and assigns. Any assignment
in violation of the foregoing will be null and void.

<h3>8.2 Notices.</h3>

Any notice required or permitted under the terms of
this Agreement or required by law must be in writing
and must be: (a) delivered in person; (b) sent by first

class registered mail, or air mail, as appropriate; or
(c) sent by overnight air courier, in each case properly
posted and fully prepaid to the appropriate address set
forth in the preamble to this Agreement. Either party
may change its address for notice by notice to the other
party given in accordance with this Section. Notices
will be considered to have been given at the time of
actual delivery in person, three business days after
deposit in the mail as set forth
above, or one day after
delivery to an overnight air courier service.

<h3>8.3 Waiver.</h3>

Any waiver of the provisions of this Agreement or
of a party's rights or remedies under this Agreement
must be in writing to be effective. Failure, neglect,
or delay by a party to enforce the provisions of this
Agreement or its rights or remedies at any time, will
not be construed as a waiver of such party's rights
under this Agreement and will not in any way affect
the validity of the whole or any part of this Agreement
or prejudice such party's right to take subsequent action.
No exercise or enforcement by either party of any right
or remedy under this Agreement will preclude the
enforcement by such party of any other right or remedy
under this Agreement or that such party is entitled by
law to enforce.

<h3>8.4 Severability.</h3>

If any term, condition, or provision in this Agreement
is found to be invalid, unlawful or unenforceable to
any extent, the parties
shall endeavor in good faith
to agree to such amendments that will preserve, as far
as possible, the intentions expressed in this Agreement.
If the parties fail to agree on such an amendment,
such invalid term, condition or provision will be
severed from the remaining terms, conditions and
provisions, which will continue to be valid and
enforceable to the fullest extent permitted by law.

<h3>8.5 Integration.</h3>

This Agreement contains the entire agreement of the
parties with respect to the subject matter of this
Agreement and supersedes all previous communications,

representations, understandings and agreements,
either oral or written, between the parties with
respect to said subject matter. This Agreement
may not be amended, except by a writing signed by both parties.

<h3>8.6 Counterparts.</h3>

This Agreement may be executed in counterparts,
each of which so executed will be deemed to be an
original and such counterparts together will constitute
one
 and the same agreement.

<h3>8.7 Governing Law.</h3>

This Agreement will be interpreted and construed in
accordance with the laws of the State of North Carolina
and the United States of America, without regard to
conflict of law principles. All disputes arising out
of this Agreement will be subject to the exclusive
jurisdiction of the state and federal courts located in
North Carolina, and each party hereby consents to the
personal jurisdiction thereof.

<h3>8.8 Independent Contractors.</h3>

It is the intention of the parties that Hwaci is an
independent contractor. Nothing in this Agreement will
in any way be construed to constitute Hwaci or any of
its employees as an agent, employee or representative
of Company.

<h2>9.0 Signatures</h2>

The parties have executed this Agreement below to
indicate their acceptance of its terms.

<table width="100%" border="0">
<tr><td valign="top">
HWACI
By:<hr>

Print Name:<hr>

Title:<hr>

</td><td

width="10%"></td>
<td valign="top">
COMPANY
By:<hr>

Print Name:<hr>

Title:<hr>

</td></tr></table>

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/consortium_agreement-20071201.html
No license file was found, but licenses were detected in source scan.

SQLite core and like the SQLite core are in the public domain. The
The TH3 test harness is a set of proprietary tests, written in
Beginning in late 2018, SQLite has been fuzzed using a new proprietary

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/testing.html
No license file was found, but licenses were detected in source scan.

is free to use SQLite from multiple threads, but it must make sure

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/custombuild.html
No license file was found, but licenses were detected in source scan.

SQLite is open source, and is available in the public domain

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/books.html
No license file was found, but licenses were detected in source scan.

SQLite is in the public domain. This document describes what that means

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/docs.html
No license file was found, but licenses were detected in source scan.

If N>0 then the connection is free to use more of the WAL file beyond

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/walformat.html
No license file was found, but licenses were detected in source scan.

<html>

<title>SQLite Copyright Release Template</title>
<body bgcolor="white">
<h1 align="center">
Copyright Release for
Contributions To SQLite
</h1>

SQLite is software that implements an embeddable SQL database engine.
SQLite is available for free download from http://www.sqlite.org/.
The principal author and maintainer of SQLite has disclaimed all
copyright interest in his contributions to SQLite
and thus released his contributions into the public domain.
In order to keep the SQLite software unencumbered by copyright
claims, the principal author asks others who may from time to
time contribute changes and enhancements to likewise disclaim
their own individual copyright interest.

Because the SQLite software found at http://www.sqlite.org/ is in the
public domain, anyone is free to download the SQLite software
from that website, make changes to the software, use, distribute,
or sell the modified software,
 under either the original name or
under some new name, without any need to obtain permission, pay
royalties, acknowledge the original source of the software, or
in any other way compensate, identify, or notify the original authors.
Nobody is in any way compelled to contribute their SQLite changes and
enhancements back to the SQLite website. This document concerns
only changes and enhancements to SQLite that are intentionally and
deliberately contributed back to the SQLite website.

For the purposes of this document, "SQLite software" shall mean any
computer source code, documentation, makefiles, test scripts, or
other information that is published on the SQLite website,
http://www.sqlite.org/. Precompiled binaries are excluded from
the definition of "SQLite software" in this document because the
process of compiling the software may introduce information from
outside sources which is not properly a part of SQLite.

The header comments on the SQLite source
 files exhort the reader to
share freely and to never take more than one gives.

In the spirit of that exhortation I make the following declarations:

I dedicate to the public domain
any and all copyright interest in the SQLite software that
was publicly available on the SQLite website (http://www.sqlite.org/) prior
to the date of the signature below and any changes or enhancements to
the SQLite software
that I may cause to be published on that website in the future.
I make this dedication for the benefit of the public at large and
to the detriment of my heirs and successors. I intend this
dedication to be an overt act of relinquishment in perpetuity of
all present and future rights to the SQLite software under copyright
law.

To the best of my knowledge and belief, the changes and enhancements that
I have contributed to SQLite are either originally written by me
or are derived from prior works which I have verified are also
in the public domain
 and are not subject to claims of copyright
by other parties.

To the best of my knowledge and belief, no individual, business, organization,
government, or other entity has any copyright interest
in the SQLite software as it existed on the
SQLite website as of the date on the signature line below.

I agree never to publish any additional information
to the SQLite website (by CVS, email, scp, FTP, or any other means) unless
that information is an original work of authorship by me or is derived from
prior published versions of SQLite.
I agree never to copy and paste code into the SQLite code base from
other sources.
I agree never to publish on the SQLite website any information that
would violate a law or breach a contract.

<table width="100%" cellpadding="0" cellspacing="0">

<tr>
<td width="60%" valign="top">
Signature:

</td><td valign="top" align="left">
Date:
</td></tr>
<td colspan=2>
Name
(printed):
</td>
</tr>
</table>
</body>
</html>

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/copyright-release.html
No license file was found, but licenses were detected in source scan.

<h2>Proprietary SQLite Extensions</h2>
public domain. But there also exist
proprietary, licensed extensions to SQLite.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/support.html
No license file was found, but licenses were detected in source scan.

SQLite itself is in the public domain and
can be used for any purpose. But TH3 is proprietary and requires a license.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/th3.html
No license file was found, but licenses were detected in source scan.

application is free to use the same database connection or the

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/c3ref/c_config_covering_index_scan.html
No license file was found, but licenses were detected in source scan.

public domain and so most

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/famous.html

No license file was found, but licenses were detected in source scan.

Public domain
The source code for SQLite is in the public domain. No claim of copyright

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/different.html
No license file was found, but licenses were detected in source scan.

other proprietary or non-standard VFSes.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/uri.html
No license file was found, but licenses were detected in source scan.

public domain.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/changes.html
No license file was found, but licenses were detected in source scan.

Sources are in the public domain.
or some proprietary format into

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/features.html
No license file was found, but licenses were detected in source scan.

 Public domain source code
public domain and is thus free for

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/about.html
No license file was found, but licenses were detected in source scan.

without a shared lock, other processes are free to modify the database

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/atomiccommit.html
No license file was found, but licenses were detected in source scan.

<dd> The psow query parameter works with the default windows and unix VFSes but might be a no-op for other proprietary or non-standard VFSes.
<dd> One might, for example, want to query all objects that overlap with the 35th parallel: SELECT id FROM demo_index WHERE maxY>=35.0 AND minY<=35.0; But, generally speaking, the more constraints that the R*Tree module has to work with, and the smaller the bounding box, the faster the results will come back. 3.4. Roundoff Error By default, coordinates are stored in an R*Tree using 32-bit floating point values. When a coordinate cannot be exactly represented by a 32-bit floating point number, the lower-bound coordinates are

rounded down and the upper-bound coordinates are rounded up. Thus, bounding boxes might be slightly larger than specified, but will never be any smaller. This is exactly what is desired for doing the more common "overlapping" queries where the application

wants to find every entry in the R*Tree that overlaps a query bounding box. Rounding the entry bounding boxes outward might cause a few extra entries to appears in an overlapping query if the edge of the entry bounding box corresponds to an edge of the query bounding box. But the overlapping query will never miss a valid table entry. However, for a "contained-within" style query, rounding the bounding boxes outward might cause some entries to be excluded from the result set if the edge of the entry bounding box corresponds to the edge of the query bounding box. To guard against this, applications should expand their contained-within query boxes slightly (by 0.000012%) by rounding down the lower coordinates and rounding up the top coordinates, in each dimension. 3.5. Reading And Writing At The Same Time It is the nature of the Guttman R-Tree algorithm that any write might radically restructure the tree, and in the process change the scan order of the nodes. For this reason, it is not

generally possible to modify the R-Tree in the middle of a query of the R-Tree. Attempts to do so will fail with a SQLITE_LOCKED "database table is locked" error. So, for example, suppose an application runs one query against an R-Tree like this: SELECT id FROM demo_index WHERE maxY>=35.0 AND minY<=35.0; Then for each "id" value returned, suppose the application creates an UPDATE statement like the following and binds the "id" value returned against the "?1" parameter: UPDATE demo_index SET maxY=maxY+0.5 WHERE id=?1; Then the UPDATE might fail with an SQLITE_LOCKED error. The reason is that the initial query has not run to completion. It is remembering its place in the middle of a scan of the R-Tree. So an update to the R-Tree cannot be tolerated as this would disrupt the scan. It is also possible to express this kind of simultaneous read and write on an R-Tree within a single query, for example if an UPDATE statement tries to change the value of one row of the R-Tree based on a complicated

query from another row of the same R-Tree, perhaps something like this: UPDATE demo_index SET maxY = (SELECT max(maxX) FROM demo_index AS x2 WHERE x2.maxY>demo_index.x2) WHERE maxY>=35.0 AND minY<=35.0; This is a limitation of the R-Tree extension only. Ordinary tables in SQLite are able to read and write at the same time. Other virtual tables might (or might not) also that capability. And R-Tree can appear to read and write at the same time in some circumstances, if it can figure out how to reliably run the query to completion before starting the update. But you shouldn't count on that for every query. Generally speaking, it is best to avoid running queries and updates to the same R-Tree at the same time. If you really need to update an R-Tree based on complex queries against the same R-Tree, it is best to run the complex queries first and store the results in a temporary table, then update the R-Tree based on the values stored in the temporary table. 4. Using R*Trees Effectively

For SQLite versions prior to 3.24.0 (2018-06-04), the only information that an R*Tree index stores about an object is its integer ID and its bounding box. Additional information needs to be stored in separate tables and related to the R*Tree index using the primary key. For the example above, one might create an auxiliary table as follows: CREATE TABLE demo_data(id INTEGER PRIMARY KEY, -- primary key objname TEXT, -- name of the object objtype TEXT, -- object type boundary BLOB -- detailed boundary of object); In this example, the demo_data.boundary field is intended to hold some kind of binary representation of the precise boundaries of the object. The R*Tree index only holds an axis-aligned rectangular boundary for the object. The R*Tree boundary is just an approximation of the true object boundary. So what typically happens is that the R*Tree index is used to narrow a search down to a list of candidate objects and then more detailed and expensive computations are done on each candidate

to find if the candidate truly meets the search criteria. Key Point: An R*Tree index does not normally provide the exact answer but merely reduces the set of potential answers from millions to dozens. Suppose the demo_data.boundary field holds some proprietary data description of a complex two-dimensional boundary for an object and suppose that the application has used the sqlite3_create_function() interface to created application-defined functions "contained_in" and "overlaps" accepting two demo_data.boundary objects and return true or false. One may assume that "contained_in" and "overlaps" are relatively slow functions that we do not want to invoke too frequently. Then an efficient way to find the name of all objects located within the North Carolina 12th District, one

may be to run a query like this: SELECT objname FROM demo_data, demo_index WHERE demo_data.id=demo_index.id AND contained_in(demo_data.boundary, :boundary) AND minX>=-81.0 AND maxX<=-79.6 AND minY>=35.0 AND maxY>=36.2;
In the query above, one would presumably bind the binary BLOB description of the precise boundary of the 12th district to the ":boundary" parameter. Notice how the query above works: The R*Tree index runs in the outer loop to find entries that are contained within the bounding box of longitude -81..-79.6 and latitude 35.0..36.2. For each object identifier found, SQLite looks up the corresponding entry in the demo_data table. It then uses the boundary field from the demo_data table as a parameter to the contained_in() function and if that function returns true, the objname field from the demo_data table is returned as the next row of query result. One would get the same answer without the use of the R*Tree index using the following simpler query: SELECT objname FROM demo_data WHERE contained_in(demo_data.boundary, :boundary); The problem with this latter query is that it must apply the contained_in() function to millions of entries in the demo_data table. The use of the R*Tree
in the penultimate query reduces the number of calls to contained_in() function to a small subset of the entire table. The R*Tree index did not find the exact answer itself, it merely limited the search space. 4.1. Auxiliary Columns Beginning with SQLite version 3.24.0 (2018-06-04), r-tree tables can have auxiliary columns that store arbitrary data. Auxiliary columns can be used in place of secondary tables such as "demo_data". Auxiliary columns are marked with a "+" symbol before the column name. Auxiliary columns must come after all of the coordinate boundary columns. There is a limit of no more than 100 auxiliary columns. The following example shows an r-tree table with auxiliary columns that is equivalent to the two tables "demo_index" and "demo_data" above: CREATE VIRTUAL TABLE demo_index2 USING rtree(id, -- Integer primary key minX, maxX, -- Minimum and maximum X coordinate minY, maxY, -- Minimum and maximum Y coordinate +objname TEXT, -- name of the object +objtype TEXT, -- object
type +boundary BLOB -- detailed boundary of object);

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/requirements.html
No license file was found, but licenses were detected in source scan.

Suppose the demo_data.boundary field holds some proprietary data description

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/rtree.html
No license file was found, but licenses were detected in source scan.

application code is free to use these routines as well, if desired.

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/34to35.html
No license file was found, but licenses were detected in source scan.

access to all proprietary extensions and test suites.
access to all proprietary extensions and test suites.
public domain,

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/prosupport.html
No license file was found, but licenses were detected in source scan.

```
#!/usr/bin/tclsh.docsrc
#### Import of wapp.tcl
# Copyright (c) 2017 D. Richard Hipp
#
# This program is free software; you can redistribute it and/or
# modify it under the terms of the Simplified BSD License (also
# known as the "2-Clause License" or "FreeBSD License".)
#
# This program is distributed in the hope that it will be useful,
# but without any warranty; without even the implied warranty of
# merchantability or fitness for a particular purpose.
#
#-------------------------------------------------------------------------
#
# Design rules:
#
#   (1)  All identifiers in the global namespace begin with "wapp"
#
#   (2)  Indentifiers intended for internal use only begin with "wappInt"
#

# Add text to the end of the HTTP reply.  No interpretation or transformation
# of the text is performs.  The argument should be enclosed within {...}
#
proc wapp {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add
 text to the page under construction.  Do no escaping on the text.
#
# Though "unsafe" in general, there are uses for this kind of thing.
# For example, if you want to return the complete, unmodified content of
# a file:
#
#       set fd [open content.html rb]
#       wapp-unsafe [read $fd]
#       close $fd
#
# You could do the same thing using ordinary "wapp" instead of "wapp-unsafe".
# The difference is that wapp-safety-check will complain about the misuse
# of "wapp", but it assumes that the person who write "wapp-unsafe" understands
# the risks.
#
# Though occasionally necessary, the use of this interface should be minimized.
#
proc wapp-unsafe {txt} {
```

```
 global wapp
 dict append wapp .reply $txt
}

# Add text to the end of the reply under construction.  The following
# substitutions are made:
#
#     %html(...)         Escape text for inclusion in HTML
#     %url(...)          Escape text for use as a URL
#     %qp(...)           Escape text for use as a URI query parameter
#
    %string(...)       Escape text for use within a JSON string
#     %unsafe(...)       No transformations of the text
#
# The substitutions above terminate at the first ")" character.  If the
# text of the TCL string in ... contains ")" characters itself, use instead:
#
#     %html%(...)%
#     %url%(...)%
#     %qp%(...)%
#     %string%(...)%
#     %unsafe%(...)%
#
# In other words, use "%(...)%" instead of "(...)" to include the TCL string
# to substitute.
#
# The %unsafe substitution should be avoided whenever possible, obviously.
# In addition to the substitutions above, the text also does backslash
# escapes.
#
proc wapp-subst {txt} {
 global wapp
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# Works like wapp-subst, but also removes whitespace from the beginning
# of lines.
#
proc wapp-trim {txt} {
 global wapp
 regsub -all {\n\s+} [string
 trim $txt] \n txt
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}
```

```
# There must be a wappInt-enc-NAME routine for each possible substitution
# in wapp-subst.  Thus there are routines for "html", "url", "qp", and "unsafe".
#
#   wappInt-enc-html          Escape text so that it is safe to use in the
#                             body of an HTML document.
#
#   wappInt-enc-url           Escape text so that it is safe to pass as an
#                             argument to href= and src= attributes in HTML.
#
#   wappInt-enc-qp            Escape text so that it is safe to use as the
#                             value of a query parameter in a URL or in
#                             post data or in a cookie.
#
#   wappInt-enc-string        Escape ", ', \, and < for using inside of a
#                             javascript string literal.
  The < character
#                             is escaped to prevent "</script>" from causing
#                             problems in embedded javascript.
#
#   wappInt-enc-unsafe        Perform no encoding at all.  Unsafe.
#
proc wappInt-enc-html {txt} {
 return [string map {& &amp; < &lt; > &gt; \" &quot; \\ &#92;} $txt]
}
proc wappInt-enc-unsafe {txt} {
 return $txt
}
proc wappInt-enc-url {s} {
 if {[regsub -all {[^-{}@~?=#_.:/a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-qp {s} {
 if {[regsub -all {[^-{}_.a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-string {s} {
 return [string map {\\ \\\\ \" \\\" ' \\' < \\u003c} $s]
```

```
}

# This is a
 helper routine for wappInt-enc-url and wappInt-enc-qp.  It returns
# an appropriate %HH encoding for the single character c.  If c is a unicode
# character, then this routine might return multiple bytes:  %HH%HH%HH
#
proc wappInt-%HHchar {c} {
 if {$c==" "} {return +}
 return [regsub -all .. [binary encode hex [encoding convertto utf-8 $c]] {%&}]
}



# Undo the www-url-encoded format.
#
# HT: This code stolen from ncgi.tcl
#
proc wappInt-decode-url {str} {
 set str [string map [list + { } "\\" "\\\\" \[ \\\[ \] \\\]] $str]
 regsub -all -- \
    {%([Ee][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])} \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2\3]]} str
 regsub -all -- \
    {%([CDcd][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])}                    \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2]]} str
 regsub -all -- {%([0-7][A-Fa-f0-9])} $str {\\u00\1} str
 return [subst -novar $str]
}

# Reset the document back to an empty string.
#
proc
 wapp-reset {} {
 global wapp
 dict set wapp .reply {}
}

# Change the mime-type of the result document.
#
proc wapp-mimetype {x} {
 global wapp
 dict set wapp .mimetype $x
}

# Change the reply code.
#
proc wapp-reply-code {x} {
 global wapp
```

```
 dict set wapp .reply-code $x
}

# Set a cookie
#
proc wapp-set-cookie {name value} {
 global wapp
 dict lappend wapp .new-cookies $name $value
}

# Unset a cookie
#
proc wapp-clear-cookie {name} {
 wapp-set-cookie $name {}
}

# Add extra entries to the reply header
#
proc wapp-reply-extra {name value} {
 global wapp
 dict lappend wapp .reply-extra $name $value
}

# Specifies how the web-page under construction should be cached.
# The argument should be one of:
#
#    no-cache
#    max-age=N            (for some integer number of seconds, N)
#    private,max-age=N
#
proc wapp-cache-control {x} {
 wapp-reply-extra Cache-Control $x
}

# Redirect to a different web page
#
proc wapp-redirect {uri} {
 wapp-reply-code {307 Redirect}
 wapp-reply-extra
 Location $uri
}

# Return the value of a wapp parameter
#
proc wapp-param {name {dflt {}}} {
 global wapp
 if {![dict exists $wapp $name]} {return $dflt}
 return [dict get $wapp $name]
```

```
}

# Return true if a and only if the wapp parameter $name exists
#
proc wapp-param-exists {name} {
 global wapp
 return [dict exists $wapp $name]
}

# Set the value of a wapp parameter
#
proc wapp-set-param {name value} {
 global wapp
 dict set wapp $name $value
}

# Return all parameter names that match the GLOB pattern, or all
# names if the GLOB pattern is omitted.
#
proc wapp-param-list {{glob {*}}} {
 global wapp
 return [dict keys $wapp $glob]
}

# By default, Wapp does not decode query parameters and POST parameters
# for cross-origin requests.  This is a security restriction, designed to
# help prevent cross-site request forgery (CSRF) attacks.
#
# As a consequence of this restriction, URLs for sites generated by Wapp
# that contain query parameters will not work as URLs
 found in other
# websites.  You cannot create a link from a second website into a Wapp
# website if the link contains query planner, by default.
#
# Of course, it is sometimes desirable to allow query parameters on external
# links.  For URLs for which this is safe, the application should invoke
# wapp-allow-xorigin-params.  This procedure tells Wapp that it is safe to
# go ahead and decode the query parameters even for cross-site requests.
#
# In other words, for Wapp security is the default setting.  Individual pages
# need to actively disable the cross-site request security if those pages
# are safe for cross-site access.
#
proc wapp-allow-xorigin-params {} {
 global wapp
 if {![dict exists $wapp .qp] && ![dict get $wapp SAME_ORIGIN]} {
   wappInt-decode-query-params
 }
```

```
}

# Set the content-security-policy.
#
# The default content-security-policy is very strict:  "default-src 'self'"
# The default policy prohibits the use of in-line javascript or CSS.
#
# Provide an alternative
 CSP as the argument.  Or use "off" to disable
# the CSP completely.
#
proc wapp-content-security-policy {val} {
 global wapp
 if {$val=="off"} {
   dict unset wapp .csp
 } else {
   dict set wapp .csp $val
 }
}

# Examine the bodys of all procedures in this program looking for
# unsafe calls to various Wapp interfaces.  Return a text string
# containing warnings. Return an empty string if all is ok.
#
# This routine is advisory only.  It misses some constructs that are
# dangerous and flags others that are safe.
#
proc wapp-safety-check {} {
 set res {}
 foreach p [info procs] {
   set ln 0
   foreach x [split [info body $p] \n] {
     incr ln
     if {[regexp {^[ \t]*wapp[ \t]+([^\n]+)} $x all tail]
      && [string index $tail 0]!="\173"
      && [regexp {[[$]} $tail]
     } {
       append res "$p:$ln: unsafe \"wapp\" call: \"[string trim $x]\"\n"
     }
     if {[regexp {^[ \t]*wapp-(subst|trim)[ \t]+[^\173]} $x all cx]} {
       append res "$p:$ln: unsafe \"wapp-$cx\"
 call: \"[string trim $x]\"\n"
     }
   }
 }
 return $res
}
```

```
# Return a string that descripts the current environment.  Applications
# might find this useful for debugging.
#
proc wapp-debug-env {} {
 global wapp
 set out {}
 foreach var [lsort [dict keys $wapp]] {
  if {[string index $var 0]=="."} continue
  append out "$var = [list [dict get $wapp $var]]\n"
 }
 append out "\[pwd\] = [list [pwd]]\n"
 return $out
}

# Tracing function for each HTTP request.  This is overridden by wapp-start
# if tracing is enabled.
#
proc wappInt-trace {} {}

# Start up a listening socket.  Arrange to invoke wappInt-new-connection
# for each inbound HTTP connection.
#
#    port            Listen on this TCP port.  0 means to select a port
#                    that is not currently in use
#
#    wappmode        One of "scgi", "server", or "local".
#
proc wappInt-start-listener {port wappmode} {
 if {$wappmode=="scgi"} {
  set type SCGI
  set server [list wappInt-new-connection
 wappInt-scgi-readable $wappmode]
 } else {
  set type HTTP
  set server [list wappInt-new-connection wappInt-http-readable $wappmode]
 }
 if {$wappmode=="local"} {
  set x [socket -server $server -myaddr 127.0.0.1 $port]
 } else {
  set x [socket -server $server $port]
 }
 set coninfo [chan configure $x -sockname]
 set port [lindex $coninfo 2]
 if {$wappmode=="local"} {
  wappInt-start-browser http://127.0.0.1:$port/
 } else {
  puts "Listening for $type requests on TCP port $port"
 }
```

```
}

# Start a web-browser and point it at $URL
#
proc wappInt-start-browser {url} {
 global tcl_platform
 if {$tcl_platform(platform)=="windows"} {
   exec cmd /c start $url &
 } elseif {$tcl_platform(os)=="Darwin"} {
   exec open $url &
 } elseif {[catch {exec xdg-open $url}]} {
   exec firefox $url &
 }
}

# This routine is a "socket -server" callback.  The $chan, $ip, and $port
# arguments are added by the socket command.
#
# Arrange to invoke $callback when content is available
 on the new socket.
# The $callback will process inbound HTTP or SCGI content.
#
proc wappInt-new-connection {callback wappmode chan ip port} {
 upvar #0 wappInt-$chan W
 set W [dict create REMOTE_ADDR $ip REMOTE_PORT $port WAPP_MODE $wappmode \
        .header {}]
 fconfigure $chan -blocking 0 -translation binary
 fileevent $chan readable [list $callback $chan]
}

# Close an input channel
#
proc wappInt-close-channel {chan} {
 if {$chan=="stdout"} {
   # This happens after completing a CGI request
   exit 0
 } else {
   unset ::wappInt-$chan
   close $chan
 }
}

# Process new text received on an inbound HTTP request
#
proc wappInt-http-readable {chan} {
 if {[catch [list wappInt-http-readable-unsafe $chan] msg]} {
   puts stderr "$msg\n$::errorInfo"
   wappInt-close-channel $chan
```

```
 }
}
proc wappInt-http-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if {![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
   # the header
  set line [string trimright [gets $chan]]
  set n [string length $line]
  if {$n>0} {
    if {[dict get $W .header]=="" || [regexp {^\s+} $line]} {
      dict append W .header $line
    } else {
      dict append W .header \n$line
    }
    if {[string length [dict get $W .header]]>100000} {
      error "HTTP request header too big - possible DOS attack"
    }
  } elseif {$n==0} {
    # We have reached the blank line that terminates the header.
    global argv0
    set a0 [file normalize $argv0]
    dict set W SCRIPT_FILENAME $a0
    dict set W DOCUMENT_ROOT [file dir $a0]
    if {[wappInt-parse-header $chan]} {
      catch {close $chan}
      return
    }
    set len 0
    if {[dict exists $W CONTENT_LENGTH]} {
      set len [dict get $W CONTENT_LENGTH]
    }
    if {$len>0} {
      # Still need to read the query content
      dict set W .toread $len
    } else {
      # There is no query content, so handle
 the request immediately
      set wapp $W
      wappInt-handle-request $chan 0
    }
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
```

```
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Decode the HTTP request header.
#
# This routine is always running inside of a [catch], so if
# any problems arise, simply raise an error.
#
proc wappInt-parse-header {chan} {
 upvar #0 wappInt-$chan W
 set hdr [split [dict get $W .header] \n]
 if {$hdr==""} {return 1}
 set req [lindex $hdr 0]
 dict set W REQUEST_METHOD [set method [lindex $req 0]]
 if {[lsearch {GET HEAD POST} $method]<0} {
  error "unsupported request method:
\"[dict get $W REQUEST_METHOD]\""
 }
 set uri [lindex $req 1]
 set split_uri [split $uri ?]
 set uri0 [lindex $split_uri 0]
 if {![regexp {^/[-.a-z0-9_/]*$} $uri0]} {
  error "invalid request uri: \"$uri0\""
 }
 dict set W REQUEST_URI $uri0
 dict set W PATH_INFO $uri0
 set uri1 [lindex $split_uri 1]
 dict set W QUERY_STRING $uri1
 set n [llength $hdr]
 for {set i 1} {$i<$n} {incr i} {
  set x [lindex $hdr $i]
  if {![regexp {^(.+): +(.*)$} $x all name value]} {
    error "invalid header line: \"$x\""
  }
  set name [string toupper $name]
  switch -- $name {
    REFERER {set name HTTP_REFERER}
    USER-AGENT {set name HTTP_USER_AGENT}
    CONTENT-LENGTH {set name CONTENT_LENGTH}
    CONTENT-TYPE {set name CONTENT_TYPE}
    HOST {set name HTTP_HOST}
    COOKIE {set name HTTP_COOKIE}
    ACCEPT-ENCODING {set name HTTP_ACCEPT_ENCODING}
```

```
    default {set name .hdr:$name}
   }
   dict set W $name $value
  }
  return 0
}

# Decode the QUERY_STRING
 parameters from a GET request or the
# application/x-www-form-urlencoded CONTENT from a POST request.
#
# This routine sets the ".qp" element of the ::wapp dict as a signal
# that query parameters have already been decoded.
#
proc wappInt-decode-query-params {} {
 global wapp
 dict set wapp .qp 1
 if {[dict exists $wapp QUERY_STRING]} {
  foreach qterm [split [dict get $wapp QUERY_STRING] &] {
   set qsplit [split $qterm =]
   set nm [lindex $qsplit 0]
   if {[regexp {^[a-z][a-z0-9]*$} $nm]} {
    dict set wapp $nm [wappInt-decode-url [lindex $qsplit 1]]
   }
  }
 }
 if {[dict exists $wapp CONTENT_TYPE] && [dict exists $wapp CONTENT]} {
  set ctype [dict get $wapp CONTENT_TYPE]
  if {$ctype=="application/x-www-form-urlencoded"} {
   foreach qterm [split [string trim [dict get $wapp CONTENT]] &] {
    set qsplit [split $qterm =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
     dict set wapp $nm [wappInt-decode-url
[lindex $qsplit 1]]
    }
   }
  } elseif {[string match multipart/form-data* $ctype]} {
   regexp {^(.*?)\r\n(.*)$} [dict get $wapp CONTENT] all divider body
   set ndiv [string length $divider]
   while {[string length $body]} {
    set idx [string first $divider $body]
    set unit [string range $body 0 [expr {$idx-3}]]
    set body [string range $body [expr {$idx+$ndiv+2}] end]
    if {[regexp {^Content-Disposition: form-data; (.*?)\r\n\r\n(.*)$} \
        $unit unit hdr content] &&
       [regexp {name="(.*)"; filename="(.*)"\r\nContent-Type: (.*?)$}\
         $hdr hr name filename mimetype]} {
```

```
        dict set wapp $name.filename \
          [string map [list \\\" \" \\\\ \\] $filename]
        dict set wapp $name.mimetype $mimetype
        dict set wapp $name.content $content
       }
     }
   }
 }
}

# Invoke application-supplied methods to generate a reply to
# a single HTTP request.
#
# This routine always
 runs within [catch], so handle exceptions by
# invoking [error].
#
proc wappInt-handle-request {chan useCgi} {
 global wapp
 dict set wapp .reply {}
 dict set wapp .mimetype {text/html; charset=utf-8}
 dict set wapp .reply-code {200 Ok}
 dict set wapp .csp {default-src 'self'}

 # Set up additional CGI environment values
 #
 if {![dict exists $wapp HTTP_HOST]} {
  dict set wapp BASE_URL {}
 } elseif {[dict exists $wapp HTTPS]} {
  dict set wapp BASE_URL https://[dict get $wapp HTTP_HOST]
 } else {
  dict set wapp BASE_URL http://[dict get $wapp HTTP_HOST]
 }
 if {![dict exists $wapp REQUEST_URI]} {
  dict set wapp REQUEST_URI /
 } elseif {[regsub {\?.*} [dict get $wapp REQUEST_URI] {} newR]} {
  # Some servers (ex: nginx) append the query parameters to REQUEST_URI.
  # These need to be stripped off
  dict set wapp REQUEST_URI $newR
 }
 if {[dict exists $wapp SCRIPT_NAME]} {
  dict append wapp BASE_URL [dict get $wapp SCRIPT_NAME]
 } else {
  dict set wapp
 SCRIPT_NAME {}
 }
 if {![dict exists $wapp PATH_INFO]} {
  # If PATH_INFO is missing (ex: nginx) the construct it
```

```
  set URI [dict get $wapp REQUEST_URI]
  set skip [string length [dict get $wapp SCRIPT_NAME]]
  dict set wapp PATH_INFO [string range $URI $skip end]
}
if {[regexp {^/([^/]+)(.*)$} [dict get $wapp PATH_INFO] all head tail]} {
  dict set wapp PATH_HEAD $head
  dict set wapp PATH_TAIL [string trimleft $tail /]
} else {
  dict set wapp PATH_INFO {}
  dict set wapp PATH_HEAD {}
  dict set wapp PATH_TAIL {}
}
dict set wapp SELF_URL [dict get $wapp BASE_URL]/[dict get $wapp PATH_HEAD]

# Parse query parameters from the query string, the cookies, and
# POST data
#
if {[dict exists $wapp HTTP_COOKIE]} {
  foreach qterm [split [dict get $wapp HTTP_COOKIE] {;}] {
    set qsplit [split [string trim $qterm] =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex
$qsplit 1]]
    }
  }
}
set same_origin 0
if {[dict exists $wapp HTTP_REFERER]} {
  set referer [dict get $wapp HTTP_REFERER]
  set base [dict get $wapp BASE_URL]
  if {$referer==$base || [string match $base/* $referer]} {
    set same_origin 1
  }
}
dict set wapp SAME_ORIGIN $same_origin
if {$same_origin} {
  wappInt-decode-query-params
}

# Invoke the application-defined handler procedure for this page
# request.  If an error occurs while running that procedure, generate
# an HTTP reply that contains the error message.
#
wapp-before-dispatch-hook
wappInt-trace
set mname [dict get $wapp PATH_HEAD]
if {[catch {
```

```
  if {$mname!="" && [llength [info proc wapp-page-$mname]]>0} {
    wapp-page-$mname
  } else {
    wapp-default
  }
} msg]} {
  if {[wapp-param WAPP_MODE]=="local" || [wapp-param WAPP_MODE]=="server"} {
    puts "ERROR: $::errorInfo"
  }
  wapp-reset
  wapp-reply-code "500 Internal Server Error"
  wapp-mimetype
text/html
  wapp-trim {
    <h1>Wapp Application Error</h1>
    <pre>%html($::errorInfo)</pre>
  }
  dict unset wapp .new-cookies
}

# Transmit the HTTP reply
#
if {$chan=="stdout"} {
  puts $chan "Status: [dict get $wapp .reply-code]\r"
} else {
  puts $chan "HTTP/1.1 [dict get $wapp .reply-code]\r"
  puts $chan "Server: wapp\r"
  puts $chan "Connection: close\r"
}
if {[dict exists $wapp .reply-extra]} {
  foreach {name value} [dict get $wapp .reply-extra] {
    puts $chan "$name: $value\r"
  }
}
if {[dict exists $wapp .csp]} {
  puts $chan "Content-Security-Policy: [dict get $wapp .csp]\r"
}
set mimetype [dict get $wapp .mimetype]
puts $chan "Content-Type: $mimetype\r"
if {[dict exists $wapp .new-cookies]} {
  foreach {nm val} [dict get $wapp .new-cookies] {
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      if {$val==""} {
        puts $chan "Set-Cookie: $nm=; HttpOnly; Path=/; Max-Age=1\r"
      } else {
        set
val [wappInt-enc-url $val]
        puts $chan "Set-Cookie: $nm=$val; HttpOnly; Path=/\r"
```

```
      }
    }
  }
 }
 if {[string match text/* $mimetype]} {
  set reply [encoding convertto utf-8 [dict get $wapp .reply]]
  if {[regexp {\ygzip\y} [wapp-param HTTP_ACCEPT_ENCODING]]} {
    catch {
      set x [zlib gzip $reply]
      set reply $x
      puts $chan "Content-Encoding: gzip\r"
    }
  }
 } else {
  set reply [dict get $wapp .reply]
 }
 puts $chan "Content-Length: [string length $reply]\r"
 puts $chan \r
 puts $chan $reply
 flush $chan
 wappInt-close-channel $chan
}

# This routine runs just prior to request-handler dispatch.  The
# default implementation is a no-op, but applications can override
# to do additional transformations or checks.
#
proc wapp-before-dispatch-hook {} {return}

# Process a single CGI request
#
proc wappInt-handle-cgi-request {} {
 global wapp env
 foreach key {
  CONTENT_LENGTH
  CONTENT_TYPE
  DOCUMENT_ROOT
  HTTP_ACCEPT_ENCODING
   HTTP_COOKIE
  HTTP_HOST
  HTTP_REFERER
  HTTP_USER_AGENT
  HTTPS
  PATH_INFO
  QUERY_STRING
  REMOTE_ADDR
  REQUEST_METHOD
  REQUEST_URI
```

```
  REMOTE_USER
  SCRIPT_FILENAME
  SCRIPT_NAME
  SERVER_NAME
  SERVER_PORT
  SERVER_PROTOCOL
 } {
  if {[info exists env($key)]} {
    dict set wapp $key $env($key)
  }
 }
 set len 0
 if {[dict exists $wapp CONTENT_LENGTH]} {
  set len [dict get $wapp CONTENT_LENGTH]
 }
 if {$len>0} {
  fconfigure stdin -translation binary
  dict set wapp CONTENT [read stdin $len]
 }
 dict set wapp WAPP_MODE cgi
 fconfigure stdout -translation binary
 wappInt-handle-request stdout 1
}

# Process new text received on an inbound SCGI request
#
proc wappInt-scgi-readable {chan} {
 if {[catch [list wappInt-scgi-readable-unsafe $chan] msg]} {
  puts stderr "$msg\n$::errorInfo"
  wappInt-close-channel $chan
 }
}
proc wappInt-scgi-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if
 {![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
  # the header.
  #
  # An SGI header is short.  This implementation assumes the entire
  # header is available all at once.
  #
  set req [read $chan 15]
  set n [string length $req]
  scan $req %d:%s len hdr
  incr len [string length "$len:,"]
  append hdr [read $chan [expr {$len-15}]]
  foreach {nm val} [split $hdr \000] {
```

```
    if {$nm==","} break
    dict set W $nm $val
  }
  set len 0
  if {[dict exists $W CONTENT_LENGTH]} {
    set len [dict get $W CONTENT_LENGTH]
  }
  if {$len>0} {
    # Still need to read the query content
    dict set W .toread $len
  } else {
    # There is no query content, so handle the request immediately
    set wapp $W
    wappInt-handle-request $chan 0
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read
 $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Start up the wapp framework.  Parameters are a list passed as the
# single argument.
#
#    -server $PORT         Listen for HTTP requests on this TCP port $PORT
#
#    -local $PORT          Listen for HTTP requests on 127.0.0.1:$PORT
#
#    -scgi $PORT           Listen for SCGI requests on TCP port $PORT
#
#    -cgi                  Handle a single CGI request
#
# With no arguments, the behavior is called "auto".  In "auto" mode,
# if the GATEWAY_INTERFACE environment variable indicates CGI, then run
# as CGI.  Otherwise, start an HTTP server bound to the loopback address
# only, on an arbitrary TCP port, and automatically launch a web browser
# on that TCP port.
#
# Additional
```

```
 options:
#
#    -trace              "puts" each request URL as it is handled, for
#                        debugging
#
#    -lint               Run wapp-safety-check on the application instead
#                        of running the application itself
#
#    -Dvar=value         Set TCL global variable "var" to "value"
#
#
proc wapp-start {arglist} {
 global env
 set mode auto
 set port 0
 set n [llength $arglist]
 for {set i 0} {$i<$n} {incr i} {
  set term [lindex $arglist $i]
  if {[string match --* $term]} {set term [string range $term 1 end]}
  switch -glob -- $term {
    -server {
      incr i;
      set mode "server"
      set port [lindex $arglist $i]
    }
    -local {
      incr i;
      set mode "local"
      set port [lindex $arglist $i]
    }
    -scgi {
      incr i;
      set mode "scgi"
      set port [lindex $arglist $i]
    }
    -cgi {
      set mode "cgi"
    }
    -trace {
      proc wappInt-trace {} {

    set q [wapp-param QUERY_STRING]
        set uri [wapp-param BASE_URL][wapp-param PATH_INFO]
        if {$q!=""} {append uri ?$q}
        puts $uri
      }
    }
    -lint {
```

```
      set res [wapp-safety-check]
      if {$res!=""} {
        puts "Potential problems in this code:"
        puts $res
        exit 1
      } else {
        exit
      }
    }
    -D*=* {
      if {[regexp {^.D([^=]+)=(.*)$} $term all var val]} {
        set ::$var $val
      }
    }
    default {
      error "unknown option: $term"
    }
  }
}
if {($mode=="auto"
     && [info exists env(GATEWAY_INTERFACE)]
     && [string match CGI/1.* $env(GATEWAY_INTERFACE)])
  || $mode=="cgi"
} {
  wappInt-handle-cgi-request
  return
}
if {$mode=="scgi"} {
  wappInt-start-listener $port scgi
} elseif {$mode=="server"} {
  wappInt-start-listener $port server
} else {
  wappInt-start-listener $port local
}
vwait ::forever
}

# Call this version
 1.0
package provide wapp 1.0

#### End of wapp.tcl

# Generate all header content for the output document
#
proc search_header {} {
 wapp-trim {
<!DOCTYPE html>
```

```
<html><head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="content-type" content="text/html; charset=UTF-8">
<link href="../sqlite.css" rel="stylesheet">
<title>Search SQLite Stats</title>
<!-- path=../ -->
</head>
<body>
<div class=nosearch>
<a href="../index.html">
<img class="logo" src="../images/sqlite370_banner.gif" alt="SQLite" border="0">
</a>
<div><!-- IE hack to prevent disappearing logo --></div>
<div class="tagline desktoponly">
Small. Fast. Reliable.<br>Choose any three.
</div>
<div class="menu mainmenu">
<ul>
<li><a href="../index.html">Home</a>
<li class='mobileonly'><a href="javascript:void(0)" onclick='toggle_div("submenu")'>Menu</a>
<li class='wideonly'><a href='../about.html'>About</a>
<li class='desktoponly'><a href="../docs.html">Documentation</a>
<li class='desktoponly'><a
 href="../download.html">Download</a>
<li class='wideonly'><a href='../copyright.html'>License</a>
<li class='desktoponly'><a href="../support.html">Support</a>
<li class='desktoponly'><a href="../prosupport.html">Purchase</a>
<li class='search' id='search_menubutton'>
<a href="javascript:void(0)" onclick='toggle_search()'>Search</a>
</ul>
</div>
<div class="menu submenu" id="submenu">
<ul>
<li><a href='../about.html'>About</a>
<li><a href='../docs.html'>Documentation</a>
<li><a href='../download.html'>Download</a>
<li><a href='../support.html'>Support</a>
<li><a href='../prosupport.html'>Purchase</a>
</ul>
</div>
<div class="searchmenu" id="searchmenu">
<form method="GET" action="../search">
<select name="s" id="searchtype">
<option value="d">Search Documentation</option>
<option value="c">Search Changelog</option>
</select>
<input type="text" name="q" id="searchbox" value="">
<input type="submit" value="Go">
```

```
</form>
</div>
</div>
<script>
function toggle_div(nm) {
var w =
 document.getElementById(nm);
if( w.style.display=="block" ){
w.style.display = "none";
}else{
w.style.display = "block";
}
}
function toggle_search() {
var w = document.getElementById("searchmenu");
if( w.style.display=="block" ){
w.style.display = "none";
} else {
w.style.display = "block";
setTimeout(function(){
document.getElementById("searchbox").focus()
}, 30);
}
}
function div_off(nm){document.getElementById(nm).style.display="none";}
window.onbeforeunload = function(e){div_off("submenu");}
/* Disable the Search feature if we are not operating from CGI, since */
/* Search is accomplished using CGI and will not work without it. */
if( !location.origin.match || !location.origin.match(/http/) ){
document.getElementById("search_menubutton").style.display = "none";
}
/* Used by the Hide/Show button beside syntax diagrams, to toggle the */
function hideorshow(btn,obj){
var x = document.getElementById(obj);
var b = document.getElementById(btn);
if( x.style.display!='none' ){
x.style.display
 = 'none';
b.innerHTML='show';
}else{
x.style.display = '';
b.innerHTML='hide';
}
return false;
}
</script>
</div>
 }
```

```
}

proc wapp-default {} {
 # When running using the built-in webserver in Wapp (in other words,
 # when not running as CGI) any filename that contains a "." loads
 # directly from the filesystem.
 if {[wapp-param WAPP_MODE]!="cgi"]
  && [string match *.* [wapp-param PATH_INFO]]
 } {
  set altfile [file dir [wapp-param SCRIPT_FILENAME]]/../[wapp-param PATH_INFO]
  set fd [open $altfile rb]
  fconfigure $fd -translation binary
  wapp-unsafe [read $fd]
  close $fd
  switch -glob -- $altfile {
    *.html {
      wapp-mimetype text/html
    }
    *.css {
      wapp-mimetype text/css
    }
    *.gif {
      wapp-mimetype image/gif
    }
  }
  return
 }
 wapp-page-admin
}
proc wapp-page-admin {} {
 wapp-allow-xorigin-params
 wapp-content-security-policy off
 if {[wapp-param-exists env]} {
  search_header
  wapp-trim {

  <h1>Environment</h1>
    <pre>%html([wapp-debug-env])</pre>
  }
  return
 }
 sqlite3 db2 [file dir [wapp-param SCRIPT_FILENAME]]/searchlog.db
 set where ""
 set res ""

 set ipfilter ""
 set ipaddr [wapp-param ip]
 if {$ipaddr!=""} {
```

```
  set where {WHERE ip = $ipaddr}
  set ipfilter $ipaddr
}

set checked ""
set isUnique [expr {[wapp-param unique 0]+0}]
if {$isUnique} {
  set checked "checked"
}

set limit [wapp-param limit 10]
set s10 ""
set s100 ""
set s1000 ""
if {$limit==10} {set s10 selected}
if {$limit==100} {set s100 selected}
if {$limit==1000} {set s1000 selected}

search_header
set self [wapp-param PATH_HEAD]
wapp-trim {
  <div style="margin:2em">
  <center>
  <form action='%url($self)' method='GET'>
    Results: <select name=limit onChange="this.form.submit()">
      <option %html($s10) value="10">10</option>
      <option %html($s100) value="100">100</option>
      <option %html($s1000) value="1000">1000</option>
     </select>
    IP: <input type=input name=ip value="%html($ipfilter)">
    Unique: <input
      type=checkbox name=unique value=1
      $checked
      onChange="this.form.submit()">
    <input type=submit>
  </form>
  </center>
  </div>
  <table border=1 cellpadding=10 align=center>
  <tr><td><th>IP <th>Query <th> Results <th> Timestamp
}

set i 0
db2 eval "
  SELECT rowid, ip, query, nres, timestamp FROM log $where
  ORDER BY rowid DESC
" {
```

```
  if {$isUnique} {
    if {[info exists seen($query)]} continue
    set seen($query) 1
  }

  wapp-trim {
    <tr><td>%html($rowid)
        <td><a href='%url($self)?ip=%qp($ip)'>%html($ip)</a>
        <td><a href='../search?q=%qp($query)&donotlog=1'>%html($query)</a>
        <td>%html($nres)<td>%html($timestamp)
  }
  incr i
  if {$i >= $limit} break
 }
 wapp-subst {</table\n}
 db2 close
}
wapp-start $argv
```

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/search.d/admin
No license file was found, but licenses were detected in source scan.

application is free to use the same database connection or the

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/capi3ref.html
No license file was found, but licenses were detected in source scan.

data, so do not send the ".fullschema" output of a proprietary database

Found in path(s):
* /sqlite3-3-31-1-orig-www-1-tar-xz/www/cli.html

1.300 docker 1.9.1

1.300.1 Available under license :

jclouds docker API
Copyright 2009-2015 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions

to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.301 jackson-databind-nullable 0.2.1

1.301.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,

each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.302 xorg-randr 1.5.0

1.302.1 Available under license :

Copyright 2000, Compaq Computer Corporation,
Copyright 2002, Hewlett Packard, Inc.

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that

copyright notice and this permission notice appear in supporting
documentation, and that the name of Compaq or HP not be used in advertising
or publicity pertaining to distribution of the software without specific,
written prior permission. HP makes no representations about the
suitability of this software for any purpose. It is provided "as is"
without express or implied warranty.

HP DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL HP
BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION
OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright 2000 Compaq Computer Corporation, Inc.
Copyright 2002 Hewlett-Packard Company, Inc.
Copyright 2006 Intel Corporation
Copyright 2008 Red Hat, Inc.
Copyright 2011 Dave Airlie

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that copyright
notice and this permission notice appear in supporting documentation, and
that the name of the copyright holders not be used in advertising or
publicity pertaining to distribution of the software without specific,
written prior permission. The copyright holders make no representations
about the suitability of this software for any purpose. It is provided "as
is" without express or implied warranty.

THE COPYRIGHT HOLDERS DISCLAIM ALL WARRANTIES WITH REGARD TO
THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE
OF THIS SOFTWARE.

Copyright 2000 Compaq Computer Corporation, Inc.
Copyright 2002 Hewlett Packard Company, Inc.
Copyright 2006 Keith Packard

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that copyright
notice and this permission notice appear in supporting documentation, and

that the name of the copyright holders not be used in advertising or
publicity pertaining to distribution of the software without specific,
written prior permission. The
 copyright holders make no representations
about the suitability of this software for any purpose. It is provided "as
is" without express or implied warranty.

THE COPYRIGHT HOLDERS DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE
OF THIS SOFTWARE.

1.303 util-linux 2.33.1-0.1

1.303.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the

Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of

this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent

access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other

circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the

GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote

products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This library is free software; you can redistribute it and/or
modify it under the terms of the Modified BSD License.

The complete text of the license is available in the
../Documentation/licenses/COPYING.BSD-3-Clause file.
Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES
WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later file.

```
/*
* Copyright (c) 1989 The Regents of the University of California.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*    must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
*    may be used to endorse or promote products derived from this software
*
 without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
```

1.304 acl 2.2.53-4

1.304.1 Available under license :

Most components of the "acl" package are licensed under
Version 2.1 of the GNU Lesser General Public License (see COPYING.LGPL).

Some components (as annotated in the source) are licensed
under Version 2 of the GNU General Public License (see below),

---

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and
to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients
all the rights that
you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if
the Program itself is interactive but
does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works
based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections

1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the

Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the

original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation
may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision
will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR
DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY

YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one
line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts
in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may

be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License
 does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

1.305 bzip2 1.0.6-9.2~deb10u1

1.305.1 Available under license :

This program, "bzip2", the associated library "libbzip2", and all documentation, are copyright (C) 1996-2010 Julian R Seward. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must
  not claim that you wrote the original software. If you use this
  software in a product, an acknowledgment in the product
  documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must
  not be misrepresented as being the original software.

4. The name of the author may not be used to endorse or promote
  products derived from this software without specific

prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, jseward@bzip.org
bzip2/libbzip2 version 1.0.6 of 6 September 2010

1.306 sqlite 3.27.2-3+deb10u1

1.306.1 Available under license :

No license file was found, but licenses were detected in source scan.

<html>
<head>
<title>SQLite Consortium Agreement</title>
</head>
<body bgcolor="white">
<h1 align="center">
SQLite Consortium Agreement
</h1>

This SQLite Consortium Agreement ("Agreement") is made and
entered into as of the _____ day of _____, 2007 ("Effective Date")
by and between _____ (the "Company"), and
Hipp, Wyrick & Company, Inc., a Georgia Corporation with
headquarters at 6200 Maple Cove Lane, Charlotte, NC ("Hwaci").

WHEREAS, Hwaci is the developer of a serverless, embeddable, public
domain SQL database engine available at
http://www.sqlite.org/
("SQLite"); and

WHEREAS, Company wishes to support the independent development of
the SQLite database engine to insure the continuing reliability,

vitality, and independence of SQLite, and in connection therewith,
Company wishes to provide funds for ongoing research, development,
and
 maintenance of the SQLite code base, operation of the SQLite
website, protection and maintenance of the SQLite
trademark, as well as for promotion of SQLite at conferences and
trade shows; and

WHEREAS, Company wishes to receive benefits in the form of
services from Hwaci in consideration for their support of SQLite; and

WHEREAS, Company and Hwaci each wish SQLite to be supported and
maintained as an independent, community-driven project, and to
ensure the SQLite development team remains independent.

NOW, THEREFORE, in consideration of the mutual promises contained
herein, the parties agree as follows:

<h2>1.0 Definitions</h2>

<h3>1.1 SQLite Developers</h3>
The "SQLite Developers" are the employees or contractors of Hwaci engaged
in the development of SQLite, including without limitation the
SQLite Architect.

<h3>1.2 SQLite Architect</h3>
The "SQLite Architect" is the SQLite Developer with ultimate
responsibility and authority over changes
 and maintenance of the
SQLite code. The current SQLite Architect is the original designer
and developer of SQLite, D. Richard Hipp. Hwaci may change the
SQLite Architect from time to time upon approval by Company.

<h3>1.3 Consortium Member</h3>
A "Consortium Member" is a company or organization, including
but not limited to Company, which has entered into an agreement
with Hwaci which is substantially similar to this Agreement.

<h2>2.0 Agreement<h2>

<h3>2.1 Responsibilities And Obligations Of SQLite Developers</h3>

<h4>2.1.1 General Support</h4>
The SQLite Developers shall provide, without limit,
timely and accurate answers, advice, and instruction
in response to questions and comments from Company about SQLite
submitted by email or by telephone at any time day or night.

<h4>2.1.2 Debugging Support</h4>
The SQLite Developers shall at Company's request provide
Company with direct assistance
in debugging applications that are built upon or use SQLite.
The combined
time for Debugging Support and Custom
Development for Company is limited to 330 hours per year.

<h4>2.1.3 Custom Development</h4>
The SQLite Developers shall at the request of Company
write new extensions or enhancements
to SQLite according to Company's specifications. These extensions
and enhancements may be proprietary to Company or open source or
with the consent of both Company and the SQLite Architect may
be folded into the public domain SQLite source tree.
The time devoted to Custom Development for Company is limited 220 hours
per year.

<h4>2.1.4 Custom Builds</h4>
The SQLite Developers shall at Company's request provide Company
with specialized builds of SQLite according to Company's specifications.

<h4>2.1.5 Legacy Support</h4>
The SQLite Developers shall at Company's request provide support
and bug-fix patches for any historical version of SQLite.

<h4>2.1.6 Custom Testing</h4>
The SQLite Developers shall at Company's request set up and
run
acceptance tests according Company's specifications that are specifically
designed to exercise SQLite as configured and used by Company.
These acceptance tests shall be run and shall pass prior to any release
of SQLite.

<h4>2.1.7 Priority Bug Fixes</h4>
The SQLite Developers shall assign highest priority to fixing bugs
in SQLite that are reported by Company or in which Company has
expressed a specific interest.

<h4>2.1.8 Code Quality</h4>

The SQLite Developers shall at all times keep the SQLite source
code well commented and documented and clearly structured and
organized so that an experienced and competent programmer can
understand it and support it after no more than a few months of study.

<h4>2.1.9 Backwards Compatibility</h4>
The SQLite Developers recognize that Company uses SQLite
in mission-critical applications and therefore shall work diligently
to ensure continuing bug-free correct operation and backwards
compatibility with prior releases.

<h4>2.1.10
Test Coverage</h4>
The SQLite Developers shall maintain the SQLite test suite such
that no less than 95% source code coverage is provided.

<h4>2.1.11 Website</h4>
The SQLite Developers shall maintain the SQLite website at
http://www.sqlite.org/
in good working order and all SQLite source code shall
be made freely available at such website.

<h3>2.2 Responsibilities And Obligations Of The SQLite Architect</h3>

<h4>2.2.1 Private Briefings</h4>
The SQLite Architect shall, at the request of Company,
provide Company with private notification and briefings
of any new bugs or new features in SQLite that might
effect Company's products.

<h4>2.2.2 Direction</h4>
The SQLite Architect shall coordinate the activities of SQLite
Developers and shall publish from time to time a roadmap of
proposed future changes and enhancements to SQLite.

<h4>2.2.3 Oversight</h4>
The SQLite Architect shall personally
review all changes to
the SQLite Source Code and take responsibility for the quality
and correctness of those changes.

<h4>2.2.4 Continuity</h4>
The initial SQLite Architect shall be the original developer
of SQLite, D. Richard Hipp. The role of SQLite Architect shall
not be assigned to another during the term of this Agreement except
due to the disability of Dr. Hipp and with approval of Company.

<h3>2.3 Responsibilities And Obligations Of Hwaci</h3>

<h4>2.3.1 Employer</h4>
Hwaci shall act as the employer of the SQLite Developers and
SQLite Architect and shall make all tax and legal filings
and tax withholding required by employers. Hwaci shall provide
Company with W-9 information upon request.

<h4>2.3.2 Responsible Party</h4>
All obligations of the SQLite Developers set forth in this
agreement are deemed obligations of Hwaci. Hwaci shall recruit,
employ, and supervise SQLite Developers in such a way that the
responsibilities and obligations of the SQLite
 Developers set
forth in this agreement are upheld.

<h4>2.3.3 Multiple Developers</h4>
Hwaci shall recruit and employ as many SQLite Developers for as
many hours as can be reasonably achieved using the funds received
from Consortium Members under this agreement.
So that support for SQLite will not be interrupted by the
disability or withdrawal of any one SQLite Developer, Hwaci will
keep at least two knowledgeable and competent SQLite Developers
on staff.

<h4>2.3.4 Mentorship</h4>
Hwaci shall work to encourage independent
programmers from around the world
to become familiar with SQLite internals so that there will be a
pool of talent able to support SQLite in the future.

<h4>2.3.5 Audits</h4>
Hwaci shall keep and maintain complete and accurate records
of the use of development funds provided by Company
and shall allow Company, or its representative, a certified
public accountant mutually acceptable to Hwaci and Company,
during office hours and at reasonable

intervals, no more than
once every 12 months, to inspect and make extracts or copies
of such records solely for the purpose of ascertaining Hwaci's
compliance with the objectives and requirements of this agreement.

<h4>2.3.6 Disaster Planning</h4>
Hwaci shall maintain backup copies of all
SQLite source files and documentation, current and historical,
at at least two separate locations separated from each
other and from the primary on-line SQLite repository
by at least 400 kilometers.

<h4>2.3.7 Trademark</h4>
Hwaci shall maintain ownership of the SQLite trademark and
the sqlite.org domain name and shall purchase bandwidth and
server space for the
http://www.sqlite.org/ website.

<h4>2.3.8 No Take-overs or Buy-outs</h4>
Neither Hwaci nor the SQLite Architect shall relinquish development
control of SQLite during the term of this Agreement, by acquisition or merger
or by any other means,
except with the consent of Company.

<h4>2.3.9
New Consortium Members</h4>
New Consortium Members may be accepted into the consortium from
time to time under identical terms as this agreement, or under
substantially similar terms that have been approved by existing
Consortium Members.

<h4>2.3.10 Adequate Staff</h4>
Hwaci shall recruit and employ a sufficient number of qualified
SQLite Developers to easily cover all custom development,
debugging, and general support service obligations for all
Consortium Members while still providing ample time for
the SQLite Developers to engage in general maintenance
and extension of SQLite.

<h4>2.3.11 Use Of Funds</h4>
Hwaci shall use the funds provided hereunder
solely for the development and maintenance of SQLite as set forth in
this Agreement.

Interest on funds received in advance and held in trust will
be reinvested and used for the same purposes as the principal.

<h3>2.4 Responsibilities And Obligations Of Company</h3>

<h4>2.4.1 Funding</h4>
Company
shall provide funding for the ongoing support and
maintenance of SQLite as set forth in section 3.0 "Fees".

<h4>2.4.2 Copyright Disclaimer</h4>
Company acknowledges that SQLite source code and documentation
published on the SQLite website
is in the public domain and that nothing in this agreement shall change
that fact.

<h2>3.0 Fees</h2>

In consideration of the performance
by Hwaci, the SQLite Developers, and the SQLite Architect
of the obligations described herein,
Company shall pay Hwaci at least US $75,000 per year in advance
either annually, quarterly, or monthly, at Company's discretion.

<h2>4.0 Confidentiality</h2>

<h3>4.1 Definition of Confidential Information</h3>

"Confidential Information" means any Company proprietary information,
technical data, trade secrets or know-how, including, but not limited to,
research, product plans, products, services, customers, customer lists,
markets, software, developments,
inventions, processes, formulas,
technology, designs, drawings, engineering, hardware configuration
information, marketing, finances or other business information
disclosed by Company either directly or indirectly in writing,
orally or by drawings or inspection of parts or equipment.

<h3>4.2 Non-Use and Non-Disclosure.</h3>

Hwaci shall not, during or subsequent to the term of this Agreement,
use Company's Confidential Information for any purpose whatsoever
other than the performance of the Services or disclose
Company's Confidential Information to any third party. The parties
acknowledge that Confidential Information will remain the sole

property of Company. Hwaci shall take all reasonable precautions
to prevent any unauthorized disclosure of Confidential Information
including, but not limited to, having each employee or
consultant of Hwaci, if any, with access to any
Confidential Information, execute a nondisclosure agreement
containing provisions in Company's
 favor substantially similar
to this Agreement. Confidential Information does not include
information that: (i) is known to Hwaci at the time of
disclosure to Hwaci by Company as evidenced by written
records of Hwaci; (ii) has become publicly known and made
generally available through no wrongful act of Hwaci; or
(iii) has been received by Hwaci from a third party who is
authorized to make such disclosure.

<h4>4.2.1 Disclosure Required by Law</h4>
In the event any Confidential Information is required to be disclosed
by Hwaci under the terms of a valid and effective subpoena or order
issued by a court of competent jurisdiction, or by a demand or
information request from an executive or administrative agency
or other governmental authority, Hwaci shall, unless prohibited
by the terms of a subpoena, order, or demand, promptly notify
Company of the existence, terms and circumstances surrounding
such demand or request, shall consult with Company on the
advisability of
 taking legally available steps to resist
or narrow such demand or request, and, if disclosure of
such Confidential Information is required, shall exercise
its reasonable best efforts to narrow the scope of disclosure
and obtain an order or other reliable assurance that
confidential treatment will be accorded to such
Confidential Information. To the extent that Hwaci
is prohibited from notifying Company of a subpoena,
order or demand, by the terms of same, Hwaci shall exercise
its reasonable efforts to narrow the scope of disclosure.

<h3>4.3 Return of Materials.</h3>

Upon the termination of this Agreement, or upon Company's
earlier request, Hwaci shall deliver to Company all of
Company's property or Confidential Information that Hwaci
may have in Hwaci's possession or control.

<h2>5.0 Intellectual Property</h2>

<h3>5.1 No Assignment</h3>

Company acknowledges that all copyrightable material, notes,

records, drawings, designs, inventions, improvements, developments,

discoveries and trade secrets made, generated, conceived, or
reduced to practice by Hwaci related to SQLite
will remain the property of Hwaci. Nothing in this Agreement
will be construed to transfer any intellectual property right
of Hwaci to Company.

<h3>5.2 Availability and Public Domain Dedication</h3>

The SQLite Developers and Hwaci shall,
subject to their discretion as to the quality
and suitability of the SQLite source code and documentation
for public release, make
the SQLite source code and documentation
publicly available as downloadable files
and make a public statement ceding all intellectual
property rights, including but not limited to copyright
and patent rights, in the SQLite source code and documentation
to the public domain.
To the extent that the SQLite Developers and Hwaci
elect not to release the SQLite
source code and documentation
publicly, they shall provide copies thereof to
Company and hereby grants to Company, under all of the
SQLite
 Developers' and Hwaci's
rights
including but not limited to copyright and patent rights,
in and to the SQLite source code and documentation,
perpetual, irrevocable,
worldwide, non-exclusive, sublicenseable license to use,
copy, prepare derivative works of, publicly perform and
display the SQLite source code and documentation
and derivative works thereof.

<h3>5.3 Trademark</h3>

Hwaci shall use the name "SQLite" only to apply to the
publicly available project known by such name as of the
Effective Date. Hwaci may in its discretion file such
trademark applications or registrations as it deems
appropriate to protect or record its rights therein,
and may set such policies as it deems appropriate for
licensing the use of the trademark.

<h2>6.0 Representations And Warranties</h3>

<h3>6.1 Intellectual Property Clearances.</h3>

Hwaci hereby represents and warrants that Hwaci shall
enter into agreements with the SQLite Developers sufficient
to enable Hwaci to
undertake the obligations of Section 5.

<h3>6.2 Disclaimer.</h3>

THE WORK PRODUCT AND ALL MATERIAL PROVIDED BY HWACI AND
COMPANY ARE PROVIDED "AS IS." NEITHER PARTY MAKES ANY
REPRESENTATIONS OR WARRANTIES OF ANY KIND, WHETHER ORAL
OR WRITTEN, WHETHER EXPRESS, IMPLIED, OR ARISING BY STATUTE,
CUSTOM, COURSE OF DEALING OR TRADE USAGE, WITH RESPECT TO
THE SUBJECT MATTER HEREOF, IN CONNECTION WITH THIS AGREEMENT.
EACH PARTY SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED
WARRANTIES OR CONDITIONS OF TITLE, MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

<h2>7.0 Term And Termination</h2>

<h3>7.1 Term.</h3>

This Agreement will commence on the Effective Date and
will continue until 12 months after the Effective Date.
Thereafter, the parties may by mutual consent renew
this Agreement subject to agreement on fees to be paid by
Company for sponsorship for additional periods.

<h3>7.2 Termination.</h3>

If either party materially defaults in
the performance
of any of its material obligations hereunder and if any
such default is not corrected within 30 days after notice
in writing, then the non-defaulting party, at its option,
may, in addition to any other remedies it may have, thereupon
terminate this Agreement by giving written notice of
termination to the defaulting party.

<h3>7.3 Survival.</h3>

Upon such termination all rights and duties of the
parties toward each other will cease except:
Sections 4 (Confidentiality), 5 (Intellectual Property),
and 8 (Miscellaneous) will survive termination of this Agreement.

<h2>8. Miscellaneous</h2>

<h3>8.1 Nonassignment/Binding Agreement.</h3>

The parties acknowledge that the unique nature of Hwaci's services are substantial consideration for the parties' entering into this Agreement. Neither this Agreement nor any rights under this Agreement may be assigned or otherwise transferred by Hwaci, in whole or in part, whether voluntarily or by operation of law, without the prior written consent of Company, which consent will not be unreasonably withheld. Subject to the foregoing, this Agreement will be binding upon and will inure to the benefit of the parties and their respective successors and assigns. Any assignment in violation of the foregoing will be null and void.

<h3>8.2 Notices.</h3>

Any notice required or permitted under the terms of this Agreement or required by law must be in writing and must be: (a) delivered in person; (b) sent by first class registered mail, or air mail, as appropriate; or (c) sent by overnight air courier, in each case properly posted and fully prepaid to the appropriate address set forth in the preamble to this Agreement. Either party may change its address for notice by notice to the other party given in accordance with this Section. Notices will be considered to have been given at the time of actual delivery in person, three business days after deposit in the mail as set forth above, or one day after delivery to an overnight air courier service.

<h3>8.3 Waiver.</h3>

Any waiver of the provisions of this Agreement or of a party's rights or remedies under this Agreement must be in writing to be effective. Failure, neglect, or delay by a party to enforce the provisions of this Agreement or its rights or remedies at any time, will not be construed as a waiver of such party's rights under this Agreement and will not in any way affect the validity of the whole or any part of this Agreement or prejudice such party's right to take subsequent action. No exercise or enforcement by either party of any right or remedy under this Agreement will preclude the enforcement by such party of any other right or remedy

under this Agreement or that such party is entitled by
law to enforce.

<h3>8.4 Severability.</h3>

If any term, condition, or provision in this Agreement
is found to be invalid, unlawful or unenforceable to
any extent, the parties
shall endeavor in good faith
to agree to such amendments that will preserve, as far
as possible, the intentions expressed in this Agreement.
If the parties fail to agree on such an amendment,
such invalid term, condition or provision will be
severed from the remaining terms, conditions and
provisions, which will continue to be valid and
enforceable to the fullest extent permitted by law.

<h3>8.5 Integration.</h3>

This Agreement contains the entire agreement of the
parties with respect to the subject matter of this
Agreement and supersedes all previous communications,
representations, understandings and agreements,
either oral or written, between the parties with
respect to said subject matter. This Agreement
may not be amended, except by a writing signed by both parties.

<h3>8.6 Counterparts.</h3>

This Agreement may be executed in counterparts,
each of which so executed will be deemed to be an
original and such counterparts together will constitute
one
and the same agreement.

<h3>8.7 Governing Law.</h3>

This Agreement will be interpreted and construed in
accordance with the laws of the State of North Carolina
and the United States of America, without regard to
conflict of law principles. All disputes arising out
of this Agreement will be subject to the exclusive
jurisdiction of the state and federal courts located in
North Carolina, and each party hereby consents to the
personal jurisdiction thereof.

<h3>8.8 Independent Contractors.</h3>

It is the intention of the parties that Hwaci is an
independent contractor. Nothing in this Agreement will
in any way be construed to constitute Hwaci or any of
its employees as an agent, employee or representative
of Company.

<h2>9.0 Signatures</h2>

The parties have executed this Agreement below to
indicate their acceptance of its terms.

<table width="100%" border="0">
<tr><td valign="top">
HWACI
By:<hr>

Print Name:<hr>

Title:<hr>

</td><td
 width="10%"></td>
<td valign="top">
COMPANY
By:<hr>

Print Name:<hr>

Title:<hr>

</td></tr></table>

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/consortium_agreement-20071201.html
No license file was found, but licenses were detected in source scan.

public domain. No claim of ownership is made

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/faq.html
No license file was found, but licenses were detected in source scan.

<dd> The psow query parameter works with the default windows and unix VFSes but might be a no-op for other proprietary or non-standard VFSes.
<dd> One might, for example, want to query all objects that overlap with the 35th parallel: SELECT id FROM demo_index WHERE maxY>=35.0 AND minY<=35.0; But, generally speaking, the more constraints that the R*Tree module has to work with, and the smaller the bounding box, the faster the results will come back. 3.4. Roundoff Error By default, coordinates are stored in an R*Tree using 32-bit floating point values. When a

coordinate cannot be exactly represented by a 32-bit floating point number, the lower-bound coordinates are rounded down and the upper-bound coordinates are rounded up. Thus, bounding boxes might be slightly larger than specified, but will never be any smaller. This is exactly what is desired for doing the more common "overlapping" queries where the application

wants to find every entry in the R*Tree that overlaps a query bounding box. Rounding the entry bounding boxes outward might cause a few extra entries to appears in an overlapping query if the edge of the entry bounding box corresponds to an edge of the query bounding box. But the overlapping query will never miss a valid table entry. However, for a "contained-within" style query, rounding the bounding boxes outward might cause some entries to be excluded from the result set if the edge of the entry bounding box corresponds to the edge of the query bounding box. To guard against this, applications should expand their contained-within query boxes slightly (by 0.000012%) by rounding down the lower coordinates and rounding up the top coordinates, in each dimension. 4. Using R*Trees Effectively For SQLite versions prior to 3.24.0 (2018-06-04), the only information that an R*Tree index stores about an object is its integer ID and its bounding box. Additional information needs to be stored

in separate tables and related to the R*Tree index using the primary key. For the example above, one might create an auxiliary table as follows: CREATE TABLE demo_data(id INTEGER PRIMARY KEY, -- primary key objname TEXT, -- name of the object objtype TEXT, -- object type boundary BLOB -- detailed boundary of object); In this example, the demo_data.boundary field is intended to hold some kind of binary representation of the precise boundaries of the object. The R*Tree index only holds an axis-aligned rectangular boundary for the object. The R*Tree boundary is just an approximation of the true object boundary. So what typically happens is that the R*Tree index is used to narrow a search down to a list of candidate objects and then more detailed and expensive computations are done on each candidate to find if the candidate truly meets the search criteria. Key Point: An R*Tree index does not normally provide the exact answer but merely reduces the set of potential answers from millions to

dozens. Suppose the demo_data.boundary field holds some proprietary data description of a complex two-dimensional boundary for an object and suppose that the application has used the sqlite3_create_function() interface to created application-defined functions "contained_in" and "overlaps" accepting two demo_data.boundary objects and return true or false. One may assume that "contained_in" and "overlaps" are relatively slow functions that we do not want to invoke too frequently. Then an efficient way to find the name of all objects located within the North Carolina 12th District, one may be to run a query like this: SELECT objname FROM demo_data, demo_index WHERE demo_data.id=demo_index.id AND contained_in(demo_data.boundary, :boundary) AND minX>=-81.0 AND maxX<=-79.6 AND minY>=35.0 AND maxY>=36.2; In the query above, one would presumably bind the binary BLOB description of the precise boundary of the 12th district to the ":boundary" parameter. Notice how the query above works: The R*Tree

index runs in the outer loop to find entries that are contained within the bounding box of longitude -81..-79.6 and latitude 35.0..36.2. For each object identifier found, SQLite looks up the corresponding entry in the demo_data table. It then uses the boundary field from the demo_data table as a parameter to the contained_in() function and if that function returns true, the objname field from the demo_data table is returned as the next row of query result. One would get the same answer without the use of the R*Tree index using the following simpler query: SELECT objname FROM demo_data WHERE contained_in(demo_data.boundary, :boundary); The problem with this latter query is that it must apply the contained_in() function to millions of entries in the demo_data table. The use of the R*Tree in the penultimate query reduces the number of calls to contained_in() function to a small subset of the entire table. The R*Tree index did not find the exact answer itself, it merely limited the search

space. 4.1. Auxiliary Columns Beginning with SQLite version 3.24.0 (2018-06-04), r-tree tables can have auxiliary columns that store arbitrary data. Auxiliary columns can be used in place of secondary tables such as "demo_data". Auxiliary columns are marked with a "+" symbol before the column name. Auxiliary columns must come after all of the coordinate boundary columns. There is a limit of no more than 100 auxiliary columns. The following example shows an r-tree table with auxiliary columns that is equivalent to the two tables "demo_index" and "demo_data" above: CREATE VIRTUAL TABLE demo_index2 USING rtree(id, -- Integer primary key minX, maxX, --

Minimum and maximum X coordinate minY, maxY, -- Minimum and maximum Y coordinate +objname TEXT, -- name of the object +objtype TEXT, -- object type +boundary BLOB -- detailed boundary of object);

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/requirements.html
No license file was found, but licenses were detected in source scan.

SQLite is high-quality, public domain software. The goal of
members can also request their own private, proprietary extensions

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/consortium.html
No license file was found, but licenses were detected in source scan.

is free to use SQLite from multiple threads, but it must make sure

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/custombuild.html
No license file was found, but licenses were detected in source scan.

Suppose the demo_data.boundary field holds some proprietary data description

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/rtree.html
No license file was found, but licenses were detected in source scan.

SQLite core and like the SQLite core are in the public domain. The
The TH3 test harness is a set of proprietary tests, written in

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/testing.html
No license file was found, but licenses were detected in source scan.

without a shared lock, other processes are free to modify the database

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/atomiccommit.html
No license file was found, but licenses were detected in source scan.

 Public domain source code
public domain and is thus free for

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/about.html
No license file was found, but licenses were detected in source scan.

public domain.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/changes.html
No license file was found, but licenses were detected in source scan.

<h2>Proprietary SQLite Extensions</h2>
public domain. But there also exist
proprietary, licensed extensions to SQLite.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/support.html
No license file was found, but licenses were detected in source scan.

other proprietary or non-standard VFSes.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/uri.html
No license file was found, but licenses were detected in source scan.

If N>0 then the connection is free to use more of the WAL file beyond

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/walformat.html
No license file was found, but licenses were detected in source scan.

<html>
<body bgcolor="white">
FOR IMMEDIATE RELEASE:

<h2 align="center">SQLite Consortium Launches With Mozilla And Symbian As Charter Members</h2>

<h3 align="center">Ensures independent technical direction for world's
most deployed SQL database engine</h3>

Charlotte, North Carolina - December 12, 2007 - The SQLite Consortium,
a new membership association dedicated to maintaining SQLite as a fully open
and independent product, was formally announced today. Mozilla and Symbian Ltd.
have joined the SQLite Consortium as charter members.

SQLite is a compact, high efficiency, high reliability, embeddable SQL database
engine. The source code to SQLite is in the public domain and is available with
no associated fees. SQLite is the most deployed SQL database engine in the world
and is currently used in a wide range of commercial software products and electronic
devices from leading manufacturers.
 SQLite is found today in many mobile phones,
MP3 players, set-top boxes, and PCs.

The mission of the SQLite Consortium is to continue developing and enhancing

SQLite as a product that anyone may use without paying royalties or licensing fees.
Members of the SQLite Consortium provide funding to enable this mission and in
return receive enterprise-level technical support. Technical control and direction
of SQLite remains entirely with the SQLite developers.

Mozilla, developer of the popular open-source Firefox web browser, and Symbian,
the market-leading open operating system for advanced data-enabled smartphones,
both deploy the SQLite database engine in their products. As charter members of
the Consortium, Mozilla and Symbian are ensuring the development and support of
SQLite as a freely accessible and public domain software asset.

"SQLite has become a popular embedded database because it is lightweight, fast,
and open source," said Michael Schroepfer,
Vice President of Engineering, Mozilla.
"As a charter member of the SQLite Consortium, Mozilla is excited to help ensure
SQLite remains a vibrant and open technology, in line with our mission to promote
choice and innovation on the Internet."

"The SQLite Consortium will help set the standards for database management
which are essential in smartphone functionality and will also help create a pool
of developers, highly-skilled in SQLite for future mobile phone development, "
said Bruce Carney, Director, Developer Programmes & Services, Symbian.
"Our involvement with the SQL Consortium not only demonstrates Symbian's commitment
to open standards in the industry, but as mobile phones become increasingly powerful
and smartphones become increasingly popular, we are focused on ensuring that
desktop developers, who move to the mobile space, have the easiest and most
productive experience possible."

SQLite is a winner of the 2005 Google/O'Reilly Open Source Award. Additional
information
regarding the SQLite Consortium is available at the SQLite website,
http://www.sqlite.org/.

# # #

About SQLite

SQLite is a software library that implements a self-contained, embeddable,
serverless, zero-configuration, transactional SQL database engine. The code for
SQLite is in the public domain and is free for any use, commercial or private.
SQLite is currently found in countless software titles and electronic devices.

SQLite was originally developed and released 2000 by Dr. D. Richard Hipp.
The code continues to be maintained and enhanced by an international team
of developers under Hipp's direction.

CONTACT INFORMATION:
SQLite Consortium
Dr. D. Richard Hipp
6200 Maple Cove Lane
Charlotte, NC 28269
Email: drh@sqlite.org
http://www.sqlite.org/
Tel: +1.704.948.4565

About Mozilla

Mozilla is a global community dedicated to building free, open source products

and technologies that improve the online experience for people everywhere.
Mozilla works in the open with a highly disciplined, transparent and cooperative
development process, under the umbrella of the non-profit Mozilla Foundation.
As a wholly owned subsidiary, the Mozilla Corporation organizes the development
and marketing of Mozilla products. This unique structure has enabled Mozilla to
financially support and cultivate competitive, viable community innovation.
For more information, visit www.mozilla.com.

CONTACT INFORMATION:
Mozilla Corporation
Jessica Waight
Tel: +1.415.345.4754
Email: jwaight@outcastpr.com

About Symbian Limited

Symbian is a software licensing company that develops and licenses Symbian OS,
the market-leading open operating system for advanced, data-enabled mobile phones
known as smartphones.

Symbian licenses Symbian OS to the world's leading handset manufacturers
and has built close co-operative business
relationships with leading companies
across the mobile industry. During Q3 2007, 20.4 million Symbian smartphones
were sold worldwide to over 250 major network operators, bringing the total
number of Symbian smartphones shipped up to 30 September 2007 to 165 million.

Symbian has its headquarters in London, United Kingdom, with offices in the
United States, United Kingdom, Asia (India, P.R. China, and Korea) and Japan.
For more information, please visit www.symbian.com.

CONTACT INFORMATION:
Symbian Global Press Office
Karen Hamblen
+44 207 154 1707
press@symbian.com

</body></html>

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/pressrelease-20071212.html
No license file was found, but licenses were detected in source scan.

```
#!/usr/bin/tclsh.docsrc
#### Import of wapp.tcl
# Copyright (c) 2017 D. Richard Hipp
#
# This program is free software; you can redistribute it and/or
# modify it under the terms of the Simplified BSD License (also
# known as the "2-Clause License" or "FreeBSD License".)
#
# This program is distributed in the hope that it will be useful,
# but without any warranty; without even the implied warranty of
# merchantability or fitness for a particular purpose.
#
#-------------------------------------------------------------------------
#
# Design rules:
#
#   (1)  All identifiers in the global namespace begin with "wapp"
#
#   (2)  Indentifiers intended for internal use only begin with "wappInt"
#

# Add text to the end of the HTTP reply.  No interpretation or transformation
# of the text is performs.  The argument should be enclosed within {...}
#
proc wapp {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add
 text to the page under construction.  Do no escaping on the text.
#
# Though "unsafe" in general, there are uses for this kind of thing.
# For example, if you want to return the complete, unmodified content of
# a file:
```

```
#
#       set fd [open content.html rb]
#       wapp-unsafe [read $fd]
#       close $fd
#
# You could do the same thing using ordinary "wapp" instead of "wapp-unsafe".
# The difference is that wapp-safety-check will complain about the misuse
# of "wapp", but it assumes that the person who write "wapp-unsafe" understands
# the risks.
#
# Though occasionally necessary, the use of this interface should be minimized.
#
proc wapp-unsafe {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add text to the end of the reply under construction.  The following
# substitutions are made:
#
#    %html(...)         Escape text for inclusion in HTML
#    %url(...)          Escape text for use as a URL
#    %qp(...)           Escape text for use as a URI query parameter
#
    %string(...)       Escape text for use within a JSON string
#    %unsafe(...)       No transformations of the text
#
# The substitutions above terminate at the first ")" character.  If the
# text of the TCL string in ... contains ")" characters itself, use instead:
#
#    %html%(...)%
#    %url%(...)%
#    %qp%(...)%
#    %string%(...)%
#    %unsafe%(...)%
#
# In other words, use "%(...)%" instead of "(...)" to include the TCL string
# to substitute.
#
# The %unsafe substitution should be avoided whenever possible, obviously.
# In addition to the substitutions above, the text also does backslash
# escapes.
#
proc wapp-subst {txt} {
 global wapp
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
```

```
}

# Works like wapp-subst, but also removes whitespace from the beginning
# of lines.
#
proc wapp-trim {txt} {
 global wapp
 regsub -all {\n\s+} [string
 trim $txt] \n txt
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# There must be a wappInt-enc-NAME routine for each possible substitution
# in wapp-subst.  Thus there are routines for "html", "url", "qp", and "unsafe".
#
#    wappInt-enc-html          Escape text so that it is safe to use in the
#                              body of an HTML document.
#
#    wappInt-enc-url           Escape text so that it is safe to pass as an
#                              argument to href= and src= attributes in HTML.
#
#    wappInt-enc-qp            Escape text so that it is safe to use as the
#                              value of a query parameter in a URL or in
#                              post data or in a cookie.
#
#    wappInt-enc-string        Escape ", ', \, and < for using inside of a
#                              javascript string literal.
  The < character
#                              is escaped to prevent "</script>" from causing
#                              problems in embedded javascript.
#
#    wappInt-enc-unsafe        Perform no encoding at all.  Unsafe.
#
proc wappInt-enc-html {txt} {
 return [string map {& &amp; < &lt; > &gt; \" &quot; \\ &#92;} $txt]
}
proc wappInt-enc-unsafe {txt} {
 return $txt
}
proc wappInt-enc-url {s} {
 if {[regsub -all {[^-{}@~?=#_.:/a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
```

```
 return $s
}
proc wappInt-enc-qp {s} {
 if {[regsub -all {[^-{}_.a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-string {s} {
 return [string map {\\ \\\\ \" \\\" ' \\' < \\u003c} $s]
}

# This is a
 helper routine for wappInt-enc-url and wappInt-enc-qp.  It returns
# an appropriate %HH encoding for the single character c.  If c is a unicode
# character, then this routine might return multiple bytes:  %HH%HH%HH
#
proc wappInt-%HHchar {c} {
 if {$c==" "} {return +}
 return [regsub -all .. [binary encode hex [encoding convertto utf-8 $c]] {%&}]
}



# Undo the www-url-encoded format.
#
# HT: This code stolen from ncgi.tcl
#
proc wappInt-decode-url {str} {
 set str [string map [list + { } "\\" "\\\\" \[ \\\[ \] \\\]] $str]
 regsub -all -- \
     {%([Ee][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])} \
     $str {[encoding convertfrom utf-8 [binary decode hex \1\2\3]]} str
 regsub -all -- \
     {%([CDcd][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])}                    \
     $str {[encoding convertfrom utf-8 [binary decode hex \1\2]]} str
 regsub -all -- {%([0-7][A-Fa-f0-9])} $str {\\u00\1} str
 return [subst -novar $str]
}

# Reset the document back to an empty string.
#
proc
 wapp-reset {} {
 global wapp
 dict set wapp .reply {}
```

```
}

# Change the mime-type of the result document.
#
proc wapp-mimetype {x} {
 global wapp
 dict set wapp .mimetype $x
}

# Change the reply code.
#
proc wapp-reply-code {x} {
 global wapp
 dict set wapp .reply-code $x
}

# Set a cookie
#
proc wapp-set-cookie {name value} {
 global wapp
 dict lappend wapp .new-cookies $name $value
}

# Unset a cookie
#
proc wapp-clear-cookie {name} {
 wapp-set-cookie $name {}
}

# Add extra entries to the reply header
#
proc wapp-reply-extra {name value} {
 global wapp
 dict lappend wapp .reply-extra $name $value
}

# Specifies how the web-page under construction should be cached.
# The argument should be one of:
#
#    no-cache
#    max-age=N            (for some integer number of seconds, N)
#    private,max-age=N
#
proc wapp-cache-control {x} {
 wapp-reply-extra Cache-Control $x
}

# Redirect to a different web page
```

```
#
proc wapp-redirect {uri} {
 wapp-reply-code {307 Redirect}
 wapp-reply-extra
 Location $uri
}

# Return the value of a wapp parameter
#
proc wapp-param {name {dflt {}}} {
 global wapp
 if {![dict exists $wapp $name]} {return $dflt}
 return [dict get $wapp $name]
}

# Return true if a and only if the wapp parameter $name exists
#
proc wapp-param-exists {name} {
 global wapp
 return [dict exists $wapp $name]
}

# Set the value of a wapp parameter
#
proc wapp-set-param {name value} {
 global wapp
 dict set wapp $name $value
}

# Return all parameter names that match the GLOB pattern, or all
# names if the GLOB pattern is omitted.
#
proc wapp-param-list {{glob {*}}} {
 global wapp
 return [dict keys $wapp $glob]
}

# By default, Wapp does not decode query parameters and POST parameters
# for cross-origin requests.  This is a security restriction, designed to
# help prevent cross-site request forgery (CSRF) attacks.
#
# As a consequence of this restriction, URLs for sites generated by Wapp
# that contain query parameters will not work as URLs
 found in other
# websites.  You cannot create a link from a second website into a Wapp
# website if the link contains query planner, by default.
#
# Of course, it is sometimes desirable to allow query parameters on external
```

```
# links.  For URLs for which this is safe, the application should invoke
# wapp-allow-xorigin-params.  This procedure tells Wapp that it is safe to
# go ahead and decode the query parameters even for cross-site requests.
#
# In other words, for Wapp security is the default setting.  Individual pages
# need to actively disable the cross-site request security if those pages
# are safe for cross-site access.
#
proc wapp-allow-xorigin-params {} {
 global wapp
 if {![dict exists $wapp .qp] && ![dict get $wapp SAME_ORIGIN]} {
   wappInt-decode-query-params
 }
}

# Set the content-security-policy.
#
# The default content-security-policy is very strict:  "default-src 'self'"
# The default policy prohibits the use of in-line javascript or CSS.
#
# Provide an alternative
 CSP as the argument.  Or use "off" to disable
# the CSP completely.
#
proc wapp-content-security-policy {val} {
 global wapp
 if {$val=="off"} {
   dict unset wapp .csp
 } else {
   dict set wapp .csp $val
 }
}

# Examine the bodys of all procedures in this program looking for
# unsafe calls to various Wapp interfaces.  Return a text string
# containing warnings. Return an empty string if all is ok.
#
# This routine is advisory only.  It misses some constructs that are
# dangerous and flags others that are safe.
#
proc wapp-safety-check {} {
 set res {}
 foreach p [info procs] {
   set ln 0
   foreach x [split [info body $p] \n] {
     incr ln
     if {[regexp {^[ \t]*wapp[ \t]+([^\n]+)} $x all tail]
      && [string index $tail 0]!="\173"
```

```
     && [regexp {[[$]} $tail]
    } {
      append res "$p:$ln: unsafe \"wapp\" call: \"[string trim $x]\"\n"
    }
    if {[regexp {^[ \t]*wapp-(subst|trim)[ \t]+[^\173]} $x all cx]} {
      append res "$p:$ln: unsafe \"wapp-$cx\"
 call: \"[string trim $x]\"\n"
    }
  }
 }
 return $res
}

# Return a string that descripts the current environment.  Applications
# might find this useful for debugging.
#
proc wapp-debug-env {} {
 global wapp
 set out {}
 foreach var [lsort [dict keys $wapp]] {
  if {[string index $var 0]=="."} continue
  append out "$var = [list [dict get $wapp $var]]\n"
 }
 append out "\[pwd\] = [list [pwd]]\n"
 return $out
}

# Tracing function for each HTTP request.  This is overridden by wapp-start
# if tracing is enabled.
#
proc wappInt-trace {} {}

# Start up a listening socket.  Arrange to invoke wappInt-new-connection
# for each inbound HTTP connection.
#
#    port           Listen on this TCP port.  0 means to select a port
#                   that is not currently in use
#
#    wappmode       One of "scgi", "server", or "local".
#
proc wappInt-start-listener {port wappmode} {
 if {$wappmode=="scgi"} {
  set type SCGI
  set server [list wappInt-new-connection
 wappInt-scgi-readable $wappmode]
 } else {
  set type HTTP
  set server [list wappInt-new-connection wappInt-http-readable $wappmode]
```

```
 }
 if {$wappmode=="local"} {
   set x [socket -server $server -myaddr 127.0.0.1 $port]
 } else {
   set x [socket -server $server $port]
 }
 set coninfo [chan configure $x -sockname]
 set port [lindex $coninfo 2]
 if {$wappmode=="local"} {
   wappInt-start-browser http://127.0.0.1:$port/
 } else {
   puts "Listening for $type requests on TCP port $port"
 }
}

# Start a web-browser and point it at $URL
#
proc wappInt-start-browser {url} {
 global tcl_platform
 if {$tcl_platform(platform)=="windows"} {
   exec cmd /c start $url &
 } elseif {$tcl_platform(os)=="Darwin"} {
   exec open $url &
 } elseif {[catch {exec xdg-open $url}]} {
   exec firefox $url &
 }
}

# This routine is a "socket -server" callback.  The $chan, $ip, and $port
# arguments are added by the socket command.
#
# Arrange to invoke $callback when content is available
 on the new socket.
# The $callback will process inbound HTTP or SCGI content.
#
proc wappInt-new-connection {callback wappmode chan ip port} {
 upvar #0 wappInt-$chan W
 set W [dict create REMOTE_ADDR $ip REMOTE_PORT $port WAPP_MODE $wappmode \
        .header {}]
 fconfigure $chan -blocking 0 -translation binary
 fileevent $chan readable [list $callback $chan]
}

# Close an input channel
#
proc wappInt-close-channel {chan} {
 if {$chan=="stdout"} {
   # This happens after completing a CGI request
```

```
  exit 0
 } else {
  unset ::wappInt-$chan
  close $chan
 }
}

# Process new text received on an inbound HTTP request
#
proc wappInt-http-readable {chan} {
 if {[catch [list wappInt-http-readable-unsafe $chan] msg]} {
  puts stderr "$msg\n$::errorInfo"
  wappInt-close-channel $chan
 }
}
proc wappInt-http-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if {![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
   # the header
  set line [string trimright [gets $chan]]
  set n [string length $line]
  if {$n>0} {
    if {[dict get $W .header]=="" || [regexp {^\s+} $line]} {
      dict append W .header $line
    } else {
      dict append W .header \n$line
    }
    if {[string length [dict get $W .header]]>100000} {
      error "HTTP request header too big - possible DOS attack"
    }
  } elseif {$n==0} {
    # We have reached the blank line that terminates the header.
    global argv0
    set a0 [file normalize $argv0]
    dict set W SCRIPT_FILENAME $a0
    dict set W DOCUMENT_ROOT [file dir $a0]
    if {[wappInt-parse-header $chan]} {
      catch {close $chan}
      return
    }
    set len 0
    if {[dict exists $W CONTENT_LENGTH]} {
      set len [dict get $W CONTENT_LENGTH]
    }
    if {$len>0} {
      # Still need to read the query content
      dict set W .toread $len
```

```
    } else {
      # There is no query content, so handle
 the request immediately
      set wapp $W
      wappInt-handle-request $chan 0
    }
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Decode the HTTP request header.
#
# This routine is always running inside of a [catch], so if
# any problems arise, simply raise an error.
#
proc wappInt-parse-header {chan} {
 upvar #0 wappInt-$chan W
 set hdr [split [dict get $W .header] \n]
 if {$hdr==""} {return 1}
 set req [lindex $hdr 0]
 dict set W REQUEST_METHOD [set method [lindex $req 0]]
 if {[lsearch {GET HEAD POST} $method]<0} {
  error "unsupported request method:
 \"[dict get $W REQUEST_METHOD]\""
 }
 set uri [lindex $req 1]
 set split_uri [split $uri ?]
 set uri0 [lindex $split_uri 0]
 if {![regexp {^/[-.a-z0-9_/]*$} $uri0]} {
  error "invalid request uri: \"$uri0\""
 }
 dict set W REQUEST_URI $uri0
 dict set W PATH_INFO $uri0
 set uri1 [lindex $split_uri 1]
 dict set W QUERY_STRING $uri1
 set n [llength $hdr]
 for {set i 1} {$i<$n} {incr i} {
```

```
  set x [lindex $hdr $i]
  if {![regexp {^(.+): +(.*)$} $x all name value]} {
    error "invalid header line: \"$x\""
  }
  set name [string toupper $name]
  switch -- $name {
    REFERER {set name HTTP_REFERER}
    USER-AGENT {set name HTTP_USER_AGENT}
    CONTENT-LENGTH {set name CONTENT_LENGTH}
    CONTENT-TYPE {set name CONTENT_TYPE}
    HOST {set name HTTP_HOST}
    COOKIE {set name HTTP_COOKIE}
    ACCEPT-ENCODING {set name HTTP_ACCEPT_ENCODING}
    default {set name .hdr:$name}
  }
  dict set W $name $value
 }
 return 0
}

# Decode the QUERY_STRING
 parameters from a GET request or the
# application/x-www-form-urlencoded CONTENT from a POST request.
#
# This routine sets the ".qp" element of the ::wapp dict as a signal
# that query parameters have already been decoded.
#
proc wappInt-decode-query-params {} {
 global wapp
 dict set wapp .qp 1
 if {[dict exists $wapp QUERY_STRING]} {
   foreach qterm [split [dict get $wapp QUERY_STRING] &] {
     set qsplit [split $qterm =]
     set nm [lindex $qsplit 0]
     if {[regexp {^[a-z][a-z0-9]*$} $nm]} {
       dict set wapp $nm [wappInt-decode-url [lindex $qsplit 1]]
     }
   }
 }
 if {[dict exists $wapp CONTENT_TYPE] && [dict exists $wapp CONTENT]} {
   set ctype [dict get $wapp CONTENT_TYPE]
   if {$ctype=="application/x-www-form-urlencoded"} {
     foreach qterm [split [string trim [dict get $wapp CONTENT]] &] {
       set qsplit [split $qterm =]
       set nm [lindex $qsplit 0]
       if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
         dict set wapp $nm [wappInt-decode-url
```

```
[lindex $qsplit 1]]
      }
    }
  } elseif {[string match multipart/form-data* $ctype]} {
    regexp {^(.*?)\r\n(.*)$} [dict get $wapp CONTENT] all divider body
    set ndiv [string length $divider]
    while {[string length $body]} {
      set idx [string first $divider $body]
      set unit [string range $body 0 [expr {$idx-3}]]
      set body [string range $body [expr {$idx+$ndiv+2}] end]
      if {[regexp {^Content-Disposition: form-data; (.*?)\r\n\r\n(.*)$} \
           $unit unit hdr content] &&
          [regexp {name="(.*)"; filename="(.*)"\r\nContent-Type: (.*?)$}\
            $hdr hr name filename mimetype]} {
        dict set wapp $name.filename \
          [string map [list \\\" \" \\\\ \\] $filename]
        dict set wapp $name.mimetype $mimetype
        dict set wapp $name.content $content
      }
    }
  }
 }
}

# Invoke application-supplied methods to generate a reply to
# a single HTTP request.
#
# This routine always
 runs within [catch], so handle exceptions by
# invoking [error].
#
proc wappInt-handle-request {chan useCgi} {
 global wapp
 dict set wapp .reply {}
 dict set wapp .mimetype {text/html; charset=utf-8}
 dict set wapp .reply-code {200 Ok}
 dict set wapp .csp {default-src 'self'}

 # Set up additional CGI environment values
 #
 if {![dict exists $wapp HTTP_HOST]} {
   dict set wapp BASE_URL {}
 } elseif {[dict exists $wapp HTTPS]} {
   dict set wapp BASE_URL https://[dict get $wapp HTTP_HOST]
 } else {
   dict set wapp BASE_URL http://[dict get $wapp HTTP_HOST]
 }
 if {![dict exists $wapp REQUEST_URI]} {
```

```
  dict set wapp REQUEST_URI /
} elseif {[regsub {\?.*} [dict get $wapp REQUEST_URI] {} newR]} {
  # Some servers (ex: nginx) append the query parameters to REQUEST_URI.
  # These need to be stripped off
  dict set wapp REQUEST_URI $newR
}
if {[dict exists $wapp SCRIPT_NAME]} {
  dict append wapp BASE_URL [dict get $wapp SCRIPT_NAME]
} else {
  dict set wapp
SCRIPT_NAME {}
}
if {![dict exists $wapp PATH_INFO]} {
  # If PATH_INFO is missing (ex: nginx) the construct it
  set URI [dict get $wapp REQUEST_URI]
  set skip [string length [dict get $wapp SCRIPT_NAME]]
  dict set wapp PATH_INFO [string range $URI $skip end]
}
if {[regexp {^/([^/]+)(.*)$} [dict get $wapp PATH_INFO] all head tail]} {
  dict set wapp PATH_HEAD $head
  dict set wapp PATH_TAIL [string trimleft $tail /]
} else {
  dict set wapp PATH_INFO {}
  dict set wapp PATH_HEAD {}
  dict set wapp PATH_TAIL {}
}
dict set wapp SELF_URL [dict get $wapp BASE_URL]/[dict get $wapp PATH_HEAD]

# Parse query parameters from the query string, the cookies, and
# POST data
#
if {[dict exists $wapp HTTP_COOKIE]} {
  foreach qterm [split [dict get $wapp HTTP_COOKIE] {;}] {
    set qsplit [split [string trim $qterm] =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex
$qsplit 1]]
    }
  }
}
set same_origin 0
if {[dict exists $wapp HTTP_REFERER]} {
  set referer [dict get $wapp HTTP_REFERER]
  set base [dict get $wapp BASE_URL]
  if {$referer==$base || [string match $base/* $referer]} {
    set same_origin 1
  }
```

```
}
dict set wapp SAME_ORIGIN $same_origin
if {$same_origin} {
  wappInt-decode-query-params
}

# Invoke the application-defined handler procedure for this page
# request.  If an error occurs while running that procedure, generate
# an HTTP reply that contains the error message.
#
wapp-before-dispatch-hook
wappInt-trace
set mname [dict get $wapp PATH_HEAD]
if {[catch {
  if {$mname!="" && [llength [info proc wapp-page-$mname]]>0} {
    wapp-page-$mname
  } else {
    wapp-default
  }
} msg]} {
  if {[wapp-param WAPP_MODE]=="local" || [wapp-param WAPP_MODE]=="server"} {
    puts "ERROR: $::errorInfo"
  }
  wapp-reset
  wapp-reply-code "500 Internal Server Error"
  wapp-mimetype
text/html
  wapp-trim {
    <h1>Wapp Application Error</h1>
    <pre>%html($::errorInfo)</pre>
  }
  dict unset wapp .new-cookies
}

# Transmit the HTTP reply
#
if {$chan=="stdout"} {
  puts $chan "Status: [dict get $wapp .reply-code]\r"
} else {
  puts $chan "HTTP/1.1 [dict get $wapp .reply-code]\r"
  puts $chan "Server: wapp\r"
  puts $chan "Connection: close\r"
}
if {[dict exists $wapp .reply-extra]} {
  foreach {name value} [dict get $wapp .reply-extra] {
    puts $chan "$name: $value\r"
  }
}
```

```
 if {[dict exists $wapp .csp]} {
  puts $chan "Content-Security-Policy: [dict get $wapp .csp]\r"
 }
 set mimetype [dict get $wapp .mimetype]
 puts $chan "Content-Type: $mimetype\r"
 if {[dict exists $wapp .new-cookies]} {
  foreach {nm val} [dict get $wapp .new-cookies] {
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      if {$val==""} {
        puts $chan "Set-Cookie: $nm=; HttpOnly; Path=/; Max-Age=1\r"
      } else {
        set
 val [wappInt-enc-url $val]
        puts $chan "Set-Cookie: $nm=$val; HttpOnly; Path=/\r"
      }
    }
  }
 }
 if {[string match text/* $mimetype]} {
  set reply [encoding convertto utf-8 [dict get $wapp .reply]]
  if {[regexp {\ygzip\y} [wapp-param HTTP_ACCEPT_ENCODING]]} {
    catch {
      set x [zlib gzip $reply]
      set reply $x
      puts $chan "Content-Encoding: gzip\r"
    }
  }
 } else {
  set reply [dict get $wapp .reply]
 }
 puts $chan "Content-Length: [string length $reply]\r"
 puts $chan \r
 puts $chan $reply
 flush $chan
 wappInt-close-channel $chan
}

# This routine runs just prior to request-handler dispatch.  The
# default implementation is a no-op, but applications can override
# to do additional transformations or checks.
#
proc wapp-before-dispatch-hook {} {return}

# Process a single CGI request
#
proc wappInt-handle-cgi-request {} {
 global wapp env
 foreach key {
```

```
  CONTENT_LENGTH
  CONTENT_TYPE
  DOCUMENT_ROOT
  HTTP_ACCEPT_ENCODING
   HTTP_COOKIE
  HTTP_HOST
  HTTP_REFERER
  HTTP_USER_AGENT
  HTTPS
  PATH_INFO
  QUERY_STRING
  REMOTE_ADDR
  REQUEST_METHOD
  REQUEST_URI
  REMOTE_USER
  SCRIPT_FILENAME
  SCRIPT_NAME
  SERVER_NAME
  SERVER_PORT
  SERVER_PROTOCOL
 } {
  if {[info exists env($key)]} {
    dict set wapp $key $env($key)
  }
 }
 set len 0
 if {[dict exists $wapp CONTENT_LENGTH]} {
  set len [dict get $wapp CONTENT_LENGTH]
 }
 if {$len>0} {
  fconfigure stdin -translation binary
  dict set wapp CONTENT [read stdin $len]
 }
 dict set wapp WAPP_MODE cgi
 fconfigure stdout -translation binary
 wappInt-handle-request stdout 1
}

# Process new text received on an inbound SCGI request
#
proc wappInt-scgi-readable {chan} {
 if {[catch [list wappInt-scgi-readable-unsafe $chan] msg]} {
  puts stderr "$msg\n$::errorInfo"
  wappInt-close-channel $chan
 }
}
proc wappInt-scgi-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
```

```
if
{![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
  # the header.
  #
  # An SGI header is short.  This implementation assumes the entire
  # header is available all at once.
  #
  set req [read $chan 15]
  set n [string length $req]
  scan $req %d:%s len hdr
  incr len [string length "$len:,"]
  append hdr [read $chan [expr {$len-15}]]
  foreach {nm val} [split $hdr \000] {
    if {$nm==","} break
    dict set W $nm $val
  }
  set len 0
  if {[dict exists $W CONTENT_LENGTH]} {
    set len [dict get $W CONTENT_LENGTH]
  }
  if {$len>0} {
    # Still need to read the query content
    dict set W .toread $len
  } else {
    # There is no query content, so handle the request immediately
    set wapp $W
    wappInt-handle-request $chan 0
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read
 $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Start up the wapp framework.  Parameters are a list passed as the
# single argument.
#
#    -server $PORT         Listen for HTTP requests on this TCP port $PORT
```

```
#
#    -local $PORT         Listen for HTTP requests on 127.0.0.1:$PORT
#
#    -scgi $PORT          Listen for SCGI requests on TCP port $PORT
#
#    -cgi                 Handle a single CGI request
#
# With no arguments, the behavior is called "auto".  In "auto" mode,
# if the GATEWAY_INTERFACE environment variable indicates CGI, then run
# as CGI.  Otherwise, start an HTTP server bound to the loopback address
# only, on an arbitrary TCP port, and automatically launch a web browser
# on that TCP port.
#
# Additional
 options:
#
#    -trace               "puts" each request URL as it is handled, for
#                         debugging
#
#    -lint                Run wapp-safety-check on the application instead
#                         of running the application itself
#
#    -Dvar=value          Set TCL global variable "var" to "value"
#
#
proc wapp-start {arglist} {
 global env
 set mode auto
 set port 0
 set n [llength $arglist]
 for {set i 0} {$i<$n} {incr i} {
   set term [lindex $arglist $i]
   if {[string match --* $term]} {set term [string range $term 1 end]}
   switch -glob -- $term {
     -server {
       incr i;
       set mode "server"
       set port [lindex $arglist $i]
     }
     -local {
       incr i;
       set mode "local"
       set port [lindex $arglist $i]
     }
     -scgi {
       incr i;
       set mode "scgi"
       set port [lindex $arglist $i]
```

```
    }
    -cgi {
      set mode "cgi"
    }
    -trace {
      proc wappInt-trace {} {

    set q [wapp-param QUERY_STRING]
        set uri [wapp-param BASE_URL][wapp-param PATH_INFO]
        if {$q!=""} {append uri ?$q}
        puts $uri
      }
    }
    -lint {
      set res [wapp-safety-check]
      if {$res!=""} {
        puts "Potential problems in this code:"
        puts $res
        exit 1
      } else {
        exit
      }
    }
    -D*=* {
      if {[regexp {^.D([^=]+)=(.*)$} $term all var val]} {
        set ::$var $val
      }
    }
    default {
      error "unknown option: $term"
    }
  }
}
if {($mode=="auto"
     && [info exists env(GATEWAY_INTERFACE)]
     && [string match CGI/1.* $env(GATEWAY_INTERFACE)])
  || $mode=="cgi"
} {
  wappInt-handle-cgi-request
  return
}
if {$mode=="scgi"} {
  wappInt-start-listener $port scgi
} elseif {$mode=="server"} {
  wappInt-start-listener $port server
} else {
  wappInt-start-listener $port local
}
```

```
 vwait ::forever
}

# Call this version
 1.0
package provide wapp 1.0

#### End of wapp.tcl

# Generate all header content for the output document
#
proc search_header {} {
 wapp-trim {
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html><head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="content-type" content="text/html; charset=UTF-8">
<link href="../sqlite.css" rel="stylesheet">
<title>Search SQLite Stats</title>
<!-- path=../ -->
</head>
<body>
<div class=nosearch>
<a href="../index.html">
<img class="logo" src="../images/sqlite370_banner.gif" alt="SQLite" border="0">
</a>
<div><!-- IE hack to prevent disappearing logo --></div>
<div class="tagline desktoponly">
Small. Fast. Reliable.<br>Choose any three.
</div>
<div class="menu mainmenu">
<ul>
<li><a href="../index.html">Home</a>
<li class='mobileonly'><a href="javascript:void(0)" onclick='toggle_div("submenu")'>Menu</a>
<li class='wideonly'><a href='../about.html'>About</a>
<li class='desktoponly'><a
 href="../docs.html">Documentation</a>
<li class='desktoponly'><a href="../download.html">Download</a>
<li class='wideonly'><a href='../copyright.html'>License</a>
<li class='desktoponly'><a href="../support.html">Support</a>
<li class='desktoponly'><a href="../prosupport.html">Purchase</a>
<li class='search' id='search_menubutton'>
<a href="javascript:void(0)" onclick='toggle_search()'>Search</a>
</ul>
</div>
<div class="menu submenu" id="submenu">
<ul>
<li><a href='../about.html'>About</a>
```

```
<li><a href='../docs.html'>Documentation</a>
<li><a href='../download.html'>Download</a>
<li><a href='../support.html'>Support</a>
<li><a href='../prosupport.html'>Purchase</a>
</ul>
</div>
<div class="searchmenu" id="searchmenu">
<form method="GET" action="../search">
<select name="s" id="searchtype">
<option value="d">Search Documentation</option>
<option value="c">Search Changelog</option>
</select>
<input type="text" name="q" id="searchbox" value="">
<input type="submit" value="Go">
</form>
</div>
</div>
<script>
function
 toggle_div(nm) {
var w = document.getElementById(nm);
if( w.style.display=="block" ){
w.style.display = "none";
}else{
w.style.display = "block";
}
}
function toggle_search() {
var w = document.getElementById("searchmenu");
if( w.style.display=="block" ){
w.style.display = "none";
} else {
w.style.display = "block";
setTimeout(function(){
document.getElementById("searchbox").focus()
}, 30);
}
}
function div_off(nm){document.getElementById(nm).style.display="none";}
window.onbeforeunload = function(e){div_off("submenu");}
/* Disable the Search feature if we are not operating from CGI, since */
/* Search is accomplished using CGI and will not work without it. */
if( !location.origin.match || !location.origin.match(/http/) ){
document.getElementById("search_menubutton").style.display = "none";
}
/* Used by the Hide/Show button beside syntax diagrams, to toggle the */
function hideorshow(btn,obj){
var x = document.getElementById(obj);
```

```
var b
 = document.getElementById(btn);
if( x.style.display!='none' ){
x.style.display = 'none';
b.innerHTML='show';
}else{
x.style.display = '';
b.innerHTML='hide';
}
return false;
}
</script>
</div>
 }
}

proc wapp-default {} {
 # When running using the built-in webserver in Wapp (in other words,
 # when not running as CGI) any filename that contains a "." loads
 # directly from the filesystem.
 if {[wapp-param WAPP_MODE]!="cgi"]
  && [string match *.* [wapp-param PATH_INFO]]
 } {
  set altfile [file dir [wapp-param SCRIPT_FILENAME]]/../[wapp-param PATH_INFO]
  set fd [open $altfile rb]
  fconfigure $fd -translation binary
  wapp-unsafe [read $fd]
  close $fd
  switch -glob -- $altfile {
    *.html {
      wapp-mimetype text/html
    }
    *.css {
      wapp-mimetype text/css
    }
    *.gif {
      wapp-mimetype image/gif
    }
  }
  return
 }
 wapp-page-admin
}
proc wapp-page-admin {} {
 wapp-allow-xorigin-params
 wapp-content-security-policy off
  if {[wapp-param-exists env]} {
   search_header
```

```
  wapp-trim {
    <h1>Environment</h1>
    <pre>%html([wapp-debug-env])</pre>
  }
  return
}
sqlite3 db2 [file dir [wapp-param SCRIPT_FILENAME]]/searchlog.db
set where ""
set res ""

set ipfilter ""
set ipaddr [wapp-param ip]
if {$ipaddr!=""} {
  set where {WHERE ip = $ipaddr}
  set ipfilter $ipaddr
}

set checked ""
set isUnique [expr {[wapp-param unique 0]+0}]
if {$isUnique} {
  set checked "checked"
}

set limit [wapp-param limit 10]
set s10 ""
set s100 ""
set s1000 ""
if {$limit==10} {set s10 selected}
if {$limit==100} {set s100 selected}
if {$limit==1000} {set s1000 selected}

search_header
set self [wapp-param PATH_HEAD]
wapp-trim {
  <div style="margin:2em">
  <center>
  <form action='%url($self)' method='GET'>
    Results: <select name=limit onChange="this.form.submit()">
      <option %html($s10) value="10">10</option>
      <option %html($s100) value="100">100</option>
       <option %html($s1000) value="1000">1000</option>
    </select>
    IP: <input type=input name=ip value="%html($ipfilter)">
    Unique: <input
      type=checkbox name=unique value=1
      $checked
      onChange="this.form.submit()">
    <input type=submit>
```

```
  </form>
  </center>
  </div>
  <table border=1 cellpadding=10 align=center>
  <tr><td><th>IP <th>Query <th> Results <th> Timestamp
}

set i 0
db2 eval "
  SELECT rowid, ip, query, nres, timestamp FROM log $where
  ORDER BY rowid DESC
" {

  if {$isUnique} {
    if {[info exists seen($query)]} continue
    set seen($query) 1
  }

  wapp-trim {
    <tr><td>%html($rowid)
        <td><a href='%url($self)?ip=%qp($ip)'>%html($ip)</a>
        <td><a href='../search?q=%qp($query)&donotlog=1'>%html($query)</a>
        <td>%html($nres)<td>%html($timestamp)
  }
  incr i
  if {$i >= $limit} break
}
wapp-subst {</table\n}
db2 close
}
wapp-start $argv

Found
 in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/search.d/admin
No license file was found, but licenses were detected in source scan.

<html>
<title>SQLite Copyright Release Template</title>
<body bgcolor="white">
<h1 align="center">
Copyright Release for<br>
Contributions To SQLite
</h1>

<p>
SQLite is software that implements an embeddable SQL database engine.
SQLite is available for free download from http://www.sqlite.org/.
```

The principal author and maintainer of SQLite has disclaimed all
copyright interest in his contributions to SQLite
and thus released his contributions into the public domain.
In order to keep the SQLite software unencumbered by copyright
claims, the principal author asks others who may from time to
time contribute changes and enhancements to likewise disclaim
their own individual copyright interest.

Because the SQLite software found at http://www.sqlite.org/ is in the
public domain, anyone is free to download the SQLite software
from that website, make changes to the software, use, distribute,
or sell the modified software,
 under either the original name or
under some new name, without any need to obtain permission, pay
royalties, acknowledge the original source of the software, or
in any other way compensate, identify, or notify the original authors.
Nobody is in any way compelled to contribute their SQLite changes and
enhancements back to the SQLite website. This document concerns
only changes and enhancements to SQLite that are intentionally and
deliberately contributed back to the SQLite website.

For the purposes of this document, "SQLite software" shall mean any
computer source code, documentation, makefiles, test scripts, or
other information that is published on the SQLite website,
http://www.sqlite.org/. Precompiled binaries are excluded from
the definition of "SQLite software" in this document because the
process of compiling the software may introduce information from
outside sources which is not properly a part of SQLite.

The header comments on the SQLite source
 files exhort the reader to
share freely and to never take more than one gives.
In the spirit of that exhortation I make the following declarations:

I dedicate to the public domain
any and all copyright interest in the SQLite software that
was publicly available on the SQLite website (http://www.sqlite.org/) prior
to the date of the signature below and any changes or enhancements to
the SQLite software

that I may cause to be published on that website in the future.
I make this dedication for the benefit of the public at large and
to the detriment of my heirs and successors. I intend this
dedication to be an overt act of relinquishment in perpetuity of
all present and future rights to the SQLite software under copyright
law.

To the best of my knowledge and belief, the changes and enhancements that
I have contributed to SQLite are either originally written by me
or are derived from prior works which I have verified are also
in the public domain
 and are not subject to claims of copyright
by other parties.

To the best of my knowledge and belief, no individual, business, organization,
government, or other entity has any copyright interest
in the SQLite software as it existed on the
SQLite website as of the date on the signature line below.

I agree never to publish any additional information
to the SQLite website (by CVS, email, scp, FTP, or any other means) unless
that information is an original work of authorship by me or is derived from
prior published versions of SQLite.
I agree never to copy and paste code into the SQLite code base from
other sources.
I agree never to publish on the SQLite website any information that
would violate a law or breach a contract.

<table width="100%" cellpadding="0" cellspacing="0">
<tr>
<td width="60%" valign="top">
Signature:

</td><td valign="top" align="left">
Date:
</td></tr>
<td colspan=2>

Name
(printed):
</td>
</tr>
</table>
</body>
</html>

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/copyright-release.html
No license file was found, but licenses were detected in source scan.

application code is free to use these routines as well, if desired.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/34to35.html
No license file was found, but licenses were detected in source scan.

application is free to use the same database connection or the

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/capi3ref.html
No license file was found, but licenses were detected in source scan.

SQLite is open source, and is available in the public domain

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/books.html
No license file was found, but licenses were detected in source scan.

application is free to use the same database connection or the

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/c3ref/c_config_covering_index_scan.html
No license file was found, but licenses were detected in source scan.

data, so do not send the ".fullschema" output of a proprietary database

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/cli.html
No license file was found, but licenses were detected in source scan.

<p>SQLite itself is in the public domain and
can be used for any purpose. But TH3 is proprietary and requires a license.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/th3.html

No license file was found, but licenses were detected in source scan.

Sources are in the public domain.
or some proprietary format into

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/features.html
No license file was found, but licenses were detected in source scan.

```
#!/usr/bin/tclsh.docsrc
#### Import of wapp.tcl
# Copyright (c) 2017 D. Richard Hipp
#
# This program is free software; you can redistribute it and/or
# modify it under the terms of the Simplified BSD License (also
# known as the "2-Clause License" or "FreeBSD License".)
#
# This program is distributed in the hope that it will be useful,
# but without any warranty; without even the implied warranty of
# merchantability or fitness for a particular purpose.
#
#-------------------------------------------------------------------------
#
# Design rules:
#
#   (1)  All identifiers in the global namespace begin with "wapp"
#
#   (2)  Indentifiers intended for internal use only begin with "wappInt"
#

# Add text to the end of the HTTP reply.  No interpretation or transformation
# of the text is performs.  The argument should be enclosed within {...}
#
proc wapp {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add
 text to the page under construction.  Do no escaping on the text.
#
# Though "unsafe" in general, there are uses for this kind of thing.
# For example, if you want to return the complete, unmodified content of
# a file:
#
#       set fd [open content.html rb]
#       wapp-unsafe [read $fd]
#       close $fd
```

```
#
# You could do the same thing using ordinary "wapp" instead of "wapp-unsafe".
# The difference is that wapp-safety-check will complain about the misuse
# of "wapp", but it assumes that the person who write "wapp-unsafe" understands
# the risks.
#
# Though occasionally necessary, the use of this interface should be minimized.
#
proc wapp-unsafe {txt} {
 global wapp
 dict append wapp .reply $txt
}

# Add text to the end of the reply under construction.  The following
# substitutions are made:
#
#    %html(...)         Escape text for inclusion in HTML
#    %url(...)          Escape text for use as a URL
#    %qp(...)           Escape text for use as a URI query parameter
#
    %string(...)       Escape text for use within a JSON string
#    %unsafe(...)       No transformations of the text
#
# The substitutions above terminate at the first ")" character.  If the
# text of the TCL string in ... contains ")" characters itself, use instead:
#
#    %html%(...)%
#    %url%(...)%
#    %qp%(...)%
#    %string%(...)%
#    %unsafe%(...)%
#
# In other words, use "%(...)%" instead of "(...)" to include the TCL string
# to substitute.
#
# The %unsafe substitution should be avoided whenever possible, obviously.
# In addition to the substitutions above, the text also does backslash
# escapes.
#
proc wapp-subst {txt} {
 global wapp
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# Works like wapp-subst, but also removes whitespace from the beginning
# of lines.
```

```
#
proc wapp-trim {txt} {
 global wapp
 regsub -all {\n\s+} [string
 trim $txt] \n txt
 regsub -all {%(html|url|qp|string|unsafe){1,1}?(|%)\((.+)\)\2} $txt \
       {[wappInt-enc-\1 "\3"]} txt
 dict append wapp .reply [uplevel 1 [list subst -novariables $txt]]
}

# There must be a wappInt-enc-NAME routine for each possible substitution
# in wapp-subst.  Thus there are routines for "html", "url", "qp", and "unsafe".
#
#    wappInt-enc-html          Escape text so that it is safe to use in the
#                              body of an HTML document.
#
#    wappInt-enc-url           Escape text so that it is safe to pass as an
#                              argument to href= and src= attributes in HTML.
#
#    wappInt-enc-qp            Escape text so that it is safe to use as the
#                              value of a query parameter in a URL or in
#                              post data or in a cookie.
#
#    wappInt-enc-string        Escape ", ', \, and < for using inside of a
#                              javascript string literal.
  The < character
#                              is escaped to prevent "</script>" from causing
#                              problems in embedded javascript.
#
#    wappInt-enc-unsafe        Perform no encoding at all.  Unsafe.
#
proc wappInt-enc-html {txt} {
 return [string map {& &amp; < &lt; > &gt; \" &quot; \\ &#92;} $txt]
}
proc wappInt-enc-unsafe {txt} {
 return $txt
}
proc wappInt-enc-url {s} {
 if {[regsub -all {[^-{}@~?=#_.:/a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
   set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
   set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-qp {s} {
 if {[regsub -all {[^-{}_.a-zA-Z0-9]} $s {[wappInt-%HHchar {&}]} s]} {
```

```
  set s [subst -novar -noback $s]
 }
 if {[regsub -all {[{}]} $s {[wappInt-%HHchar \\&]} s]} {
  set s [subst -novar -noback $s]
 }
 return $s
}
proc wappInt-enc-string {s} {
 return [string map {\\ \\\\ \" \\\" ' \\' < \\u003c} $s]
}

# This is a
 helper routine for wappInt-enc-url and wappInt-enc-qp.  It returns
# an appropriate %HH encoding for the single character c.  If c is a unicode
# character, then this routine might return multiple bytes:  %HH%HH%HH
#
proc wappInt-%HHchar {c} {
 if {$c==" "} {return +}
 return [regsub -all .. [binary encode hex [encoding convertto utf-8 $c]] {%&}]
}



# Undo the www-url-encoded format.
#
# HT: This code stolen from ncgi.tcl
#
proc wappInt-decode-url {str} {
 set str [string map [list + { } "\\" "\\\\" \[ \\\[ \] \\\]] $str]
 regsub -all -- \
    {%([Ee][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])} \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2\3]]} str
 regsub -all -- \
    {%([CDcd][A-Fa-f0-9])%([89ABab][A-Fa-f0-9])}                    \
    $str {[encoding convertfrom utf-8 [binary decode hex \1\2]]} str
 regsub -all -- {%([0-7][A-Fa-f0-9])} $str {\\u00\1} str
 return [subst -novar $str]
}

# Reset the document back to an empty string.
#
proc
 wapp-reset {} {
 global wapp
 dict set wapp .reply {}
}

# Change the mime-type of the result document.
#
```

```
proc wapp-mimetype {x} {
 global wapp
 dict set wapp .mimetype $x
}

# Change the reply code.
#
proc wapp-reply-code {x} {
 global wapp
 dict set wapp .reply-code $x
}

# Set a cookie
#
proc wapp-set-cookie {name value} {
 global wapp
 dict lappend wapp .new-cookies $name $value
}

# Unset a cookie
#
proc wapp-clear-cookie {name} {
 wapp-set-cookie $name {}
}

# Add extra entries to the reply header
#
proc wapp-reply-extra {name value} {
 global wapp
 dict lappend wapp .reply-extra $name $value
}

# Specifies how the web-page under construction should be cached.
# The argument should be one of:
#
#    no-cache
#    max-age=N            (for some integer number of seconds, N)
#    private,max-age=N
#
proc wapp-cache-control {x} {
 wapp-reply-extra Cache-Control $x
}

# Redirect to a different web page
#
proc wapp-redirect {uri} {
 wapp-reply-code {307 Redirect}
 wapp-reply-extra
```

```
 Location $uri
}

# Return the value of a wapp parameter
#
proc wapp-param {name {dflt {}}} {
 global wapp
 if {![dict exists $wapp $name]} {return $dflt}
 return [dict get $wapp $name]
}

# Return true if a and only if the wapp parameter $name exists
#
proc wapp-param-exists {name} {
 global wapp
 return [dict exists $wapp $name]
}

# Set the value of a wapp parameter
#
proc wapp-set-param {name value} {
 global wapp
 dict set wapp $name $value
}

# Return all parameter names that match the GLOB pattern, or all
# names if the GLOB pattern is omitted.
#
proc wapp-param-list {{glob {*}}} {
 global wapp
 return [dict keys $wapp $glob]
}

# By default, Wapp does not decode query parameters and POST parameters
# for cross-origin requests.  This is a security restriction, designed to
# help prevent cross-site request forgery (CSRF) attacks.
#
# As a consequence of this restriction, URLs for sites generated by Wapp
# that contain query parameters will not work as URLs
 found in other
# websites.  You cannot create a link from a second website into a Wapp
# website if the link contains query planner, by default.
#
# Of course, it is sometimes desirable to allow query parameters on external
# links.  For URLs for which this is safe, the application should invoke
# wapp-allow-xorigin-params.  This procedure tells Wapp that it is safe to
# go ahead and decode the query parameters even for cross-site requests.
#
```

```
# In other words, for Wapp security is the default setting.  Individual pages
# need to actively disable the cross-site request security if those pages
# are safe for cross-site access.
#
proc wapp-allow-xorigin-params {} {
 global wapp
 if {![dict exists $wapp .qp] && ![dict get $wapp SAME_ORIGIN]} {
   wappInt-decode-query-params
 }
}

# Set the content-security-policy.
#
# The default content-security-policy is very strict:  "default-src 'self'"
# The default policy prohibits the use of in-line javascript or CSS.
#
# Provide an alternative
 CSP as the argument.  Or use "off" to disable
# the CSP completely.
#
proc wapp-content-security-policy {val} {
 global wapp
 if {$val=="off"} {
   dict unset wapp .csp
 } else {
   dict set wapp .csp $val
 }
}

# Examine the bodys of all procedures in this program looking for
# unsafe calls to various Wapp interfaces.  Return a text string
# containing warnings. Return an empty string if all is ok.
#
# This routine is advisory only.  It misses some constructs that are
# dangerous and flags others that are safe.
#
proc wapp-safety-check {} {
 set res {}
 foreach p [info procs] {
   set ln 0
   foreach x [split [info body $p] \n] {
     incr ln
     if {[regexp {^[ \t]*wapp[ \t]+([^\n]+)} $x all tail]
      && [string index $tail 0]!="\173"
      && [regexp {[[$]} $tail]
     } {
       append res "$p:$ln: unsafe \"wapp\" call: \"[string trim $x]\"\n"
     }
```

```
    if {[regexp {^[ \t]*wapp-(subst|trim)[ \t]+[^\173]} $x all cx]} {
      append res "$p:$ln: unsafe \"wapp-$cx\"
 call: \"[string trim $x]\"\n"
    }
  }
 }
 return $res
}

# Return a string that descripts the current environment.  Applications
# might find this useful for debugging.
#
proc wapp-debug-env {} {
 global wapp
 set out {}
 foreach var [lsort [dict keys $wapp]] {
  if {[string index $var 0]=="."} continue
  append out "$var = [list [dict get $wapp $var]]\n"
 }
 append out "\[pwd\] = [list [pwd]]\n"
 return $out
}

# Tracing function for each HTTP request.  This is overridden by wapp-start
# if tracing is enabled.
#
proc wappInt-trace {} {}

# Start up a listening socket.  Arrange to invoke wappInt-new-connection
# for each inbound HTTP connection.
#
#    port           Listen on this TCP port.  0 means to select a port
#                   that is not currently in use
#
#    wappmode       One of "scgi", "server", or "local".
#
proc wappInt-start-listener {port wappmode} {
 if {$wappmode=="scgi"} {
  set type SCGI
  set server [list wappInt-new-connection
 wappInt-scgi-readable $wappmode]
 } else {
  set type HTTP
  set server [list wappInt-new-connection wappInt-http-readable $wappmode]
 }
 if {$wappmode=="local"} {
  set x [socket -server $server -myaddr 127.0.0.1 $port]
 } else {
```

```
  set x [socket -server $server $port]
 }
 set coninfo [chan configure $x -sockname]
 set port [lindex $coninfo 2]
 if {$wappmode=="local"} {
  wappInt-start-browser http://127.0.0.1:$port/
 } else {
  puts "Listening for $type requests on TCP port $port"
 }
}

# Start a web-browser and point it at $URL
#
proc wappInt-start-browser {url} {
 global tcl_platform
 if {$tcl_platform(platform)=="windows"} {
  exec cmd /c start $url &
 } elseif {$tcl_platform(os)=="Darwin"} {
  exec open $url &
 } elseif {[catch {exec xdg-open $url}]} {
  exec firefox $url &
 }
}

# This routine is a "socket -server" callback.  The $chan, $ip, and $port
# arguments are added by the socket command.
#
# Arrange to invoke $callback when content is available
 on the new socket.
# The $callback will process inbound HTTP or SCGI content.
#
proc wappInt-new-connection {callback wappmode chan ip port} {
 upvar #0 wappInt-$chan W
 set W [dict create REMOTE_ADDR $ip REMOTE_PORT $port WAPP_MODE $wappmode \
       .header {}]
 fconfigure $chan -blocking 0 -translation binary
 fileevent $chan readable [list $callback $chan]
}

# Close an input channel
#
proc wappInt-close-channel {chan} {
 if {$chan=="stdout"} {
  # This happens after completing a CGI request
  exit 0
 } else {
  unset ::wappInt-$chan
  close $chan
```

```
 }
}

# Process new text received on an inbound HTTP request
#
proc wappInt-http-readable {chan} {
 if {[catch [list wappInt-http-readable-unsafe $chan] msg]} {
   puts stderr "$msg\n$::errorInfo"
   wappInt-close-channel $chan
 }
}
proc wappInt-http-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if {![dict exists $W .toread]} {
   # If the .toread key is not set, that means we are still reading
    # the header
   set line [string trimright [gets $chan]]
   set n [string length $line]
   if {$n>0} {
     if {[dict get $W .header]=="" || [regexp {^\s+} $line]} {
       dict append W .header $line
     } else {
       dict append W .header \n$line
     }
     if {[string length [dict get $W .header]]>100000} {
       error "HTTP request header too big - possible DOS attack"
     }
   } elseif {$n==0} {
     # We have reached the blank line that terminates the header.
     global argv0
     set a0 [file normalize $argv0]
     dict set W SCRIPT_FILENAME $a0
     dict set W DOCUMENT_ROOT [file dir $a0]
     if {[wappInt-parse-header $chan]} {
       catch {close $chan}
       return
     }
     set len 0
     if {[dict exists $W CONTENT_LENGTH]} {
       set len [dict get $W CONTENT_LENGTH]
     }
     if {$len>0} {
       # Still need to read the query content
       dict set W .toread $len
     } else {
       # There is no query content, so handle
 the request immediately
       set wapp $W
```

```
      wappInt-handle-request $chan 0
    }
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Decode the HTTP request header.
#
# This routine is always running inside of a [catch], so if
# any problems arise, simply raise an error.
#
proc wappInt-parse-header {chan} {
 upvar #0 wappInt-$chan W
 set hdr [split [dict get $W .header] \n]
 if {$hdr==""} {return 1}
 set req [lindex $hdr 0]
 dict set W REQUEST_METHOD [set method [lindex $req 0]]
 if {[lsearch {GET HEAD POST} $method]<0} {
  error "unsupported request method:
 \"[dict get $W REQUEST_METHOD]\""
 }
 set uri [lindex $req 1]
 set split_uri [split $uri ?]
 set uri0 [lindex $split_uri 0]
 if {![regexp {^/[-.a-z0-9_/]*$} $uri0]} {
  error "invalid request uri: \"$uri0\""
 }
 dict set W REQUEST_URI $uri0
 dict set W PATH_INFO $uri0
 set uri1 [lindex $split_uri 1]
 dict set W QUERY_STRING $uri1
 set n [llength $hdr]
 for {set i 1} {$i<$n} {incr i} {
  set x [lindex $hdr $i]
  if {![regexp {^(.+): +(.*)$} $x all name value]} {
    error "invalid header line: \"$x\""
  }
```

```
  set name [string toupper $name]
  switch -- $name {
    REFERER {set name HTTP_REFERER}
    USER-AGENT {set name HTTP_USER_AGENT}
    CONTENT-LENGTH {set name CONTENT_LENGTH}
    CONTENT-TYPE {set name CONTENT_TYPE}
    HOST {set name HTTP_HOST}
    COOKIE {set name HTTP_COOKIE}
    ACCEPT-ENCODING {set name HTTP_ACCEPT_ENCODING}
    default {set name .hdr:$name}
  }
  dict set W $name $value
 }
 return 0
}

# Decode the QUERY_STRING
 parameters from a GET request or the
# application/x-www-form-urlencoded CONTENT from a POST request.
#
# This routine sets the ".qp" element of the ::wapp dict as a signal
# that query parameters have already been decoded.
#
proc wappInt-decode-query-params {} {
 global wapp
 dict set wapp .qp 1
 if {[dict exists $wapp QUERY_STRING]} {
  foreach qterm [split [dict get $wapp QUERY_STRING] &] {
    set qsplit [split $qterm =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][a-z0-9]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex $qsplit 1]]
    }
  }
 }
 if {[dict exists $wapp CONTENT_TYPE] && [dict exists $wapp CONTENT]} {
  set ctype [dict get $wapp CONTENT_TYPE]
  if {$ctype=="application/x-www-form-urlencoded"} {
    foreach qterm [split [string trim [dict get $wapp CONTENT]] &] {
      set qsplit [split $qterm =]
      set nm [lindex $qsplit 0]
      if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
        dict set wapp $nm [wappInt-decode-url
[lindex $qsplit 1]]
      }
    }
  } elseif {[string match multipart/form-data* $ctype]} {
    regexp {^(.*?)\r\n(.*)$} [dict get $wapp CONTENT] all divider body
```

```
    set ndiv [string length $divider]
    while {[string length $body]} {
      set idx [string first $divider $body]
      set unit [string range $body 0 [expr {$idx-3}]]
      set body [string range $body [expr {$idx+$ndiv+2}] end]
      if {[regexp {^Content-Disposition: form-data; (.*?)\r\n\r\n(.*)$} \
           $unit unit hdr content] &&
          [regexp {name="(.*)"; filename="(.*)"\r\nContent-Type: (.*?)$}\
            $hdr hr name filename mimetype]} {
        dict set wapp $name.filename \
          [string map [list \\\" \" \\\\ \\] $filename]
        dict set wapp $name.mimetype $mimetype
        dict set wapp $name.content $content
      }
    }
  }
 }
}

# Invoke application-supplied methods to generate a reply to
# a single HTTP request.
#
# This routine always
 runs within [catch], so handle exceptions by
# invoking [error].
#
proc wappInt-handle-request {chan useCgi} {
 global wapp
 dict set wapp .reply {}
 dict set wapp .mimetype {text/html; charset=utf-8}
 dict set wapp .reply-code {200 Ok}
 dict set wapp .csp {default-src 'self'}

 # Set up additional CGI environment values
 #
 if {![dict exists $wapp HTTP_HOST]} {
   dict set wapp BASE_URL {}
 } elseif {[dict exists $wapp HTTPS]} {
   dict set wapp BASE_URL https://[dict get $wapp HTTP_HOST]
 } else {
   dict set wapp BASE_URL http://[dict get $wapp HTTP_HOST]
 }
 if {![dict exists $wapp REQUEST_URI]} {
   dict set wapp REQUEST_URI /
 } elseif {[regsub {\?.*} [dict get $wapp REQUEST_URI] {} newR]} {
   # Some servers (ex: nginx) append the query parameters to REQUEST_URI.
   # These need to be stripped off
   dict set wapp REQUEST_URI $newR
```

```
}
if {[dict exists $wapp SCRIPT_NAME]} {
  dict append wapp BASE_URL [dict get $wapp SCRIPT_NAME]
} else {
  dict set wapp
SCRIPT_NAME {}
}
if {![dict exists $wapp PATH_INFO]} {
  # If PATH_INFO is missing (ex: nginx) the construct it
  set URI [dict get $wapp REQUEST_URI]
  set skip [string length [dict get $wapp SCRIPT_NAME]]
  dict set wapp PATH_INFO [string range $URI $skip end]
}
if {[regexp {^/([^/]+)(.*)$} [dict get $wapp PATH_INFO] all head tail]} {
  dict set wapp PATH_HEAD $head
  dict set wapp PATH_TAIL [string trimleft $tail /]
} else {
  dict set wapp PATH_INFO {}
  dict set wapp PATH_HEAD {}
  dict set wapp PATH_TAIL {}
}
dict set wapp SELF_URL [dict get $wapp BASE_URL]/[dict get $wapp PATH_HEAD]

# Parse query parameters from the query string, the cookies, and
# POST data
#
if {[dict exists $wapp HTTP_COOKIE]} {
  foreach qterm [split [dict get $wapp HTTP_COOKIE] {;}] {
    set qsplit [split [string trim $qterm] =]
    set nm [lindex $qsplit 0]
    if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
      dict set wapp $nm [wappInt-decode-url [lindex
$qsplit 1]]
    }
  }
}
set same_origin 0
if {[dict exists $wapp HTTP_REFERER]} {
  set referer [dict get $wapp HTTP_REFERER]
  set base [dict get $wapp BASE_URL]
  if {$referer==$base || [string match $base/* $referer]} {
    set same_origin 1
  }
}
dict set wapp SAME_ORIGIN $same_origin
if {$same_origin} {
  wappInt-decode-query-params
}
```

```
# Invoke the application-defined handler procedure for this page
# request.  If an error occurs while running that procedure, generate
# an HTTP reply that contains the error message.
#
wapp-before-dispatch-hook
wappInt-trace
set mname [dict get $wapp PATH_HEAD]
if {[catch {
  if {$mname!="" && [llength [info proc wapp-page-$mname]]>0} {
    wapp-page-$mname
  } else {
    wapp-default
  }
} msg]} {
  if {[wapp-param WAPP_MODE]=="local" || [wapp-param WAPP_MODE]=="server"} {
    puts "ERROR: $::errorInfo"
  }
  wapp-reset
  wapp-reply-code "500 Internal Server Error"
  wapp-mimetype
text/html
  wapp-trim {
    <h1>Wapp Application Error</h1>
    <pre>%html($::errorInfo)</pre>
  }
  dict unset wapp .new-cookies
}

# Transmit the HTTP reply
#
if {$chan=="stdout"} {
  puts $chan "Status: [dict get $wapp .reply-code]\r"
} else {
  puts $chan "HTTP/1.1 [dict get $wapp .reply-code]\r"
  puts $chan "Server: wapp\r"
  puts $chan "Connection: close\r"
}
if {[dict exists $wapp .reply-extra]} {
  foreach {name value} [dict get $wapp .reply-extra] {
    puts $chan "$name: $value\r"
  }
}
if {[dict exists $wapp .csp]} {
  puts $chan "Content-Security-Policy: [dict get $wapp .csp]\r"
}
set mimetype [dict get $wapp .mimetype]
puts $chan "Content-Type: $mimetype\r"
```

```
 if {[dict exists $wapp .new-cookies]} {
   foreach {nm val} [dict get $wapp .new-cookies] {
     if {[regexp {^[a-z][-a-z0-9_]*$} $nm]} {
       if {$val==""} {
         puts $chan "Set-Cookie: $nm=; HttpOnly; Path=/; Max-Age=1\r"
       } else {
         set
 val [wappInt-enc-url $val]
         puts $chan "Set-Cookie: $nm=$val; HttpOnly; Path=/\r"
       }
     }
   }
 }
 if {[string match text/* $mimetype]} {
   set reply [encoding convertto utf-8 [dict get $wapp .reply]]
   if {[regexp {\ygzip\y} [wapp-param HTTP_ACCEPT_ENCODING]]} {
     catch {
       set x [zlib gzip $reply]
       set reply $x
       puts $chan "Content-Encoding: gzip\r"
     }
   }
 } else {
   set reply [dict get $wapp .reply]
 }
 puts $chan "Content-Length: [string length $reply]\r"
 puts $chan \r
 puts $chan $reply
 flush $chan
 wappInt-close-channel $chan
}

# This routine runs just prior to request-handler dispatch.  The
# default implementation is a no-op, but applications can override
# to do additional transformations or checks.
#
proc wapp-before-dispatch-hook {} {return}

# Process a single CGI request
#
proc wappInt-handle-cgi-request {} {
 global wapp env
 foreach key {
   CONTENT_LENGTH
   CONTENT_TYPE
   DOCUMENT_ROOT
   HTTP_ACCEPT_ENCODING
```

```
   HTTP_COOKIE
  HTTP_HOST
  HTTP_REFERER
  HTTP_USER_AGENT
  HTTPS
  PATH_INFO
  QUERY_STRING
  REMOTE_ADDR
  REQUEST_METHOD
  REQUEST_URI
  REMOTE_USER
  SCRIPT_FILENAME
  SCRIPT_NAME
  SERVER_NAME
  SERVER_PORT
  SERVER_PROTOCOL
 } {
  if {[info exists env($key)]} {
    dict set wapp $key $env($key)
  }
 }
 set len 0
 if {[dict exists $wapp CONTENT_LENGTH]} {
  set len [dict get $wapp CONTENT_LENGTH]
 }
 if {$len>0} {
  fconfigure stdin -translation binary
  dict set wapp CONTENT [read stdin $len]
 }
 dict set wapp WAPP_MODE cgi
 fconfigure stdout -translation binary
 wappInt-handle-request stdout 1
}

# Process new text received on an inbound SCGI request
#
proc wappInt-scgi-readable {chan} {
 if {[catch [list wappInt-scgi-readable-unsafe $chan] msg]} {
  puts stderr "$msg\n$::errorInfo"
  wappInt-close-channel $chan
 }
}
proc wappInt-scgi-readable-unsafe {chan} {
 upvar #0 wappInt-$chan W wapp wapp
 if
 {![dict exists $W .toread]} {
  # If the .toread key is not set, that means we are still reading
  # the header.
```

```
  #
  # An SGI header is short.  This implementation assumes the entire
  # header is available all at once.
  #
  set req [read $chan 15]
  set n [string length $req]
  scan $req %d:%s len hdr
  incr len [string length "$len:,"]
  append hdr [read $chan [expr {$len-15}]]
  foreach {nm val} [split $hdr \000] {
    if {$nm==""} break
    dict set W $nm $val
  }
  set len 0
  if {[dict exists $W CONTENT_LENGTH]} {
    set len [dict get $W CONTENT_LENGTH]
  }
  if {$len>0} {
    # Still need to read the query content
    dict set W .toread $len
  } else {
    # There is no query content, so handle the request immediately
    set wapp $W
    wappInt-handle-request $chan 0
  }
 } else {
  # If .toread is set, that means we are reading the query content.
  # Continue reading until .toread reaches zero.
  set got [read
 $chan [dict get $W .toread]]
  dict append W CONTENT $got
  dict set W .toread [expr {[dict get $W .toread]-[string length $got]}]
  if {[dict get $W .toread]<=0} {
    # Handle the request as soon as all the query content is received
    set wapp $W
    wappInt-handle-request $chan 0
  }
 }
}

# Start up the wapp framework.  Parameters are a list passed as the
# single argument.
#
#    -server $PORT         Listen for HTTP requests on this TCP port $PORT
#
#    -local $PORT          Listen for HTTP requests on 127.0.0.1:$PORT
#
#    -scgi $PORT           Listen for SCGI requests on TCP port $PORT
```

```
#
#    -cgi                Handle a single CGI request
#
# With no arguments, the behavior is called "auto".  In "auto" mode,
# if the GATEWAY_INTERFACE environment variable indicates CGI, then run
# as CGI.  Otherwise, start an HTTP server bound to the loopback address
# only, on an arbitrary TCP port, and automatically launch a web browser
# on that TCP port.
#
# Additional
 options:
#
#    -trace              "puts" each request URL as it is handled, for
#                        debugging
#
#    -lint               Run wapp-safety-check on the application instead
#                        of running the application itself
#
#    -Dvar=value         Set TCL global variable "var" to "value"
#
#
proc wapp-start {arglist} {
 global env
 set mode auto
 set port 0
 set n [llength $arglist]
 for {set i 0} {$i<$n} {incr i} {
   set term [lindex $arglist $i]
   if {[string match --* $term]} {set term [string range $term 1 end]}
   switch -glob -- $term {
     -server {
       incr i;
       set mode "server"
       set port [lindex $arglist $i]
     }
     -local {
       incr i;
       set mode "local"
       set port [lindex $arglist $i]
     }
     -scgi {
       incr i;
       set mode "scgi"
       set port [lindex $arglist $i]
     }
     -cgi {
       set mode "cgi"
     }
```

```
    -trace {
      proc wappInt-trace {} {

    set q [wapp-param QUERY_STRING]
        set uri [wapp-param BASE_URL][wapp-param PATH_INFO]
        if {$q!=""} {append uri ?$q}
        puts $uri
      }
    }
    -lint {
      set res [wapp-safety-check]
      if {$res!=""} {
        puts "Potential problems in this code:"
        puts $res
        exit 1
      } else {
        exit
      }
    }
    -D*=* {
      if {[regexp {^.D([^=]+)=(.*)$} $term all var val]} {
        set ::$var $val
      }
    }
    default {
      error "unknown option: $term"
    }
  }
}
if {($mode=="auto"
     && [info exists env(GATEWAY_INTERFACE)]
     && [string match CGI/1.* $env(GATEWAY_INTERFACE)])
  || $mode=="cgi"
} {
  wappInt-handle-cgi-request
  return
}
if {$mode=="scgi"} {
  wappInt-start-listener $port scgi
} elseif {$mode=="server"} {
  wappInt-start-listener $port server
} else {
  wappInt-start-listener $port local
}
vwait ::forever
}

# Call this version
```

```
 1.0
package provide wapp 1.0

#### End of wapp.tcl

# Generate all header content for the output document
#
proc search_header {} {
 wapp-trim {
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html><head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="content-type" content="text/html; charset=UTF-8">
<link href="sqlite.css" rel="stylesheet">
<title>Search SQLite Documentation</title>
<!-- path= -->
</head>
<body>
<div class=nosearch>
<a href="index.html">
<img class="logo" src="images/sqlite370_banner.gif" alt="SQLite" border="0">
</a>
<div><!-- IE hack to prevent disappearing logo --></div>
<div class="tagline desktoponly">
Small. Fast. Reliable.<br>Choose any three.
</div>
<div class="menu mainmenu">
<ul>
<li><a href="index.html">Home</a>
<li class='mobileonly'><a href="javascript:void(0)" onclick='toggle_div("submenu")'>Menu</a>
<li class='wideonly'><a href='about.html'>About</a>
<li class='desktoponly'><a
 href="docs.html">Documentation</a>
<li class='desktoponly'><a href="download.html">Download</a>
<li class='wideonly'><a href='copyright.html'>License</a>
<li class='desktoponly'><a href="support.html">Support</a>
<li class='desktoponly'><a href="prosupport.html">Purchase</a>
<li class='search' id='search_menubutton'>
<a href="javascript:void(0)" onclick='toggle_search()'>Search</a>
</ul>
</div>
<div class="menu submenu" id="submenu">
<ul>
<li><a href='about.html'>About</a>
<li><a href='docs.html'>Documentation</a>
<li><a href='download.html'>Download</a>
<li><a href='support.html'>Support</a>
<li><a href='prosupport.html'>Purchase</a>
```

```
</ul>
</div>
<div class="searchmenu" id="searchmenu">
<form method="GET" action="search">
<select name="s" id="searchtype">
<option value="d">Search Documentation</option>
<option value="c">Search Changelog</option>
</select>
<input type="text" name="q" id="searchbox" value="">
<input type="submit" value="Go">
</form>
</div>
</div>
<script>
function
 toggle_div(nm) {
var w = document.getElementById(nm);
if( w.style.display=="block" ){
w.style.display = "none";
}else{
w.style.display = "block";
}
}
function toggle_search() {
var w = document.getElementById("searchmenu");
if( w.style.display=="block" ){
w.style.display = "none";
} else {
w.style.display = "block";
setTimeout(function(){
document.getElementById("searchbox").focus()
}, 30);
}
}
function div_off(nm){document.getElementById(nm).style.display="none";}
window.onbeforeunload = function(e){div_off("submenu");}
/* Disable the Search feature if we are not operating from CGI, since */
/* Search is accomplished using CGI and will not work without it. */
if( !location.origin.match || !location.origin.match(/http/) ){
document.getElementById("search_menubutton").style.display = "none";
}
/* Used by the Hide/Show button beside syntax diagrams, to toggle the */
function hideorshow(btn,obj){
var x = document.getElementById(obj);
var b = document.getElementById(btn);
if( x.style.display!='none'
 ){
x.style.display = 'none';
```

```
b.innerHTML='show';
}else{
x.style.display = '';
b.innerHTML='hide';
}
return false;
}
</script>
</div>
 }
}

#--------------------------------------------------------------------------
# Add an entry to the log database for the current query. Which
# returns $nRes results.
#
proc search_add_log_entry {nRes} {
 if {[wapp-param-exists donotlog]} return
 sqlite3 db2 [file dir [wapp-param SCRIPT_FILENAME]]/search.d/searchlog.db
 db2 timeout 10000
 set ip [wapp-param REMOTE_ADDR]
 set query [wapp-param q]
 db2 eval {
   PRAGMA synchronous=OFF;
   PRAGMA journal_mode=OFF;
   BEGIN;
     CREATE TABLE IF NOT EXISTS log(
       ip,                -- IP query was made from
       query,               -- Fts5 query string
       nres,               -- Number of results
       timestamp DEFAULT CURRENT_TIMESTAMP
     );
     INSERT INTO log(ip, query, nres) VALUES($ip, $query, $nRes);
   COMMIT;
 }
 db2 close
}

#--------------------------------------------------------------------------
#
 This command is similar to the builtin Tcl [time] command, except that
# it only ever runs the supplied script once. Also, instead of returning
# a string like "xxx microseconds per iteration", it returns "x.yy ms" or
# "x.yy s", depending on the magnitude of the time spent running the
# command. For example:
#
#   % ttime {after 1500}
#   1.50 s
```

```
#   % ttime {after 45}
#   45.02 ms
#
proc ttime {script} {
 set t [lindex [time [list uplevel $script]] 0]
 if {$t>1000000} { return [format "%.2f s" [expr {$t/1000000.0}]] }
 return [format "%.2f ms" [expr {$t/1000.0}]]
}

#-------------------------------------------------------------------------
# Do a search of the change log
#
proc searchchanges {} {
 set q [wapp-param q]
 if {$q==""} {return {}}
 set open {<span style="background-color:#d9f2e6">}
 set close {</span>}
 set query {
   SELECT url, version, idx, highlight(change, 3, $open, $close) AS text
   FROM change($q)
 ORDER BY rowid ASC
 }
 wapp-trim {
   <p>Change log entries mentioning: <b>%html($q)</b>
   <table border=0>
 }
 set s2 "style=\"margin-top:0\""
 set s1 "style=\"font-size:larger; text-align:left\" class=nounderline"
 set prev ""
 db eval $query {
   if {$prev!=$version} {
     wapp-trim {
       <tr> <td %unsafe($s1) valign=top> <a href='%url($url)'>%html($version)</a>
       <td> <ul %unsafe($s2)>
     }
     set prev $version
   }
   wapp-subst {<li value=%html($idx)> (%html($idx)) %unsafe($text)\n}
 }
 wapp-trim {
   </table>
   <center><p>You can also see the <a href=changes.html>entire
   changelog as a single page</a> if you wish.</center>
 }
}

#-------------------------------------------------------------------------
# Do a search over all documentation other than the change log
```

```
#
proc searchresults {} {
 set q [wapp-param q]
 if {$q==""} {return ""}

 # Count the "" characters in $::A(q). If there is an odd number of
 # occurences, add a " to the
 end of the query so that fts5 can parse
 # it without error.
 if {[regexp -all \x22 $q] % 2} { append q \x22 }

 # Set iStart to the index of the first result to display. Results are
 # indexed starting at zero from most to least relevant.
 #
 set iStart 0
 catch {set iStart [expr {[wapp-param i 0]*10}]}

 # Grab a list of rowid results.
 #
 set sql {
  SELECT rowid FROM page WHERE page MATCH $q
  ORDER BY srank(page) DESC,
  rank * COALESCE(
    (SELECT percent FROM weight WHERE id=page.rowid), 100
  );
 }
 if {[catch { set lRowid [db eval $sql] }]} {
  set x ""
  foreach word [split $q " "] {
    append x " \"[string map [list "\"" "\"\""] $word]\""
  }
  set q [string trim $x]
  set lRowid [db eval $sql]
 }

 set lRes [list]
 foreach rowid $lRowid {
  if {$rowid > 1000} {
    set parent [expr $rowid / 1000]
    lappend subsections($parent) $rowid
  } else {
    lappend lRes $rowid
  }
 }

 set nRes [llength $lRes]
 set lRes [lrange
```

```
$lRes $iStart [expr $iStart+9]]

# Add an entry to the log database.
#
search_add_log_entry $nRes

# If there are no results, return a message to that effect.
#
if {[llength $lRes] == 0} {
  wapp-subst {<p>No Results for: <b>%html($q)</b>\n}
}

# HTML markup used to highlight keywords within FTS5 generated snippets.
#
set open {<span style="background-color:#d9f2e6">}
set close {</span>}
set ellipsis {<b> ... </b>}

# Grab the required data
#
db eval [string map [list %LIST% [join $lRowid ,]] {
  SELECT
    rowid AS parentid,
    snippet(page, 0, $open, $close, $ellipsis, 6)  AS s_apis,
    snippet(page, 2, $open, $close, '', 40)        AS s_title1,
    snippet(page, 3, $open, $close, $ellipsis, 40) AS s_title2,
    snippet(page, 4, $open, $close, $ellipsis, 40) AS s_content,
    url, rank
  FROM page($q)
  WHERE rowid IN (%LIST%)
}] X {
  foreach k [array names X] { set data($X(parentid),$k) [set X($k)] }
}

set
i1 [expr {$iStart+1}]
set i2 [expr {($nRes < $iStart+10) ? $nRes : $iStart+10}]
wapp-trim {
  <table border=0>
  <p>Search results %html($i1)..%html($i2) of %html($nRes) for: <b>%html($q)</b>
}

foreach rowid $lRes {

  foreach a {parentid s_apis s_title1 s_content url rank} {
    set $a $data($rowid,$a)
  }
```

```
 if {[info exists subsections($parentid)]} {
  set childid [lindex $subsections($parentid) 0]
  set link $data($childid,url)
  set hdr $data($childid,s_title2)

  if {$hdr==""} {
   set s_content ""
  } else {
   set s_content [subst {
    <b><a style=color:#044a64 href=$link>$hdr</a></b>
   }]
  }

  append s_content " $data($childid,s_content)"
 }

 wapp-trim {<tr>
  <td valign=top style="line-height:150%">
   <div style="white-space:wrap;font-size:larger" class=nounderline>
    <a href="%url($url)">%unsafe($s_title1)</a>
    <div style="float:right;font-size:smaller;color:#BBB">(%url($url))</div>
   </div>
    <div style="margin-left: 10ex; font:larger monospace">%unsafe($s_apis)</div>
   <div style="margin-left: 4ex; margin-bottom:1.5em">
    %unsafe($s_content)
   </div>
  </td>
 }
}
wapp-subst {</table>\n}


# If the query returned more than 10 results, add up to 10 links to
# each set of 10 results (first link to results 1-10, second to 11-20,
# third to 21-30, as required).
#
if {$nRes>10} {
 set s(0) {border:solid #044a64 1px;padding:1ex;margin:1ex;line-height:300%;}
 set s(1) "$s(0);background:#044a64;color:white"
 wapp-subst {<center><p>\n}
 for {set i 0} {$i < 10 && ($i*10)<$nRes} {incr i} {
  set style $s([expr {($iStart/10)==$i}])
  wapp-trim {
   <a style="%html($style)"
    href="search?q=%qp($q)&i=%qp($i)">%html([expr $i+1])</a>
  }
 }
 wapp-subst {</center>\n}
```

```
 }
}

# This is the main entry point into the search result page generator
#
proc wapp-default
 {} {
 wapp-content-security-policy {default-src 'self' 'unsafe-inline'}
 wapp-allow-xorigin-params
 if {[wapp-param-exists env]} {
  search_header
  wapp-trim {
   <h1>Environment Dump For Debugging</h1>
   <pre>%html([wapp-debug-env])</pre>
  }
  return
 }

 # When running using the built-in webserver in Wapp (in other words,
 # when not running as CGI) any filename that contains a "." loads
 # directly from the filesystem.
 if {[wapp-param WAPP_MODE]!="cgi"
  && [string match *.* [wapp-param PATH_INFO]]
 } {
  set altfile [file dir [wapp-param SCRIPT_FILENAME]][wapp-param PATH_INFO]
  set fd [open $altfile rb]
  fconfigure $fd -translation binary
  wapp-unsafe [read $fd]
  close $fd
  switch -glob -- $altfile {
   *.html {
    wapp-mimetype text/html
   }
   *.css {
    wapp-mimetype text/css
   }
   *.gif {
    wapp-mimetype image/gif
   }
  }
  return
 }

 search_header
 sqlite3 db [file dir [wapp-param SCRIPT_FILENAME]]/search.d/search.db
  set searchType [wapp-param s d]
 if {$searchType=="c"} {
  set cmd searchchanges
```

```
 } else {
   set cmd searchresults
 }
 db transaction {
   set t [ttime {$cmd}]
 }
 wapp-trim {
   <center>
   <p>Page generated by <a href='fts5.html'>FTS5</a> in about %html($t).
   </center>
   <script>
     window.addEventListener('load', function() {
       var w = document.getElementById("searchmenu");
       w.style.display = "block";
       w = document.getElementById("searchtype");
       w.value = "%string($searchType)"
       setTimeout(function(){
         var s = document.getElementById("searchbox");
         s.value = "%string([wapp-param q])"
         s.focus();
         s.select();
       }, 30);
     });
   </script>
 }
}
wapp-start $argv
```

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/search
No license file was found, but licenses were detected in source scan.

```
<h2>SQLite Is Public Domain</h2>
<a href="http://en.wikipedia.org/wiki/Public_Domain">Public Domain</a>
<a href="http://en.wikipedia.org/wiki/Public_Domain">public domain</a>
the public domain and originals of
author, and all of those authors have public domain dedications
domain and ensure that the code does not become contaminated with proprietary
SQLite is in the public domain and does not require a license.
the public domain.  </li>
have the legal right to dedicate the SQLite to the public domain, and
```

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/copyright.html
No license file was found, but licenses were detected in source scan.

```
<p><b>Public domain</b></p>
The source code for SQLite is in the public domain.  No claim of copyright
```

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/different.html
No license file was found, but licenses were detected in source scan.

proprietary. The TH3 code is only accessible to SQLite developers.

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/qmplan.html
No license file was found, but licenses were detected in source scan.

public domain and so most

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/famous.html
No license file was found, but licenses were detected in source scan.

SQLite is in the public domain. This document describes what that means

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/docs.html
No license file was found, but licenses were detected in source scan.

access to all proprietary extensions and test suites.
access to all proprietary extensions and test suites.
public domain,

Found in path(s):
* /sqlite3-3-27-2-orig-www-1-tar-xz/www/prosupport.html

1.307 log4j-api 2.13.3

1.307.1 Available under license :

Apache Log4j 1.x Compatibility API
Copyright 1999-2020 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.308 openssl 1.1.1f-1ubuntu2.3

1.308.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.308.2 Available under license :

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

/* ==
* Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. All advertising materials mentioning features or use

of this
* software must display the following acknowledgment:
* "This product includes software developed by the OpenSSL Project
* for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
* endorse or promote products derived from this software without
* prior written permission. For written permission, please contact
* openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
* nor may "OpenSSL" appear in their names without prior written
* permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
* acknowledgment:
* "This product includes software developed by the OpenSSL Project
* for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).

* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include
 an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or

* derivative of this code cannot be changed. i.e. this
 code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.309 xmlsecurityforc++ 2.0.2-3build1

1.309.1 Available under license :

Apache Santuario XML-Security-C Library
Copyright 2010-2018 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

This product includes software developed by the OpenSSL Project
for use in the OpenSSL Toolkit. (http://www.openssl.org/).

This product also includes software developed, copyrighted, and
contributed by The Ohio State University.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Source: http://santuario.apache.org/cindex.html
Upstream-Name: Apache Santuario XML-Security-C library

Files: *
Copyright: 2010-2018 The Apache Software Foundation
License: Apache-2.0

Files: */Makefile.in

Copyright: 2006-2011 The Apache Software Foundation
1994-2014 Free Software Foundation, Inc.
License: Apache-2.0 and FSF-unlimited

Files: aclocal.m4 m4/libtool.m4 m4/ltoptions.m4 m4/ltsugar.m4 m4/ltversion.m4
m4/lt~obsolete.m4
Copyright: 1996-2014 Free Software Foundation, Inc.
License: FSF-unlimited

Files: build-aux/config.guess build-aux/config.sub
Copyright: 1992-2013 Free Software Foundation, Inc.
License: GPL-3+ with autoconf exception
This file is free software; you can redistribute it and/or modify it
under the terms of the GNU General Public License as published by the
Free Software Foundation; either version 3 of the License, or (at your
option) any later version.
.
This program is distributed
in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General
Public License for more details.
.
The full text of the GNU General Public License version 3 is available on
Debian systems in /usr/share/common-licenses/GPL-3.
.
As a special exception to the GNU General Public License, if you
distribute this file as part of a program that contains a
configuration script generated by Autoconf, you may include it under
the same distribution terms that you use for the rest of that
program. This Exception is an additional permission under section 7
of the GNU General Public License, version 3 ("GPLv3").

Files: build-aux/compile build-aux/depcomp build-aux/missing
Copyright: 1999-2014 Free Software Foundation, Inc.
License: GPL-2+ with autoconf exception
This file is free software; you can redistribute it and/or modify it
under the terms of the GNU General Public License
as published by the
Free Software Foundation; either version 2 of the License, or (at your
option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
The full text of the GNU General Public License version 2 is available on

Debian systems in /usr/share/common-licenses/GPL-2.
.
As a special exception to the GNU General Public License, if you
distribute this file as part of a program that contains a
configuration script generated by Autoconf, you may include it under
the same distribution terms that you use for the rest of that program.

Files: build-aux/install-sh
Copyright: (C) 1994 X Consortium
License: Expat

Files: build-aux/ltmain.sh
Copyright: 1996-2015 Free Software Foundation, Inc.
License: GPL-2+ with libtool exception
GNU Libtool is free software; you
 can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.
.
As a special exception to the GNU General Public License,
if you distribute this file as part of a program or library that
is built using GNU Libtool, you may include this file under the
same distribution terms that you use for the rest of that program.
.
GNU Libtool is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
General Public License for more details.
.
The full text of the GNU General Public License version 2 is available on
Debian systems in /usr/share/common-licenses/GPL-2.

Files: configure
Copyright: 1992-1996, 1998-2012 Free Software Foundation, Inc.
License: FSF-configure-unlimited
This configure script is free software; the Free
 Software Foundation
gives unlimited permission to copy, distribute and modify it.

Files: debian/*
Copyright: 2006-2013
   The Board of Trustees of the Leland Stanford Junior University
 2015-2018 Ferenc Wgner <wferi@debian.org>
License: Expat

Files: m4/ax_pthread.m4
Copyright: 2008 Steven G. Johnson <stevenj@alum.mit.edu>

2011 Daniel Richard G. <skunk@iSKUNK.ORG>
License: GPL-3+ with autoconf-macro-package exception
This program is free software: you can redistribute it and/or modify it
under the terms of the GNU General Public License as published by the
Free Software Foundation, either version 3 of the License, or (at your
option) any later version.
.
This program is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General
Public License for more details.
.
The full text of the GNU General Public License version 3 is available on
Debian
systems in /usr/share/common-licenses/GPL-3.
.
As a special exception, the respective Autoconf Macro's copyright owner
gives unlimited permission to copy, distribute and modify the configure
scripts that are the output of Autoconf when processing the Macro. You
need not follow the terms of the GNU General Public License when using
or distributing such scripts, even though portions of the text of the
Macro appear in them. The GNU General Public License (GPL) does govern
all other use of the material that constitutes the Autoconf Macro.
.
This special exception to the GPL applies to versions of the Autoconf
Macro released by the Autoconf Archive. When you make and distribute a
modified version of the Autoconf Macro, you may extend this special
exception to the GPL to apply to your modified version as well.

License: Apache-2.0
Licensed to the Apache Software Foundation (ASF) under one or more
contributor license agreements. See the NOTICE file distributed with this
work
for additional information regarding copyright ownership. The ASF
licenses this file to you under the Apache License, Version 2.0 (the
"License"); you may not use this file except in compliance with the
License. You may obtain a copy of the License at
.
http://www.apache.org/licenses/LICENSE-2.0
.
Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
License for the specific language governing permissions and limitations
under the License.
.
On Debian systems, the complete text of the Apache 2.0 license can be
found in the file /usr/share/common-licenses/Apache-2.0.

License: FSF-unlimited
This file is free software; the Free Software Foundation
gives unlimited permission to copy and/or distribute it,
with or without modifications, as long as this notice is preserved.
.
This program is distributed in the hope
that it will be useful,
but WITHOUT ANY WARRANTY, to the extent permitted by law; without
even the implied warranty of MERCHANTABILITY or FITNESS FOR A
PARTICULAR PURPOSE.

License: Expat
Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to permit
persons to whom the Software is furnished to do so, subject to the
following conditions:
.
The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.
.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT
OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR
THE USE OR OTHER DEALINGS IN THE SOFTWARE.
.
Except as contained in this notice, the name of the X Consortium shall not
be used in advertising or otherwise to promote the sale, use or other
dealings in this Software without prior written authorization from the X
Consortium.

1.310 freerdp 2.1.2

1.310.1 Available under license :

Copyright (C) 2016 The Android Open Source Project

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.311 luxon 1.25.1

1.311.1 Available under license :

MIT

MIT License

Copyright (c) Microsoft Corporation.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE

AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF
CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE

1.312 rrule 2.6.8

1.312.1 Available under license :

BSD-3-Clause
rrule.js: Library for working with recurrence rules for calendar dates.
==

Copyright 2010, Jakub Roztocil <jakub@roztocil.name> and Lars Schning

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

3. Neither the name of The author nor the names of its contributors may
   be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE AUTHOR AND CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

./rrule.js and ./test/tests.js is based on python-dateutil. LICENCE:

python-dateutil - Extensions to the standard Python datetime module.
==

Copyright (c) 2003-2011 - Gustavo Niemeyer <gustavo@niemeyer.net>
Copyright (c) 2012 - Tomi Pievilinen <tomi.pievilainen@iki.fi>

All
rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.
* Neither the name of the copyright holder nor the names of its
  contributors may be used to endorse or promote products derived from
  this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.313 react-zoom-pan-pinch 1.6.1

1.313.1 Available under license :

MIT
MIT License

Copyright (c) 2019 prc5

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

1.314 react-day-picker 7.4.8

1.314.1 Available under license :

MIT
The MIT License (MIT)

Copyright (c) 2014-2019 Giampaolo Bellavite

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.315 openssl 1.1.1f-1ubuntu2.3

1.315.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.315.2 Available under license :

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

/* ==
* Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. All advertising materials mentioning features or use
 of this
*   software must display the following acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For written permission, please contact
*   openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*   nor may "OpenSSL" appear in their names without prior written
*   permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*

* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:

* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include
 an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
 code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.316 open-ldap 2.4.58

1.316.1 Available under license :

Copyright 1998-2021 The OpenLDAP Foundation
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

A copy of this license is available in the file LICENSE in the

top-level directory of the distribution or, alternatively, at
<http://www.OpenLDAP.org/license.html>.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Individual files and/or contributed packages may be copyright by
other parties and/or subject to additional restrictions.

This work is derived from the University of Michigan LDAP v3.3
distribution. Information concerning this software is available
at <http://www.umich.edu/~dirsvcs/ldap/ldap.html>.

This work also contains materials derived from public sources.

Additional information about OpenLDAP can be obtained at
<http://www.openldap.org/>.

Portions Copyright 1998-2012 Kurt D. Zeilenga.
Portions Copyright 1998-2006 Net Boolean Incorporated.
Portions
 Copyright 2001-2006 IBM Corporation.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

Portions Copyright 1999-2008 Howard Y.H. Chu.
Portions Copyright 1999-2008 Symas Corporation.
Portions Copyright 1998-2003 Hallvard B. Furuseth.
Portions Copyright 2007-2011 Gavin Henry.
Portions Copyright 2007-2011 Suretec Systems Ltd.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that this notice is preserved.
The names of the copyright holders may not be used to endorse or
promote products derived from this software without their specific
prior written permission. This software is provided ``as is''
without express or implied warranty.

Portions Copyright (c) 1992-1996 Regents of the University of Michigan.

All rights reserved.

Redistribution and use in source and binary forms are
 permitted
provided that this notice is preserved and that due credit is given
to the University of Michigan at Ann Arbor. The name of the
University may not be used to endorse or promote products derived
from this software without specific prior written permission. This
software is provided ``as is'' without express or implied warranty.
/***
*
* Copyright (C) 2000 Pierangelo Masarati, <ando@sys-net.it>
* All rights reserved.
*
* Permission is granted to anyone to use this software for any purpose
* on any computer system, and to alter it and redistribute it, subject
* to the following restrictions:
*
* 1. The author is not responsible for the consequences of use of this
* software, no matter how awful, even if they arise from flaws in it.
*
* 2. The origin of this software must not be misrepresented, either by
* explicit claim or by omission. Since few users ever read sources,
* credits should appear in the documentation.
*
* 3. Altered versions must be plainly marked as such, and must not be
* misrepresented as being the original software. Since few users
* ever read sources, credits should appear in the documentation.
*
* 4. This notice may not be removed or altered.
*
***/
Copyright 2011-2020 Howard Chu, Symas Corp.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

A copy of this license is available in the file LICENSE in the
top-level directory of the distribution or, alternatively, at
<http://www.OpenLDAP.org/license.html>.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Individual files and/or contributed packages may be copyright by
other parties and/or subject to additional restrictions.

This work also contains materials derived from public sources.

Additional information about OpenLDAP can be obtained at
<http://www.openldap.org/>.
Copyright 1998-2021 The OpenLDAP Foundation. All rights reserved.

COPYING RESTRICTIONS APPLY.

See COPYRIGHT and LICENSE files in the top-level directory of this
distribution (i.e., ../../COPYRIGHT and ../../LICENSE, respectively).

NeoSoft Tcl client extensions to Lightweight Directory Access Protocol.

Copyright (c) 1998-1999 NeoSoft, Inc.
All Rights Reserved.

This software may be used, modified, copied, distributed, and sold,
in both source and binary form provided that these copyrights are
retained and their terms are followed.

Under no circumstances are the authors or NeoSoft Inc. responsible
for the proper functioning of this software, nor do the authors
assume any liability for damages incurred with its use.

Redistribution and use in source and binary forms are permitted
provided that this notice is preserved and that due credit is given
to NeoSoft, Inc.

NeoSoft, Inc. may not be used to endorse or promote products derived
from this software without specific prior written
 permission. This
software is provided ``as is'' without express or implied warranty.

Requests for permission may be sent to NeoSoft Inc, 1770 St. James Place,
Suite 500, Houston, TX, 77056.
The OpenLDAP Public License
 Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation
("Software"), with or without modification, are permitted provided
that the following conditions are met:

1. Redistributions in source form must retain copyright statements
  and notices,

2. Redistributions in binary form must reproduce applicable copyright
  statements and notices, this list of conditions, and the following

disclaimer in the documentation and/or other materials provided
with the distribution, and

3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time.
Each revision is distinguished by a version number. You may use
this Software under terms of this license revision or under the
terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS
CONTRIBUTORS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES,
INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S)
OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in
advertising or otherwise to promote the sale, use or other dealing
in this Software without specific, written prior permission. Title
to copyright in this Software shall at all times remain with copyright
holders.

OpenLDAP is a registered trademark
of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City,
California, USA. All Rights Reserved. Permission to copy and
distribute verbatim copies of this document is granted.
Copyright 1998-2021 The OpenLDAP Foundation. All rights reserved.

COPYING RESTRICTIONS APPLY.

See COPYRIGHT and LICENSE files in the top-level directory of this
distribution (i.e., ../../COPYRIGHT and ../../LICENSE, respectively).

1.317 open-ldap 2.4.49+dfsg-2ubuntu1.8

1.317.1 Available under license :

Copyright 1998-2020 The OpenLDAP Foundation. All rights reserved.

COPYING RESTRICTIONS APPLY.

See COPYRIGHT and LICENSE files in the top-level directory of this
distribution (i.e., ../../COPYRIGHT and ../../LICENSE, respectively).

NeoSoft Tcl client extensions to Lightweight Directory Access Protocol.

Copyright (c) 1998-1999 NeoSoft, Inc.
All Rights Reserved.

This software may be used, modified, copied, distributed, and sold,
in both source and binary form provided that these copyrights are
retained and their terms are followed.

Under no circumstances are the authors or NeoSoft Inc. responsible
for the proper functioning of this software, nor do the authors
assume any liability for damages incurred with its use.

Redistribution and use in source and binary forms are permitted
provided that this notice is preserved and that due credit is given
to NeoSoft, Inc.

NeoSoft, Inc. may not be used to endorse or promote products derived
from this software without specific prior written
 permission. This
software is provided ``as is'' without express or implied warranty.

Requests for permission may be sent to NeoSoft Inc, 1770 St. James Place,
Suite 500, Houston, TX, 77056.

/**

*
* Copyright (C) 2000 Pierangelo Masarati, <ando@sys-net.it>
* All rights reserved.
*
* Permission is granted to anyone to use this software for any purpose
* on any computer system, and to alter it and redistribute it, subject
* to the following restrictions:
*
* 1. The author is not responsible for the consequences of use of this
* software, no matter how awful, even if they arise from flaws in it.
*
* 2. The origin of this software must not be misrepresented, either by
* explicit claim or by omission. Since few users ever read sources,
* credits should appear in the documentation.

*
* 3. Altered versions must be plainly marked as such, and must not be
* misrepresented as being the original software. Since few users
* ever read sources, credits should appear in the documentation.
*
* 4. This notice may not be removed or altered.
*
**/
Copyright 1998-2020 The OpenLDAP Foundation
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

A copy of this license is available in the file LICENSE in the
top-level directory of the distribution or, alternatively, at
<http://www.OpenLDAP.org/license.html>.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Individual files and/or contributed packages may be copyright by
other parties and/or subject to additional restrictions.

This work is derived from the University of Michigan LDAP v3.3
distribution. Information concerning this software is available
at <http://www.umich.edu/~dirsvcs/ldap/ldap.html>.

This work also contains materials derived from public sources.

Additional information about OpenLDAP can be obtained at
<http://www.openldap.org/>.

Portions Copyright 1998-2012 Kurt D. Zeilenga.
Portions Copyright 1998-2006 Net Boolean Incorporated.
Portions
 Copyright 2001-2006 IBM Corporation.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

Portions Copyright 1999-2008 Howard Y.H. Chu.

Portions Copyright 1999-2008 Symas Corporation.
Portions Copyright 1998-2003 Hallvard B. Furuseth.
Portions Copyright 2007-2011 Gavin Henry.
Portions Copyright 2007-2011 Suretec Systems Ltd.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that this notice is preserved.
The names of the copyright holders may not be used to endorse or
promote products derived from this software without their specific
prior written permission. This software is provided ``as is''
without express or implied warranty.

Portions Copyright (c) 1992-1996 Regents of the University of Michigan.
All rights reserved.

Redistribution and use in source and binary forms are
 permitted
provided that this notice is preserved and that due credit is given
to the University of Michigan at Ann Arbor. The name of the
University may not be used to endorse or promote products derived
from this software without specific prior written permission. This
software is provided ``as is'' without express or implied warranty.
Copyright 2011-2020 Howard Chu, Symas Corp.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

A copy of this license is available in the file LICENSE in the
top-level directory of the distribution or, alternatively, at
<http://www.OpenLDAP.org/license.html>.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Individual files and/or contributed packages may be copyright by
other parties and/or subject to additional restrictions.

This work also contains materials derived from public sources.

Additional information about OpenLDAP can be obtained at
<http://www.openldap.org/>.
The OpenLDAP Public License
 Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation
("Software"), with or without modification, are permitted provided
that the following conditions are met:

1. Redistributions in source form must retain copyright statements
and notices,

2. Redistributions in binary form must reproduce applicable copyright
statements and notices, this list of conditions, and the following
disclaimer in the documentation and/or other materials provided
with the distribution, and

3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time.
Each revision is distinguished by a version number. You may use
this Software under terms of this license revision or under the
terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS
CONTRIBUTORS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES,
INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S)
OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in
advertising or otherwise to promote the sale, use or other dealing
in this Software without specific, written prior permission. Title
to copyright in this Software shall at all times remain with copyright
holders.

OpenLDAP is a registered trademark
of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City,
California, USA. All Rights Reserved. Permission to copy and
distribute verbatim copies of this document is granted.
Copyright 1998-2020 The OpenLDAP Foundation. All rights reserved.

COPYING RESTRICTIONS APPLY.

See COPYRIGHT and LICENSE files in the top-level directory of this
distribution (i.e., ../../COPYRIGHT and ../../LICENSE, respectively).

1.318 runc 1.0.0-rc9

1.318.1 Available under license :

Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or

Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You

institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,

reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work

or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright (C) 2014-2015 Docker Inc & Go Authors. All rights reserved.
Copyright (C) 2017 SUSE LLC. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition,

"submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,

all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the
Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any
Derivative Works that You distribute must include a readable copy of the
attribution notices contained within such NOTICE file, excluding those notices
that do not pertain to any part of the Derivative Works, in at least one of the
following places: within a NOTICE text file distributed as part of the
Derivative Works; within the Source form or documentation, if provided along
with the Derivative Works; or, within a display generated by the Derivative
Works, if and wherever such third-party notices normally appear. The contents of
the NOTICE file are for informational purposes only and do not modify the
License. You may add Your own attribution notices within Derivative Works that
You distribute, alongside or as an addendum to the NOTICE text from the Work,
provided
that such additional attribution notices cannot be construed as
modifying the License.
You may add Your own copyright statement to Your modifications and may provide
additional or different license terms and conditions for use, reproduction, or
distribution of Your modifications, or for any such Derivative Works as a whole,
provided Your use, reproduction, and distribution of the Work otherwise complies
with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted
for inclusion in the Work by You to the Licensor shall be under the terms and
conditions of this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify the terms of
any separate license agreement you may have executed with Licensor regarding
such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks,
service marks,
or product names of the Licensor, except as required for
reasonable and customary use in describing the origin of the Work and
reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the
Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied,
including, without limitation, any warranties or conditions of TITLE,
NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are

solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
 AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) 2016 Jeremy Saenz & Contributors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.319 berkeley-db 4.4.20

1.319.1 Available under license :

Copyright (c) 1996-2005
Sleepycat Software. All rights reserved.
See the file LICENSE for redistribution information.
/*-
* $Id: LICENSE,v 12.1 2005/06/16 20:20:10 bostic Exp $
*/

The following is the license that applies to this copy of the Berkeley DB
software. For a license to use the Berkeley DB software under conditions
other than those described here, or to purchase support for this software,
please contact Sleepycat Software by email at info@sleepycat.com, or on
the Web at http://www.sleepycat.com.

=-=-=-

```
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice,
 this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the University nor the names of its contributors
*    may be used to endorse or promote products derived from this software
*    without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
 ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
/*
* Copyright (c) 1995, 1996
* The President and Fellows of Harvard University.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the University nor the names of its contributors
*    may be used to endorse or promote products derived from this software
*    without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY HARVARD AND ITS CONTRIBUTORS
 ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL HARVARD OR ITS CONTRIBUTORS BE LIABLE
```

* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/
Copyright (c) 2005, 2006, Theo Schlossnagle
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name OmniTI nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.320 importlib-metadata 0.18

1.320.1 Available under license :

Copyright 2017-2019 Jason R. Coombs, Barry Warsaw

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and
limitations under the License.
UNRECOGNIZED LICENSE; MD5 sum: 3cf786bab7dbf356084e7c17bd1a6c8e
UNRECOGNIZED LICENSE; MD5 sum: 7066398eda17a173ed44245d3bcd5b28

1.321 urllib3 1.25.3

1.321.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit
(http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.321.2 Available under license :

MIT License

Copyright (c) 2008-2019 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Contributions to the urllib3 project

Creator & Maintainer

* Andrey Petrov <andrey.petrov@shazow.net>

Contributors

In chronological order:

* victor.vde <http://code.google.com/u/victor.vde/>

 * HTTPS patch (which inspired HTTPSConnectionPool)

* erikcederstrand <http://code.google.com/u/erikcederstrand/>
 * NTLM-authenticated HTTPSConnectionPool
 * Basic-authenticated HTTPSConnectionPool (merged into make_headers)

* niphlod <niphlod@gmail.com>
 * Client-verified SSL certificates for HTTPSConnectionPool
 * Response gzip and deflate encoding support
 * Better unicode support for filepost using StringIO buffers

* btoconnor <brian@btoconnor.net>
 * Non-multipart encoding for POST requests

* p.dobrogost <http://code.google.com/u/@WBRSRlBZDhBFXQB6/>
 * Code review, PEP8 compliance, benchmark fix

* kennethreitz <me@kennethreitz.com>
 * Bugfixes, suggestions, Requests integration

* georgemarshall <https://github.com/georgemarshall>
 * Bugfixes, Improvements and Test
 coverage

* Thomas Kluyver <thomas@kluyver.me.uk>
 * Python 3 support

* brandon-rhodes <http://rhodesmill.org/brandon>
 * Design review, bugfixes, test coverage.

* studer <theo.studer@gmail.com>
 * IPv6 url support and test coverage

* Shivaram Lingamneni <slingamn@cs.stanford.edu>
 * Support for explicitly closing pooled connections

* hartator <hartator@gmail.com>
 * Corrected multipart behavior for params

* Thomas Weischuh <thomas@t-8ch.de>
 * Support for TLS SNI
 * API unification of ssl_version/cert_reqs
 * SSL fingerprint and alternative hostname verification
 * Bugfixes in testsuite

* Sune Kirkeby <mig@ibofobi.dk>
 * Optional SNI-support for Python 2 via PyOpenSSL.

* Marc Schlaich <marc.schlaich@gmail.com>
 * Various bugfixes and test improvements.

* Bryce Boe <bbzbryce@gmail.com>
 * Correct six.moves conflict
 * Fixed pickle support of some exceptions

* Boris Figovsky <boris.figovsky@ravellosystems.com>
 * Allowed to skip SSL hostname verification

* Cory Benfield
 <https://lukasa.co.uk/about/>
 * Stream method for Response objects.
 * Return native strings in header values.
 * Generate 'Host' header when using proxies.

* Jason Robinson <jaywink@basshero.org>
 * Add missing WrappedSocket.fileno method in PyOpenSSL

* Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
 * Fixed a race condition

* Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
 * Added HTTPS (CONNECT) proxy support

* Stephen Holsapple <sholsapp@gmail.com>
 * Added abstraction for granular control of request fields

* Martin von Gagern <Martin.vGagern@gmx.net>
 * Support for non-ASCII header parameters

* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
 * Support for separate connect and request timeouts

* Peter Waller <p@pwaller.net>
 * HTTPResponse.tell() for determining amount received over the wire

* Nipunn Koorapati <nipunn1313@gmail.com>
 * Ignore default ports when comparing hosts for equality

* Danilo @dbrgn <https://dbrgn.ch/>
  * Disabled TLS compression by default on Python 3.2+
 * Disabled TLS compression in pyopenssl contrib module
 * Configurable cipher suites in pyopenssl contrib module

* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
 * Account retries on proxy errors

* Nicolas Delaby <nicolas.delaby@ezeep.com>
 * Use the platform-specific CA certificate locations

* Josh Schneier <https://github.com/jschneier>
 * HTTPHeaderDict and associated tests and docs
 * Bugfixes, docs, test coverage

* Tahia Khan <http://tahia.tk/>
 * Added Timeout examples in docs

* Arthur Grunseid <https://grunseid.com>
 * source_address support and tests (with https://github.com/bui)

* Ian Cordasco <graffatcolmingov@gmail.com>
 * PEP8 Compliance and Linting
 * Add ability to pass socket options to an HTTP Connection

* Erik Tollerud <erik.tollerud@gmail.com>
 * Support for standard library io module.

* Krishna Prasad <kprasad.iitd@gmail.com>
 * Google App Engine documentation

* Aaron Meurer
 <asmeurer@gmail.com>
 * Added Url.url, which unparses a Url

* Evgeny Kapun <abacabadabacaba@gmail.com>
 * Bugfixes

* Benjamen Meyer <bm_witness@yahoo.com>
 * Security Warning Documentation update for proper capture

* Shivan Sornarajah <github@sornars.com>
 * Support for using ConnectionPool and PoolManager as context managers.

* Alex Gaynor <alex.gaynor@gmail.com>
 * Updates to the default SSL configuration

* Tomas Tomecek <ttomecek@redhat.com>
 * Implemented generator for getting chunks from chunked responses.

* tlynn <https://github.com/tlynn>
 * Respect the warning preferences at import.

* David D. Riddle <ddriddle@illinois.edu>
 * IPv6 bugfixes in testsuite

* Thea Flowers <magicalgirl@google.com>
 * App Engine environment tests.
 * Documentation re-write.

* John Krauss <https://github.com/talos>
 * Clues to debugging problems with `cryptography` dependency in docs

* Disassem <https://github.com/Disassem>
 * Fix pool-default headers not applying for url-encoded
 requests like GET.

* James Atherfold <jlatherfold@hotmail.com>
 * Bugfixes relating to cleanup of connections during errors.

* Christian Pedersen <https://github.com/chripede>
 * IPv6 HTTPS proxy bugfix

* Jordan Moldow <https://github.com/jmoldow>
 * Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
 * Bugfix for ``ConnectionPool.urlopen(release_conn=False)``.
 * Creation of ``HTTPConnectionPool.ResponseCls``.

* Predrag Gruevski <https://github.com/obi1kenobi>
 * Made cert digest comparison use a constant-time algorithm.

* Adam Talsma <https://github.com/a-tal>
 * Bugfix to ca_cert file paths.

* Evan Meagher <https://evanmeagher.net>
 * Bugfix related to `memoryview` usage in PyOpenSSL adapter

* John Vandenberg <jayvdb@gmail.com>
 * Python 2.6 fixes; pyflakes and pep8 compliance

* Andy Caldwell <andy.m.caldwell@googlemail.com>
 * Bugfix related to reusing connections in indeterminate states.

* Ville Skytt <ville.skytta@iki.fi>
 * Logging efficiency
 improvements, spelling fixes, Travis config.

* Shige Takeda <smtakeda@gmail.com>
 * Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response

* Jess Shapiro <jesse@jesseshapiro.net>
 * Various character-encoding fixes/tweaks
 * Disabling IPv6 DNS when IPv6 connections not supported

* David Foster <http://dafoster.net/>
 * Ensure order of request and response headers are preserved.

* Jeremy Cline <jeremy@jcline.org>
 * Added connection pool keys by scheme

* Aviv Palivoda <palaviv@gmail.com>
 * History list to Retry object.
 * HTTPResponse contains the last Retry object.

* Nate Prewitt <nate.prewitt@gmail.com>
 * Ensure timeouts are not booleans and greater than zero.
 * Fixed infinite loop in ``stream`` when amt=None.
 * Added length_remaining to determine remaining data to be read.
 * Added enforce_content_length to raise exception when incorrect content-length received.

* Seth Michael Larson <sethmichaellarson@protonmail.com>
  * Created selectors backport that supports PEP 475.

* Alexandre Dias <alex.dias@smarkets.com>
 * Don't retry on timeout if method not in whitelist

* Moinuddin Quadri <moin18@gmail.com>
 * Lazily load idna package

* Tom White <s6yg1ez3@mail2tor.com>
 * Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.

* Tim Burke <tim.burke@gmail.com>
 * Stop buffering entire deflate-encoded responses.

* Tuukka Mustonen <tuukka.mustonen@gmail.com>
 * Add counter for status_forcelist retries.

* Erik Rose <erik@mozilla.com>
 * Bugfix to pyopenssl vendoring

* Wolfgang Richter <wolfgang.richter@gmail.com>
 * Bugfix related to loading full certificate chains with PyOpenSSL backend.

* Mike Miller <github@mikeage.net>
 * Logging improvements to include the HTTP(S) port when opening a new connection

* Ioannis Tziakos <mail@itziakos.gr>
 * Fix ``util.selectors._fileobj_to_fd`` to accept ``long``.
 * Update appveyor tox setup to use the 64bit python.

* Akamai

(through Jess Shapiro) <jshapiro@akamai.com>
 * Ongoing maintenance; 2017-2018

* Dominique Leuenberger <dimstar@opensuse.org>
 * Minor fixes in the test suite

* Will Bond <will@wbond.net>
 * Add Python 2.6 support to ``contrib.securetransport``

* Aleksei Alekseev <alekseev.yeskela@gmail.com>
 * using auth info for socks proxy

* Chris Wilcox <git@crwilcox.com>
 * Improve contribution guide
 * Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior

* Bruce Merry <https://www.brucemerry.org.za>
 * Fix leaking exceptions when system calls are interrupted with zero timeout

* Hugo van Kemenade <https://github.com/hugovk>
 * Drop support for EOL Python 2.6

* Tim Bell <https://github.com/timb07>
 * Bugfix for responses with Content-Type: message/* logging warnings

* Justin Bramley <https://github.com/jbramleycl>
 * Add ability to handle multiple Content-Encodings

* Katsuhiko YOSHIDA <https://github.com/kyoshidajp>
 * Remove Authorization header
 regardless of case when redirecting to cross-site

* [Your name or handle] <[email or website]>
 * [Brief summary of your changes]

1.322 python-requests 2.22.0

1.322.1 Available under license :

Copyright 2018 Kenneth Reitz

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License 2.0

1.323 attrs 19.1.0

1.323.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015 Hynek Schlawack

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.324 pytest 6.2.4

1.324.1 Available under license :

The MIT License (MIT)

Copyright (c) 2004-2020 Holger Krekel and others

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.325 swagger 2.1.9

1.325.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright 2017 SmartBear Software
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* http://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/SecuritySchemes.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/headers/Header.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/responses/ApiResponse.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/media/Encoding.java
*
/swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/Hidden.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/OAuthScope.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/media/Schema.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/media/DiscriminatorMapping.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/SecurityRequirement.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/links/Link.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/ExternalDocumentation.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/servers/Servers.java

* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/OAuthFlow.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/servers/Server.java
*
/swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/media/ExampleObject.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/callbacks/Callbacks.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/SecurityRequirements.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/OpenAPIDefinition.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/tags/Tags.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/SecurityScheme.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/info/Info.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/Operation.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/Parameter.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/Parameters.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/media/Content.java
*
/swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/responses/ApiResponses.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/info/Contact.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/security/OAuthFlows.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/info/License.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/tags/Tag.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/parameters/RequestBody.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/callbacks/Callback.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/links/LinkParameter.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/extensions/Extensions.java
* /swagger-annotations-2-1-9-sources-jar/io/swagger/v3/oas/annotations/servers/ServerVariable.java

1.326 swagger-integration 2.1.9

1.326.1 Available under license :

No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0
Bundle-Description: swagger-integration
Automatic-Module-Name: io.swagger.v3.oas.integration
Bundle-License: "Apache License 2.0";link="http://www.apache.org/licen
ses/LICENSE-2.0.html"
package: io.swagger
Bundle-SymbolicName: io.swagger.core.v3.swagger-integration
implementation-version: 2.1.9
Built-By: runner
Bundle-ManifestVersion: 2
Bundle-DocURL: https://github.com/swagger-api/swagger-core/modules/swa
gger-integration
Import-Package: com.fasterxml.jackson.annotation;version="[2.12,3)",co
m.fasterxml.jackson.databind;version="[2.12,3)",com.fasterxml.jackson
.databind.annotation;version="[2.12,3)",io.github.classgraph;version=
"[4.8,5)",io.swagger.v3.core.converter;version="[2.1,3)",io.swagger.v

3.core.jackson;version="[2.1,3)",io.swagger.v3.core.util;version="[2.
1,3)",io.swagger.v3.oas.annotations;version="[2.1,3)",io.swagger.v3.o
as.integration,io.swagger.v3.oas.integration.api,io.swagger.v3.oas.mo
dels;version="[2.1,3)",io.swagger.v3.oas.models.media;version="[2.1,3
)",org.apache.commons.lang3;version="[3.7,4)",org.apache.commons.lang
3.tuple;version="[3.7,4)",org.slf4j;version="[1.7,2)"
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"
Bundle-Developers: fehguy;email="fehguy@gmail.com";name="Tony Tam",web
ron;email="webron@gmail.com";name="Ron Ratovsky"
url: https://github.com/swagger-api/swagger-core/modules/swagger-integ
ration
mode: development
Export-Package: io.swagger.v3.oas.integration;uses:="com.fasterxml.jac
kson.databind,io.swagger.v3.core.converter,io.swagger.v3.core.util,io
.swagger.v3.oas.integration.api,io.swagger.v3.oas.models,org.apache.c
ommons.lang3.tuple,org.slf4j";version="2.1.9",io.swagger.v3.oas.integ
ration.api;uses:="com.fasterxml.jackson.databind,io.swagger.v3.core.c
onverter,io.swagger.v3.oas.integration,io.swagger.v3.oas.models";vers
ion="2.1.9"
Bundle-Name: swagger-integration
Bundle-Version:
2.1.9
Bundle-SCM: url="https://github.com/swagger-api/swagger-core/modules/s
wagger-integration",connection="scm:git:git@github.com:swagger-api/sw
agger-core.git/modules/swagger-integration",developer-connection="scm
:git:git@github.com:swagger-api/swagger-core.git/modules/swagger-inte
gration",tag=HEAD
Created-By: Apache Maven 3.6.3
Build-Jdk: 1.8.0_282

Found in path(s):
* /swagger-integration-2-1-9-jar/META-INF/MANIFEST.MF

1.327 swagger-models 2.1.9

1.327.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright 2017 SmartBear Software
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* http://www.apache.org/licenses/LICENSE-2.0
* <p>

* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/security/Scopes.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/ByteArraySchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/security/OAuthFlows.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/Paths.java
*
 /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/ComposedSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/DateTimeSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/tags/Tag.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/EncodingProperty.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/CookieParameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/security/SecurityScheme.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/servers/ServerVariable.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/Content.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/examples/Example.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/security/OAuthFlow.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/StringSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/Operation.java
*
 /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/UUIDSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/info/License.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/XML.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/info/Info.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/DateSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/MediaType.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/servers/ServerVariables.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/PathParameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/info/Contact.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/responses/ApiResponse.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/ExternalDocumentation.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/links/Link.java
*
 /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/MapSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/responses/ApiResponses.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/RequestBody.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/NumberSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/Parameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/servers/Server.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/callbacks/Callback.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/FileSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/BinarySchema.java

* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/headers/Header.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/Encoding.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/PasswordSchema.java
*
/swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/HeaderParameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/links/LinkParameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/BooleanSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/EmailSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/Components.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/OpenAPI.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/ObjectSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/PathItem.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/IntegerSchema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/Schema.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/parameters/QueryParameter.java
* /swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/media/ArraySchema.java
*
/swagger-models-2-1-9-sources-jar/io/swagger/v3/oas/models/security/SecurityRequirement.java

1.328 lz4 1.8.3-1+deb10u1

1.328.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it

if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in

themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component

itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals

of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.
Copyright (c) 2014, lpsantil
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This repository uses 2 different licenses :
- all files in the `lib` directory use a BSD 2-Clause license
- all other files use a GPLv2 license, unless explicitly stated otherwise

Relevant license is reminded at the top of each source file,
and with presence of COPYING or LICENSE file in associated directories.

This model is selected to emphasize that
files in the `lib` directory are designed to be included into 3rd party applications,
while all other files, in `programs`, `tests` or `examples`,
receive more limited attention and support for such scenario.
LZ4 Library
Copyright (c) 2011-2016, Yann Collet
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this
list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES

(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: liblz4
Upstream-Contact: Yann Collet <Cyan4973@github.com>
Source: https://github.com/lz4/lz4

Files: *
Copyright: (C) 2011+ Yann Collet
License: GPL-2+
The full text of license: https://github.com/Cyan4973/lz4/blob/master/lib/LICENSE

1.329 unbound 1.9.4-2ubuntu1.2

1.329.1 Available under license :

Copyright (c) 2009, Zdenek Vasicek (vasicek AT fit.vutbr.cz)
Marek Vavrusa (xvavru00 AT stud.fit.vutbr.cz)

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
* Neither the name of the organization nor the names of its
contributors may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE

POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2007, NLnet Labs. All rights reserved.

This software is open source.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

Neither the name of the NLNET LABS nor the names of its contributors may
be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009, Dmitriy Demidov aka terminus. All rights reserved.

This software is open source.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

Neither the name of the Dmitriy Demidov nor the names of its contributors may

be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

1.330 lz4 1.9.2-2ubuntu0.20.04.1

1.330.1 Available under license :

Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: lz4
Source: https://github.com/Cyan4973/lz4

Files: *
Copyright: Copyright (C) 2011-2017, Yann Collet.
License: BSD-2-clause

Files: lib/*
Copyright: Copyright (C) 2011-2017, Yann Collet.
License: BSD-2-clause

Files: lib/liblz4.pc.in
Copyright: Copyright (C) 2011-2014, Yann Collet.
License: BSD-2-clause

Files: lib/lz4frame.c
 lib/lz4frame_static.h
 lib/xxhash.c
 lib/xxhash.h
Copyright: Copyright (C) 2011-2016, Yann Collet.
License: BSD-2-clause

Files: programs/*
Copyright: Copyright (C) 2011-2016, Yann Collet.
License: GPL-2+

Files: programs/lz4io.c

Copyright: Copyright (C) 2011-2017, Yann Collet.
License: GPL-2+

Files: programs/platform.h
Copyright: Copyright (C) 2016 -present, Przemyslaw Skibinski, Yann Collet
License: GPL-2+

Files: programs/util.h
Copyright: Copyright (C) 2016 -present, Przemyslaw Skibinski, Yann Collet
License: GPL-2+

Files: ./examples/printVersion.c
Copyright:
Takayuki Matsuoka & Yann Collet
License: GPL-2

Files: ./examples/blockStreaming_lineByLine.c
./examples/blockStreaming_doubleBuffer.c
Copyright: Takayuki Matsuoka
License: GPL-2

Files: ./examples/HCStreaming_ringBuffer.c
./examples/blockStreaming_ringBuffer.c
Copyright: Yann Collet
License: GPL-2

Files: ./examples/compress_functions.c
./examples/simple_buffer.c
Copyright: Kyle Harper
License: BSD-2-clause

Files: debian/*
Copyright: 2013 Nobuhiro Iwamatsu <iwamatsu@debian.org>
License: GPL-2+

License: GPL-2
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; version 2 dated June, 1991.
.
On Debian systems, the complete text of version 2 of the GNU General
Public License can be found in '/usr/share/common-licenses/GPL-2'.

License: GPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the

GNU General Public License as published by
the Free Software Foundation; version 2 dated June, 1991, or (at
your option) any later version.
.
On Debian systems, the complete text of version 2 of the GNU General
Public License can be found in '/usr/share/common-licenses/GPL-2'.

License: BSD-2-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:
.
* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.
.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
 FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.331 xalan-c 1.11-9build1

1.331.1 Available under license :

```
 ========================================================================
== NOTICE file corresponding to section 4(d) of the Apache License.  ==
== Version 2.0, in this case for the Apache Xalan distribution.      ==
========================================================================
```

Apache XALAN-C
Copyright (c) 1999-2012 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

This software is based on the ASF XERCES-C project.

Portions of this software were originally based on the following:

- software copyright (c) 1999, IBM Corporation. (http://www.ibm.com).

Additional copyright submissions and contributions:
The CurrentSVN sources conform to the ASF License version 2.0.

The ASF licensing information needs to be updated in the documentation.

A copy of The Apache Software Foundation License version 2.0 needs to
replace the following file in the repository.

xalan/c/trunk/xdocs/sources/xalan/License

A NOTICE file needs to be ratified by the XALAN PMC and added to the
repository documentation.

xalan/c/trunk/xdocs/sources/xalan/NOTICE

Here is some possible text for the NOTICE file.

```
=========================================================================
== NOTICE file corresponding to section 4(d) of the Apache License.  ==
== Version 2.0, in this case for the Apache Xalan distribution.      ==
=========================================================================

Apache XALAN-C
Copyright (c) 1999-2011 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

This software is based
on the ASF XERCES-C project.

Portions of this software were originally based on the following:
  - software copyright (c) 1999, IBM Corporation. (http://www.ibm.com).

Additional copyright submissions and contributions:
```

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
==
== NOTICE file corresponding to section 4(d) of the Apache License. ==
== Version 2.0, in this case for the Apache Xalan distribution. ==
==

Apache XALAN-C
Copyright (c) 1999-2012 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

This software is based on the ASF XERCES-C project.

Portions of this software were originally based on the following:
- software copyright (c) 1999, IBM Corporation. (http://www.ibm.com).

Additional copyright submissions and contributions:

1.332 hibernate 5.4.20.Final

1.332.1 Available under license :

Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionTemplate(public DomainDataStorageAccess getCacheStorageAccess() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html * version.'
Found license 'GNU Lesser General Public License' in '~ License: GNU Lesser General Public License (LGPL), version 2.1 or later. ~ See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* indicated by the @author tags or express copyright attribution * distributed under license by Red Hat Middleware LLC. * This copyrighted material is made available to anyone wishing to use, modify, * copy, or redistribute it subject to the terms and conditions of the GNU * Lesser General Public License, as published by the Free Software Foundation. * This program is distributed in the hope that it will be useful, * but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY * or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License * for more details. * You should have received a copy of the GNU Lesser General Public License * Boston, MA 02110-1301 USA'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public

DomainDataRegion buildDomainDataRegion('
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. // "proprietary" methods is better (this class is "proprietary" too).'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionConfigImpl build() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. "5.3 in upgrading. It will be removed in a later version.'"
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. public DomainDataRegion buildDomainDataRegion('
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Expert Group and released to the public domain, as explained at * released to the public domain, as explained at'
Found license 'GNU Lesser General Public License' in '# License: GNU Lesser General Public License (LGPL), version 2.1 or later. # See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Expert Group and released to the public domain, as explained at'
Found license 'GNU Lesser General Public License' in '~ License: GNU Lesser General Public License (LGPL), version 2.1 or later ~ See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Instead, for common transaction-related tasks users must utilize a proprietary API known as ExtendedJTATransaction.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionImpl('
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegion getRegion() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * * a proprietary CDI extension SPI (that we have proposed to'

1.333 springdoc-openapi-webmvc-core 1.5.9

1.333.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate

comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.334 springdoc-openapi-common 1.5.9

1.334.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and

do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all

other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.335 springdoc-openapi-ui 1.5.9

1.335.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions

to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.336 icu 69

1.336.1 Available under license :

COPYRIGHT AND PERMISSION NOTICE (ICU 58 and later)

Copyright 1991-2021 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in https://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT
NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

Third-Party Software Licenses

This section contains third-party software notices and/or additional
terms for licensed third-party software components included within ICU
libraries.

1. ICU License - ICU 1.8.1 to ICU
57.1

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2016 International Business Machines Corporation and others
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, and/or sell copies of the Software, and to permit persons
to whom the Software is furnished to do so, provided that the above
copyright notice(s) and this permission notice appear in all copies of
the Software and that both the above copyright notice(s) and this
permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT
OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR
HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY
SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER
RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF
CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale, use
or other dealings in this Software without prior written authorization
of the copyright holder.

All trademarks and registered trademarks mentioned herein are the
property of their respective owners.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

```
#     The Google Chrome software developed by Google is licensed under
# the BSD license. Other software included in this distribution is
# provided under other licenses, as set forth below.
#
#  The BSD License
#  http://opensource.org/licenses/bsd-license.php
 #  Copyright (C) 2006-2008, Google Inc.
#
#  All rights reserved.
#
#  Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are met:
#
#  Redistributions of source code must retain the above copyright notice,
# this list of conditions and the following disclaimer.
#  Redistributions in binary form must reproduce the above
# copyright notice, this list of conditions and the following
# disclaimer in the documentation and/or other materials provided with
# the distribution.
#  Neither the name of  Google Inc. nor the names of its
# contributors may be used to endorse or promote products derived from
# this software without specific prior written permission.
#
#
#  THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
# CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
# INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
# MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 PURPOSE ARE
# DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
# LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
# CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
# SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
# BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
# LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
# NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
# SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
#
#  The word list in cjdict.txt are generated by combining three word lists
# listed below with further processing for compound word breaking. The
# frequency is generated with an iterative training against Google web
# corpora.
```

```
#
#  * Libtabe (Chinese)
#    - https://sourceforge.net/project/?group_id=1519
#    - Its license terms and conditions are shown below.
#
#  * IPADIC (Japanese)
#    - http://chasen.aist-nara.ac.jp/chasen/distribution.html
 #    - Its license terms and conditions are shown below.
#
#  ---------COPYING.libtabe ---- BEGIN--------------------
#
#  /*
#   * Copyright (c) 1999 TaBE Project.
#   * Copyright (c) 1999 Pai-Hsiang Hsiao.
#   * All rights reserved.
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the TaBE Project nor the names of its
#   *   contributors may be used to endorse or promote products derived
#   *   from this software
 without specific prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
#  /*
#   * Copyright (c) 1999 Computer Systems and Communication Lab,
#   *                    Institute
```

of Information Science, Academia
* Sinica. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* . Redistributions of source code must retain the above copyright
* notice, this list of conditions and the following disclaimer.
* . Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in
* the documentation and/or other materials provided with the
* distribution.
* . Neither the name of the Computer Systems and Communication Lab
* nor the names of its contributors may be used to endorse or
* promote products derived from this software without specific
* prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
* "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
* LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
* FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
* REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
* INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
* (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
* SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
*/
#
Copyright 1996 Chih-Hao Tsai @ Beckman Institute,
University of Illinois
c-tsai4@uiuc.edu http://casper.beckman.uiuc.edu/~c-tsai4
#
----------COPYING.libtabe-----END--------------------------------
#
#
----------COPYING.ipadic-----BEGIN-------------------------------
 #
Copyright 2000, 2001, 2002, 2003 Nara Institute of Science
and Technology. All Rights Reserved.
#
Use, reproduction, and distribution of this software is permitted.
Any copy of this software, whether in its original form or modified,
must include both the above copyright notice and the following

```
#  paragraphs.
#
#  Nara Institute of Science and Technology (NAIST),
#  the copyright holders, disclaims all warranties with regard to this
#  software, including all implied warranties of merchantability and
#  fitness, in no event shall NAIST be liable for
#  any special, indirect or consequential damages or any damages
#  whatsoever resulting from loss of use, data or profits, whether in an
#  action of contract, negligence or other tortuous action, arising out
#  of or in connection with the use or performance of this software.
#
#  A large portion of the dictionary entries
#  originate from ICOT
 Free Software.  The following conditions for ICOT
#  Free Software applies to the current dictionary as well.
#
#  Each User may also freely distribute the Program, whether in its
#  original form or modified, to any third party or parties, PROVIDED
#  that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear
#  on, or be attached to, the Program, which is distributed substantially
#  in the same form as set out herein and that such intended
#  distribution, if actually made, will neither violate or otherwise
#  contravene any of the laws and regulations of the countries having
#  jurisdiction over the User or the intended distribution itself.
#
#  NO WARRANTY
#
#  The program was produced on an experimental basis in the course of the
#  research and development conducted during the project and is provided
#  to users as so produced on an experimental basis.  Accordingly, the
#  program is provided without any warranty whatsoever, whether express,
#  implied,
 statutory or otherwise.  The term "warranty" used herein
#  includes, but is not limited to, any warranty of the quality,
#  performance, merchantability and fitness for a particular purpose of
#  the program and the nonexistence of any infringement or violation of
#  any right of any third party.
#
#  Each user of the program will agree and understand, and be deemed to
#  have agreed and understood, that there is no warranty whatsoever for
#  the program and, accordingly, the entire risk arising from or
#  otherwise connected with the program is assumed by the user.
#
#  Therefore, neither ICOT, the copyright holder, or any other
#  organization that participated in or was otherwise related to the
#  development of the program and their respective officials, directors,
#  officers and other employees shall be held liable for any and all
#  damages, including, without limitation, general, special, incidental
```

and consequential damages, arising out of or otherwise in
connection
with the use or inability to use the program or any product, material
or result produced or otherwise obtained by using the program,
regardless of whether they have been advised of, or otherwise had
knowledge of, the possibility of such damages at any time during the
project or thereafter. Each user will be deemed to have agreed to the
foregoing by his or her commencement of use of the program. The term
"use" as used herein includes, but is not limited to, the use,
modification, copying and distribution of the program and the
production of secondary products from the program.
#
In the case where the program, whether in its original form or
modified, was distributed or delivered to or received by a user from
any person, organization or entity other than ICOT, unless it makes or
grants independently of ICOT any specific warranty to the user in
writing, such person, organization or entity, will also be exempted
from
and not be held liable to the user for any such damages as noted
above as far as the program is concerned.
#
----------COPYING.ipadic-----END----------

3. Lao Word Break Dictionary Data (laodict.txt)

Copyright (c) 2013 International Business Machines Corporation
and others. All Rights Reserved.
#
Project: http://code.google.com/p/lao-dictionary/
Dictionary: http://lao-dictionary.googlecode.com/git/Lao-Dictionary.txt
License: http://lao-dictionary.googlecode.com/git/Lao-Dictionary-LICENSE.txt
(copied below)
#
This file is derived from the above dictionary, with slight
modifications.

Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification,
are permitted provided that the following conditions are met:
#
#
Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer. Redistributions in
binary form must reproduce the above copyright notice, this list of
conditions and the following disclaimer in the documentation and/or

other materials provided with the distribution.
#
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.
--

4. Burmese Word Break Dictionary Data (burmesedict.txt)

Copyright (c) 2014 International Business Machines Corporation
and others. All Rights Reserved.
#
This list is part of a project hosted at:
github.com/kanyawtech/myanmar-karen-word-lists
#
--
Copyright (c) 2013, LeRoy Benjamin Sharon
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met: Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer. Redistributions in binary form must reproduce the
above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.
#
Neither the name Myanmar Karen Word Lists, nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.
--

5. Time Zone Database

ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.

7. Database Ownership
#
The TZ database itself is not an IETF Contribution or an IETF
document. Rather it is a pre-existing and regularly updated work
that is in the public domain, and is intended to remain in the
public domain. Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
not apply to the TZ Database or contributions that individuals make
to it. Should any claims be made and substantiated against the TZ
Database, the organization that is providing
the IANA
Considerations defined in this RFC, under the memorandum of
understanding with the IETF, currently ICANN, may act in accordance
with all competent court orders. No ownership claims will be made
by ICANN or the IETF Trust on the database or the code. Any person
making a contribution to the database or code waives all rights to
future claims in that contribution or in the TZ Database.

6. Google double-conversion

Copyright 2006-2011, the V8 project authors. All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials

provided
with the distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
License Disclaimer:

All contents of this directory are Copyright (c) the Dojo Foundation, with the
following exceptions:
---

firebug.html, firebug.js, errIcon.png, infoIcon.png, warningIcon.png:
* Copyright (c) 2006-2007, Joe Hewitt, All rights reserved.
Distributed under the terms of the BSD License (see below)

Copyright (c) 2006-2007, Joe Hewitt
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with
the distribution.
* Neither the name of the Dojo Foundation nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
License Disclaimer:

All contents of this directory are Copyright (c) the Dojo Foundation, with the
following exceptions:
---

dojo.css:
* parts Copyright (c) 2007, Yahoo! Inc. All rights reserved.
Distributed under the terms of the BSD License

The Program includes all or portions of the following software which was obtained under the terms and conditions of the BSD License.

http://developer.yahoo.com/yui/license.html

Copyright (c) 2007, Yahoo! Inc.
All rights reserved.
Redistribution and use of this software in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the
documentation
and/or other materials provided with the distribution.
* Neither the name of Yahoo! Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without
specific prior written permission of Yahoo! Inc.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)

ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Dojo is available under *either* the terms of the modified BSD license *or* the Academic Free License version 2.1. As a recipient of Dojo, you may choose which license to receive this code under (except as noted in per-module LICENSE files). Some modules may not be the copyright of the Dojo Foundation. These modules contain explicit declarations of copyright in both the LICENSE files in the directories in which they reside and in the code itself. No external contributions are allowed under licenses which are fundamentally incompatible with the AFL or BSD licenses that Dojo is distributed under.

The text of the AFL and BSD licenses is reproduced below.

The "New" BSD License:
****

Copyright (c) 2005-2011, The Dojo Foundation
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of the Dojo Foundation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The Academic Free License, v. 2.1:
****

This Academic Free License (the "License") applies to any original work of authorship (the "Original Work") whose owner (the "Licensor") has placed the following notice immediately following the copyright notice for the Original Work:

Licensed under the Academic Free License version 2.1

1) Grant of Copyright License. Licensor hereby grants You a world-wide, royalty-free, non-exclusive, perpetual, sublicenseable license to do the following:

a) to reproduce the Original Work in copies;

b) to prepare derivative works ("Derivative Works") based upon the Original Work;

c) to distribute copies of the Original Work and Derivative Works to the public;

d) to perform the Original Work publicly; and

e) to display the Original Work publicly.

2) Grant of Patent License. Licensor hereby grants You a world-wide, royalty-free, non-exclusive, perpetual, sublicenseable license, under patent claims owned or controlled by the Licensor that are embodied in the Original Work as furnished by the Licensor, to make, use, sell and offer for sale the Original Work and Derivative Works.

3) Grant of Source Code License. The term "Source Code" means the preferred form of the Original Work for making modifications to it and all available documentation describing how to modify the Original Work. Licensor hereby agrees to provide a machine-readable copy of the Source Code of the Original Work along with each copy of the Original Work that Licensor distributes. Licensor reserves the right to satisfy this obligation by placing a machine-readable copy of the Source Code in an information repository reasonably calculated to permit inexpensive and convenient access by You for as long as Licensor continues to distribute the Original Work, and by publishing the address of that information repository in a notice immediately following the copyright notice that applies to the Original Work.

4) Exclusions From License Grant. Neither the names of Licensor, nor the names of any contributors to the Original Work, nor any of their trademarks or service marks, may be used to endorse or promote products derived from this Original Work without express prior written permission of the Licensor. Nothing

in this License shall be deemed to grant any rights to trademarks, copyrights, patents, trade secrets or any other intellectual property of Licensor except as expressly stated herein. No patent license is granted to make, use, sell or offer to sell embodiments of any patent claims other than the licensed claims defined in Section 2. No right is
granted to the trademarks of Licensor even if
such marks are included in the Original Work. Nothing in this License shall be interpreted to prohibit Licensor from licensing under different terms from this License any Original Work that Licensor otherwise would have a right to license.

5) This section intentionally omitted.

6) Attribution Rights. You must retain, in the Source Code of any Derivative Works that You create, all copyright, patent or trademark notices from the Source Code of the Original Work, as well as any notices of licensing and any descriptive text identified therein as an "Attribution Notice." You must cause the Source Code for any Derivative Works that You create to carry a prominent Attribution Notice reasonably calculated to inform recipients that You have modified the Original Work.

7) Warranty of Provenance and Disclaimer of Warranty. Licensor warrants that the copyright in and to the Original Work and the patent rights granted herein by Licensor are owned by
the Licensor or are sublicensed to You under the terms
of this License with the permission of the contributor(s) of those copyrights and patent rights. Except as expressly stated in the immediately proceeding sentence, the Original Work is provided under this License on an "AS IS" BASIS and WITHOUT WARRANTY, either express or implied, including, without limitation, the warranties of NON-INFRINGEMENT, MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY OF THE ORIGINAL WORK IS WITH YOU. This DISCLAIMER OF WARRANTY constitutes an essential part of this License. No license to Original Work is granted hereunder except under this disclaimer.

8) Limitation of Liability. Under no circumstances and under no legal theory, whether in tort (including negligence), contract, or otherwise, shall the Licensor be liable to any person for any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or the use
of the Original Work including, without limitation, damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses. This limitation of liability shall not apply to liability for death or personal injury resulting from Licensor's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

9) Acceptance and Termination. If You distribute copies of the Original Work or

a Derivative Work, You must make a reasonable effort under the circumstances to obtain the express assent of recipients to the terms of this License. Nothing else but this License (or another written agreement between Licensor and You) grants You permission to create Derivative Works based upon the Original Work or to exercise any of the rights granted in Section 1 herein, and any attempt to do so
except under the terms of this License (or another written agreement between Licensor and You) is expressly prohibited by U.S. copyright law, the equivalent laws of other countries, and by international treaty. Therefore, by exercising any of the rights granted to You in Section 1 herein, You indicate Your acceptance of this License and all of its terms and conditions.

10) Termination for Patent Action. This License shall terminate automatically and You may no longer exercise any of the rights granted to You by this License as of the date You commence an action, including a cross-claim or counterclaim, against Licensor or any licensee alleging that the Original Work infringes a patent. This termination provision shall not apply for an action alleging patent infringement by combinations of the Original Work with other software or hardware.

11) Jurisdiction, Venue and Governing Law. Any action or suit relating to this License may be brought only in the courts of a jurisdiction wherein
the
Licensor resides or in which Licensor conducts its primary business, and under the laws of that jurisdiction excluding its conflict-of-law provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any use of the Original Work outside the scope of this License or after its termination shall be subject to the requirements and penalties of the U.S. Copyright Act, 17 U.S.C. 101 et seq., the equivalent laws of other countries, and international treaty. This section shall survive the termination of this License.

12) Attorneys Fees. In any action to enforce the terms of this License or seeking damages relating thereto, the prevailing party shall be entitled to recover its costs and expenses, including, without limitation, reasonable attorneys' fees and costs incurred in connection with such action, including any appeal of such action. This section shall survive the termination of this License.

13) Miscellaneous.
This License represents the complete agreement concerning
the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable.

14) Definition of "You" in This License. "You" throughout this License, whether in upper or lower case, means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal

entities, "You" includes any entity that controls, is controlled by, or is
under common control with you. For purposes of this definition, "control" means
(i) the power, direct or indirect, to cause the direction or management of such
entity, whether by contract or otherwise, or (ii) ownership of fifty percent
(50%) or more of the outstanding shares, or (iii) beneficial ownership of such
entity.

15) Right to Use. You may use the Original Work in all ways not otherwise
restricted or conditioned by this License or by law, and Licensor
promises not
to interfere with or be responsible for such uses by You.

This license is Copyright (C) 2003-2004 Lawrence E. Rosen. All rights reserved.
Permission is hereby granted to copy and distribute this license without
modification. This license may not be modified without the express written
permission of its copyright owner.
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

See Terms of Use for definitions of Unicode Inc.'s
Data Files and Software.

NOTICE TO USER: Carefully read the following legal agreement.
BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S
DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"),
YOU UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE
TERMS AND CONDITIONS OF THIS AGREEMENT.
IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE
THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2021 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in https://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation
the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA
FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories http://www.unicode.org/Public/, http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/ . Unicode Software includes any source code published in the Unicode Standard or under the directories http://www.unicode.org/Public/, http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.
NOTICE TO USER: Carefully read the following legal agreement. BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE
Copyright 1991-2007 Unicode, Inc. All rights reserved. Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that (a) the above copyright notice(s) and this permission notice appear with all copies of the Data Files or Software, (b) both the above copyright notice(s) and this permission notice appear in associated documentation, and (c) there is clear notice

in each modified Data File
or in the Software as well as in the documentation associated with the Data File(s) or Software that the data or software has been modified.
THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,
INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE
AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS
INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES,
OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF
CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.
Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other
dealings in these Data Files or Software without prior written authorization of the copyright holder.

1.337 containerd 1.3.0

1.337.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to

communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor
hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of
the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by,
or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and

subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their

Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2017 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for
the purpose of discussing and improving the Work, but excluding communication
that is conspicuously marked or otherwise designated in writing by the copyright
owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently
incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the Work and such
Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable (except as stated in this section) patent license to make, have
made, use, offer to sell, sell, import, and otherwise transfer the Work, where
such license applies only to those patent claims licensable by such Contributor
that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was
submitted. If You institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work or a
Contribution incorporated within the Work constitutes direct or contributory
patent infringement, then any patent licenses granted to You under this License
for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof
in any medium, with or without modifications, and in Source or Object form,
provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of
this License; and
You must cause any modified files to carry prominent notices stating that You
changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark,

and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the
Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any
Derivative Works that You distribute must include a readable copy of the
attribution notices contained within such NOTICE file, excluding those notices
that do not pertain to any part of the Derivative Works, in at least one of the
following places: within a NOTICE text file distributed as part of the
Derivative Works; within the Source form or documentation, if provided along
with the Derivative Works; or, within a display generated by the Derivative
Works, if and wherever such third-party notices normally appear. The contents of
the NOTICE file are for informational purposes only and do not modify the
License. You may add Your own attribution notices within Derivative Works that
You distribute, alongside or as an addendum to the NOTICE text from the Work,
provided
that such additional attribution notices cannot be construed as
modifying the License.
You may add Your own copyright statement to Your modifications and may provide
additional or different license terms and conditions for use, reproduction, or
distribution of Your modifications, or for any such Derivative Works as a whole,
provided Your use, reproduction, and distribution of the Work otherwise complies
with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted
for inclusion in the Work by You to the Licensor shall be under the terms and
conditions of this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify the terms of
any separate license agreement you may have executed with Licensor regarding
such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks,
service marks,
or product names of the Licensor, except as required for
reasonable and customary use in describing the origin of the Work and
reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the
Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied,
including, without limitation, any warranties or conditions of TITLE,
NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are
solely responsible for determining the appropriateness of using or

redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2011-2016 Canonical Ltd.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"

(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,

or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT License

Copyright (c) 2016 json-iterator

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this

License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2017 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) 2016 Jeremy Saenz & Contributors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Casta. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a
Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the
notice in Exhibit A, the Executable Form of such Source Code Form, and
Modifications of such Source Code Form, in each case including portions
thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b)
ownership of more than fifty percent (50%) of the
outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution

or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute,

must be under the
terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or
alter the recipients
rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained
within the Source Code Form of the Covered
Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf

of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to

termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation
of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License
may be brought only in the courts of
a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a
Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such

Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License
shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized
under
this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may
not
apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be

attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Blackfriday is distributed under the Simplified BSD License:

> Copyright 2011 Russ Ross
> All rights reserved.
>
> Redistribution and use in source and binary forms, with or without
> modification, are permitted provided that the following conditions
> are met:
>
> 1. Redistributions of source code must retain the above copyright
>   notice, this list of conditions and the following disclaimer.
>
> 2. Redistributions in binary form must reproduce the above
>   copyright notice, this list of conditions and the following
>   disclaimer in the documentation and/or other materials provided with
>   the distribution.
>
> THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
> "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
> LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
> FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
> COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
> INCIDENTAL, SPECIAL, EXEMPLARY,
 OR CONSEQUENTIAL DAMAGES (INCLUDING,
> BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
> LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
> CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
> LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
> ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
> POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
 BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
 ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
ISC License

Copyright (c) 2012-2016 Dave Collins <dave@davec.name>

Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES

WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the

editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of

this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
go-runhcs is a fork of go-runc

The following is runc's legal notice.

---

runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to

the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 Brian Goff

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Copyright (c) 2012 Pter Surnyi. Portions Copyright (c) 2009 The Go
Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The following files were ported to Go from C files of libyaml, and thus
are still covered by their original copyright and license:

apic.go
emitterc.go
parserc.go
readerc.go
scannerc.go
writerc.go
yamlh.go
yamlprivateh.go

Copyright (c) 2006 Kirill Simonov

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or

otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one

of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be

liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Attribution-ShareAlike 4.0 International

==========

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and conditions that creators and other rights holders may use to share original works of authorship and other material subject to copyright and certain other rights specified in the public license below. The following
considerations are for informational purposes only, are not exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are intended for use by those authorized to give the public permission to use material in ways otherwise restricted by copyright and certain other rights. Our licenses are irrevocable. Licensors should read and understand the terms and conditions of the license they choose before applying it. Licensors should also secure all rights necessary before applying our licenses so that the public can reuse the material as expected. Licensors should clearly mark any material not subject to the license. This includes other CC-licensed material, or material used under an exception or limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public licenses,
a licensor grants the public permission to use the licensed material under specified terms and conditions. If the licensor's permission is not necessary for any reason--for example, because of any applicable exception or limitation to copyright--then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More_considerations for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree to be bound by the terms and conditions of this Creative Commons Attribution-ShareAlike 4.0 International Public License ("Public License"). To the extent this Public License may be interpreted as a contract, You are granted the Licensed Rights in consideration of Your acceptance of these terms and conditions, and the Licensor grants You such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section 2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or

may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by, the Licensor or others designated to receive attribution as provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions

to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the

Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,

and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to

communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright

notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/kr/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2017 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012,2013 Ernest Micklei

MIT License

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
 CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Sam Ghods

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.338 libnettle6 3.5.1+really3.5.1-2ubuntu0.2

1.338.1 Available under license :

```
/* nettle-internal.c

  Things that are used only by the testsuite and benchmark, and
  not included in the library.

  Copyright (C) 2002, 2014 Niels Möller

  This file is part of GNU Nettle.

  GNU Nettle is free software: you can redistribute it and/or
  modify it under the terms of either:

    * the GNU Lesser General Public License as published by the Free
      Software Foundation; either version 3 of the License, or (at your
      option) any later version.

  or

    * the GNU General Public License as published by the Free
      Software Foundation; either version 2 of the License, or (at your
      option) any later version.

  or both in parallel, as here.

  GNU Nettle is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
  General Public License for more details.

  You should have received copies of the GNU General Public License
 and
  the GNU Lesser General Public License along with this program.  If
  not, see http://www.gnu.org/licenses/.
*/
Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: Nettle
Upstream-Contact: Niels Mller <nisse@lysator.liu.se>
Source: http://www.lysator.liu.se/~nisse/nettle/
Copyright:  2001-2011 Niels Mller
Some parts are Copyright  the Free Software Foundation and various
people. See below and source code comments for details.
License: LGPL-2.1+
Comment:
Nettle is distributed under the GNU Lesser General Public License
```

(LGPL). A few of the individual files are in the public domain. To find the current status of particular files, you have to read the copyright notices at the top of the files.

.

A list of the supported algorithms, their origins and licenses (from the manual):

.

AES

The implementation of the AES cipher (also known as rijndael) is written by Rafael Sevilla. Assembler for x86 by Rafael Sevilla and Niels Mller, Sparc assembler by Niels Mller. Released under the LGPL.

.

ARCFOUR

The implementation of the ARCFOUR (also known as RC4) cipher is written by Niels Mller. Released under the LGPL.

.

ARCTWO

The implementation of the ARCTWO (also known as RC2) cipher is written by Nikos Mavroyanopoulos and modified by Werner Koch and Simon Josefsson. Released under the LGPL.

.

BLOWFISH

The implementation of the BLOWFISH cipher is written by Werner Koch, copyright owned by the Free Software Foundation. Also hacked by Simon Josefsson and Niels Mller. Released under the LGPL.

.

CAMELLIA

The C implementation is by Nippon Telegraph and Telephone Corporation (NTT), heavily modified by Niels Mller. Assembler for x86 and x86_64 by Niels Mller. Released under the LGPL.

.

CAST128

The implementation of the CAST128 cipher is written by Steve Reid. Released into the public domain.

.

DES

The implementation of the DES cipher is written by Dana L. How, and released under the LGPL.

.

MD2

The implementation of MD2 is written by Andrew Kuchling, and hacked some by Andreas Sigfridsson and Niels Mller. Python Cryptography Toolkit license (essentially public domain).

.

MD4

This is almost the same code as for MD5 below, with modifications
by Marcus Comstedt. Released into the public domain.

.

MD5

The implementation of the MD5 message digest is written by Colin
Plumb. It has been hacked some more by Andrew Kuchling and Niels
Mller. Released into the public domain.

.

SERPENT

The implementation of the SERPENT is based on the code in
libgcrypt, copyright owned by the Free Software Foundation.
Adapted to Nettle by Simon Josefsson and heavily modified by
Niels Mller. Assembly for x86_64 by Niels Mller. Released under
the LGPL.

.

SHA1

The C implementation of the SHA1 message digest is written by Peter
Gutmann, and hacked some more by Andrew Kuchling and Niels Mller.
Released into the public domain. Assembler for x86 by Niels Mller,
released
under the LGPL.

.

SHA224, SHA256, SHA384, and SHA512

Written by Niels Mller, using Peter Gutmann's SHA1 code as a
model. Released under the LGPL.

.

TWOFISH

The implementation of the TWOFISH cipher is written by Ruud de
Rooij. Released under the LGPL.

.

RSA

Written by Niels Mller, released under the LGPL. Uses the GMP
library for bignum operations.

.

DSA

Written by Niels Mller, released under the LGPL. Uses the GMP
library for bignum operations.

Files: *
Copyright: 2001-2011 Niels Mller
License: LGPL-2.1+

Files: aes-set-*
Copyright: 2000, 2001, 2002 Rafael R. Sevilla, Niels Mller
License: LGPL-2.1+

Files: arctwo*
Copyright: 2003 Nikos Mavroyanopoulos

2004 Simon Josefsson
2004 Free Software Foundation, Inc.
2002, 2004 Niels Mller
License: LGPL-2.1+

Files: base64.h base64-meta.c
Copyright: 2002 Dan Egnor
2002 Niels Mller
License: LGPL-2.1+

Files: blowfish.c
Copyright: 1998, 2001, 2002,
2003 Free Software Foundation, Inc.
2010 Simon Josefsson
License: LGPL-2.1+

Files: blowfish.h
Copyright: 1998, 2001 Free Software Foundation, Inc.
1998, 2001 Ray Dassen
1998, 2001 Niels Mller
License: LGPL-2.1+

Files: camellia-table.c camellia-crypt-internal.c
Copyright: 2006, 2007 NTT (Nippon Telegraph and Telephone Corporation)
2010 Niels Mller
License: LGPL-2.1+

Files: der2dsa.c
Copyright: 2005, 2009 Niels Mller
2009 Magnus Holmgren
License: LGPL-2.1+

Files: desCode.h descode.README desdata.c desinfo.c
Copyright: 2002 Dana L. How
License: LGPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU Library General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty
of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU Library General Public License for more details.
.
You should have received a copy of the GNU Library General Public License
along with this program; if not, write to the Free Software

Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.
.
On Debian GNU/Linux systems, the complete text of the GNU Library
General Public License, version 2, can be found in
/usr/share/common-licenses/LGPL-2.

Files: des.c des.h
Copyright: 1992 Dana L. How
1997, 2001 Niels Mller
License: LGPL-2.1+

Files: gcm.c gcm.h
Copyright: 2011 Katholieke Universiteit Leuven
2011 Niels Mller
License: LGPL-2.1+

Files: md2.c
Copyright: ? Andrew Kuchling
2003 Andreas Sigfridsson
2003 Niels Mller
License: LGPL-2.1+

Files: md4.c
Copyright: 2003 Marcus Comstedt
2003 Niels Mller
License: LGPL-2.1+

Files: md5.c md5-compress.c
Copyright: Colin Plumb, Andrew
Kuchling
2001 Niels Mller
License: LGPL-2.1+

Files: memxor.c
Copyright: 1991,1993, 1995 Free Software Foundation, Inc.
2010 Niels Mller
License: LGPL-2.1+

Files: ripemd160.c ripemd160-compress.c
Copyright: 1998, 2001, 2002, 2003 Free Software Foundation, Inc.
License: LGPL-2.1+

Files: ripemd160-meta.c ripemd160.h
Copyright: 2011 Andres Mejia
License: LGPL-2.1+

Files: serpent-encrypt.c serpent-decrypt.c serpent-set-key.c
Copyright: 1998 Ross Anderson, Eli Biham, Lars Knudsen

2003, 2004, 2005 Free Software Foundation, Inc.
2010, 2011 Simon Josefsson
2011 Niels Mller
License: LGPL-2.1+

Files: sha*
Copyright: 2001, 2004 Peter Gutmann, Andrew Kuchling, Niels Mller
License: LGPL-2.1+

Files: twofish*
Copyright: 1999 Ruud de Rooij <ruud@debian.org>
1999 J.H.M. Dassen (Ray) <jdassen@wi.LeidenUniv.nl>
2001 Niels Mller
License: LGPL-2.1+

Files: dsa2sexp.c
Copyright: 2002, 2009 Niels Mller

2009 Magnus Holmgren
License: LGPL-2.1+

Files: testsuite/des-compat-test.c
Copyright: 1995-1997 Eric Young (eay@cryptsoft.com)
License: other
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
must display the following acknowledgement:
"This product includes cryptographic software written by
Eric Young (eay@cryptsoft.com)"
The word 'cryptographic' can be left out if the rouines from the library
being used are not cryptographic related :-).
4. If you include
any Windows specific code (or a derivative thereof) from
the apps directory (application code) you must include an acknowledgement:
"This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
.
THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL

DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Files: tools/pkcs1-conv.c
Copyright: 2005, 2009
 Niels Mller
        2009 Magnus Holmgren
License: LGPL-2.1+

Files: x86*/aes-*-internal.asm
Copyright: 2001, 2002, 2005, 2008 Rafael R. Sevilla
        2001, 2002, 2005, 2008 Niels Mller
License: LGPL-2.1+

Files: tools/getopt*
Copyright: 1987-2001 Free Software Foundation, Inc.
License: GPL-2+

Files: config.guess config.sub
Copyright: 1992-2003 Free Software Foundation, Inc.
License: GPL-2+ with Autoconf exception
As a special exception to the GNU General Public License, if you
distribute this file as part of a program that contains a
configuration script generated by Autoconf, you may include it under
the same distribution terms that you use for the rest of that program.

Files: debian/*
Copyright: none
License: public-domain
I believe that most files in debian/ hardly contains any creative
expression eligible for copyright.

Files: debian/sexp-conv.1
Copyright: 2002 Timshel Knoll <timshel@debian.org>
        2007 Magnus Holmgren
License: GPL-2
This program
 is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; version 2 dated June. 1991.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the

GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA
02110-1301 USA.
.
On Debian GNU/Linux systems, the complete text of the GNU General
Public License, version 2, can be found in
/usr/share/common-licenses/GPL-2.
Comment:
This manpage was copied from the lsh-utils package. Timshel didn't
explicitly select a license for his packaging work, but I think that
it can be considered released under the same license as LSH itself.

Files:
debian/pkcs1-conv.1 debian/nettle-lfib-stream.1
Copyright: 2007 Magnus Holmgren
License: GAP
Copying and distribution of this file, with or without modification,
are permitted in any medium without royalty provided the copyright
notice and this notice are preserved.

License: LGPL-2.1+
The nettle library is free software; you can redistribute it and/or modify
it under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1 of the License, or (at your
option) any later version.
.
The nettle library is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY
or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public
License for more details.
.
You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor,
Boston, MA 02110-1301 USA
.
On Debian GNU/Linux systems, the complete text of the newest version
of the GNU Lesser General Public License can be found in
/usr/share/common-licenses/LGPL.

License: GPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA
02110-1301 USA.
.
On Debian GNU/Linux systems, the complete text of the newest version
of the GNU General
 Public License can be found in
/usr/share/common-licenses/GPL.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any

such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN

OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc.,

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.339 libgcrypt 1.8.4-5+deb10u1

1.339.1 Available under license :

This package was debianized by Ivo Timmermans <ivo@debian.org> on
Fri, 3 Aug 2001 10:02:38 +0200.
It was taken over by Matthias Urlichs <smurf@debian.org>, and is now
maintained by Andreas Metzler <ametzler@debian.org> Eric Dorland
<eric@debian.org>, James Westby <jw+debian@jameswestby.net>

It was downloaded from https://ftp.gnupg.org/gcrypt/libgcrypt/.

Up to end of 2012 libgcrypt copyright was owned solely by FSF, since then
contributions without copyright assignment to the FSF have been integrated.

Upstream Authors (from AUTHORS)
8X----------
List of Copyright holders
==========

Copyright (C) 1989,1991-2018 Free Software Foundation, Inc.
Copyright (C) 1994 X Consortium
Copyright (C) 1996 L. Peter Deutsch
Copyright (C) 1997 Werner Koch
Copyright (C) 1998 The Internet Society
Copyright (C) 1996-1999 Peter Gutmann, Paul Kendall, and Chris Wedgwood
Copyright (C) 1996-2006 Peter Gutmann, Matt Thomlinson and Blake Coverett
Copyright (C) 2003 Nikos Mavroyanopoulos
Copyright (C) 2006-2007 NTT (Nippon Telegraph and Telephone Corporation)
Copyright (C) 2012-2018 g10 Code GmbH
Copyright (C) 2012 Simon Josefsson, Niels Mller
Copyright (c) 2012 Intel Corporation
Copyright (C) 2013 Christian Grothoff
Copyright (C) 2013-2017 Jussi Kivilinna
Copyright (C) 2013-2014 Dmitry Eremin-Solenikov
Copyright (C) 2014 Stephan Mueller
Copyright (C) 2017 Bundesamt fr Sicherheit in der Informationstechnik

Authors with a FSF copyright assignment
======================================

LIBGCRYPT Werner Koch 2001-06-07
Assigns past and future changes.
Assignment for future changes terminated on 2012-12-04.
wk@gnupg.org
Designed and implemented Libgcrypt.

GNUPG Matthew Skala 1998-08-10
Disclaims changes.
mskala@ansuz.sooke.bc.ca
Wrote cipher/twofish.c.

GNUPG Natural Resources Canada 1998-08-11
Disclaims changes by Matthew Skala.

GNUPG Michael Roth Germany 1998-09-17
Assigns changes.
mroth@nessie.de
Wrote

cipher/des.c.
Changes and bug fixes all over the place.

GNUPG Niklas Hernaeus 1998-09-18
Disclaims changes.
nh@df.lth.se
Weak key patches.

GNUPG Rmi Guyomarch 1999-05-25
Assigns past and future changes. (g10/compress.c, g10/encr-data.c,
g10/free-packet.c, g10/mdfilter.c, g10/plaintext.c, util/iobuf.c)
rguyom@mail.dotcom.fr

ANY g10 Code GmbH 2001-06-07
Assignment for future changes terminated on 2012-12-04.
Code marked with ChangeLog entries of g10 Code employees.

LIBGCRYPT Timo Schulz 2001-08-31
Assigns past and future changes.
twoaday@freakmail.de

LIBGCRYPT Simon Josefsson 2002-10-25
Assigns past and future changes to FSF (cipher/{md4,crc}.c, CTR mode,
CTS/MAC flags, self test improvements)
simon@josefsson.org

LIBGCRYPT Moritz Schulte 2003-04-17
Assigns past and future changes.
moritz@g10code.com

GNUTLS Nikolaos Mavrogiannopoulos 2003-11-22
nmav@gnutls.org
Original code for cipher/rfc2268.c.

LIBGCRYPT The Written Word 2005-04-15
Assigns
past and future changes. (new: src/libgcrypt.pc.in,
src/Makefile.am, src/secmem.c, mpi/hppa1.1/mpih-mul3.S,
mpi/hppa1.1/udiv-qrnnd.S, mpi/hppa1.1/mpih-mul2.S,
mpi/hppa1.1/mpih-mul1.S, mpi/Makefile.am, tests/prime.c,
tests/register.c, tests/ac.c, tests/basic.c, tests/tsexp.c,
tests/keygen.c, tests/pubkey.c, configure.ac, acinclude.m4)

LIBGCRYPT Brad Hards 2006-02-09
Assigns Past and Future Changes
bradh@frogmouth.net
(Added OFB mode. Changed cipher/cipher.c, test/basic.c doc/gcrypt.tex.
added SHA-224, changed cipher/sha256.c, added HMAC tests.)

LIBGCRYPT Hye-Shik Chang 2006-09-07
Assigns Past and Future Changes
perky@freebsd.org
(SEED cipher)

LIBGCRYPT Werner Dittmann 2009-05-20
Assigns Past and Future Changes
werner.dittmann@t-online.de
(mpi/amd64, tests/mpitests.c)

GNUPG David Shaw
Assigns past and future changes.
dshaw@jabberwocky.com
(cipher/camellia-glue.c and related stuff)

LIBGCRYPT Andrey Jivsov 2010-12-09
Assigns
Past and Future Changes
openpgp@brainhub.org
(cipher/ecc.c and related files)

LIBGCRYPT Ulrich Mller 2012-02-15
Assigns Past and Future Changes
ulm@gentoo.org
(Changes to cipher/idea.c and related files)

LIBGCRYPT Vladimir Serbinenko 2012-04-26
Assigns Past and Future Changes
phcoder@gmail.com
(cipher/serpent.c)

Authors with a DCO
==========

Andrei Scherer <andsch@inbox.com>
2014-08-22:BF7CEF794F9.000003F0andsch@inbox.com:

Christian Aistleitner <christian@quelltextlich.at>
2013-02-26:20130226110144.GA12678@quelltextlich.at:

Christian Grothoff <christian@grothoff.org>
2013-03-21:514B5D8A.6040705@grothoff.org:

Dmitry Eremin-Solenikov <dbaryshkov@gmail.com>
2013-07-13:20130713144407.GA27334@fangorn.rup.mentorg.com:

Dmitry Kasatkin <dmitry.kasatkin@intel.com>
2012-12-14:50CAE2DB.80302@intel.com:

Jrmie Courrges-Anglas <jca@wxcvbn.org>
2016-05-26:87bn3ssqg0.fsf@ritchie.wxcvbn.org

Jussi Kivilinna <jussi.kivilinna@mbnet.fi>
2012-11-15:20121115172331.150537dzb5i6jmy8@www.dalek.fi:

Jussi
Kivilinna <jussi.kivilinna@iki.fi>
2013-05-06:5186720A.4090101@iki.fi:

Markus Teich <markus dot teich at stusta dot mhn dot de>
2014-10-08:20141008180509.GA2770@trolle:

Mathias L. Baumann <mathias.baumann at sociomantic.com>
2017-01-30:07c06d79-0828-b564-d604-fd16c7c86ebe@sociomantic.com:

Milan Broz <gmazyland@gmail.com>
2014-01-13:52D44CC6.4050707@gmail.com:

Peter Wu <peter@lekensteyn.nl>
2015-07-22:20150722191325.GA8113@al:

Rafal Carr <funman@videolan.org>
2012-04-20:4F91988B.1080502@videolan.org:

Sergey V. <sftp.mtuci@gmail.com>
2013-11-07:2066221.5IYa7Yq760@darkstar:

Stephan Mueller <smueller@chronox.de>
2014-08-22:2008899.25OeoelVVA@myon.chronox.de:

Tom Mrz <tm@t8m.info>
2012-04-16:1334571250.5056.52.camel@vespa.frost.loc:

Vitezslav Cizek <vcizek@suse.com>
2015-11-05:20151105131424.GA32700@kolac.suse.cz

Werner Koch <wk@gnupg.org> (g10 Code GmbH)
2012-12-05:87obi8u4h2.fsf@vigenere.g10code.de:

More credits
==========

Libgcrypt used

to be part of GnuPG but has been taken out into its own
package on 2000-12-21.

Most of the stuff in mpi has been taken from an old GMP library
version by Torbjorn Granlund <tege@noisy.tmg.se>.

The files cipher/rndunix.c and cipher/rndw32.c are based on those
files from Cryptlib. Copyright Peter Gutmann, Paul Kendall, and Chris
Wedgwood 1996-1999.

The ECC code cipher/ecc.c was based on code by Sergi Blanch i Torne,
sergi at calcurco dot org.

The implementation of the Camellia cipher has been taken from the
original NTT provided GPL source.

The CAVS testing program tests/cavs_driver.pl is not to be considered
a part of libgcrypt proper. We distribute it merely for convenience.
It has a permissive license and is copyrighted by atsec information
security corporation. See the file for details.

The file salsa20.c is based on D.J. Bernstein's public domain code and
taken from Nettle. Copyright 2012 Simon Josefsson and Niels Mller.

This file is free software; as a special exception
the author gives
unlimited permission to copy and/or distribute it, with or without
modifications, as long as this notice is preserved.

This file is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY, to the extent permitted by law; without even the
implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
8X----------

License:

Most of the package is licensed under the GNU Lesser General Public
License (LGPL) version 2.1 (or later), except for helper and debugging
binaries. See below for details. The documentation is licensed under
the GPLv2 (or later), see below.

Excerpt from upstream's README:

  The library is distributed under the terms of the GNU Lesser
  General Public License (LGPL); see the file COPYING.LIB for the
  actual terms. The helper programs (e.g. gcryptrnd and getrandom)
  as well as the documentation are distributed under the terms of

the GNU General Public License
(GPL); see the file COPYING for the
actual terms.

This library used to be available under the GPL - this was changed
with version 1.1.7 with the rationale that there are now many free
crypto libraries available and many of them come with capabilities
similar to Libcrypt. We decided that to foster the use of
cryptography in Free Software an LGPLed library would make more
sense because it avoids problems due to license incompatibilities
between some Free Software licenses and the GPL.

Please note that in many cases it is better for a library to be
licensed under the GPL, so that it provides an advantage for free
software projects. The Lesser GPL is so named because it does
less to protect the freedom of the users of the code that it
covers. See http://www.gnu.org/philosophy/why-not-lgpl.html for
more explanation.

An example of the license headers of the LGPL is

Copyright (C) 1998, 1999, 2000, 2001, 2002, 2003,
2004, 2006
2007, 2008, 2009, 2010, 2011 Free Software Foundation, Inc.

This file is part of Libgcrypt.

Libgcrypt is free software; you can redistribute it and/or modify
it under the terms of the GNU Lesser General Public License as
published by the Free Software Foundation; either version 2.1 of
the License, or (at your option) any later version.

Libgcrypt is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this program; if not, see <http://www.gnu.org/licenses/>.

On Debian GNU/Linux systems, the complete text of the GNU Lesser
General Public License can be found in
`/usr/share/common-licenses/LGPL';

The documentation licensed under the GPL

Copyright
@copyright{} 2000, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2011, 2012 Free Software Foundation, Inc. @*
Copyright @copyright{} 2012, 2013, 2016 2017 g10 Code GmbH

@quotation
Permission is granted to copy, distribute and/or modify this document
under the terms of the GNU General Public License as published by the
Free Software Foundation; either version 2 of the License, or (at your
option) any later version. The text of the license can be found in the
section entitled ``GNU General Public License".

Further details on licensing:
From upstream's LICENSES file
8X----------
Additional license notices for Libgcrypt. -*- org -*-

This file contains the copying permission notices for various files in
the Libgcrypt distribution which are not covered by the GNU Lesser
General Public License (LGPL) or the GNU General Public License (GPL).

These notices all require that a copy of the notice be included
in the accompanying
documentation and be distributed with binary
distributions of the code, so be sure to include this file along
with any binary distributions derived from the GNU C Library.

* BSD_3Clause

For files:
- cipher/sha256-avx-amd64.S
- cipher/sha256-avx2-bmi2-amd64.S
- cipher/sha256-ssse3-amd64.S
- cipher/sha512-avx-amd64.S
- cipher/sha512-avx2-bmi2-amd64.S
- cipher/sha512-ssse3-amd64.S

#+begin_quote
Copyright (c) 2012, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the
  distribution.

* Neither
the name of the Intel Corporation nor the names of its
  contributors may be used to endorse or promote products derived from
  this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY INTEL CORPORATION "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL CORPORATION OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#+end_quote

For files:
- random/jitterentropy-base.c
 - random/jitterentropy.h
- random/rndjent.c (plus common Libgcrypt copyright holders)

#+begin_quote
* Copyright Stephan Mueller <smueller@chronox.de>, 2013
*
* License
* =======
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, and the entire permission notice in its entirety,
*   including the disclaimer of warranties.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote
*   products derived from this software without specific prior

* written permission.
*
* ALTERNATIVELY, this product may be distributed under the terms of
* the GNU General Public
License, in which case the provisions of the GPL are
* required INSTEAD OF the above restrictions. (This clause is
* necessary due to a potential bad interaction between the GPL and
* the restrictions contained in a BSD-style copyright.)
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
* WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
* BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
* USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
* DAMAGE.
#+end_quote

*
X License

For files:
- install.sh

#+begin_quote
Copyright (C) 1994 X Consortium

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to
deal in the Software without restriction, including without limitation the
rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
sell copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN
AN

ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNEC-
TION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not
be used in advertising or otherwise to promote the sale, use or other deal-
ings in this Software without prior written authorization from the X Consor-
tium.
#+end_quote

* Public domain

For files:
- cipher/arcfour-amd64.S

#+begin_quote
Author: Marc Bevand <bevand_m (at) epita.fr>
Licence: I hereby disclaim the copyright on this code and place it
in the public domain.
#+end_quote

* OCB license 1

For files:
- cipher/cipher-ocb.c

#+begin_quote
OCB is covered by several patents but may be used freely by most
software. See http://web.cs.ucdavis.edu/~rogaway/ocb/license.htm .
In particular license 1 is suitable for Libgcrypt: See
http://web.cs.ucdavis.edu/~rogaway/ocb/license1.pdf for the full
license document; it basically says:

License
1 License for Open-Source Software Implementations of OCB
(Jan 9, 2013)

Under this license, you are authorized to make, use, and
distribute open-source software implementations of OCB. This
license terminates for you if you sue someone over their
open-source software implementation of OCB claiming that you have
a patent covering their implementation.

License for Open Source Software Implementations of OCB
January 9, 2013

1 Definitions

1.1 Licensor means Phillip Rogaway.

1.2 Licensed Patents means any patent that claims priority to United States Patent Application No. 09/918,615 entitled Method and Apparatus for Facilitating Efficient Authenticated Encryption, and any utility, divisional, provisional, continuation, continuations-in-part, reexamination, reissue, or foreign counterpart patents that may issue with respect to the aforesaid patent application. This includes, but is not limited to, United States Patent No. 7,046,802;
United States Patent No. 7,200,227; United States Patent No. 7,949,129; United States Patent No. 8,321,675 ; and any patent that issues out of United States Patent Application No. 13/669,114.

1.3 Use means any practice of any invention claimed in the Licensed Patents.

1.4 Software Implementation means any practice of any invention claimed in the Licensed Patents that takes the form of software executing on a user-programmable, general-purpose computer or that takes the form of a computer-readable medium storing such software. Software Implementation does not include, for example, application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), embedded systems, or IP cores.

1.5 Open Source Software means software whose source code is published and made available for inspection and use by anyone because either (a) the source code is subject to a license that permits recipients to copy, modify, and distribute the source code without payment of fees
or royalties, or
(b) the source code is in the public domain, including code released for public use through a CC0 waiver. All licenses certified by the Open Source Initiative at opensource.org as of January 9, 2013 and all Creative Commons licenses identified on the creativecommons.org website as of January 9, 2013, including the Public License Fallback of the CC0 waiver, satisfy these requirements for the purposes of this license.

1.6 Open Source Software Implementation means a Software Implementation in which the software implicating the Licensed Patents is Open Source Software. Open Source Software Implementation does not include any Software Implementation in which the software implicating the Licensed Patents is combined, so as to form a larger program, with software that is not Open Source Software.

2 License Grant

2.1 License. Subject to your compliance with the term s of this license, including the restriction set forth in Section 2.2, Licensor hereby grants

to you a perpetual, worldwide, non-exclusive, non-transferable, non-sublicenseable, no-charge, royalty-free, irrevocable license to practice any invention claimed in the Licensed Patents in any Open Source Software Implementation.

2.2 Restriction. If you or your affiliates institute patent litigation (including, but not limited to, a cross-claim or counterclaim in a lawsuit) against any entity alleging that any Use authorized by this license infringes another patent, then any rights granted to you under this license automatically terminate as of the date such litigation is filed.

3 Disclaimer
YOUR USE OF THE LICENSED PATENTS IS AT YOUR OWN RISK AND UNLESS REQUIRED BY APPLICABLE LAW, LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED PATENTS OR ANY PRODUCT EMBODYING ANY LICENSED PATENT, EXPRESS OR IMPLIED, STATUT ORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTIBILITY, FITNESS FOR A PARTICULAR PURPOSE, OR
NONINFRINGEMENT. IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM OR RELATED TO ANY USE OF THE LICENSED PATENTS, INCLUDING, WITHOUT LIMITATION, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES PRIOR TO SUCH AN OCCURRENCE.
#+end_quote
8X----------

On Debian GNU/Linux systems, the text of the GNU General Public License, version 2 can be found in `/usr/share/common-licenses/GPL-2'.
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to

your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free

Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may

consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Additional license notices for Libgcrypt. -*- org -*-

This file contains the copying permission notices for various files in
the Libgcrypt distribution which are not covered by the GNU Lesser
General Public License (LGPL) or the GNU General Public License (GPL).

These notices all require that a copy of the notice be included
in the accompanying documentation and be distributed with binary
distributions of the code, so be sure to include this file along
with any binary distributions derived from the GNU C Library.

* BSD_3Clause

 For files:
 - cipher/sha256-avx-amd64.S
 - cipher/sha256-avx2-bmi2-amd64.S
 - cipher/sha256-ssse3-amd64.S
 - cipher/sha512-avx-amd64.S
 - cipher/sha512-avx2-bmi2-amd64.S
 - cipher/sha512-ssse3-amd64.S

#+begin_quote
 Copyright (c) 2012, Intel Corporation

 All rights reserved.

 Redistribution and use in source and binary forms, with or without
 modification, are permitted provided that the following conditions are
 met:

 * Redistributions
 of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

 * Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the
   distribution.

 * Neither the name of the Intel Corporation nor the names of its
   contributors may be used to endorse or promote products derived from
   this software without specific prior written permission.

 THIS SOFTWARE IS PROVIDED BY INTEL CORPORATION "AS IS" AND ANY

EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL CORPORATION OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#+end_quote

For files:
- random/jitterentropy-base.c
- random/jitterentropy.h
- random/rndjent.c (plus common Libgcrypt copyright holders)

#+begin_quote
* Copyright Stephan Mueller <smueller@chronox.de>, 2013
*
* License
* =======
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, and the entire permission notice in its entirety,
*   including the disclaimer of warranties.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the
following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote
*   products derived from this software without specific prior
*   written permission.
*
* ALTERNATIVELY, this product may be distributed under the terms of
* the GNU General Public License, in which case the provisions of the GPL are
* required INSTEAD OF the above restrictions. (This clause is
* necessary due to a potential bad interaction between the GPL and
* the restrictions contained in a BSD-style copyright.)
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF

* WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
 PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
* BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
* USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
* DAMAGE.
#+end_quote

* X License

 For files:
 - install.sh

#+begin_quote
 Copyright (C) 1994 X Consortium

 Permission is hereby granted, free of charge, to any person obtaining a copy
 of this software and associated documentation files (the "Software"), to
 deal in the Software without restriction, including without limitation the
 rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
 sell copies of the Software, and to permit persons to whom the Software is
 furnished to do so, subject to the following conditions:

 The above copyright notice and this permission notice shall be included in
 all copies or
 substantial portions of the Software.

 THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
 IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
 FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
 X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN
 AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNEC-
 TION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

 Except as contained in this notice, the name of the X Consortium shall not
 be used in advertising or otherwise to promote the sale, use or other deal-
 ings in this Software without prior written authorization from the X Consor-
 tium.
#+end_quote

* Public domain

 For files:
 - cipher/arcfour-amd64.S

#+begin_quote
Author: Marc Bevand <bevand_m (at) epita.fr>
Licence: I hereby disclaim the copyright on this code and place it
in the public domain.
#+end_quote

* OCB license 1

For
files:
- cipher/cipher-ocb.c

#+begin_quote
OCB is covered by several patents but may be used freely by most
software. See http://web.cs.ucdavis.edu/~rogaway/ocb/license.htm .
In particular license 1 is suitable for Libgcrypt: See
http://web.cs.ucdavis.edu/~rogaway/ocb/license1.pdf for the full
license document; it basically says:

License 1 License for Open-Source Software Implementations of OCB
(Jan 9, 2013)

Under this license, you are authorized to make, use, and
distribute open-source software implementations of OCB. This
license terminates for you if you sue someone over their
open-source software implementation of OCB claiming that you have
a patent covering their implementation.

License for Open Source Software Implementations of OCB
January 9, 2013

1 Definitions

1.1 Licensor means Phillip Rogaway.

1.2 Licensed Patents means any patent that claims priority to United
States Patent Application No. 09/918,615 entitled
Method and Apparatus
for Facilitating Efficient Authenticated Encryption, and any utility,
divisional, provisional, continuation, continuations-in-part, reexamination,
reissue, or foreign counterpart patents that may issue with respect to the
aforesaid patent application. This includes, but is not limited to, United
States Patent No. 7,046,802; United States Patent No. 7,200,227; United
States Patent No. 7,949,129; United States Patent No. 8,321,675 ; and any
patent that issues out of United States Patent Application No. 13/669,114.

1.3 Use means any practice of any invention claimed in the Licensed Patents.

1.4 Software Implementation means any practice of any invention claimed in the Licensed Patents that takes the form of software executing on a user-programmable, general-purpose computer or that takes the form of a computer-readable medium storing such software. Software Implementation does not include, for example, application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), embedded systems, or IP cores.

1.5 Open Source Software means software whose source code is published and made available for inspection and use by anyone because either (a) the source code is subject to a license that permits recipients to copy, modify, and distribute the source code without payment of fees or royalties, or (b) the source code is in the public domain, including code released for public use through a CC0 waiver. All licenses certified by the Open Source Initiative at opensource.org as of January 9, 2013 and all Creative Commons licenses identified on the creativecommons.org website as of January 9, 2013, including the Public License Fallback of the CC0 waiver, satisfy these requirements for the purposes of this license.

1.6 Open Source Software Implementation means a Software Implementation in which the software implicating the Licensed Patents is Open Source Software. Open Source Software Implementation does not include
any Software Implementation in which the software implicating the Licensed Patents is combined, so as to form a larger program, with software that is not Open Source Software.

2 License Grant

2.1 License. Subject to your compliance with the term s of this license, including the restriction set forth in Section 2.2, Licensor hereby grants to you a perpetual, worldwide, non-exclusive, non-transferable, non-sublicenseable, no-charge, royalty-free, irrevocable license to practice any invention claimed in the Licensed Patents in any Open Source Software Implementation.

2.2 Restriction. If you or your affiliates institute patent litigation (including, but not limited to, a cross-claim or counterclaim in a lawsuit) against any entity alleging that any Use authorized by this license infringes another patent, then any rights granted to you under this license automatically terminate as of the date such litigation is filed.

3 Disclaimer
YOUR USE OF THE LICENSED PATENTS
IS AT YOUR OWN RISK AND UNLESS REQUIRED
BY APPLICABLE LAW, LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY

KIND CONCERNING THE LICENSED PATENTS OR ANY PRODUCT EMBODYING ANY LICENSED PATENT, EXPRESS OR IMPLIED, STATUT ORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTIBILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM OR RELATED TO ANY USE OF THE LICENSED PATENTS, INCLUDING, WITHOUT LIMITATION, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES PRIOR TO SUCH AN OCCURRENCE.
#+end_quote

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid

distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.
^L
Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.
^L
GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no

charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and can
be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the
ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in

these notices.
^L
Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete
corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work
that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the

Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a)
Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will
operate properly with a modified version of the library, if
the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of

performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses

terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they
do not
excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution
system which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing

to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME

THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED
ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file
to most
effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston,

MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or
your school, if any, to sign a "copyright disclaimer" for the library,
if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James
Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.340 activation-api 1.1

1.340.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Notices for Eclipse Project for JAF

This content is produced and maintained by the Eclipse Project for JAF project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaf

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Distribution License v. 1.0,
which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaf

Third-party Content

This project leverages the following third party content.

JUnit (4.12)

* License: Eclipse Public License

1.341 swagger-core 2.1.9

1.341.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2020 SmartBear Software Inc.

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.342 urllib3 1.26.6

1.342.1 Available under license :

MIT License

Copyright (c) 2008-2020 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

1.343 py 1.6.0-2.ph3

1.343.1 Available under license :

Zope Public License (ZPL) Version 2.1

A copyright notice accompanies this license document that identifies the
copyright holders.

This license has been certified as open source. It has also been designated as

GPL compatible by the Free Software Foundation (FSF).

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions in source code must retain the accompanying copyright
notice, this list of conditions, and the following disclaimer.

2. Redistributions in binary form must reproduce the accompanying copyright
notice, this list of conditions, and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Names of the copyright holders must not be used to endorse or promote
products derived from this software without prior written permission from the
copyright holders.

4. The right to distribute this software or to use it for any purpose
 does not
give you the right to use Servicemarks (sm) or Trademarks (tm) of the
copyright
holders. Use of them is covered by separate agreement with the copyright
holders.

5. If any files are modified, you must cause the modified files to carry
prominent notices stating that you changed the files and the date of any
change.

Disclaimer

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
 OF THIS SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Zope Foundation and Contributors

1.344 gson 2.8.6

1.344.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/**
* Copyright (C) 2008 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

* /gson-2-8-6-sources-1-jar/com/google/gson/internal/$Gson$Types.java

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright (C) 2011 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

* /gson-2-8-6-sources-1-jar/com/google/gson/internal/LazilyParsedNumber.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/SqlDateTypeAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/ConstructorConstructor.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/TimeTypeAdapter.java
*
 /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/DateTypeAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/UnsafeAllocator.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/TreeTypeAdapter.java

No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2008 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonParseException.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonPrimitive.java
* /gson-2-8-6-sources-1-jar/com/google/gson/ExclusionStrategy.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonDeserializer.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/$Gson$Preconditions.java
*
 /gson-2-8-6-sources-1-jar/com/google/gson/internal/Excluder.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonSerializationContext.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonArray.java
* /gson-2-8-6-sources-1-jar/com/google/gson/annotations/Since.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/Primitives.java
* /gson-2-8-6-sources-1-jar/com/google/gson/reflect/TypeToken.java
* /gson-2-8-6-sources-1-jar/com/google/gson/Gson.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonIOException.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonObject.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonSerializer.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/ObjectConstructor.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonNull.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonDeserializationContext.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonElement.java
* /gson-2-8-6-sources-1-jar/com/google/gson/GsonBuilder.java
*
 /gson-2-8-6-sources-1-jar/com/google/gson/FieldNamingPolicy.java
* /gson-2-8-6-sources-1-jar/com/google/gson/FieldNamingStrategy.java
* /gson-2-8-6-sources-1-jar/com/google/gson/DefaultDateTypeAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/annotations/Until.java
* /gson-2-8-6-sources-1-jar/com/google/gson/annotations/SerializedName.java
* /gson-2-8-6-sources-1-jar/com/google/gson/annotations/Expose.java
* /gson-2-8-6-sources-1-jar/com/google/gson/InstanceCreator.java

No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2014 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/annotations/JsonAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/JsonAdapterAnnotationTypeAdapterFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2009 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/LongSerializationPolicy.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonStreamParser.java
* /gson-2-8-6-sources-1-jar/com/google/gson/FieldAttributes.java
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonParser.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2010 The Android Open Source Project

* Copyright (C) 2012 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/LinkedTreeMap.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/LinkedHashTreeMap.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2010 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/JsonSyntaxException.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/Streams.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2010 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*

```
*      http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/stream/JsonToken.java
* /gson-2-8-6-sources-1-jar/com/google/gson/stream/JsonWriter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/stream/JsonScope.java
* /gson-2-8-6-sources-1-jar/com/google/gson/stream/MalformedJsonException.java
* /gson-2-8-6-sources-1-jar/com/google/gson/stream/JsonReader.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright (C) 2017 The Gson authors
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/reflect/PreJava9ReflectionAccessor.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/PreJava9DateFormatProvider.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/reflect/ReflectionAccessor.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/reflect/UnsafeReflectionAccessor.java
*
 /gson-2-8-6-sources-1-jar/com/google/gson/internal/JavaVersion.java
No license file was found, but licenses were detected in source scan.

```
/*
* Copyright (C) 2011 Google Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
```

*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/CollectionTypeAdapterFactory.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/TypeAdapters.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/JsonTreeReader.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/ArrayTypeAdapter.java
*
 /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/ObjectTypeAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/MapTypeAdapterFactory.java
* /gson-2-8-6-sources-1-jar/com/google/gson/TypeAdapter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/JsonReaderInternalAccess.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/JsonTreeWriter.java
* /gson-2-8-6-sources-1-jar/com/google/gson/TypeAdapterFactory.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/ReflectiveTypeAdapterFactory.java
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/bind/TypeAdapterRuntimeTypeWrapper.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2018 The Gson authors
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /gson-2-8-6-sources-1-jar/com/google/gson/internal/GsonBuildConfig.java

1.345 jakarta xml bind api 2.3.3

1.345.1 Available under license :

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the
Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made
available under the terms of this License.

1.10. "Original Software" means the Source Code and
Executable form of computer software code that is
originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned
or hereafter acquired, including without limitation,
method, process, and apparatus claims, in any patent
Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer
software
code in which modifications are made and (b)
associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal
entity exercising rights under, and complying with all of
the terms of, this License. For legal entities, "You"
includes any entity which controls, is controlled by, or is
under common control with You. For purposes of this
definition, "control" means (a) the power, direct or
indirect, to cause the direction or management of such
entity, whether by contract or otherwise, or (b) ownership
of more than fifty percent (50%) of the outstanding shares
or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and
subject to third party intellectual property claims, the
Initial Developer hereby grants You a world-wide,
royalty-free, non-exclusive license:

(a) under intellectual property rights (other than
patent or trademark) Licensable
by Initial Developer,
to use, reproduce, modify, display, perform,
sublicense and distribute the Original Software (or
portions thereof), with or without Modifications,
and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c)

The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving

attribution to any Contributor or the Initial Developer.

3.4. Application
of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of
Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled

for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute
or otherwise make the Covered Software
available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY

COVERED SOFTWARE PROVE
DEFECTIVE IN ANY RESPECT, YOU (NOT THE
INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original
Software where the Participant is the
Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER

TORT
(INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R.
2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable
law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The

application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

/*
* Copyright (c) 2005, 2019 Oracle and/or its affiliates. All rights reserved.
*
* This program and the accompanying materials are made available under the
* terms of the Eclipse Distribution License v. 1.0, which is available at
* http://www.eclipse.org/org/documents/edl-v10.php.
*
* SPDX-License-Identifier: BSD-3-Clause
*/

Eclipse Distribution License - v 1.0

Copyright (c) 2007, Eclipse Foundation, Inc. and its licensors.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR

SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2017, 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,

THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[//]: # " Copyright (c) 2018, 2019 Oracle and/or its affiliates. All rights reserved. "
[//]: # " "
[//]: # " This program and the accompanying materials are made available under the "
[//]: # " terms of the Eclipse Distribution License v. 1.0, which is available at "
[//]: # " http://www.eclipse.org/org/documents/edl-v10.php. "
[//]: # " "
[//]: # " SPDX-License-Identifier: BSD-3-Clause "

Notices for Jakarta XML Binding

This content is produced and maintained by the Jakarta XML Binding project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaxb

Trademarks

Jakarta XML Binding is a trademark of the Eclipse Foundation.

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Distribution License v. 1.0
 which is available at
http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaxb-api
* https://github.com/eclipse-ee4j/jaxb-tck

Third-party Content

This project leverages the following third party content.

Apache River (3.0.0)

* License: Apache-2.0 AND BSD-3-Clause

ASM 7 (n/a)

* License: BSD-3-Clause
* Project: https://asm.ow2.io/
* Source:
  https://repository.ow2.org/nexus/#nexus-search;gav~org.ow2.asm~asm-commons~~~~kw,versionexpand

JTHarness (5.0)

* License: (GPL-2.0 OR GPL-2.0 WITH Classpath-exception-2.0)
* Project: https://wiki.openjdk.java.net/display/CodeTools/JT+Harness
* Source: http://hg.openjdk.java.net/code-tools/jtharness/

normalize.css (3.0.2)

* License: MIT

SigTest (n/a)

* License: GPL-2.0 OR GPL-2.0 WITH Classpath-exception-2.0

Cryptography

Content may contain encryption software. The country in which
 you are currently
may have restrictions on the import, possession, and use, and/or re-export to
another country, of encryption software. BEFORE using any encryption software,
please check the country's laws, regulations and policies concerning the import,
possession, or use, and re-export of encryption software, to see if this is
permitted.

1.346 istack-commons 3.0.11

1.346.1 Available under license :

/*
* DO NOT ALTER OR REMOVE COPYRIGHT NOTICES OR THIS HEADER.
*
* Copyright (c) YYYY Oracle and/or its affiliates. All rights reserved.
*
* The contents of this file are subject to the terms of either the GNU
* General Public License Version 2 only ("GPL") or the Common Development
* and Distribution License("CDDL") (collectively, the "License"). You
* may not use this file except in compliance with the License. You can
* obtain a copy of the License at
* http://glassfish.java.net/public/CDDL+GPL_1_1.html
* or packager/legal/LICENSE.txt. See the License for the specific
* language governing permissions and limitations under the License.
*
* When distributing the software, include this License Header Notice in each
* file and include the License file at packager/legal/LICENSE.txt.
*
* GPL Classpath Exception:
* Oracle designates this particular file as subject to the "Classpath"
* exception as provided by Oracle in the GPL Version 2 section of the License
* file that
 accompanied this code.
*
* Modifications:
* If applicable, add the following below the License Header, with the fields
* enclosed by brackets [] replaced by your own identifying information:

* "Portions Copyright [year] [name of copyright owner]"
*
* Contributor(s):
* If you wish your version of this file to be governed by only the CDDL or
* only the GPL Version 2, indicate your decision by adding "[Contributor]
* elects to include this software in this distribution under the [CDDL or GPL
* Version 2] license." If you don't indicate a single choice of license, a
* recipient has the option to distribute your version of this file under
* either the CDDL, the GPL Version 2 or to extend the choice of license to
* its licensees as provided above. However, if you add GPL Version 2 code
* and therefore, elected the GPL Version 2 license, then the option applies
* only if the new code is made subject to such option by the copyright
* holder.
*/

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)Version 1.1

1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this
document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable
by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the
Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof);
and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available
in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices
contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must

make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Oracle is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED
SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the
Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. If You assert a patent infringement claim against Participant alleging that the Participant Software directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

6.4. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER
INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH

DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4
(June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with
the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein
is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)
The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended
to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities
for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish
to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee
is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify
your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these
conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and

every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source
code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable
runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative
works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of
this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free
software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software
Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision
will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name
and a brief idea of what it does.

Copyright (C)

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision
comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library,
you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

"CLASSPATH" EXCEPTION TO THE GPL VERSION 2

Certain source files distributed by Oracle are subject to the following clarification and special exception to the GPL Version 2, but only where Oracle has expressly included in the particular source file's header the words "Oracle designates this particular file as subject to the "Classpath" exception as provided by Oracle in the License file that accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License Version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless
of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

1.347 python-multipart 0.0.5

1.347.1 Available under license :

Copyright 2012, Andrew Dunham

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
UNRECOGNIZED LICENSE; MD5 sum: 6cec124b9b50f64261d92eb6c4bb86c4

1.348 libxml 2.9.10+dfsg-5ubuntu0.20.04.1

1.348.1 Available under license :

Except where otherwise noted in the source code (e.g. the files hash.c,
list.c and the trio files, which are covered by a similar licence but
with different Copyright notices) all the files are:

Copyright (C) 1998-2012 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is fur-
nished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FIT-
NESS FOR A PARTICULAR PURPOSE
AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.349 python-requests 2.26.0

1.349.1 Available under license :

Apache License 2.0
Requests
Copyright 2019 Kenneth Reitz

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

1.350 systemd 241-7~deb10u8

1.350.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute

and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through

any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

1.351 gnutls 3.6.13-2ubuntu1.6

1.351.1 Available under license :

Statement of Purpose

The laws of most jurisdictions throughout the world automatically confer exclusive Copyright and Related Rights (defined below) upon the creator and subsequent owner(s) (each and all, an "owner") of an original work of authorship and/or a database (each, a "Work").

Certain owners wish to permanently relinquish those rights to a Work for the purpose of contributing to a commons of creative, cultural and scientific works ("Commons") that the public can reliably and without fear of later claims of infringement build upon, modify, incorporate in other works, reuse and redistribute as freely as possible in any form whatsoever and for any purposes, including without limitation commercial purposes. These owners may contribute to the Commons to promote the ideal of a free culture and the further production of creative, cultural and scientific works, or to gain reputation or greater distribution for their Work in part through the use and efforts of others.

For these and/or
other purposes and motivations, and without any expectation of additional consideration or compensation, the person associating CC0 with a Work (the "Affirmer"), to the extent that he or she is an owner of Copyright and Related Rights in the Work, voluntarily elects to apply CC0 to the Work and publicly distribute the Work under its

terms, with knowledge of his or her Copyright and Related Rights in the Work and the meaning and intended legal effect of CC0 on those rights.

1. Copyright and Related Rights. A Work made available under CC0 may be protected by copyright and related or neighboring rights ("Copyright and Related Rights"). Copyright and Related Rights include, but are not limited to, the following:

the right to reproduce, adapt, distribute, perform, display, communicate, and translate a Work;
moral rights retained by the original author(s) and/or performer(s);
publicity and privacy rights pertaining to a person's image or likeness depicted in a Work;
rights
protecting against unfair competition in regards to a Work, subject to the limitations in paragraph 4(a), below;
rights protecting the extraction, dissemination, use and reuse of data in a Work;
database rights (such as those arising under Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, and under any national implementation thereof, including any amended or successor version of such directive); and
other similar, equivalent or corresponding rights throughout the world based on applicable law or treaty, and any national implementations thereof.

2. Waiver. To the greatest extent permitted by, but not in contravention of, applicable law, Affirmer hereby overtly, fully, permanently, irrevocably and unconditionally waives, abandons, and surrenders all of Affirmer's Copyright and Related Rights and associated claims and causes of action, whether now known or unknown (including existing as well as future claims
and causes of action), in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable law or treaty (including future time extensions), (iii) in any current or future medium and for any number of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "Waiver"). Affirmer makes the Waiver for the benefit of each member of the public at large and to the detriment of Affirmer's heirs and successors, fully intending that such Waiver shall not be subject to revocation, rescission, cancellation, termination, or any other legal or equitable action to disrupt the quiet enjoyment of the Work by the public as contemplated by Affirmer's express Statement of Purpose.

3. Public License Fallback. Should any part of the Waiver for any reason be judged legally invalid or ineffective under applicable law, then the Waiver shall be preserved to the maximum extent permitted taking into account Affirmer's
express Statement of Purpose. In addition, to the extent the Waiver is so judged Affirmer hereby grants to each affected person a royalty-free, non transferable, non sublicensable, non exclusive, irrevocable and unconditional license to exercise Affirmer's Copyright and Related Rights in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable law or treaty (including future time extensions), (iii) in any current or future medium and for any number of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "License"). The License shall be deemed effective as of the date CC0 was applied by Affirmer to the Work. Should any part of the License for any reason be judged legally invalid or ineffective under applicable law, such partial invalidity or ineffectiveness shall not invalidate the remainder of the License, and in such case Affirmer hereby affirms that he or she will
not (i) exercise any of his or her remaining Copyright and Related Rights in the Work or (ii) assert any associated claims and causes of action with respect to the Work, in either case contrary to Affirmer's express Statement of Purpose.

4. Limitations and Disclaimers.

No trademark or patent rights held by Affirmer are waived, abandoned, surrendered, licensed or otherwise affected by this document.

Affirmer offers the Work as-is and makes no representations or warranties of any kind concerning the Work, express, implied, statutory or otherwise, including without limitation warranties of title, merchantability, fitness for a particular purpose, non infringement, or the absence of latent or other defects, accuracy, or the present or absence of errors, whether or not discoverable, all to the greatest extent permissible under applicable law.

Affirmer disclaims responsibility for clearing rights of other persons that may apply to the Work or any use thereof, including without

limitation any person's Copyright and Related Rights in the Work. Further, Affirmer disclaims responsibility for obtaining any necessary consents, permissions or other rights required for any use of the Work.

Affirmer understands and acknowledges that Creative Commons is not a party to this document and has no duty or obligation with respect to this CC0 or use of the Work.

LICENSING

=========

Since GnuTLS version 3.1.10, the core library is released under
the GNU Lesser General Public License (LGPL) version 2.1 or later
(see doc/COPYING.LESSER for the license terms).

The GNU LGPL applies to the main GnuTLS library, while the
included applications as well as gnutls-openssl
library are under the GNU GPL version 3. The gnutls library is
located in the lib/ and libdane/ directories, while the applications
in src/ and, the gnutls-openssl library is at extra/.

The documentation in doc/ is under the GNU FDL license 1.3.

Note, however, that the nettle and the gmp libraries which are
GnuTLS dependencies, they are distributed under a LGPLv3+ or GPLv2+ dual
license. As such binaries linking to them need to adhere to either LGPLv3+
or the GPLv2+ license.

For any copyright year range specified as YYYY-ZZZZ in this package
note that the range specifies every single year in that closed interval.

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready

to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients"
may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible

feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium,
is called an
"aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other

parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided

you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and

protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors
and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above requirements
apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder,

and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic
Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted
or affirmed under this License. For example, you may
not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work,

then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option
of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF

SUCH DAMAGES.

17. Interpretation
of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided
above cannot be given local legal effect according to their terms,
reviewing courts shall apply local law that most closely approximates
an absolute waiver of all civil liability in connection with the
Program, unless a warranty or assumption of liability accompanies a
copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full
notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) by Bruce Korb - all rights reserved

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) by Bruce Korb - all rights reserved
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is
what you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new

free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official

standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product,

doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions.

Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent
that they are valid under applicable law. If additional permissions
apply only to part of the Program, that part may be used separately
under those permissions, but the entire Program remains governed by
this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option
remove any additional permissions from that copy, or from any part of
it. (Additional permissions may be written to require their own
removal in certain cases when you modify the work.) You may place
additional permissions on material, added by you to a covered work,
for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you
add to a covered work, you may (if authorized by the copyright holders of
that material) supplement the terms of this License with terms:

a) Disclaiming warranty
or limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or
author attributions in that material or in the Appropriate Legal
Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further

restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or

run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant

patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory

patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the
option of following the terms and conditions either of that numbered version or of any later version published by the Free Software

Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <https://www.gnu.org/philosophy/why-not-lgpl.html>.

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages

are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a

portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses

the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables

containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user
installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the
major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work
based on the Library, uncombined with any other library
facilities. This must be distributed under
the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute the Library or its derivative works. These actions are

prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR

CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

The "inih" library is distributed under the New BSD license:

Copyright (c) 2009, Ben Hoyt
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
  * Redistributions of source code must retain the above copyright
    notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above copyright
    notice, this list of conditions and the following disclaimer in the
    documentation and/or other materials provided with the distribution.
  * Neither the name of Ben Hoyt nor the names of its contributors
    may be used to endorse or promote products derived from this software
    without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY BEN HOYT "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 ARE
DISCLAIMED. IN NO EVENT SHALL BEN HOYT BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
##
Constant-time SSSE3 AES core implementation.
version 0.1
##
By Mike Hamburg (Stanford University), 2009
Public domain.
##
For details see http://shiftleft.org/papers/vector_aes/ and
http://crypto.stanford.edu/vpaes/.
#
*** This file is auto-generated ***
#

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is deemed
a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying Modified

Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts
and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

==========

Written by Andy Polyakov <appro@fy.chalmers.se> for the OpenSSL project. The module is, however, dual licensed under OpenSSL and CRYPTOGAMS licenses depending on where you obtain it. For further details see https://www.openssl.org/~appro/cryptogams/.

==========

Copyright (c) 2006-2012, CRYPTOGAMS by <appro@openssl.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain copyright notices, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials

provided with the distribution.

* Neither the name of the CRYPTOGAMS nor
the names of its
copyright holder and contributors may be used to endorse or
promote products derived from this software without specific
prior written permission.

ALTERNATIVELY, provided that this notice is retained in full, this
product may be distributed under the terms of the GNU General Public
License (GPL), in which case the provisions of the GPL apply INSTEAD OF
those given above.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

##
Constant-time SSSE3 AES core implementation.
version 0.1
##
By Mike Hamburg (Stanford University), 2009
Public domain.
##
For details see https://shiftleft.org/papers/vector_aes/ and
https://crypto.stanford.edu/vpaes/.
Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above
   copyright notice, this list of conditions and the following
   disclaimer in the documentation and/or other materials provided
   with the distribution.

3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2011-2016, Andy Polyakov <appro@openssl.org>
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
#
* Redistributions of source code must retain copyright notices,
this list of conditions and the following disclaimer.
#
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided with the distribution.
#
* Neither the name of the Andy Polyakov nor the names of its
copyright holder and contributors may be used to endorse or
promote products derived from this software without specific
prior written permission.
#
ALTERNATIVELY, provided that this notice is retained in full, this
product may be distributed under the terms of the GNU General Public
License (GPL), in
which case the provisions of the GPL apply INSTEAD OF
those given above.
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
*** This file is auto-generated ***
#
#
Copyright (C) 2011-2013 Free Software Foundation, Inc.
Copyright (C) 2013 Nikos Mavrogiannopoulos
#
Author: Nikos Mavrogiannopoulos
#
This file is part of GnuTLS.
#
The GnuTLS is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public License
as published by the Free Software Foundation; either version 2.1 of
the License, or (at your option) any later version.
#
This library is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.
#
You should have received a copy of the GNU Lesser General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.
#
*** This file is auto-generated ***
#
The MIT License (MIT)

Copyright (c) 2016 Wrymouth Innovation Ltd

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL

THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.352 libatomic 10.3.0-1ubuntu1~20.04

1.352.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software,
we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they

know their rights.

Developers that use the GNU GPL
protect your rights with two steps:
(1) assert copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains
that there is no warranty for this free software. For both users' and
authors' sake, the GPL requires that modified versions be marked as
changed, so that their problems will not be attributed erroneously to
authors of previous versions.

Some devices are designed to deny users access to install or run
modified versions of the software inside them, although the manufacturer
can do so. This is fundamentally incompatible with the aim of
protecting users' freedom to change the software. The systematic
pattern of such abuse occurs in the area of products for individuals to
use, which is precisely where it is most unacceptable. Therefore, we
have designed this version of the GPL to prohibit the practice for those
products. If
such problems arise substantially in other domains, we
stand ready to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents.
States should not allow patents to restrict development and use of
software on general-purpose computers, but in those that do, we wish to
avoid the special danger that patents applied to a free program could
make it effectively proprietary. To prevent this, the GPL assures that
patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and
modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of
works, such as semiconductor masks.

"The Program" refers to any copyrightable work
licensed under this
License. Each licensee is addressed as "you". "Licensees" and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive
copies. Mere interaction with a user through
a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified
for a particular programming language, one that
is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A

"Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted

material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological
measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving
a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section

7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no

more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of

it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions
on material, added by you to a covered work,
for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights
under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing
or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating

where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an
entity transaction, each party to that
transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program
is based. The
work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express

agreement
or commitment, however denominated, not to enforce a patent
(such as an express permission to practice a patent or covenant not to
sue for patent infringement). To "grant" such a patent license to a
party means to make such an agreement or commitment not to enforce a
patent against the party.

If you convey a covered work, knowingly relying on a patent license,
and the Corresponding Source of the work is not available for anyone
to copy, free of charge and under the terms of this License, through a
publicly available network server or other readily accessible means,
then you must either (1) cause the Corresponding Source to be so
available, or (2) arrange to deprive yourself of the benefit of the
patent license for this particular work, or (3) arrange, in a manner
consistent with the requirements of this License, to extend the patent
license to downstream recipients. "Knowingly relying" means you have
actual knowledge that, but for the patent license, your conveying
the
covered work in a country, or your recipient's use of the covered work
in a country, would infringe one or more identifiable patents in that
country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or
arrangement, you convey, or propagate by procuring conveyance of, a
covered work, and grant a patent license to some of the parties
receiving the covered work authorizing them to use, propagate, modify
or convey a specific copy of the covered work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the
business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may

otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you
from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning
interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License
can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT
UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy
of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
state the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate
parts of
the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.353 pcre 10.34-7

1.353.1 Available under license :

PCRE2 LICENCE

Please see the file LICENCE in the PCRE2 distribution for licensing details.

End
PCRE2 LICENCE

PCRE2 is a library of functions to support regular expressions whose syntax
and semantics are as close as possible to those of the Perl 5 language.

Releases 10.00 and above of PCRE2 are distributed under the terms of the "BSD"
licence, as specified below, with one exemption for certain binary
redistributions. The documentation for PCRE2, supplied in the "doc" directory,
is distributed under the same terms as the software itself. The data in the
testdata directory is not copyrighted and is in the public domain.

The basic library functions are written in C and are freestanding. Also
included in the distribution is a just-in-time compiler that can be used to
optimize pattern matching. This is an optional feature that can be omitted when
the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

Copyright
(c) 1997-2019 University of Cambridge
All rights reserved.

PCRE2 JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2010-2019 Zoltan Herczeg
All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2009-2019 Zoltan Herczeg
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notices,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notices, this list of conditions and the following disclaimer in the
documentation
and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the names of any
contributors may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF

SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE
POSSIBILITY OF SUCH DAMAGE.

EXEMPTION FOR BINARY LIBRARY-LIKE PACKAGES

The second condition in the BSD licence (covering binary redistributions) does not apply all the way down a chain of software. If binary package A includes PCRE2, it must respect the condition, but if package B is software that includes package A, the condition is not imposed on package B unless it uses PCRE2 independently.

End
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
   derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.354 procps 3.2.8

1.354.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we

want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and

distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program
in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are

prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies
a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING

OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some
specially designated Free Software Foundation software, and to any
other libraries whose authors decide to use it. You can use it for
your libraries, too.

When we speak of free software, we are referring
to freedom, not
price. Our General Public Licenses are designed to make sure that you

have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without

changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a
"work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been

distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for

that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for

reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not
distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system;
it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if

written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH

DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year>
<name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Library General Public License for more details.

You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.355 libtasn 4.13-3

1.355.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must pass on to the recipients the same
freedoms that you received. You must make sure that they, too, receive
or can get the source code. And you must show them these terms so they
know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)

assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the

earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This

License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the

written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object

code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above

requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible

for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a

patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where
the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.356 postgre-sql 12.4

1.356.1 Available under license :

PostgreSQL Database Management System
(formerly known as Postgres, then as Postgres95)

Portions Copyright (c) 1996-2020, PostgreSQL Global Development Group

Portions Copyright (c) 1994, The Regents of the University of California

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose, without fee, and without a written agreement
is hereby granted, provided that the above copyright notice and this
paragraph and the following two paragraphs appear in all copies.

IN NO EVENT SHALL THE UNIVERSITY OF CALIFORNIA BE LIABLE TO ANY PARTY FOR
DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING
LOST PROFITS, ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS
DOCUMENTATION, EVEN IF THE UNIVERSITY OF CALIFORNIA HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

THE UNIVERSITY OF CALIFORNIA SPECIFICALLY DISCLAIMS ANY WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE.
  THE SOFTWARE PROVIDED HEREUNDER IS
ON AN "AS IS" BASIS, AND THE UNIVERSITY OF CALIFORNIA HAS NO OBLIGATIONS TO
PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.
This regular expression package was originally developed by Henry Spencer.
It bears the following copyright notice:

****

Copyright (c) 1998, 1999 Henry Spencer. All rights reserved.

Development of this software was funded, in part, by Cray Research Inc.,
UUNET Communications Services Inc., Sun Microsystems Inc., and Scriptics
Corporation, none of whom are responsible for the results. The author
thanks all of them.

Redistribution and use in source and binary forms -- with or without
modification -- are permitted for any purpose, provided that
redistributions in source form retain this entire copyright notice and
indicate the origin and nature of any modifications.

I'd appreciate being given credit for this package in the documentation
of software which uses it, but that is not a requirement.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES

OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL HENRY SPENCER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

****

PostgreSQL adopted the code out of Tcl 8.4.1. Portions of regc_locale.c and re_syntax.n were developed by Tcl developers other than Henry; these files bear the Tcl copyright and license notice:

****

This software is copyrighted by the Regents of the University of California, Sun Microsystems,
Inc., Scriptics Corporation, ActiveState
Corporation and other parties. The following terms apply to all files associated with the software unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute, and license this software and its documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses. Modifications to this software may be copyrighted by their authors and need not follow the licensing terms described here, provided that the new terms are clearly indicated on the first page of each file where they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY DERIVATIVES THEREOF,
EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

GOVERNMENT USE: If you are acquiring this software on behalf of the
U.S. government, the Government shall have only "Restricted Rights"
in the software and related documentation as defined in the Federal
Acquisition Regulations (FARs) in Clause 52.227.19 (c) (2). If you
are acquiring the software on behalf of the Department of Defense, the
software shall be classified as "Commercial Computer Software" and the
Government shall have only "Restricted Rights" as defined in Clause
252.227-7013 (c) (1) of DFARs. Notwithstanding the foregoing, the
authors
grant the U.S. Government and others acting in its behalf
permission to use and distribute the software in accordance with the
terms specified in this license.

****

Subsequent modifications to the code by the PostgreSQL project follow
the same license terms as the rest of PostgreSQL.

1.357 kerberos 1.17-6ubuntu4.1

1.357.1 Available under license :

[NOTE: MIT has only incorporated the mechglue and spnego change, and
not the incremental propagation changes. The filenames are different
between the Sun and MIT sources. The actual MIT filenames appear in
the top-level README file. Original text of Sun's LICENSE file
follows.]

Subject to the license set forth below, Sun Microsystems, Inc. donates
the attached files to MIT for the purpose of including these
modifications and additions in future versions of the Kerberos system.

Many of the files attached are subject to licenses issued by other
entities, including OpenVision, MIT, and FundsXpress. See the
individual files, and/or related Readme files, for these licenses.

In addition Sun requires that the license set forth below be
incorporated into any future version of the Kerberos system which
contains portions of the files attached. The following files must be
listed, in the top level Readme file, as being provided subject to such
license:

cmd/krb5/iprop/iprop.x
cmd/krb5/iprop/iprop_hdr.h
cmd/krb5/kadmin/server/ipropd_svc.c
cmd/krb5/kproplog/kproplog.c
cmd/krb5/slave/kpropd_rpc.c

lib/gss_mechs/mech_krb5/et/kdb5_err.c
lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
lib/gss_mechs/mech_spnego/mech/spnego_mech.c
lib/krb5/kadm5/kadm_host_srv_names.c
lib/krb5/kdb/kdb_convert.c
lib/krb5/kdb/kdb_hdr.h
lib/krb5/kdb/kdb_log.c
lib/krb5/kdb/kdb_log.h
lib/libgss/g_accept_sec_context.c
lib/libgss/g_acquire_cred.c
lib/libgss/g_canon_name.c
lib/libgss/g_compare_name.c
lib/libgss/g_context_time.c
lib/libgss/g_delete_sec_context.c
lib/libgss/g_dsp_name.c
lib/libgss/g_dsp_status.c
lib/libgss/g_dup_name.c
lib/libgss/g_exp_sec_context.c
lib/libgss/g_export_name.c
lib/libgss/g_glue.c
lib/libgss/g_imp_name.c
lib/libgss/g_imp_sec_context.c
lib/libgss/g_init_sec_context.c
lib/libgss/g_initialize.c
lib/libgss/g_inquire_context.c
lib/libgss/g_inquire_cred.c
lib/libgss/g_inquire_names.c
lib/libgss/g_process_context.c
lib/libgss/g_rel_buffer.c
lib/libgss/g_rel_cred.c
lib/libgss/g_rel_name.c
lib/libgss/g_rel_oid_set.c
lib/libgss/g_seal.c
lib/libgss/g_sign.c
lib/libgss/g_store_cred.c
lib/libgss/g_unseal.c
lib/libgss/g_userok.c
lib/libgss/g_utils.c
lib/libgss/g_verify.c
lib/libgss/gssd_pname_to_uid.c
uts/common/gssapi/include/gssapi_err_generic.h
uts/common/gssapi/include/mechglueP.h

Sun's
License is as follows:

Copyright (c) 2004 Sun Microsystems, Inc.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
 EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
/*
* Copyright 1995 by the Massachusetts Institute of Technology.
* All Rights Reserved.
*
* Export of this software from the United States of America may
*   require a specific license from the United States Government.
*   It is the responsibility of any person or organization contemplating
*   export to obtain such a license before exporting.
*
* WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
* distribute this software and its documentation for any purpose and
* without fee is hereby granted, provided that the above copyright
* notice appear in all copies and that both that copyright notice and
* this permission notice appear in supporting documentation, and that
* the name of M.I.T. not be used in advertising or publicity pertaining
* to distribution of the software without specific, written prior
* permission. Furthermore if you modify this software you must label
* your software as modified software and not distribute it in such a
* fashion that it
 might be confused with the original M.I.T. software.
* M.I.T. makes no representations about the suitability of
* this software for any purpose. It is provided "as is" without express
* or implied warranty.
*/
Copyright (C) 1985-2019 by the Massachusetts Institute of Technology.

All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT
 OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Downloading of this software may constitute an export of cryptographic
software from the United States of America that is subject to the
United States Export Administration Regulations (EAR), 15 CFR 730-774.
Additional laws or regulations may apply. It is the responsibility of
the person or entity contemplating export to comply with all
applicable export laws and regulations, including obtaining any
required license from the U.S. government.

The U.S. government prohibits export of encryption source code to
certain countries and individuals, including, but not limited to, the
countries of Cuba, Iran, North Korea, Sudan, Syria, and residents and
nationals of
 those countries.

Documentation components of this software distribution are licensed
under a Creative Commons Attribution-ShareAlike 3.0 Unported License.
(https://creativecommons.org/licenses/by-sa/3.0/)

Individual source code files are copyright MIT, Cygnus Support,
Novell, OpenVision Technologies, Oracle, Red Hat, Sun Microsystems,
FundsXpress, and others.

Project Athena, Athena, Athena MUSE, Discuss, Hesiod, Kerberos, Moira,
and Zephyr are trademarks of the Massachusetts Institute of Technology
(MIT). No commercial use of these trademarks may be made without

prior written permission of MIT.

"Commercial use" means use of a name in a product or other for-profit manner. It does NOT prevent a commercial firm from referring to the MIT trademarks in order to convey information (although in doing so, recognition of their trademark status should be given).

==========

The following copyright and permission notice applies to the OpenVision Kerberos Administration system located in "kadmin/create", "kadmin/dbutil", "kadmin/passwd", "kadmin/server", "lib/kadm5", and portions of "lib/rpc":

Copyright, OpenVision Technologies, Inc., 1993-1996, All Rights Reserved

WARNING: Retrieving the OpenVision Kerberos Administration system source code, as described below, indicates your acceptance of the following terms. If you do not agree to the following terms, do not retrieve the OpenVision Kerberos administration system.

You may freely use and distribute the Source Code and Object Code compiled from it, with or without modification, but this Source Code is provided to you "AS IS" EXCLUSIVE OF ANY WARRANTY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED. IN NO EVENT WILL OPENVISION HAVE ANY LIABILITY FOR ANY LOST PROFITS, LOSS OF DATA OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT, INCLUDING, WITHOUT LIMITATION, THOSE RESULTING FROM THE USE OF THE SOURCE CODE, OR THE FAILURE OF THE SOURCE CODE TO PERFORM, OR FOR ANY OTHER REASON.

OpenVision retains all copyrights in the donated Source Code. OpenVision also retains copyright to derivative works of the Source Code, whether created by OpenVision or by a third party. The OpenVision copyright notice must be preserved if derivative works are made based on the donated Source Code.

OpenVision Technologies, Inc. has donated this Kerberos Administration system to MIT for inclusion in the standard Kerberos 5 distribution. This donation underscores our commitment to continuing Kerberos technology development and our gratitude for the valuable work which has been performed by MIT and the Kerberos

community.

==========

Portions contributed by Matt Crawford "crawdad@fnal.gov" were work
performed at Fermi National Accelerator Laboratory, which is
operated by Universities Research Association, Inc., under contract
DE-AC02-76CHO3000 with the U.S. Department of Energy.

==========

Portions of "src/lib/crypto" have the following copyright:

Copyright (C) 1998 by the FundsXpress, INC.

All rights reserved.

Export of this software from the United States of America may
require a specific license from the United States Government.
It is the responsibility of any person or organization
contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
distribute this software and its documentation for any purpose and
without fee is hereby granted, provided that the above copyright
notice appear in all copies and that both that copyright
notice and
this permission notice appear in supporting documentation, and that
the name of FundsXpress. not be used in advertising or publicity
pertaining to distribution of the software without specific,
written prior permission. FundsXpress makes no representations
about the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

==========

The implementation of the AES encryption algorithm in
"src/lib/crypto/builtin/aes" has the following copyright:

Copyright (C) 2001, Dr Brian Gladman "brg@gladman.uk.net",
Worcester, UK.
All rights reserved.

LICENSE TERMS

The free distribution and use of this software in both source and

binary form is allowed (with or without changes) provided that:

1. distributions of this source code include the above copyright
   notice, this list of conditions and the following disclaimer;

2. distributions in binary form include the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other associated materials;

3. the copyright holder's name is not used to endorse products
   built using this software without specific written permission.

DISCLAIMER

This software is provided 'as is' with no explcit or implied
warranties in respect of any properties, including, but not limited
to, correctness and fitness for purpose.

==========

Portions contributed by Red Hat, including the pre-authentication
plug-in framework and the NSS crypto implementation, contain the
following copyright:

Copyright (C) 2006 Red Hat, Inc.
Portions
copyright (C) 2006 Massachusetts Institute of Technology
All Rights Reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials provided
  with the distribution.

* Neither the name of Red Hat, Inc., nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

==========

The bundled verto source code is subject to the following license:

Copyright 2011 Red Hat, Inc.

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation
the rights to use, copy,
modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

==========

The MS-KKDCP client implementation has the following copyright:

Copyright 2013,2014
Red Hat, Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

==========

The implementations of GSSAPI mechglue in GSSAPI-SPNEGO in "src/lib/gssapi", including the following files:

lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
lib/gssapi/mechglue/g_dup_name.c
lib/gssapi/mechglue/g_exp_sec_context.c
lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c

lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation,
including
the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
kprop/kproplog.c

are subject to the following license:

Copyright (C) 2004 Sun Microsystems, Inc.

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation the rights to use, copy,
modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY
OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

==========

Kerberos V5 includes documentation and software developed at the
University of California at Berkeley, which includes this copyright
notice:

Copyright (C) 1983 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions
and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

3. Neither the name of the University nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER

CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

==========

Portions contributed by Novell, Inc., including the LDAP database
backend, are subject to the following license:

Copyright (C) 2004-2005, Novell, Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the
distribution.

* The copyright holder's name is not used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

==========

Portions

funded by Sandia National Laboratory and developed by the
University of Michigan's Center for Information Technology
Integration, including the PKINIT implementation, are subject to the
following license:

COPYRIGHT (C) 2006-2007
THE REGENTS OF THE UNIVERSITY OF MICHIGAN
ALL RIGHTS RESERVED

Permission is granted to use, copy, create derivative works and
redistribute this software and such derivative works for any
purpose, so long as the name of The University of Michigan is not
used in any advertising or publicity pertaining to the use of
distribution of this software without specific, written prior
authorization. If the above copyright notice or any other
identification of the University of Michigan is included in any
copy of any portion of this software, then the disclaimer below
must also be included.

THIS SOFTWARE IS PROVIDED AS IS, WITHOUT REPRESENTATION FROM THE
UNIVERSITY OF MICHIGAN
AS TO ITS FITNESS FOR ANY PURPOSE, AND
WITHOUT WARRANTY BY THE UNIVERSITY OF MICHIGAN OF ANY KIND, EITHER
EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
THE REGENTS OF THE UNIVERSITY OF MICHIGAN SHALL NOT BE LIABLE FOR
ANY DAMAGES, INCLUDING SPECIAL, INDIRECT, INCIDENTAL, OR
CONSEQUENTIAL DAMAGES, WITH RESPECT TO ANY CLAIM ARISING OUT OF OR
IN CONNECTION WITH THE USE OF THE SOFTWARE, EVEN IF IT HAS BEEN OR
IS HEREAFTER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

==========

The pkcs11.h file included in the PKINIT code has the following
license:

Copyright 2006 g10 Code GmbH
Copyright 2006 Andreas Jellinghaus

This file is free software; as a special exception the author gives
unlimited permission to copy and/or distribute it, with or without
modifications, as long as this notice is preserved.

This file is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY, to the extent permitted by law; without even
the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE.

==========

Portions contributed by Apple Inc. are subject to the following
license:

Copyright 2004-2008 Apple Inc. All Rights Reserved.

Export of this software from the United States of America may
require a specific license from the United States Government.
It is the responsibility of any person or organization
contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
distribute this software and its documentation for any purpose and
without fee is hereby granted, provided that the above copyright
notice appear in all copies and that both that copyright notice and
this permission notice appear in
supporting documentation, and that
the name of Apple Inc. not be used in advertising or publicity
pertaining to distribution of the software without specific,
written prior permission. Apple Inc. makes no representations
about the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

==========

The implementations of UTF-8 string handling in src/util/support and
src/lib/krb5/unicode are subject to the following copyright and
permission notice:

The OpenLDAP Public License
Version 2.8, 17 August 2003

Redistribution and use of this software and associated
documentation ("Software"), with or without modification, are
permitted provided that
the following conditions are met:

1. Redistributions in source form must retain copyright
statements and notices,

2. Redistributions in binary form must reproduce applicable
copyright statements and notices, this list of conditions, and

the following disclaimer in the documentation and/or other
materials provided with the distribution, and

3. Redistributions must contain a verbatim copy of this
document.

The OpenLDAP Foundation may revise this license from time to time.
Each revision is distinguished by a version number. You may use
this Software under terms of this license revision or under the
terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS
CONTRIBUTORS "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP
FOUNDATION, ITS
CONTRIBUTORS, OR THE AUTHOR(S) OR OWNER(S) OF THE SOFTWARE BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

The names of the authors and copyright holders must not be used in
advertising or otherwise to promote the sale, use or other dealing
in this Software without specific, written prior permission. Title
to copyright in this Software shall at all times remain with
copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City,
California,
USA. All Rights Reserved. Permission to copy and
distribute verbatim copies of this document is granted.

==========

Marked test programs in src/lib/krb5/krb have the following copyright:

Copyright (C) 2006 Kungliga Tekniska Hgskola
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
   copyright notice, this list of conditions and the following
   disclaimer.

2. Redistributions in binary form must reproduce the above
   copyright notice, this list of conditions and the following
   disclaimer in the documentation and/or other materials provided
   with the distribution.

3. Neither the name of KTH nor the names of its contributors may

be used to endorse or promote products derived from this
   software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY KTH AND ITS CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL KTH OR ITS
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

==========

The KCM Mach RPC definition file used on macOS
has the following
copyright:

Copyright (C) 2009 Kungliga Tekniska Hgskola
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Portions Copyright (C) 2009 Apple Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above

copyright notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

3. Neither the name of the Institute nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE INSTITUTE
AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE INSTITUTE
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

==========

Portions of the RPC implementation in src/lib/rpc and
src/include/gssrpc have the following copyright and permission notice:

Copyright (C) 2010, Oracle America, Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

3. Neither the name of the "Oracle America, Inc." nor the names
of its contributors may be used to endorse or promote products
derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

==========

Copyright (C) 2006,2007,2009 NTT (Nippon Telegraph and Telephone
Corporation). All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer as the first lines of this file unmodified.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

THIS SOFTWARE IS PROVIDED BY NTT "AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL NTT BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH

DAMAGE.

==========

Copyright 2000 by Carnegie Mellon University

All Rights Reserved

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose and without fee is hereby
granted, provided that the above copyright notice appear in all
copies and that both that copyright notice and this permission
notice appear in supporting documentation, and that the name of
Carnegie Mellon University not be used in advertising or publicity
pertaining to distribution of the software without specific,
written prior permission.

CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER
IN
AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

==========

Copyright (C) 2002 Naval Research Laboratory (NRL/CCS)

Permission to use, copy, modify and distribute this software and
its documentation is hereby granted, provided that both the
copyright notice and this permission notice appear in all copies of
the software, derivative works or modified versions, and any
portions thereof.

NRL ALLOWS FREE USE OF THIS SOFTWARE IN ITS "AS IS" CONDITION AND
DISCLAIMS ANY LIABILITY OF ANY KIND FOR ANY DAMAGES WHATSOEVER
RESULTING FROM THE USE OF THIS SOFTWARE.

==========

Copyright (C) 1991, 1992, 1994 by Cygnus Support.

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose and without fee is

hereby
granted, provided that the above copyright notice appear in all
copies and that both that copyright notice and this permission
notice appear in supporting documentation. Cygnus Support makes no
representations about the suitability of this software for any
purpose. It is provided "as is" without express or implied
warranty.

==========

Copyright (C) 2006 Secure Endpoints Inc.

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation the rights to use, copy,
modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

==========

Portions of the implementation of the Fortuna-like PRNG are subject to
the following notice:

Copyright (C) 2005 Marko Kreen
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
copyright

notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

Copyright (C) 1994 by the University of Southern California

EXPORT OF THIS SOFTWARE from the United States of America may
require a specific license from the United States Government. It
is the responsibility of any person or organization
contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to copy, modify, and distribute
this software and its documentation in source and binary forms is
hereby granted, provided that any documentation or other materials
related to such distribution or use acknowledge that the software
was developed by the University of Southern California.

DISCLAIMER OF WARRANTY. THIS SOFTWARE IS PROVIDED "AS IS". The
University of Southern California MAKES NO REPRESENTATIONS OR
WARRANTIES, EXPRESS OR IMPLIED. By way of example, but not
limitation, the University of Southern California MAKES
NO
REPRESENTATIONS OR WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY
PARTICULAR PURPOSE. The University of Southern California shall not
be held liable for any liability nor for any direct, indirect, or
consequential damages with respect to any claim by the user or
distributor of the ksu software.

==========

Copyright (C) 1995
The President and Fellows of Harvard University

This code is derived from software contributed to Harvard by Jeremy Rassen.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by the University of California, Berkeley and its contributors.

4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

==========

Copyright (C) 2008 by the Massachusetts Institute of Technology.
Copyright 1995 by Richard P. Basch. All Rights Reserved.

Copyright 1995 by Lehman Brothers, Inc. All Rights Reserved.

Export of this software from the United States of America may require a specific license from the United States Government. It is the responsibility of any person or organization contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Richard P. Basch, Lehman Brothers and M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. Richard P. Basch, Lehman Brothers and M.I.T. make no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

==========

The following notice applies to "src/lib/krb5/krb/strptime.c" and "src/include/k5-queue.h".

Copyright (C) 1997, 1998 The NetBSD Foundation, Inc.
All rights reserved.

This code was contributed to The NetBSD Foundation by Klaus Klein.

Redistribution and use in source and binary forms, with or without modification, are permitted
provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by the NetBSD

Foundation, Inc. and its contributors.

4. Neither the name of The NetBSD Foundation nor the names of
its contributors may be used to endorse or promote products
derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

==========

The following notice applies to Unicode library files in
"src/lib/krb5/unicode":

Copyright 1997, 1998, 1999 Computing Research Labs,
New Mexico State University

Permission is hereby granted, free of charge, to any person
obtaining
a copy of this software and associated documentation
files (the "Software"), to deal in the Software without
restriction, including without limitation the rights to use, copy,
modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE COMPUTING RESEARCH LAB OR
NEW MEXICO STATE UNIVERSITY BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR

OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

==========

The following notice applies to "src/util/support/strlcpy.c":

Copyright (C) 1998 Todd C. Miller "Todd.Miller@courtesan.com"

Permission to use, copy, modify, and distribute this software for
any purpose with or without fee is hereby granted, provided that
the above copyright notice and this permission notice appear in all
copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL
WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE
AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS
OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

==========

The
following notice applies to "src/util/profile/argv_parse.c" and
"src/util/profile/argv_parse.h":

Copyright 1999 by Theodore Ts'o.

Permission to use, copy, modify, and distribute this software for
any purpose with or without fee is hereby granted, provided that
the above copyright notice and this permission notice appear in all
copies. THE SOFTWARE IS PROVIDED "AS IS" AND THEODORE TS'O (THE
AUTHOR) DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN
NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER
RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION
OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR
IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE. (Isn't
it sick that the U.S. culture of lawsuit-happy lawyers requires
this
kind of disclaimer?)

==========

The following notice applies to SWIG-generated code in "src/util/profile/profile_tcl.c":

Copyright (C) 1999-2000, The University of Chicago

This file may be freely redistributed without license or fee provided this copyright message remains intact.

==========

The following notice applies to portiions of "src/lib/rpc" and "src/include/gssrpc":

Copyright (C) 2000 The Regents of the University of Michigan. All rights reserved.

Copyright (C) 2000 Dug Song "dugsong@UMICH.EDU". All rights reserved, all wrongs reversed.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT

LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

==========

Implementations of the MD4 algorithm are subject to the following notice:

Copyright (C) 1990, RSA Data Security, Inc. All rights reserved.

License to copy and use this software is granted provided that it is identified as the "RSA Data Security, Inc. MD4 Message Digest Algorithm" in all material mentioning or referencing this software or this function.

License is also granted to make and use derivative works provided that such works are identified as "derived from the RSA Data Security, Inc. MD4 Message Digest Algorithm" in all material mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either the merchantability of this software or the suitability of this software
for any particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this documentation and/or software.

==========

Implementations of the MD5 algorithm are subject to the following notice:

Copyright (C) 1990, RSA Data Security, Inc. All rights reserved.

License to copy and use this software is granted provided that it is identified as the "RSA Data Security, Inc. MD5 Message- Digest Algorithm" in all material mentioning or referencing this software or this function.

License is also granted to make and use derivative works provided that such works are identified as "derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either
the merchantability
of this software or the suitability of this
software for any particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.

==========

The following notice applies to
"src/lib/crypto/crypto_tests/t_mddriver.c":

Copyright (C) 1990-2, RSA Data Security, Inc. Created 1990. All
rights reserved.

RSA Data Security, Inc. makes no representations concerning either
the merchantability of this software or the suitability of this
software for any particular purpose. It is provided "as is" without
express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.

==========

Portions of "src/lib/krb5" are subject to the following notice:

Copyright (C) 1994 CyberSAFE Corporation.
Copyright 1990,1991,2007,2008 by the Massachusetts
Institute of Technology.
All Rights Reserved.

Export of this software from the United States of America may
require a specific license from the United States Government. It
is the responsibility of any person or organization
contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and
distribute this software and its documentation for any purpose and
without fee is hereby granted, provided that the above copyright
notice appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation, and that
the name of M.I.T. not be used in advertising or publicity
pertaining to distribution of the software without specific,
written prior permission. Furthermore if you modify this software

you must label your software as
modified software and not
distribute it in such a fashion that it might be confused with the
original M.I.T. software. Neither M.I.T., the Open Computing
Security Group, nor CyberSAFE Corporation make any representations
about the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

==========

Portions contributed by PADL Software are subject to the following
license:

Copyright (c) 2011, PADL Software Pty Ltd. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following

disclaimer in the documentation and/or other materials provided
with the distribution.

3. Neither the name of PADL Software nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY PADL SOFTWARE AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL PADL SOFTWARE
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

==========

The bundled libev source code is subject to the following license:

All files in libev are Copyright (C)2007,2008,2009 Marc Alexander Lehmann.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Alternatively, the contents of this package may be used under the terms of the GNU General Public License ("GPL") version 2 or any later version, in which case the provisions of the GPL are applicable instead of the above. If you wish to allow the use of your version of this package only under the terms of the GPL and not to allow others to use your version of this file under
the BSD
license, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the GPL in this and the other files of this package. If you do not delete the provisions above, a recipient may use your version of this file under either the BSD or the GPL.

==========

Files copied from the Intel AESNI Sample Library are subject to the

following license:

Copyright (C) 2010, Intel Corporation All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the distribution.

* Neither the name of Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

==========

The following notice applies to "src/ccapi/common/win/OldCC/autolock.hxx":

Copyright (C) 1998 by Danilo Almeida. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

==========

The following notice applies to portions of
"src/plugins/preauth/spake/edwards25519.c" and
"src/plugins/preauth/spake/edwards25519_tables.h":

The MIT License (MIT)

Copyright (c) 2015-2016 the fiat-crypto authors (see the AUTHORS
file).

Permission is hereby granted, free of charge, to any person obtaining
a
copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

The
 following notice applies to portions of
"src/plugins/preauth/spake/edwards25519.c":

Copyright (c) 2015-2016, Google Inc.

Permission to use, copy, modify, and/or distribute this software for
any purpose with or without fee is hereby granted, provided that the
above copyright notice and this permission notice appear in all
copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL
WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE
AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.
Copyright
=========

Copyright |copy| 1985-2019 by the Massachusetts Institute of
Technology and its contributors. All rights reserved.

See :ref:`mitK5license` for additional copyright and license
information.
.. _mitK5license:

MIT Kerberos License information
================================

.. toctree::
   :hidden:

   copyright.rst

.. include:: notice.rst

1.358 libssh 0.9.3-2ubuntu2.2

1.358.1 Available under license :

MIT License

Copyright (c) 2017 Jan-Lukas Wynen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You

can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software patents pose a constant threat to the existence
of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser

General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits
its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a

fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under

the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any

particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of

all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Linking with OpenSSL

17. In addition, as a special exception, we give permission to link the code of its release of libssh with the OpenSSL project's "OpenSSL" library (or with modified versions of it that use the same license as the "OpenSSL" library), and distribute the linked executables. You must obey the GNU Lesser General Public License in all respects for all of the code used other than "OpenSSL". If you modify this file, you may extend this exception to your version of the file, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

END OF TERMS AND CONDITIONS
Some parts are under the BSDv2 License :

Copyright (c) 2000 Markus Friedl. All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.359 servlet-api 4.0.1

1.359.1 Available under license :

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor. means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version. means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software. means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable. means the Covered Software in any form other than Source Code.

1.5. Initial Developer. means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work. means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License. means this document.

1.8.
Licensable. means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications. means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software. means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims. means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12.
Source Code. means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You. (or .Your.) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, .You. includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, .control. means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under
intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software
with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the
combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available

in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices

contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients. rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You

offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient.s rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered

Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the
License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN .AS IS. BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES
THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as .Participant.) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software

against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY.S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a .commercial item,. as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of .commercial computer software. (as that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and .commercial computer software documentation. as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction.s conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys. fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California
and the state courts of the State of California, with venue lying in Santa Clara County, California.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software,
we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer

you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any
program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that
in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works
in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or
executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code
for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute
the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear
what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

Copyright (C)

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY
or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits
your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

"CLASSPATH" EXCEPTION TO THE GPL VERSION 2

Certain source files distributed by Sun Microsystems, Inc. are subject to the following clarification and special exception to the GPL Version 2, but only where Sun has expressly included in the particular
source file's header the words

"Sun designates this particular file as subject to the "Classpath" exception as provided by Sun in the License file that

accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License Version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module.? An independent module is a module which is not derived from or based on this library.? If you modify this library, you may extend this exception to your version of the library, but
you are not obligated to do so.? If you do not wish to do so, delete this exception statement from your version.

1.360 activation 1.1

1.360.1 Available under license :

1. Definitions.
1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.
1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.
1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.
1.4. Executable means the Covered Software in any form other than Source Code.
1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.
1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.
1.7. License means this document.
1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.
1.9. Modifications means the Source Code and Executable form of any of the following:
A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;
B. Any new file that contains any part of the Original Software or previous Modification; or
C. Any new file that is contributed or otherwise made available under the terms of this License.
1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.
1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.
1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such
code.
1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.
2. License Grants.

2.1. The Initial Developer Grant.Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:
(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software
(or portions thereof), with or without Modifications, and/or as part of a Larger Work; and
(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).
(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.
(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.
2.2. Contributor Grant.Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide,
royalty-free, non-exclusive license:
(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and
(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).
(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise
makes the Modifications available to a third party.
(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.
3. Distribution Obligations.
3.1. Availability of Source Code.Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients
of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.
3.2. Modifications.The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.
3.3. Required Notices.You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.
3.4. Application of Additional Terms.You may not offer or impose any terms on any Covered Software in Source

Code form that alters or restricts
the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.
3.5. Distribution of Executable Versions.You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that
the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.
3.6. Larger Works.You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.
4. Versions of the License.
4.1. New Versions.Sun Microsystems, Inc. is the initial license steward and may publish revised
and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.
4.2. Effect of New Versions.You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.
4.3. Modified Versions.When
You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.
5. DISCLAIMER OF WARRANTY.COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER
OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.
6. TERMINATION.
6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their

nature, must remain in effect beyond the termination of this License shall survive.
6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such
Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.
6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.
7. LIMITATION OF LIABILITY.UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF
ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.
8. U.S. GOVERNMENT END USERS.The Covered Software is a commercial item, as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such
terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.
9. MISCELLANEOUS.This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of
the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.
10. RESPONSIBILITY FOR CLAIMS.As between Initial Developer and the Contributors, each party is responsible

for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with
Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

```
/*
* The contents of this file are subject to the terms
* of the Common Development and Distribution License
* (the "License").  You may not use this file except
* in compliance with the License.
*
* You can obtain a copy of the license at
* glassfish/bootstrap/legal/CDDLv1.0.txt or
* https://glassfish.dev.java.net/public/CDDLv1.0.html.
* See the License for the specific language governing
* permissions and limitations under the License.
*
* When distributing Covered Code, include this CDDL
* HEADER in each file and include the License file at
* glassfish/bootstrap/legal/CDDLv1.0.txt.  If applicable,
* add the following below this CDDL HEADER, with the
* fields enclosed by brackets "[]" replaced with your
* own identifying information: Portions Copyright [yyyy]
* [name of copyright owner]
*/
```

1.361 curl 7.68.0-1ubuntu2.7

1.361.1 Available under license :

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2020, Daniel Stenberg, <daniel@haxx.se>, and many contributors, see the THANKS file.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not
be used in advertising or otherwise to promote the sale, use or other
 dealings
in this Software without prior written authorization of the copyright holder.

```
/***************************************************************************
*                                  _   _ ____  _
*  Project                     ___| | | |  _ \| |
*                             / __| | | | |_) | |
*                            | (__| |_| |  _ <| |___
*                             \___|\___/|_| \_\_____|
*
* Copyright (C) 1998 - 2019, Daniel Stenberg, <daniel@haxx.se>, et al.
*
* This software is licensed as described in the file COPYING, which
* you should have received as part of this distribution. The terms
* are also available at https://curl.haxx.se/docs/copyright.html.
*
* You may opt to use, copy, modify, merge, publish, distribute and/or sell
* copies of the Software, and permit persons to whom the Software is
* furnished to do so, under the terms of the COPYING file.
*
* This software is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY
* KIND, either express or implied.
```

License Mixing
==============

libcurl can be built to use a fair amount of various third party libraries,
libraries that are written and provided by other parties that are distributed
using their own licenses. Even libcurl itself contains code that may cause
problems to some. This document attempts to describe what licenses libcurl and
the other libraries use and what possible dilemmas linking and mixing them all
can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that [GPL](https://www.gnu.org/licenses/gpl.html)
licensed code is not allowed to be linked with code licensed under the
[Original BSD license](https://spdx.org/licenses/BSD-4-Clause.html) (with the
announcement clause). You may still build your own copies that use them all,
but distributing them as binaries would be to violate the GPL license - unless
you accompany your license with an
[exception](https://www.gnu.org/licenses/gpl-faq.html#GPLIncompatibleLibs). This
particular problem
 was addressed when the [Modified BSD
license](https://opensource.org/licenses/BSD-3-Clause) was created, which does
not have the announcement clause that collides with GPL.

libcurl

Uses an [MIT style license](https://curl.haxx.se/docs/copyright.html) that is very liberal.

OpenSSL

(May be used for SSL/TLS support) Uses an Original BSD-style license with an announcement clause that makes it "incompatible" with GPL. You are not allowed to ship binaries that link with OpenSSL that includes GPL code (unless that specific GPL code includes an exception for OpenSSL - a habit that is growing more and more common). If OpenSSL's licensing is a problem for you, consider using another TLS library.

GnuTLS

(May be used for SSL/TLS support) Uses the [LGPL](https://www.gnu.org/licenses/lgpl.html) license. If this is a problem for you, consider using another TLS library. Also note that GnuTLS itself depends on and uses other libs (libgcrypt and libgpg-error) and they too are
LGPL- or GPL-licensed.

WolfSSL

(May be used for SSL/TLS support) Uses the GPL license or a proprietary license. If this is a problem for you, consider using another TLS library.

NSS

(May be used for SSL/TLS support) Is covered by the [MPL](https://www.mozilla.org/MPL/) license, the GPL license and the LGPL license. You may choose to license the code under MPL terms, GPL terms, or LGPL terms. These licenses grant you different permissions and impose different obligations. You should select the license that best meets your needs.

mbedTLS

(May be used for SSL/TLS support) Uses the [Apache 2.0 license](https://opensource.org/licenses/Apache-2.0) or the GPL license. You may choose to license the code under Apache 2.0 terms or GPL terms. These licenses grant you different permissions and impose different obligations. You should select the license that best meets your needs.

BoringSSL

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same

license as that.

libressl

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same
license as that.

BearSSL

(May be used for SSL/TLS support) Uses an MIT license that is very liberal
and imposes no restrictions on any other library or part you may link with.

c-ares

(Used for asynchronous name resolves) Uses an MIT license that is very
liberal and imposes no restrictions on any other library or part you may link
with.

zlib

(Used for compressed Transfer-Encoding support) Uses an MIT-style license
that shouldn't collide with any other library.

MIT Kerberos

(May be used for GSS support) MIT licensed, that shouldn't collide with any
other parts.

Heimdal

(May be used for GSS support) Heimdal is Original BSD licensed with the
announcement clause.

GNU GSS

(May be used for GSS support) GNU GSS is GPL licensed. Note that you may not
distribute binary curl packages that uses this if you build curl to also link
and use any Original
BSD licensed libraries!

libidn

(Used for IDNA support) Uses the GNU Lesser General Public License [3]. LGPL
is a variation of GPL with slightly less aggressive "copyleft". This license
requires more requirements to be met when distributing binaries, see the
license for details. Also note that if you distribute a binary that includes
this library, you must also include the full LGPL license text. Please
properly point out what parts of the distributed package that the license

addresses.

OpenLDAP

(Used for LDAP support) Uses a Modified BSD-style license. Since libcurl uses OpenLDAP as a shared library only, I have not heard of anyone that ships OpenLDAP linked with libcurl in an app.

libssh2

(Used for scp and sftp support) libssh2 uses a Modified BSD-style license.

1.362 libgcrypt 1.8.5-5ubuntu1.1

1.362.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Additional license notices for Libgcrypt. -*- org -*-

This file contains the copying permission notices for various files in
the Libgcrypt distribution which are not covered by the GNU Lesser
General Public License (LGPL) or the GNU General Public License (GPL).

These notices all require that a copy of the notice be included
in the accompanying documentation and be distributed with binary
distributions of the code, so be sure to include this file along
with any binary distributions derived from the GNU C Library.

* BSD_3Clause

For files:
- cipher/sha256-avx-amd64.S
- cipher/sha256-avx2-bmi2-amd64.S
- cipher/sha256-ssse3-amd64.S
- cipher/sha512-avx-amd64.S
- cipher/sha512-avx2-bmi2-amd64.S
- cipher/sha512-ssse3-amd64.S

#+begin_quote
Copyright (c) 2012, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions
of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the
  distribution.

* Neither the name of the Intel Corporation nor the names of its
  contributors may be used to endorse or promote products derived from
  this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY INTEL CORPORATION "AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL CORPORATION OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#+end_quote

For files:
- random/jitterentropy-base.c
- random/jitterentropy.h
- random/rndjent.c (plus common Libgcrypt copyright holders)

#+begin_quote
* Copyright Stephan Mueller <smueller@chronox.de>, 2013
*
* License
* =======
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, and the entire permission notice in its entirety,
*   including the disclaimer of warranties.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the
following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote
*   products derived from this software without specific prior
*   written permission.
*
* ALTERNATIVELY, this product may be distributed under the terms of
* the GNU General Public License, in which case the provisions of the GPL are
* required INSTEAD OF the above restrictions. (This clause is
* necessary due to a potential bad interaction between the GPL and
* the restrictions contained in a BSD-style copyright.)
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
* WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
* BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
* USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
* DAMAGE.
#+end_quote

* X License

For files:
- install.sh

#+begin_quote
Copyright (C) 1994 X Consortium

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to
deal in the Software without restriction, including without limitation the
rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
sell copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or
substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN
AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNEC-
TION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not
be used in advertising or otherwise to promote the sale, use or other deal-
ings in this Software without prior written authorization from the X Consor-
tium.
#+end_quote

* Public domain

For files:
- cipher/arcfour-amd64.S

#+begin_quote
Author: Marc Bevand <bevand_m (at) epita.fr>
Licence: I hereby disclaim the copyright on this code and place it
in the public domain.
#+end_quote

* OCB license 1

For
files:
- cipher/cipher-ocb.c

#+begin_quote

OCB is covered by several patents but may be used freely by most software. See http://web.cs.ucdavis.edu/~rogaway/ocb/license.htm . In particular license 1 is suitable for Libgcrypt: See http://web.cs.ucdavis.edu/~rogaway/ocb/license1.pdf for the full license document; it basically says:

License 1 License for Open-Source Software Implementations of OCB (Jan 9, 2013)

Under this license, you are authorized to make, use, and distribute open-source software implementations of OCB. This license terminates for you if you sue someone over their open-source software implementation of OCB claiming that you have a patent covering their implementation.

License for Open Source Software Implementations of OCB
January 9, 2013

1 Definitions

1.1 Licensor means Phillip Rogaway.

1.2 Licensed Patents means any patent that claims priority to United States Patent Application No. 09/918,615 entitled
Method and Apparatus
for Facilitating Efficient Authenticated Encryption, and any utility, divisional, provisional, continuation, continuations-in-part, reexamination, reissue, or foreign counterpart patents that may issue with respect to the aforesaid patent application. This includes, but is not limited to, United States Patent No. 7,046,802; United States Patent No. 7,200,227; United States Patent No. 7,949,129; United States Patent No. 8,321,675 ; and any patent that issues out of United States Patent Application No. 13/669,114.

1.3 Use means any practice of any invention claimed in the Licensed Patents.

1.4 Software Implementation means any practice of any invention claimed in the Licensed Patents that takes the form of software executing on a user-programmable, general-purpose computer or that takes the form of a computer-readable medium storing such software. Software Implementation does not include, for example, application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), embedded systems, or IP cores.

1.5 Open Source Software means software whose source code is published and made available for inspection and use by anyone because either (a) the source code is subject to a license that permits recipients to copy, modify, and distribute the source code without payment of fees or royalties, or

(b) the source code is in the public domain, including code released for public use through a CC0 waiver. All licenses certified by the Open Source Initiative at opensource.org as of January 9, 2013 and all Creative Commons licenses identified on the creativecommons.org website as of January 9, 2013, including the Public License Fallback of the CC0 waiver, satisfy these requirements for the purposes of this license.

1.6 Open Source Software Implementation means a Software Implementation in which the software implicating the Licensed Patents is Open Source Software. Open Source Software Implementation does not include
any Software Implementation in which the software implicating the Licensed Patents is combined, so as to form a larger program, with software that is not Open Source Software.

2 License Grant

2.1 License. Subject to your compliance with the term s of this license, including the restriction set forth in Section 2.2, Licensor hereby grants to you a perpetual, worldwide, non-exclusive, non-transferable, non-sublicenseable, no-charge, royalty-free, irrevocable license to practice any invention claimed in the Licensed Patents in any Open Source Software Implementation.

2.2 Restriction. If you or your affiliates institute patent litigation (including, but not limited to, a cross-claim or counterclaim in a lawsuit) against any entity alleging that any Use authorized by this license infringes another patent, then any rights granted to you under this license automatically terminate as of the date such litigation is filed.

3 Disclaimer
YOUR USE OF THE LICENSED PATENTS
IS AT YOUR OWN RISK AND UNLESS REQUIRED
BY APPLICABLE LAW, LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED PATENTS OR ANY PRODUCT EMBODYING ANY LICENSED PATENT, EXPRESS OR IMPLIED, STATUT ORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTIBILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM OR RELATED TO ANY USE OF THE LICENSED PATENTS, INCLUDING, WITHOUT LIMITATION, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES PRIOR TO SUCH AN OCCURRENCE.
#+end_quote

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the

library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.
^L
Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting

the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
to run.
^L
GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into
another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control

compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any

application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can
be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the
ordinary GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.
^L
Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete

corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work
that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may
distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse

engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a)
Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will
operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that

is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined
with any other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the

Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation
may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this.
Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED
ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

1.363 packaging 21.0

1.363.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

This software is made available under the terms of *either* of the licenses
found in LICENSE.APACHE or LICENSE.BSD. Contributions to this software is made
under the terms of *both* these licenses.

Copyright (c) Donald Stufft and individual contributors.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.364 pam 1.3.1-5ubuntu4.3

1.364.1 Available under license :

Unless otherwise *explicitly* stated the following text describes the
licensed conditions under which the contents of this Linux-PAM release
may be distributed:

Redistribution and use in source and binary forms of Linux-PAM, with
or without modification, are permitted provided that the following
conditions are met:

1. Redistributions of source code must retain any existing copyright
   notice, and this entire permission notice in its entirety,
   including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
   copyright notices, this list of conditions, and the following

disclaimer in the documentation and/or other materials provided
with the distribution.

3. The name of any author may not be used to endorse or promote
products derived from this software without their specific prior
written permission.

ALTERNATIVELY, this product may be distributed
under the terms of the
GNU General Public License, in which case the provisions of the GNU
GPL are required INSTEAD OF the above restrictions. (This clause is
necessary due to a potential conflict between the GNU GPL and the
restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

Unless otherwise *explicitly* stated the following text describes the
licensed conditions under which the contents of this libpamc release
may be distributed:

Redistribution and use in source and binary forms of libpamc,
with or without modification, are permitted provided that the
following conditions are met:

1. Redistributions of source code must retain any existing copyright
notice, and this entire permission notice in its entirety,
including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current
copyright notices, this list of conditions, and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

3. The name of any author may not be used to endorse or promote
products derived from this software without their specific prior
written permission.

ALTERNATIVELY, this product may be distributed under
 the terms of the
GNU Library General Public License (LGPL), in which case the
provisions of the GNU LGPL are required INSTEAD OF the above
restrictions. (This clause is necessary due to a potential conflict
between the GNU LGPL and the restrictions contained in a BSD-style
copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

1.365 urllib3 1.26.6-1.ph1

1.365.1 Available under license :

MIT License

Copyright (c) 2008-2020 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
 OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

MIT

1.366 pyjwt 2.3.0

1.366.1 Available under license :

MIT
The MIT License (MIT)

Copyright (c) 2015 Jos Padilla

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

1.367 tdb 1.44.5

1.367.1 Available under license :

This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2001 by Andries Brouwer
Copyright (C) 1999, 2000, 2003 by Theodore Ts'o

You are free to distribute this software under the terms of the GNU
Lesser (Library) General Public License.

On Debian systems, the complete text of the GNU Lesser (Library)
General Public License can be found in /usr/share/common-licenses/LGPL-2.
This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
        Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
    Copyright (c) 2001 Alcove <http://www.alcove.com/>
    Copyright (c) 1997 Klee Dienes
    Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

 Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
#
This is a Makefile stub which handles the creation of BSD shared
libraries.
#
In order to use this stub, the following makefile variables must be defined.
#
BSDLIB_VERSION = 1.0
BSDLIB_IMAGE = libce
BSDLIB_MYDIR = et
BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

```
BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image:  $(BSD_LIB)

$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip:: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
```

CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This is the Debian GNU/Linux prepackaged version of the translation
files of the EXT2 file system utilities. The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2006 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, is protected by the GNU
General Public License.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General
Public License can be found in `/usr/share/common-licenses/GPL-2'.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 by
Theodore Ts'o

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from
 this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
+   Copyright (C) Andrew Tridgell   1999-2005
+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

     ** NOTE! The following LGPL license applies to the tdb
     ** library. This does NOT imply that all of Samba is released
EXT2ED is hereby placed under the terms of the GNU General Public License.
Follows the GNU license.

Gadi Oxman, August 1995

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the
GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you
must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program
(or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously
your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to
the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING

WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY
TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY;

for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider
 it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
This package, the EXT2 filesystem utilities, are made available under
the GNU Public License version 2, with the exception of the lib/ext2fs
and lib/e2p libraries, which are made available under the GNU Library
General Public License Version 2, the lib/uuid library which is made
available under a BSD-style license and the lib/et and lib/ss
libraries which are made available under an MIT-style license. Please
see lib/uuid/COPYING for more details for the license for the files
comprising the libuuid library, and the source file headers of the
libet and libss libraries for more information.

The most recent officially distributed version can be found at
http://e2fsprogs.sourceforge.net. If you need to make a distribution,
that's the one you should use. If there is some reason why you'd like
a more recent version that is still in ALPHA testing (i.e., either
using the "WIP" test distributions or one from the hg or git
repository from the development branch, please contact me
(tytso@mit.edu)
 before you ship. The release schedules for this
package are flexible, if you give me enough lead time.

    Theodore Ts'o
    23-June-2007

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain

that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms
and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered
only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of

Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or

distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing
the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy
simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous
contributions to the wide range of software distributed
through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to

be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,

INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE
USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision

comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a
subroutine library, you may
consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU LIBRARY GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for
all its users.

This license, the Library General Public License, applies to some

specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a
fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program
is threatened constantly by software
patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary

one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

GNU LIBRARY GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities
other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices

stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the

ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make
 any other change in
these notices.

 Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

 This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

 4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

 If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled
 to copy the source along with the object code.

 5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

 However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

 When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library,
 or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

 If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline

functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that
the terms permit
modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then
relink to produce a modified
executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as
a special exception,
the source code distributed need not include anything that is normally
distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined
library with a copy of the same work
based on the Library, uncombined with any other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License. However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not
signed it. However, nothing else grants you permission to modify or
distribute

the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU

FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them
to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Library General Public
License as published by the Free Software Foundation; either
version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Library General Public License for more details.

You should have received a copy of the GNU Library General Public
License along with this library; if not, write to the Free Software
Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
This is the Debian GNU/Linux prepackaged version of the EXT2 file
system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were
written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

Packaging is Copyright (c) 2003-2007 Theodore Ts'o <tytso@mit.edu>
Copyright (c) 1997-2003 Yann Dirson <dirson@debian.org>
Copyright (c) 2001 Alcove <http://www.alcove.com/>
Copyright (c) 1997 Klee Dienes
Copyright (c) 1995-1996 Michael Nonweiler <mrn20@cam.ac.uk>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright notice:

This package, the EXT2 filesystem utilities, are made available under
the GNU General Public License version 2, with the exception of the
lib/ext2fs and lib/e2p libraries, which are made available under the
GNU Library General Public License Version 2, the lib/uuid library
which is made available under a BSD-style license and the lib/et and
lib/ss libraries
which are made available under an MIT-style license.

Copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 by Theodore Ts'o

On Debian GNU systems, the complete text of the GNU General Public
License can be found in `/usr/share/common-licenses/GPL-2'. The
complete text of the GNU Library General Public License can be found
in '/usr/share/common-licenses/LGPL-2'.

The license used for lib/et and lib/ss libraries is:

Copyright 1987 by the Student Information Processing Board
of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose is hereby granted, provided that
the names of M.I.T. and the M.I.T. S.I.P.B. not be used in

advertising or publicity pertaining to distribution of the software
without specific, written prior permission. M.I.T. and the
M.I.T. S.I.P.B. make no representations about the suitability of
this
software for any purpose. It is provided "as is" without
express or implied warranty.

The license used for lib/uuid is:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, and the entire permission notice in its entirety,
including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

http://sourceforge.net/projects/e2fsprogs

Upstream Author: Theodore Ts'o <tytso@mit.edu>

Copyright:

Copyright (C) 1999, 2000, 2003, 2004 by Theodore Ts'o

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific
 prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This is the Debian GNU/Linux prepackaged version of the ss
command-line interface parsing library. It is currently
distributed together with the EXT2 file system utilities, which are
otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.

M.I.T. and
 the M.I.T. S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.
This is the Debian GNU/Linux prepackaged version of the Common Error
Description library. It is currently distributed together with the EXT2 file
system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>,
from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

From the original distribution:

Copyright 1987, 1988 by the Student Information Processing Board
 of the Massachusetts Institute of Technology

Permission to use, copy, modify, and distribute this software
and its documentation for any purpose and without fee is
hereby granted, provided that the above copyright notice
appear in all copies and that both that copyright notice and
this permission notice appear in supporting documentation,
and that the names of M.I.T. and the M.I.T. S.I.P.B. not be
used in advertising or publicity pertaining to distribution
of the software without specific, written prior permission.
M.I.T. and the M.I.T.
 S.I.P.B. make no representations about
the suitability of this software for any purpose. It is
provided "as is" without express or implied warranty.

1.368 tdb 1.45.5

1.368.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

 This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

 0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the
Library is deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version"

applies to it, you have the option
 of following the terms and
conditions either of that published version or of any later version
published by the Free Software Foundation. If the Library as you
received it does not specify a version number of the GNU Lesser
General Public License, you may choose any version of the GNU Lesser
General Public License ever published by the Free Software Foundation.

 If the Library as you received it specifies that a proxy can decide
whether future versions of the GNU Lesser General Public License shall
apply, that proxy's public statement of acceptance of any version is
permanent authorization for you to choose that version for the
Library.

1.369 golang 1.8

1.369.1 Available under license :

```
# This is the official list of people who can contribute
# (and typically have contributed) code to the Go repository.
# The AUTHORS file lists the copyright holders; this file
# lists people.  For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
# The submission process automatically checks to make sure
# that people submitting code are listed in this file (by email address).
#
# Names should be added to this file only after verifying that
# the individual or the individual's organization has agreed to
# the appropriate Contributor License Agreement, found here:
#
#     http://code.google.com/legal/individual-cla-v1.0.html
#     http://code.google.com/legal/corporate-cla-v1.0.html
#
# The agreement for individuals can be filled out on the web.
#
# When adding J Random Contributor's name to this file,
# either J's name or J's organization's name should be
# added to the AUTHORS file, depending on whether the
# individual or corporate
 CLA was used.

# Names should be added to this file like so:
#     Individual's name <submission email address>
#     Individual's name <submission email address> <email2> <emailN>
#
# An entry with multiple email addresses specifies that the
# first address should be used in the submit logs and
```

that the other addresses should be recognized as the
same person when interacting with Gerrit.

Please keep the list sorted.

Aamir Khan <syst3m.w0rm@gmail.com>
Aaron France <aaron.l.france@gmail.com>
Aaron Jacobs <jacobsa@google.com>
Aaron Kemp <kemp.aaron@gmail.com>
Aaron Torres <tcboox@gmail.com>
Aaron Zinman <aaron@azinman.com>
Abe Haskins <abeisgreat@abeisgreat.com>
Abhinav Gupta <abhinav.g90@gmail.com>
Adam Langley <agl@golang.org>
Adrian Nos <nos.adrian@gmail.com>
Adrian O'Grady <elpollouk@gmail.com>
Adrien Bustany <adrien-xx-google@bustany.org>
Acio Jnior <aeciodantasjunior@gmail.com>
Ahmed Waheed Moanes <oneofone@gmail.com>
Ahmy Yulrizka <yulrizka@gmail.com>
Aiden Scandella <ai@uber.com>
Ainar
Garipov <gugl.zadolbal@gmail.com>
Akihiro Suda <suda.kyoto@gmail.com>
Akshat Kumar <seed@mail.nanosouffle.net>
Alan Donovan <adonovan@google.com>
Alan Shreve <alan@inconshreveable.com>
Albert Nigmatzianov <albertnigma@gmail.com>
Albert Strasheim <fullung@gmail.com>
Albert Yu <yukinying@gmail.com>
Alberto Bertogli <albertito@blitiri.com.ar>
Alberto Donizetti <alb.donizetti@gmail.com>
Alberto Garca Hierro <alberto@garciahierro.com> <alberto.garcia.hierro@gmail.com>
Aleksandar Dezelin <dezelin@gmail.com>
Alessandro Arzilli <alessandro.arzilli@gmail.com>
Alessandro Baffa <alessandro.baffa@gmail.com>
Alex A Skinner <alex@lx.lc>
Alex Brainman <alex.brainman@gmail.com>
Alex Bramley <abramley@google.com>
Alex Browne <stephenalexbrowne@gmail.com>
Alex Carol <alex.carol.c@gmail.com>
Alex Jin <toalexjin@gmail.com>
Alex Plugaru <alex@plugaru.org> <alexandru.plugaru@gmail.com>
Alex Schroeder <alex@gnu.org>
Alex Sergeyev <abc@alexsergeyev.com>
Alex Vaghin <crhyme@google.com>
Alexander

Demakin <alexander.demakin@gmail.com>
Alexander Dring <email@alexd.ch>
Alexander Larsson <alexander.larsson@gmail.com>
Alexander Menzhinsky <amenzhinsky@gmail.com>
Alexander Morozov <lk4d4math@gmail.com>
Alexander Neumann <alexander@bumpern.de>
Alexander Orlov <alexander.orlov@loxal.net>
Alexander Reece <awreece@gmail.com>
Alexander Surma <surma@surmair.de>
Alexander Zhavnerchik <alex.vizor@gmail.com>
Alexander Zolotov <goldifit@gmail.com>
Alexandre Cesaro <alexandre.cesaro@gmail.com>
Alexandre Fiori <fiorix@gmail.com>
Alexandre Normand <alexandre.normand@gmail.com>
Alexandru Mooi <brtzsnr@gmail.com>
Alexei Sholik <alcosholik@gmail.com>
Alexey Borzenkov <snaury@gmail.com>
Alexey Palazhchenko <alexey.palazhchenko@gmail.com>
Alexis Imperial-Legrand <ail@google.com>
Aliaksandr Valialkin <valyala@gmail.com>
Alif Rachmawadi <subosito@gmail.com>
Allan Simon <allan.simon@supinfo.com>
Alok Menghrajani <alok.menghrajani@gmail.com>
Amir Mohammad Saied <amir@gluegadget.com>
Amrut Joshi <amrut.joshi@gmail.com>
Andre
Nathan <andrenth@gmail.com>
Andrea Spadaccini <spadaccio@google.com>
Andreas Auernhammer <aead@mail.de>
Andreas Jellinghaus <andreas@ionisiert.de> <anj@google.com>
Andreas Litt <andreas.litt@gmail.com>
Andrei Korzhevskii <a.korzhevskiy@gmail.com>
Andrei Vieru <euvieru@gmail.com>
Andres Erbsen <andreser@google.com>
Andrew Austin <andrewaclt@gmail.com>
Andrew Balholm <andybalholm@gmail.com>
Andrew Bonventre <andybons@chromium.org>
Andrew Bursavich <abursavich@gmail.com>
Andrew Ekstedt <andrew.ekstedt@gmail.com>
Andrew Etter <andrew.etter@gmail.com>
Andrew Gerrand <adg@golang.org>
Andrew Harding <andrew@spacemonkey.com>
Andrew Lutomirski <andy@luto.us>
Andrew Pilloud <andrewpilloud@igneoussystems.com>
Andrew Pogrebnoy <absourd.noise@gmail.com>
Andrew Pritchard <awpritchard@gmail.com>
Andrew Radev <andrey.radev@gmail.com>
Andrew Skiba <skibaa@gmail.com>

Andrew Szeto <andrew@jabagawee.com>
Andrew Werner <andrew@upthere.com> <awerner32@gmail.com>
Andrew Wilkins <axwalk@gmail.com>
Andrew
Williams <williams.andrew@gmail.com>
Andrey Mirtchovski <mirtchovski@gmail.com>
Andrey Petrov <andrey.petrov@shazow.net>
Andriy Lytvynov <lytvynov.a.v@gmail.com>
Andy Balholm <andy@balholm.com>
Andy Davis <andy@bigandian.com>
Andy Finkenstadt <afinkenstadt@zynga.com>
Andy Maloney <asmaloney@gmail.com>
Anfernee Yongkun Gui <anfernee.gui@gmail.com>
Angelo Bulfone <mbulfone@gmail.com>
Anh Hai Trinh <anh.hai.trinh@gmail.com>
Anmol Sethi <anmol@aubble.com>
Anschel Schaffer-Cohen <anschelsc@gmail.com>
Anthony Canino <anthony.canino1@gmail.com>
Anthony Eufemio <anthony.eufemio@gmail.com>
Anthony Martin <ality@pbrane.org>
Anthony Starks <ajstarks@gmail.com>
Anthony Woods <awoods@raintank.io>
Antonio Bibiano <antbbn@gmail.com>
Antonio Murdaca <runcom@redhat.com>
Apisak Darakananda <pongad@gmail.com>
Aram Hvrneanu <aram@mgk.ro>
Areski Belaid <areski@gmail.com>
Arkadi Pyuro <arkadi@google.com>
Arlo Breault <arlolra@gmail.com>
Arnaud Ysmal <arnaud.ysmal@gmail.com>
Arne Hormann <arnehormann@gmail.com>
Arnout
Engelen <arnout@bzzt.net>
Aron Nopanen <aron.nopanen@gmail.com>
Artyom Pervukhin <artyom.pervukhin@gmail.com>
Arvindh Rajesh Tamilmani <art@a-30.net>
Asim Shankar <asimshankar@gmail.com>
Atin Malaviya <amalaviy@akamai.com>
Ato Araki <ato.araki@gmail.com>
Audrey Lim <audreylh@gmail.com>
Augusto Roman <aroman@gmail.com>
Aulus Egnatius Varialus <varialus@gmail.com>
Austin Clements <austin@google.com> <aclements@csail.mit.edu>
awaw fumin <awawfumin@gmail.com>
Ayanamist Yang <ayanamist@gmail.com>
Aymerick Jhanne <aymerick@jehanne.org>
Baiju Muthukadan <baiju.m.mail@gmail.com>
Balazs Lecz <leczb@google.com>

Ben Burkert <ben@benburkert.com>
Ben Eitzen <eitzenb@golang.org>
Ben Fried <ben.fried@gmail.com>
Ben Lubar <ben.lubar@gmail.com>
Ben Lynn <benlynn@gmail.com>
Ben Olive <sionide21@gmail.com>
Benjamin Black <b@b3k.us>
Benjamin Prosnitz <bprosnitz@google.com>
Benjamin Wester <bwester@squareup.com>
Benny Siegert <bsiegert@gmail.com>
Benoit Sigoure <tsunanet@gmail.com>
Berengar
Lehr <Berengar.Lehr@gmx.de>
Bill Neubauer <wcn@golang.org> <wcn@google.com> <bill.neubauer@gmail.com>
Bill O'Farrell <billo@ca.ibm.com>
Bill Thiede <couchmoney@gmail.com>
Billie Harold Cleek <bhcleek@gmail.com>
Billy Lynch <wlynch@google.com>
Bjorn Tillenius <bjorn@tillenius.me>
Bjorn Tipling <bjorn.tipling@gmail.com>
Blake Gentry <blakesgentry@gmail.com>
Blake Mizerany <blake.mizerany@gmail.com>
Blixt <me@blixt.nyc>
Bobby Powers <bobbypowers@gmail.com>
Boris Nagaev <nagaev@google.com>
Brad Fitzpatrick <bradfitz@golang.org> <bradfitz@gmail.com>
Brad Garcia <bgarcia@golang.org>
Braden Bassingthwaite <bbassingthwaite@vendasta.com>
Brady Catherman <brady@gmail.com>
Brady Sullivan <brady@bsull.com>
Brandon Gilmore <varz@google.com>
Brendan Daniel Tracey <tracey.brendan@gmail.com>
Brendan O'Dea <bod@golang.org>
Brett Cannon <bcannon@gmail.com>
Brian Dellisanti <briandellisanti@gmail.com>
Brian G. Merrell <bgmerrell@gmail.com>
Brian Gitonga Marete <marete@toshnix.com> <bgmarete@gmail.com>
<bgm@google.com>
Brian Kennedy <btkennedy@gmail.com>
Brian Ketelsen <bketelsen@gmail.com>
Brian Slesinsky <skybrian@google.com>
Brian Smith <ohohvi@gmail.com>
Bryan Alexander <Kozical@msn.com>
Bryan C. Mills <bcmills@google.com>
Bryan Chan <bryan.chan@ca.ibm.com>
Bryan Ford <brynosaurus@gmail.com>
Caine Tighe <arctanofyourface@gmail.com>
Caio Marcelo de Oliveira Filho <caio.oliveira@intel.com>

Caleb Spare <cespare@gmail.com>
Carl Chatfield <carlchatfield@gmail.com>
Carl Jackson <carl@stripe.com>
Carl Johnson <me@carlmjohnson.net>
Carl Mastrangelo <notcarl@google.com>
Carl Shapiro <cshapiro@google.com> <cshapiro@golang.org>
Carlos Castillo <cookieo9@gmail.com>
Carlos Cirello <uldericofilho@gmail.com>
Carlos Eduardo Seo <cseo@linux.vnet.ibm.com>
Cary Hull <chull@google.com>
Case Nelson <case.nelson@gmail.com>
Casey Marshall <casey.marshall@gmail.com>
Catalin Nicutar <cnicutar@google.com>
Catalin Patulea <catalinp@google.com>
Cedric Staub <cs@squareup.com>
Cezar S Espinola <cezarsa@gmail.com>
ChaiShushan
<chaishushan@gmail.com>
Charles L. Dorian <cldorian@gmail.com>
Charles Lee <zombie.fml@gmail.com>
Charles Weill <weill@google.com>
Cherry Zhang <cherryyz@google.com>
Chris Broadfoot <cbro@golang.org>
Chris Dollin <ehog.hedge@gmail.com>
Chris Farmiloe <chrisfarms@gmail.com>
Chris Hines <chris.cs.guy@gmail.com>
Chris Howey <howeyc@gmail.com>
Chris Hundt <hundt@google.com>
Chris Jones <chris@cjones.org> <chris.jones.yar@gmail.com>
Chris Kastorff <encryptio@gmail.com>
Chris Lennert <calennert@gmail.com>
Chris Manghane <cmang@golang.org>
Chris McGee <sirnewton_01@yahoo.ca> <newton688@gmail.com>
Chris Stockton <chrisstocktonaz@gmail.com>
Chris Zou <chriszou@ca.ibm.com>
Christian Couder <chriscool@tuxfamily.org>
Christian Himpel <chressie@googlemail.com> <chressie@gmail.com>
Christine Hansmann <chhansmann@gmail.com>
Christoffer Buchholz <christoffer.buchholz@gmail.com>
Christoph Hack <christoph@tux21b.org>
Christopher Cahoon <chris.cahoon@gmail.com>
Christopher Guiney
<chris@guiney.net>
Christopher Nelson <nadiasvertex@gmail.com>
Christopher Nielsen <m4dh4tt3r@gmail.com>
Christopher Redden <christopher.redden@gmail.com>
Christopher Swenson <cswenson@google.com>
Christopher Wedgwood <cw@f00f.org>

Christy Perez <christy@linux.vnet.ibm.com>
CL Sung <clsung@gmail.com> <cl_sung@htc.com>
Clement Skau <clementskau@gmail.com>
Colby Ranger <cranger@google.com>
Colin Cross <ccross@android.com>
Colin Edwards <colin@recursivepenguin.com>
Colin Kennedy <moshen.colin@gmail.com>
Conrad Irwin <conrad.irwin@gmail.com>
Conrad Meyer <cemeyer@cs.washington.edu>
Corey Thomasson <cthom.lists@gmail.com>
Cosmos Nicolaou <cnicolaou@google.com>
Cristian Staretu <unclejacksons@gmail.com>
Cuihtlauac ALVARADO <cuihtlauac.alvarado@orange.com>
Cyrill Schumacher <cyrill@schumacher.fm>
Damian Gryski <dgryski@gmail.com>
Damien Neil <dneil@google.com>
Dan Caddigan <goldcaddy77@gmail.com>
Dan Callahan <dan.callahan@gmail.com>
Dan Harrington <harringtond@google.com>
Dan Jacques <dnj@google.com>
Dan
Peterson <dpiddy@gmail.com>
Dan Pupius <dan@medium.com>
Dan Sinclair <dan.sinclair@gmail.com>
Daniel Fleischman <danielfleischman@gmail.com>
Daniel Johansson <dajo2002@gmail.com>
Daniel Kerwin <d.kerwin@gini.net>
Daniel Krech <eikeon@eikeon.com>
Daniel Lidn <daniel.liden.87@gmail.com>
Daniel Mart <mvdan@mvdan.cc>
Daniel Morsing <daniel.morsing@gmail.com>
Daniel Nadasi <dnadasi@google.com>
Daniel Ortiz Pereira da Silva <daniel.particular@gmail.com>
Daniel Skinner <daniel@dasa.cc>
Daniel Speichert <daniel@speichert.pl>
Daniel Theophanes <kardianos@gmail.com>
Daria Kolistratova <daria.kolistratova@intel.com>
Darren Elwood <darren@textnode.com>
Datong Sun <dndx@idndx.com>
Dave Borowitz <dborowitz@google.com>
Dave Bort <dbort@golang.org>
Dave Cheney <dave@cheney.net>
Dave Day <djd@golang.org>
Dave Grijalva <dgrijalva@ngmoco.com>
David Anderson <danderson@google.com>
David Barnett <dbarnett@google.com>
David Benjamin <davidben@google.com>
David Brophy <dave@brophy.uk>

David
Brgin <676c7473@gmail.com>
David Calavera <david.calavera@gmail.com>
David Chase <drchase@google.com>
David Covert <davidhcovert@gmail.com>
David Crawshaw <david.crawshaw@zentus.com> <crawshaw@google.com> <crawshaw@golang.org>
David du Colombier <0intro@gmail.com>
David Forsythe <dforsythe@gmail.com>
David G. Andersen <dave.andersen@gmail.com>
David Glasser <glasser@meteor.com>
David Howden <dhowden@gmail.com>
David Hubbard <dsp@google.com>
David Jakob Fritz <david.jakob.fritz@gmail.com>
David Lazar <lazard@golang.org>
David Leon Gil <coruus@gmail.com>
David McLeish <davemc@google.com>
David Presotto <presotto@gmail.com>
David R. Jenni <david.r.jenni@gmail.com>
David Sansome <me@davidsansome.com>
David Stainton <dstainton415@gmail.com>
David Symonds <dsymonds@golang.org>
David Thomas <davidthomas426@gmail.com>
David Titarenco <david.titarenco@gmail.com>
Davies Liu <davies.liu@gmail.com>
Dean Prichard <dean.prichard@gmail.com>
Deepak Jois <deepak.jois@gmail.com>
Denis Bernard <db047h@gmail.com>
Denis
Brandolini <denis.brandolini@gmail.com>
Denis Nagorny <denis.nagorny@intel.com>
Denys Honsiorovskyi <honsiorovskyi@gmail.com>
Derek Buitenhuis <derek.buitenhuis@gmail.com>
Derek Che <drc@yahoo-inc.com>
Derek Parker <parkerderek86@gmail.com>
Derek Shockey <derek.shockey@gmail.com>
Devon H. O'Dell <devon.odell@gmail.com>
Dhaivat Pandit <dhaivatpandit@gmail.com>
Dhananjay Nakrani <dhananjayn@google.com>
Dhiru Kholia <dhiru.kholia@gmail.com>
Didier Spezia <didier.06@gmail.com>
Dimitri Tcaciuc <dtcaciuc@gmail.com>
Dirk Gadsden <dirk@esherido.com>
Diwaker Gupta <diwakergupta@gmail.com>
Dmitri Popov <operator@cv.dp-net.com>
Dmitri Shuralyov <shurcooL@gmail.com>
Dmitriy Dudkin <dudkin.dmitriy@gmail.com>
Dmitriy Shelenin <deemok@googlemail.com> <deemok@gmail.com>
Dmitriy Vyukov <dvyukov@google.com>

Dmitry Chestnykh <dchest@gmail.com>
Dmitry Savintsev <dsavints@gmail.com>
Dmitry Yakunin <nonamezeil@gmail.com>
Dominik Honnef <dominik.honnef@gmail.com>
Dominik Vogt <vogt@linux.vnet.ibm.com>
Donald
Huang <don.hcd@gmail.com>
Donovan Hide <donovanhide@gmail.com>
Doug Anderson <douga@google.com>
Drew Hintz <adhintz@google.com>
Duncan Holm <mail@frou.org>
Dustin Carlino <dcarlino@google.com>
Dustin Herbison <djherbis@gmail.com>
Dustin Long <dustmop@gmail.com>
Dustin Sallings <dsallings@gmail.com>
Dustin Shields-Cloues <dcloues@gmail.com>
Dvir Volk <dvir@everything.me> <dvirsky@gmail.com>
Eden Li <eden.li@gmail.com>
Edward Muller <edwardam@interlix.com>
Egon Elbre <egonelbre@gmail.com>
Ehren Kret <ehren.kret@gmail.com>
Eivind Uggedal <eivind@uggedal.com>
Elias Naur <elias.naur@gmail.com>
Elliot Morrison-Reed <elliotmr@gmail.com>
Emil Hessman <c.emil.hessman@gmail.com> <emil@hessman.se>
Emmanuel Odeke <emm.odeke@gmail.com> <odeke@ualberta.ca>
Eoghan Sherry <ejsherry@gmail.com>
Eric Clark <zerohp@gmail.com>
Eric Engestrom <eric@engestrom.ch>
Eric Garrido <ekg@google.com>
Eric Koleda <ekoleda+devrel@google.com>
Eric Lagergren <ericscottlagergren@gmail.com>
Eric Milliken
<emilliken@gmail.com>
Eric Roshan-Eisner <eric.d.eisner@gmail.com>
Erik Aigner <aigner.erik@gmail.com>
Erik Dubbelboer <erik@dubbelboer.com>
Erik St. Martin <alakriti@gmail.com>
Erik Staab <estaab@google.com>
Erik Westrup <erik.westrup@gmail.com>
Ernest Chiang <ernest_chiang@htc.com>
Esko Luontola <esko.luontola@gmail.com>
Ethan Burns <eaburns@google.com>
Ethan Miller <eamiller@us.ibm.com>
Euan Kemp <euank@euank.com>
Evan Broder <evan@stripe.com>
Evan Brown <evanbrown@google.com>
Evan Kroske <evankroske@google.com>

Evan Martin <evan.martin@gmail.com>
Evan Phoenix <evan@phx.io>
Evan Shaw <chickencha@gmail.com>
Ewan Chou <coocood@gmail.com>
Fabian Wickborn <fabian@wickborn.net>
Fabrizio Milo <mistobaan@gmail.com>
Faiyaz Ahmed <ahmedf@vmware.com>
Fan Hongjian <fan.howard@gmail.com>
Fatih Arslan <fatih@arslan.io>
Fazlul Shahriar <fshahriar@gmail.com>
Federico Simoncelli <fsimonce@redhat.com>
Fedor Indutny <fedor@indutny.com>
Felix Geisendrfer <haimuiba@gmail.com>
Filippo Valsorda <hi@filippo.io>
Firmansyah
Adiputra <frm.adiputra@gmail.com>
Florian Uekermann <florian@uekermann-online.de> <f1@uekermann-online.de>
Florian Weimer <fw@deneb.enyo.de>
Florin Patan <florinpatan@gmail.com>
Folke Behrens <folke@google.com>
Ford Hurley <ford.hurley@gmail.com>
Francesc Campoy <campoy@golang.org>
Francisco Claude <fclaude@recoded.cl>
Francisco Souza <franciscossouza@gmail.com>
Frederick Kelly Mayle III <frederickmayle@gmail.com>
Fredrik Enestad <fredrik.enestad@soundtrackyourbrand.com>
Frithjof Schulze <schulze@math.uni-hannover.de> <sfrithjof@gmail.com>
Frits van Bommel <fvbommel@gmail.com>
Fumitoshi Ukai <ukai@google.com>
Gaal Yahas <gaal@google.com>
Gabriel Aszalos <gabriel.aszalos@gmail.com>
Gabriel Russell <gabriel.russell@gmail.com>
Gareth Paul Jones <gpj@foursquare.com>
Garrick Evans <garrick@google.com>
Gary Burd <gary@beagledreams.com> <gary.burd@gmail.com>
Gary Elliott <garyelliott@google.com>
Gaurish Sharma <contact@gaurishsharma.com>
Gautham Thambidorai <gautham.dorai@gmail.com>
Geert-Johan
Riemer <gjr19912@gmail.com>
Geoffroy Lorieux <lorieux.g@gmail.com>
Georg Reinke <guelfey@gmail.com>
George Shammas <george@shamm.as> <georgyo@gmail.com>
Gerasimos Dimitriadis <gedimitr@gmail.com>
Gideon Jan-Wessel Redelinghuys <gjredelinghuys@gmail.com>
Giles Lean <giles.lean@pobox.com>
Giovanni Bajo <rasky@develer.com>
Giulio Iotti <dullgiulio@gmail.com>

Gleb Stepanov <glebstepanov1992@gmail.com>
Glenn Brown <glennb@google.com>
Glenn Lewis <gmlewis@google.com>
Gordon Klaus <gordon.klaus@gmail.com>
Graham King <graham4king@gmail.com>
Graham Miller <graham.miller@gmail.com>
Greg Ward <greg@gerg.ca>
Guillaume J. Charmes <guillaume@charmes.net>
Guobiao Mei <meiguobiao@gmail.com>
Gustav Paul <gustav.paul@gmail.com>
Gustavo Franco <gustavorfranco@gmail.com>
Gustavo Niemeyer <gustavo@niemeyer.net> <n13m3y3r@gmail.com>
Gwenael Treguier <gwenn.kahz@gmail.com>
Gyu-Ho Lee <gyuhox@gmail.com>
H. brahim Gngr <igungor@gmail.com>
Hajime Hoshi <hajimehoshi@gmail.com>
Hallgrimur Gunnarsson
<halg@google.com>
Han-Wen Nienhuys <hanwen@google.com>
Hari haran <hariharan.uno@gmail.com>
Hariharan Srinath <srinathh@gmail.com>
Harley Laue <losinggeneration@gmail.com>
Harry Moreno <morenoh149@gmail.com>
Harshavardhana <hrshvardhana@gmail.com>
Hvard Haugen <havard.haugen@gmail.com>
Hector Chu <hectorchu@gmail.com>
Hector Martin Cantero <hector@marcansoft.com>
Henning Schmiedehausen <henning@schmiedehausen.org>
Henrik Edwards <henrik.edwards@gmail.com>
Henrik Hodne <henrik@hodne.io>
Herbert Georg Fischer <herbert.fischer@gmail.com>
Hironao OTSUBO <motemen@gmail.com>
Hiroshi Ioka <hirochachacha@gmail.com>
Hitoshi Mitake <mitake.hitoshi@gmail.com>
Holden Huang <ttyh061@gmail.com>
Hong Ruiqi <hongruiqi@gmail.com>
Hossein Sheikh Attar <hattar@google.com>
Hsin-Ho Yeh <yhh92u@gmail.com>
Hu Keping <hukeping@huawei.com>
Hyang-Ah Hana Kim <hakim@google.com> <hyangah@gmail.com>
Ian Gudger <ian@loosescre.ws>
Ian Lance Taylor <iant@golang.org>
Icarus Sparry <golang@icarus.freeuk.com>
Idora
Shinatose <idora.shinatose@gmail.com>
Igor Bernstein <igorbernstein@google.com>
Igor Dolzhikov <bluesriverz@gmail.com>
Ilya Tocar <ilya.tocar@intel.com>

INADA Naoki <songofacandy@gmail.com>
Ingo Krabbe <ikrabbe.ask@gmail.com>
Ingo Oeser <nightlyone@googlemail.com> <nightlyone@gmail.com>
Irieda Noboru <irieda@gmail.com>
Isaac Wagner <ibw@isaacwagner.me>
Ivan Babrou <ivan@cloudflare.com>
Ivan Krasin <krasin@golang.org>
Ivan Ukhov <ivan.ukhov@gmail.com>
Jaana Burcu Dogan <jbd@google.com> <jbd@golang.org> <burcujdogan@gmail.com>
Jack Lindamood <jlindamo@justin.tv>
Jacob Baskin <jbaskin@google.com>
Jacob H. Haven <jacob@cloudflare.com>
Jacob Hoffman-Andrews <github@hoffman-andrews.com>
Jae Kwon <jae@tendermint.com>
Jakob Borg <jakob@nym.se>
Jakub ajka <jcajka@redhat.com>
Jakub Ryszard Czarnowicz <j.czarnowicz@gmail.com>
James Aguilar <jaguilar@google.com>
James Bardin <j.bardin@gmail.com>
James Chacon <jchacon@google.com>
James Clarke <jrtc27@jrtc27.com>
James David Chalfant <james.chalfant@gmail.com>
James
Fysh <james.fysh@gmail.com>
James Gray <james@james4k.com>
James Meneghello <rawrz0r@gmail.com>
James P. Cooper <jamespcooper@gmail.com>
James Robinson <jamesr@google.com> <jamesr.gatech@gmail.com>
James Schofield <james@shoeboxapp.com>
James Sweet <james.sweet88@googlemail.com>
James Toy <nil@opensesame.st>
James Tucker <raggi@google.com>
James Whitehead <jnwhiteh@gmail.com>
Jamie Beverly <jamie.r.beverly@gmail.com>
Jamie Gennis <jgennis@google.com> <jgennis@gmail.com>
Jamie Turner <jamwt@dropbox.com>
Jamie Wilkinson <jaq@spacepants.org>
Jamil Djadala <djadala@gmail.com>
Jan H. Hosang <jan.hosang@gmail.com>
Jan Kratochvil <jan.kratochvil@redhat.com>
Jan Mercl <0xjnml@gmail.com>
Jan Mercl <befelemepeseveze@gmail.com>
Jan Newmarch <jan.newmarch@gmail.com>
Jan Ziak <0xe2.0x9a.0x9b@gmail.com>
Jani Monoses <jani.monoses@ubuntu.com> <jani.monoses@gmail.com>
Jaroslavas Poepko <jp@webmaster.ms>
Jason Barnett <jason.w.barnett@gmail.com>
Jason Buberel <jbuberel@google.com>

Jason
Del Ponte <delpontej@gmail.com>
Jason Hall <jasonhall@google.com>
Jason Smale <jsmale@zendesk.com>
Jason Travis <infomaniac7@gmail.com>
Jay Weisskopf <jay@jayschwa.net>
Jean-Marc Eurin <jmeurin@google.com>
Jean-Nicolas Moal <jn.moal@gmail.com>
Jed Denlea <jed@fastly.com>
Jeff Craig <jeffcraig@google.com>
Jeff Hodges <jeff@somethingsimilar.com>
Jeff R. Allen <jra@nella.org> <jeff.allen@gmail.com>
Jeff Sickel <jas@corpus-callosum.com>
Jeff Wendling <jeff@spacemonkey.com>
Jens Frederich <jfrederich@gmail.com>
Jeremiah Harmsen <jeremiah@google.com>
Jeremy Jackins <jeremyjackins@gmail.com>
Jeremy Schlatter <jeremy.schlatter@gmail.com>
Jeroen Bobbeldijk <jerbob92@gmail.com>
Jess Frazelle <me@jessfraz.com>
Jesse Szwedko <jesse.szwedko@gmail.com>
Jihyun Yu <yjh0502@gmail.com>
Jim Cote <jfcote87@gmail.com>
Jim Kingdon <jim@bolt.me>
Jim McGrath <jimmc2@gmail.com>
Jimmy Zelinskie <jimmyzelinskie@gmail.com>
Jingcheng Zhang <diogin@gmail.com>
Jingguo Yao <yaojingguo@gmail.com>
Jiong Du <londevil@gmail.com>
Jirka
Dank <dnk@mail.muni.cz>
Joakim Sernbrant <serbaut@gmail.com>
Joe Farrell <joe2farrell@gmail.com>
Joe Harrison <joehazzers@gmail.com>
Joe Henke <joed.henke@gmail.com>
Joe Poirier <jdpoirier@gmail.com>
Joe Shaw <joe@joeshaw.org>
Joe Sylve <joe.sylve@gmail.com>
Joe Tsai <joetsai@digital-static.net>
Joel Sing <jsing@google.com>
Joel Stemmer <stemmertech@gmail.com>
Johan Euphrosine <proppy@google.com>
Johan Sageryd <j@1616.se>
John Asmuth <jasmuth@gmail.com>
John Beisley <huin@google.com>
John C Barstow <jbowtie@amathaine.com>
John DeNero <denero@google.com>
John Dethridge <jcd@golang.org>

John Graham-Cumming <jgc@jgc.org> <jgrahamc@gmail.com>
John Howard Palevich <jack.palevich@gmail.com>
John Jeffery <jjeffery@sp.com.au>
John Jenkins <twodopeshaggy@gmail.com>
John Newlin <jnewlin@google.com>
John Potocny <johnp@vividcortex.com>
John Schnake <schnake.john@gmail.com>
John Shahid <jvshahid@gmail.com>
John Tuley <john@tuley.org>
Jon Chen <jchen@justin.tv>
Jonathan Allie
<jonallie@google.com>
Jonathan Amsterdam <jba@google.com>
Jonathan Boulle <jonathanboulle@gmail.com>
Jonathan Feinberg <feinberg@google.com>
Jonathan Gold <jgold.bg@gmail.com>
Jonathan Hseu <jhseu@google.com>
Jonathan Mark <jhmark@xenops.com> <jhmark000@gmail.com>
Jonathan Nieder <jrn@google.com>
Jonathan Pittman <jmpittman@google.com> <jonathan.mark.pittman@gmail.com>
Jonathan Rudenberg <jonathan@titanous.com>
Jonathan Wills <runningwild@gmail.com>
Jongmin Kim <atomaths@gmail.com>
Joonas Kuorilehto <joneskoo@derbian.fi>
Joop Kiefte <ikojba@gmail.com> <joop@kiefte.net>
Jordan Lewis <jordanthelewis@gmail.com>
Jos Visser <josv@google.com>
Jose Luis Vzquez Gonzlez <josvazg@gmail.com>
Joseph Bonneau <jcb@google.com>
Joseph Holsten <joseph@josephholsten.com>
Josh Bleecher Snyder <josharian@gmail.com>
Josh Chorlton <jchorlton@gmail.com>
Josh Goebel <dreamer3@gmail.com>
Josh Hoak <jhoak@google.com>
Josh Holland <jrh@joshh.co.uk>
Joshua Boelter <joshua.boelter@intel.com>
Joshua Chase <jcjoshuachase@gmail.com>
Jostein
Stuhaug <js@solidsystem.no>
JP Sugarbroad <jpsugar@google.com>
JT Olds <jtolds@xnet5.com>
Jukka-Pekka Kekkonen <karatepekka@gmail.com>
Julia Hansbrough <flowerhack@google.com>
Julian Kornberger <jk+github@digineo.de>
Julian Phillips <julian@quantumfyre.co.uk>
Julien Schmidt <google@julienschmidt.com>
Jungho Ahn <jhahn@google.com>
Jure Ham <jure.ham@zemanta.com>

Justin Nu <nuss.justin@gmail.com>
Justyn Temme <justyntemme@gmail.com>
Kai Backman <kaib@golang.org>
Kale Blankenship <kale@lemnisys.com>
Kamal Aboul-Hosn <aboulhosn@google.com>
Kamil Kisiel <kamil@kamilkisiel.net> <kamil.kisiel@gmail.com>
Kang Hu <hukangustc@gmail.com>
Karan Dhiman <karandhi@ca.ibm.com>
Kato Kazuyoshi <kato.kazuyoshi@gmail.com>
Katrina Owen <katrina.owen@gmail.com>
Kaviraj Kanagaraj <kavirajkanagaraj@gmail.com>
Kay Zhu <kayzhu@google.com>
KB Sriram <kbsriram@google.com>
Keegan Carruthers-Smith <keegan.csmith@gmail.com>
Kei Son <hey.calmdown@gmail.com>
Keith Ball <inflatablewoman@gmail.com>
Keith
Randall <khr@golang.org>
Keith Rarick <kr@xph.us>
Kelsey Hightower <kelsey.hightower@gmail.com>
Kelvin Foo Chuan Lyi <vmirage@gmail.com>
Ken Friedenbach <kenliz@cruzio.com>
Ken Rockot <ken@oz.gs> <ken.rockot@gmail.com>
Ken Sedgwick <ken@bonsai.com>
Ken Thompson <ken@golang.org>
Kenji Kaneda <kenji.kaneda@gmail.com>
Kenneth Shaw <kenshaw@gmail.com>
Kenny Grant <kennygrant@gmail.com>
Kevin Ballard <kevin@sb.org>
Kevin Burke <kev@inburke.com>
Kevin Kirsche <kev.kirsche@gmail.com>
Kevin Klues <klueska@gmail.com> <klueska@google.com>
Kevin Malachowski <chowski@google.com>
Kevin Vu <kevin.m.vu@gmail.com>
Kim Shrier <kshrier@racktopsystems.com>
Kirklin McDonald <kirklin.mcdonald@gmail.com>
Klaus Post <klauspost@gmail.com>
Konstantin Shaposhnikov <k.shaposhnikov@gmail.com>
Kris Rousey <krousey@google.com>
Kristopher Watts <traetox@gmail.com>
Kun Li <likunarmstrong@gmail.com>
Kyle Consalus <consalus@gmail.com>
Kyle Isom <kyle@gokyle.net>
Kyle Lemons <kyle@kylelemons.net> <kevlar@google.com>
L
Campbell <unpantsu@gmail.com>
Lai Jiangshan <eag0628@gmail.com>
Larry Hosken <lahosken@golang.org>

Larz Conwell <larzconwell@gmail.com>
LE Manh Cuong <cuong.manhle.vn@gmail.com>
Lee Hinman <hinman@gmail.com>
Lee Packham <lpackham@gmail.com>
Lewin Bormann <lewin.bormann@gmail.com>
Lloyd Dewolf <foolswisdom@gmail.com>
Lorenzo Stoakes <lstoakes@gmail.com>
Louis Kruger <louisk@google.com>
Luan Santos <cfcluan@gmail.com>
Luca Greco <luca.greco@alcacoop.it>
Lucien Stuker <lucien.stuker@gmail.com>
Lucio De Re <lucio.dere@gmail.com>
Luigi Riefolo <luigi.riefolo@gmail.com>
Luit van Drongelen <luitvd@gmail.com>
Luka Zakrajek <tr00.g33k@gmail.com>
Luke Curley <qpingu@gmail.com>
Luna Duclos <luna.duclos@palmstonegames.com>
Luuk van Dijk <lvd@golang.org> <lvd@google.com>
Lynn Boger <laboger@linux.vnet.ibm.com>
Maksym Trykur <maksym.trykur@gmail.com>
Mal Curtis <mal@mal.co.nz>
Manfred Touron <m@42.am>
Manoj Dayaram <platform-dev@moovweb.com> <manoj.dayaram@moovweb.com>
Manu Garg <manugarg@google.com>
Manu
S Ajith <neo@codingarena.in>
Manuel Mendez <mmendez534@gmail.com>
Marc Weistroff <marc@weistroff.net>
Marc-Antoine Ruel <maruel@chromium.org>
Marcel Edmund Franke <marcel.edmund.franke@gmail.com>
Marcel van Lohuizen <mpvl@golang.org>
Marco Hennings <marco.hennings@freiheit.com>
Marga Manterola <marga@google.com>
Marin Bai <marin.basic02@gmail.com>
Marius Nuennerich <mnu@google.com>
Mark Bucciarelli <mkbucc@gmail.com>
Mark Severson <miquella@gmail.com>
Mark Theunissen <mark.theunissen@gmail.com>
Mark Zavislak <zavislak@google.com>
Marko Juhani Silokunnas <marko.silokunnas@gmail.com>
Marko Mikulicic <mkm@google.com>
Marko Tiikkaja <marko@joh.to>
Markus Duft <markus.duft@salomon.at>
Markus Sonderegger <marraison@gmail.com>
Markus Zimmermann <zimmski@gmail.com>
Martin Bertschler <mbertschler@gmail.com>
Martin Garton <garton@gmail.com>
Martin Hamrle <martin.hamrle@gmail.com>

Martin Kreichgauer <martinkr@google.com>
Martin Mohrmann <moehrmann@google.com> <martisch@uos.de>
Martin
Neubauer <m.ne@gmx.net>
Martin Olsson <martin@minimum.se>
Marvin Stenger <marvin.stenger94@gmail.com>
Mateusz Czapliski <czapkofan@gmail.com>
Mathias Beke <git@denbeke.be>
Mathias Leppich <mleppich@muhqu.de>
Mathieu Lonjaret <mathieu.lonjaret@gmail.com>
Mats Lidell <mats.lidell@cag.se> <mats.lidell@gmail.com>
Matt Aimonetti <mattaimonetti@gmail.com>
Matt Bostock <matt@mattbostock.com>
Matt Brown <mdbrown@google.com>
Matt Drollette <matt@drollette.com>
Matt Jibson <matt.jibson@gmail.com>
Matt Joiner <anacrolix@gmail.com>
Matt Jones <mrjones@google.com>
Matt Layher <mdlayher@gmail.com>
Matt Reiferson <mreiferson@gmail.com>
Matt Robenolt <matt@ydekproductions.com>
Matt T. Proud <matt.proud@gmail.com>
Matt Williams <gh@mattyw.net> <mattyjwilliams@gmail.com>
Matthew Brennan <matty.brennan@gmail.com>
Matthew Cottingham <mattcottingham@gmail.com>
Matthew Dempsky <mdempsky@google.com>
Matthew Denton <mdenton@skyportsystems.com>
Matthew Holt <Matthew.Holt+git@gmail.com>
Matthew Horsnell <matthew.horsnell@gmail.com>
Matthieu
Hauglustaine <matt.hauglustaine@gmail.com>
Matthieu Olivier <olivier.matthieu@gmail.com>
Max Riveiro <kavu13@gmail.com>
Maxim Khitrov <max@mxcrypt.com>
Maxim Pimenov <mpimenov@google.com>
Maxim Ushakov <ushakov@google.com>
Maxwell Krohn <themax@gmail.com>
Meir Fischer <meirfischer@gmail.com>
Meng Zhuo <mengzhuo1203@gmail.com>
Mhd Sulhan <m.shulhan@gmail.com>
Micah Stetson <micah.stetson@gmail.com>
Michael Chaten <mchaten@gmail.com>
Michael Darakananda <pongad@google.com>
Michael Elkins <michael.elkins@gmail.com>
Michael Fraenkel <michael.fraenkel@gmail.com>
Michael Gehring <mg@ebfe.org> <gnirheg.leahcim@gmail.com>
Michael Hoisie <hoisie@gmail.com>
Michael Hudson-Doyle <michael.hudson@linaro.org>

Michael Kufl <golang@c.michael-kaeufl.de>
Michael Kelly <mjk@google.com>
Michael Lewis <mikelikespie@gmail.com>
Michael MacInnis <Michael.P.MacInnis@gmail.com>
Michael Marineau <michael.marineau@coreos.com>
Michael Matloob <matloob@google.com>
Michael McConville
<momcconville@gmail.com>
Michael McGreevy <mcgreevy@golang.org>
Michael Munday <munday@ca.ibm.com>
Michael Pearson <mipearson@gmail.com>
Michael Piatek <piatek@google.com>
Michael Pratt <mpratt@google.com>
Michael Schaller <michael@5challer.de>
Michael Shields <mshields@google.com>
Michael Stapelberg <michael@stapelberg.de> <mstplbrg@googlemail.com>
Michael T. Jones <mtj@google.com> <michael.jones@gmail.com>
Michael Teichgrber <mteichgraeber@gmx.de> <mt4swm@googlemail.com>
Michael Vetter <g.bluehut@gmail.com>
Michal Bohuslvek <mbohuslavek@gmail.com>
Michal Cierniak <cierniak@google.com>
Micha Derkacz <ziutek@lnet.pl>
Michalis Kargakis <michaliskargakis@gmail.com>
Michel Lespinasse <walken@google.com>
Miek Gieben <miek@miek.nl> <remigius.gieben@gmail.com>
Miguel Mendez <stxmendez@gmail.com>
Mihai Borobocea <MihaiBorobocea@gmail.com>
Mikael Tillenius <mikti42@gmail.com>
Mike Andrews <mra@xoba.com>
Mike Appleby <mike@app.leby.org>
Mike Danese <mikedanese@google.com>
Mike Houston <mike@kothar.net>
Mike
Rosset <mike.rosset@gmail.com>
Mike Samuel <mikesamuel@gmail.com>
Mike Solomon <msolo@gmail.com>
Mike Strosaker <strosake@us.ibm.com>
Mikhail Gusarov <dottedmag@dottedmag.net>
Mikhail Panchenko <m@mihasya.com>
Miki Tebeka <miki.tebeka@gmail.com>
Mikio Hara <mikioh.mikioh@gmail.com>
Mikkel Krautz <mikkel@krautz.dk> <krautz@gmail.com>
Miquel Sabat Sol <mikisabate@gmail.com>
Miroslav Genov <mgenov@gmail.com>
Mohit Agarwal <mohit@sdf.org>
Momchil Velikov <momchil.velikov@gmail.com>
Monty Taylor <mordred@inaugust.com>
Moriyoshi Koizumi <mozo@mozo.jp>

Morten Siebuhr <sbhr@sbhr.dk>
Mshe van der Sterre <moshevds@gmail.com>
Mrunal Patel <mrunalp@gmail.com>
Muhammed Uluyol <uluyol0@gmail.com>
Nan Deng <monnand@gmail.com>
Nathan John Youngman <nj@nathany.com>
Nathan Otterness <otternes@cs.unc.edu>
Nathan P Finch <nate.finch@gmail.com>
Nathan VanBenschoten <nvanbenschoten@gmail.com>
Nathan Youngman <git@nathany.com>
Nathan(yinian) Hu <nathanhu@google.com>
Neelesh Chandola <neelesh.c98@gmail.com>
Nevins
Bartolomeo <nevins.bartolomeo@gmail.com>
Niall Sheridan <nsheridan@gmail.com>
Nic Day <nic.day@me.com>
Nicholas Katsaros <nick@nickkatsaros.com>
Nicholas Presta <nick@nickpresta.ca> <nick1presta@gmail.com>
Nicholas Sullivan <nicholas.sullivan@gmail.com>
Nicholas Waples <nwaples@gmail.com>
Nick Cooper <nmvc@google.com>
Nick Craig-Wood <nick@craig-wood.com> <nickcw@gmail.com>
Nick Harper <nharper@google.com>
Nick Leli <nicholasleli@gmail.com>
Nick Patavalis <nick.patavalis@gmail.com>
Nick Petroni <npetroni@cs.umd.edu>
Nicolas Kaiser <nikai@nikai.net>
Nicolas Owens <mischief@offblast.org>
Nicolas S. Dade <nic.dade@gmail.com>
Niels Widger <niels.widger@gmail.com>
Nigel Kerr <nigel.kerr@gmail.com>
Nigel Tao <nigeltao@golang.org>
Nik Nyby <nnyby@columbia.edu>
Niko Dziemba <niko@dziemba.com>
Nikolay Turpitko <nikolay@turpitko.com>
Noah Campbell <noahcampbell@gmail.com>
Nodir Turakulov <nodir@google.com>
Norberto Lopes <nlopes.ml@gmail.com>
Odin Ugedal <odin@ugedal.com>
Oleg
Vakheta <helginet@gmail.com>
Oleku Konko <oleku.konko@gmail.com>
Oling Cat <olingcat@gmail.com>
Oliver Hookins <ohookins@gmail.com>
Olivier Antoine <olivier.antoine@gmail.com>
Olivier Duperray <duperray.olivier@gmail.com>
Olivier Poitrey <rs@dailymotion.com>
Olivier Saingre <osaingre@gmail.com>

Omar Jarjur <ojarjur@google.com>
zgr Kesim <oec-go@kesim.org>
Padraig Kitterick <padraigkitterick@gmail.com>
Paolo Giarrusso <p.giarrusso@gmail.com>
Paolo Martini <mrtnpaolo@gmail.com>
Parker Moore <parkrmoore@gmail.com>
Pascal S. de Kloe <pascal@quies.net>
Patrick Crosby <patrick@stathat.com>
Patrick Gavlin <pgavlin@gmail.com>
Patrick Higgins <patrick.allen.higgins@gmail.com>
Patrick Lee <pattyshack101@gmail.com>
Patrick Mzard <patrick@mezard.eu>
Patrick Mylund Nielsen <patrick@patrickmn.com>
Patrick Riley <pfr@google.com>
Patrick Smith <pat42smith@gmail.com>
Paul A Querna <paul.querna@gmail.com>
Paul Borman <borman@google.com>
Paul Chang <paulchang@google.com>
Paul Hammond <paul@paulhammond.org>
Paul
Hankin <paulhankin@google.com>
Paul Lalonde <paul.a.lalonde@gmail.com>
Paul Marks <pmarks@google.com>
Paul Meyer <paul.meyer@microsoft.com>
Paul Nasrat <pnasrat@google.com>
Paul Rosania <paul.rosania@gmail.com>
Paul Sbarra <Sbarra.Paul@gmail.com>
Paul Smith <paulsmith@pobox.com> <paulsmith@gmail.com>
Paul van Brouwershaven <paul@vanbrouwershaven.com>
Paul Wankadia <junyer@google.com>
Paulo Casaretto <pcasaretto@gmail.com>
Pavel Paulau <pavel.paulau@gmail.com>
Pavel Zinovkin <pavel.zinovkin@gmail.com>
Pawel Knap <pawelknap88@gmail.com>
Pawel Szczur <filemon@google.com>
Percy Wegmann <ox.to.a.cart@gmail.com>
Perry Abbott <perry.j.abbott@gmail.com>
Petar Maymounkov <petarm@gmail.com>
Peter Armitage <peter.armitage@gmail.com>
Peter Collingbourne <pcc@google.com>
Peter Froehlich <peter.hans.froehlich@gmail.com>
Peter Gonda <pgonda@google.com>
Peter Kleiweg <pkleiweg@xs4all.nl>
Peter McKenzie <petermck@google.com>
Peter Moody <pmoody@uber.com>
Peter Mundy <go.peter.90@gmail.com>
Pter

Surnyi <speter.go1@gmail.com>
Pter Szab <pts@google.com>
Pter Szilgyi <peterke@gmail.com>
Peter Tseng <ptseng@squareup.com>
Peter Waldschmidt <peter@waldschmidt.com>
Peter Waller <peter.waller@gmail.com>
Peter Weinberger <pjw@golang.org>
Peter Williams <pwil3058@gmail.com>
Phil Pennock <pdp@golang.org>
Philip Brgesen <philip.borgesen@gmail.com>
Philip Hofer <phofer@umich.edu>
Philip K. Warren <pkwarren@gmail.com>
Pierre Durand <pierredurand@gmail.com>
Pierre Roullon <pierre.roullon@gmail.com>
Pieter Droogendijk <pieter@binky.org.uk>
Pietro Gagliardi <pietro10@mac.com>
Prasanna Swaminathan <prasanna@mediamath.com>
Prashant Varanasi <prashant@prashantv.com>
Preetam Jinka <pj@preet.am>
Quan Tran <qeed.quan@gmail.com>
Quan Yong Zhai <qyzhai@gmail.com>
Quentin Perez <qperez@ocs.online.net>
Quentin Smith <quentin@golang.org>
Quinn Slack <sqs@sourcegraph.com>
Quoc-Viet Nguyen <afelion@gmail.com>
Radu Berinde <radu@cockroachlabs.com>
Rafal Jeczalik <rjeczalik@gmail.com>
Rahul Chaudhry <rahulchaudhry@chromium.org>
Raif
S. Naffah <go@naffah-raif.name>
Rajat Goel <rajat.goel2010@gmail.com>
Ralph Corderoy <ralph@inputplus.co.uk>
Ramesh Dharan <dharan@google.com>
Raph Levien <raph@google.com>
Raphael Geronimi <raphael.geronimi@gmail.com>
Raul Silvera <rsilvera@google.com>
Rebecca Stambler <rstambler@golang.org>
Reinaldo de Souza Jr <juniorz@gmail.com>
Rmy Oudompheng <oudomphe@phare.normalesup.org> <remyoudompheng@gmail.com>
Rhys Hiltner <rhys@justin.tv>
Ricardo Padilha <ricardospadilha@gmail.com>
Richard Barnes <rlb@ipv.sx>
Richard Crowley <r@rcrowley.org>
Richard Eric Gavaletz <gavaletz@gmail.com>
Richard Gibson <richard.gibson@gmail.com>
Richard Miller <miller.research@gmail.com>
Richard Musiol <mail@richard-musiol.de> <neelance@gmail.com>
Rick Arnold <rickarnoldjr@gmail.com>

Rick Hudson <rlh@golang.org>
Riku Voipio <riku.voipio@linaro.org>
Risto Jaakko Saarelma <rsaarelm@gmail.com>
Rob Earhart <earhart@google.com>
Rob Norman <rob.norman@infinitycloud.com>
Rob Pike <r@golang.org>
Robert
Daniel Kortschak <dan.kortschak@adelaide.edu.au>
Robert Dinu <r@varp.se>
Robert Figueiredo <robfig@gmail.com>
Robert Griesemer <gri@golang.org>
Robert Hencke <robert.hencke@gmail.com>
Robert Iannucci <iannucci@google.com>
Robert Obryk <robryk@gmail.com>
Robert Sesek <rsesek@google.com>
Robert Snedegar <roberts@google.com>
Robert Stepanek <robert.stepanek@gmail.com>
Robin Eklind <r.eklind.87@gmail.com>
Rodrigo Moraes de Oliveira <rodrigo.moraes@gmail.com>
Rodrigo Rafael Monti Kochenburger <divoxx@gmail.com>
Roger Pau Monn <royger@gmail.com>
Roger Peppe <rogpeppe@gmail.com>
Roland Shoemaker <rolandshoemaker@gmail.com>
Ron Hashimoto <mail@h2so5.net>
Ron Minnich <rminnich@gmail.com>
Ross Light <light@google.com> <rlight2@gmail.com>
Rowan Worth <sqweek@gmail.com>
Rui Ueyama <ruiu@google.com>
Russ Cox <rsc@golang.org>
Russell Haering <russellhaering@gmail.com>
Ryan Bagwell <ryanbagwell@outlook.com>
Ryan Barrett <ryanb@google.com>
Ryan Brown <ribrdb@google.com>
Ryan Hitchman
<hitchmanr@gmail.com>
Ryan Lower <rpjlower@gmail.com>
Ryan Seys <ryan@ryanseys.com>
Ryan Slade <ryanslade@gmail.com>
Ryuzo Yamamoto <ryuzo.yamamoto@gmail.com>
S.alar Onur <caglar@10ur.org>
Sai Cheemalapati <saicheems@google.com>
Salmn Aljammz <s@0x65.net>
Sam Ding <samding@ca.ibm.com>
Sam Hug <samuel.b.hug@gmail.com>
Sam Thorogood <thorogood@google.com> <sam.thorogood@gmail.com>
Sam Whited <sam@samwhited.com>
Sameer Ajmani <sameer@golang.org> <ajmani@gmail.com>
Sami Commerot <samic@google.com>

Samuel Tan <samueltan@google.com>
Samuele Pedroni <pedronis@lucediurna.net>
Sanjay Menakuru <balasanjay@gmail.com>
Sarah Adams <shadams@google.com>
Sasha Lionheart <lionhearts@google.com>
Sasha Sobol <sasha@scaledinference.com>
Scott Barron <scott.barron@github.com>
Scott Bell <scott@sctsm.com>
Scott Ferguson <scottwferg@gmail.com>
Scott Lawrence <bytbox@gmail.com>
Scott Mansfield <smansfield@netflix.com>
Scott Schwartz <scotts@golang.org>
Scott Van Woudenberg <scottvw@google.com>
Sean Burford <sburford@google.com>
Sean
Dolphin <Sean.Dolphin@kpcompass.com>
Sean Harger <sharger@google.com>
Sean Rees <sean@erifax.org>
Sebastien Binet <seb.binet@gmail.com>
Sbastien Paolacci <sebastien.paolacci@gmail.com>
Sergei Skorobogatov <skorobo@rambler.ru>
Sergey 'SnakE' Gromov <snake.scaly@gmail.com>
Sergey Arseev <sergey.arseev@intel.com>
Sergio Luis O. B. Correia <sergio@correia.cc>
Seth Hoenig <seth.a.hoenig@gmail.com>
Seth Vargo <sethvargo@gmail.com>
Shahar Kohanim <skohanim@gmail.com>
Shane Hansen <shanemhansen@gmail.com>
Shaozhen Ding <dsz0111@gmail.com>
Shawn Ledbetter <sledbetter@google.com>
Shawn Smith <shawn.p.smith@gmail.com>
Shawn Walker-Salas <shawn.walker@oracle.com>
Shenghou Ma <minux@golang.org> <minux.ma@gmail.com>
Shinji Tanaka <shinji.tanaka@gmail.com>
Shivakumar GN <shivakumar.gn@gmail.com>
Shun Fan <sfan@google.com>
Silvan Jegen <s.jegen@gmail.com>
Simon Jefford <simon.jefford@gmail.com>
Simon Rawet <simon@rawet.se>
Simon Thulbourn <simon+github@thulbourn.com>
Simon Whitehead
<chemnova@gmail.com>
Sina Siadat <siadat@gmail.com>
Sokolov Yura <funny.falcon@gmail.com>
Song Gao <song@gao.io>
Spencer Nelson <s@spenczar.com>
Spring Mc <heresy.mc@gmail.com>
Srdjan Petrovic <spetrovic@google.com>

Sridhar Venkatakrishnan <sridhar@laddoo.net>
StalkR <stalkr@stalkr.net>
Stan Schwertly <stan@schwertly.com>
Stefan Nilsson <snilsson@nada.kth.se> <trolleriprofessorn@gmail.com>
Stphane Travostino <stephane.travostino@gmail.com>
Stephen Ma <stephenm@golang.org>
Stephen McQuay <stephen@mcquay.me>
Stephen Weinberg <stephen@q5comm.com>
Steve Francia <spf@golang.org>
Steve McCoy <mccoyst@gmail.com>
Steve Newman <snewman@google.com>
Steve Phillips <elimisteve@gmail.com>
Steve Streeting <steve@stevestreeting.com>
Steven Elliot Harris <seharris@gmail.com>
Steven Hartland <steven.hartland@multiplay.co.uk>
Sugu Sougoumarane <ssougou@gmail.com>
Suharsh Sivakumar <suharshs@google.com>
Suyash <dextrous93@gmail.com>
Sven Almgren <sven@tras.se>
Sven Blumenstein <svbl@google.com>
Syohei
YOSHIDA <syohex@gmail.com>
Szabolcs Nagy <nsz@port70.net>
Tad Glines <tad.glines@gmail.com>
Taj Khattra <taj.khattra@gmail.com>
Takashi Matsuo <tmatsuo@google.com>
Takeshi YAMANASHI <9.nashi@gmail.com>
Takuya Ueda <uedatakuya@gmail.com>
Tal Shprecher <tshprecher@gmail.com>
Tamir Duberstein <tamird@gmail.com>
Tarmigan Casebolt <tarmigan@gmail.com>
Taru Karttunen <taruti@taruti.net>
Tatsuhiro Tsujikawa <tatsuhiro.t@gmail.com>
Terrel Shumway <gopher@shumway.us>
Tetsuo Kiso <tetsuokiso9@gmail.com>
Than McIntosh <thanm@google.com>
Thiago Fransosi Farina <thiago.farina@gmail.com> <tfarina@chromium.org>
Thomas Alan Copeland <talan.copeland@gmail.com>
Thomas de Zeeuw <thomasdezeeuw@gmail.com>
Thomas Desrosiers <thomasdesr@gmail.com>
Thomas Habets <habets@google.com>
Thomas Kappler <tkappler@gmail.com>
Thorben Krueger <thorben.krueger@gmail.com>
Thordur Bjornsson <thorduri@secnorth.net>
Tilman Dilo <tilman.dilo@gmail.com>
Tim Cooijmans <timcooijmans@gmail.com>
Tim Ebringer <tim.ebringer@gmail.com>
Tim

Henderson <tim.tadh@gmail.com>
Tim Hockin <thockin@google.com>
Tim Swast <swast@google.com>
Timo Savola <timo.savola@gmail.com>
Timo Truyts <alkaloid.btx@gmail.com>
Timothy Studd <tim@timstudd.com>
Tipp Moseley <tipp@google.com>
Tobias Columbus <tobias.columbus@gmail.com> <tobias.columbus@googlemail.com>
Toby Burress <kurin@google.com>
Todd Neal <todd@tneal.org>
Todd Wang <toddwang@gmail.com>
Tom Bergan <tombergan@google.com>
Tom Heng <zhm20070928@gmail.com>
Tom Linford <tomlinford@gmail.com>
Tom Szymanski <tgs@google.com>
Tom Wilkie <tom@weave.works>
Tommy Schaefer <tommy.schaefer@teecom.com>
Tor Andersson <tor.andersson@gmail.com>
Tormod Erevik Lea <tormodlea@gmail.com>
Totoro W <tw19881113@gmail.com>
Travis Cline <travis.cline@gmail.com>
Trevor Strohman <trevor.strohman@gmail.com>
Trey Lawrence <lawrence.trey@gmail.com>
Trey Tacon <ttacon@gmail.com>
Tristan Amini <tamini01@ca.ibm.com>
Tristan Colgate <tcolgate@gmail.com>
Tristan Ooohry <ooohry@gmail.com>
Tudor Golubenco
<tudor.g@gmail.com>
Tuo Shan <sturbo89@gmail.com> <shantuo@google.com>
Tyler Bunnell <tylerbunnell@gmail.com>
Tyler Treat <ttreat31@gmail.com>
Tzu-Jung Lee <roylee17@currant.com>
Ugorji Nwoke <ugorji@gmail.com>
Ulf Holm Nielsen <doktor@dyregod.dk>
Ulrich Kunitz <uli.kunitz@gmail.com>
Uriel Mangado <uriel@berlinblue.org>
Uttam C Pawar <uttam.c.pawar@intel.com>
Vadim Grek <vadimprog@gmail.com>
Vadim Vygonets <unixdj@gmail.com>
Vega Garcia Luis Alfonso <vegacom@gmail.com>
Victor Chudnovsky <vchudnov@google.com>
Vincent Ambo <tazjin@googlemail.com>
Vincent Batts <vbatts@hashbangbash.com> <vbatts@gmail.com>
Vincent Vanackere <vincent.vanackere@gmail.com>
Vinu Rajashekhar <vinutheraj@gmail.com>
Vish Subramanian <vish@google.com>
Vishvananda Ishaya <vishvananda@gmail.com>

Vitor De Mario <vitordemario@gmail.com>
Vlad Krasnov <vlad@cloudflare.com>
Vladimir Mihailenco <vladimir.webdev@gmail.com>
Vladimir Nikishenko <vova616@gmail.com>
Vladimir Stefanovic <vladimir.stefanovic@imgtec.com>
Volker
Dobler <dr.volker.dobler@gmail.com>
Volodymyr Paprotski <vpaprots@ca.ibm.com>
Walter Poupore <wpoupore@google.com>
Wedson Almeida Filho <wedsonaf@google.com>
Wei Guangjing <vcc.163@gmail.com>
Will Chan <willchan@google.com>
Will Norris <willnorris@google.com>
Willem van der Schyff <willemvds@gmail.com>
William Chan <willchan@chromium.org>
William Josephson <wjosephson@gmail.com>
William Orr <will@worrbase.com> <ay1244@gmail.com>
Wisdom Omuya <deafgoat@gmail.com>
Xia Bin <snyh@snyh.org>
Xing Xing <mikespook@gmail.com>
Xudong Zhang <felixmelon@gmail.com>
Xuyang Kang <xuyangkang@gmail.com>
Yan Zou <yzou@google.com>
Yann Kerherv <yann.kerherve@gmail.com>
Yao Zhang <lunaria21@gmail.com>
Yasuharu Goto <matope.ono@gmail.com>
Yasuhiro Matsumoto <mattn.jp@gmail.com>
Yesudeep Mangalapilly <yesudeep@google.com>
Yissakhar Z. Beck <yissakhar.beck@gmail.com>
Yo-An Lin <yoanlin93@gmail.com>
Yongjian Xu <i3dmaster@gmail.com>
Yorman Arias <cixtords@gmail.com>
Yoshiyuki Kanno <nekotaroh@gmail.com> <yoshiyuki.kanno@stoic.co.jp>
Yu
Heng Zhang <annita.zhang@cn.ibm.com>
Yu Xuan Zhang <zyxsh@cn.ibm.com>
Yuki Yugui Sonoda <yugui@google.com>
Yusuke Kagiwada <block.rxckin.beats@gmail.com>
Yuusei Kuwana <kuwana@kumama.org>
Yuval Pavel Zholkover <paulzhol@gmail.com>
Yves Junqueira <yvesj@google.com> <yves.junqueira@gmail.com>
Zac Bergquist <zbergquist99@gmail.com>
Zev Goldstein <zev.goldstein@gmail.com>
Zhongwei Yao <zhongwei.yao@arm.com>
Ziad Hatahet <hatahet@gmail.com>
Zorion Arrizabalaga <zorionk@gmail.com>
<faxriddinjon@gmail.com>
<bronze1man@gmail.com>

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.370 fastapi 0.68.2

1.370.1 Available under license :

The MIT License (MIT)

Copyright (c) 2018 Sebastin Ramrez

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT

1.371 tzdata 2021.5

1.371.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache Software License 2.0

Copyright (c) 2020, Paul Ganssle (Google)

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.372 golang 1.15.13

1.372.1 Available under license :

```
# This is the official list of people who can contribute
# (and typically have contributed) code to the Go repository.
# The AUTHORS file lists the copyright holders; this file
# lists people.  For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
# Names should be added to this file only after verifying that
# the individual or the individual's organization has agreed to
# the appropriate Contributor License Agreement, found here:
#
#     http://code.google.com/legal/individual-cla-v1.0.html
#     http://code.google.com/legal/corporate-cla-v1.0.html
#
# The agreement for individuals can be filled out on the web.

# Names should be added to this file like so:
#     Individual's name <submission email address>
#     Individual's name <submission email address> <email2> <emailN>
#
# An entry with multiple email addresses specifies that the
# first address should be used in the submit logs and
# that the other addresses should be recognized
 as the
# same person when interacting with Gerrit.

# Please keep the list sorted.

Aamir Khan <syst3m.w0rm@gmail.com>
Aaron Beitch <aaronb@arista.com>
Aaron Bieber <deftly@gmail.com>
Aaron Cannon <cannona@fireantproductions.com>
Aaron France <aaron.l.france@gmail.com>
Aaron Jacobs <jacobsa@google.com>
Aaron Kemp <kemp.aaron@gmail.com>
Aaron Patterson <tenderlove@ruby-lang.org>
Aaron Stein <aaronstein12@gmail.com>
Aaron Torres <tcboox@gmail.com>
Aaron Zinman <aaron@azinman.com>
Aarti Parikh <aarti.parikh@gmail.com>
Abdullah Al Maruf <mymail.maruf@gmail.com>
Abe Haskins <abeisgreat@abeisgreat.com>
Abhinav Gupta <abhinav.g90@gmail.com>
Adam Azarchs <adam.azarchs@10xgenomics.com>
Adam Bender <abender@google.com>
```

Adam Eijdenberg <adam@continusec.com>
Adam Harvey <aharvey@php.net>
Adam Kisala <adam.kisala@gmail.com>
Adam Langley <agl@golang.org>
Adam Medzinski <adam.medzinski@gmail.com>
Adam Shannon <adamkshannon@gmail.com>
Adam Shelton <aashelt90@gmail.com>
Adam Sindelar <adamsh@google.com>
Adam
Thomason <athomason@gmail.com>
Adam Williams <pwnfactory@gmail.com>
Adam Woodbeck <adam@woodbeck.net>
Adarsh Ravichandran <adarshravichandran91@gmail.com>
Aditya Harindar <aditya.harindar@gmail.com>
Aditya Mukerjee <dev@chimeracoder.net>
Adrian Hesketh <adrianhesketh@hushmail.com>
Adrian Nos <nos.adrian@gmail.com>
Adrian O'Grady <elpollouk@gmail.com>
Adrien Bustany <adrien-xx-google@bustany.org>
Adrien Delorme <adrien.delorme@icloud.com>
Adrien Petel <peteladrien@gmail.com>
Acio Jnior <aeciodantasjunior@gmail.com>
Aeneas Rekkas (arekkas) <aeneas@ory.am>
Afanasev Stanislav <phpprogger@gmail.com>
Agis Anastasopoulos <agis.anast@gmail.com>
Agniva De Sarker <agnivade@yahoo.co.in>
Ahmed Wahed <oneofone@gmail.com>
Ahmet Alp Balkan <ahmetb@google.com>
Ahmet Soormally <ahmet@mangomm.co.uk>
Ahmy Yulrizka <yulrizka@gmail.com>
Ahsun Ahmed <ahmed.ahsun@gmail.com>
Aiden Scandella <ai@uber.com>
Ainar Garipov <gugl.zadolbal@gmail.com>
Aishraj Dahal <aishraj@users.noreply.github.com>
Akhil Indurti
<aindurti@gmail.com>
Akihiro Suda <suda.kyoto@gmail.com>
Akshat Kumar <seed@mail.nanosouffle.net>
Al Cutter <al@google.com>
Alan Braithwaite <alan@ipaddr.org>
Alan Donovan <adonovan@google.com>
Alan Shreve <alan@inconshreveable.com>
Albert Nigmatzianov <albertnigma@gmail.com>
Albert Strasheim <fullung@gmail.com>
Albert Teoh <albert.teoh@gmail.com>
Albert Yu <yukinying@gmail.com>
Alberto Bertogli <albertito@blitiri.com.ar>
Alberto Donizetti <alb.donizetti@gmail.com>

Alberto Garca Hierro <alberto@garciahierro.com> <alberto.garcia.hierro@gmail.com>
Alec Benzer <alec.benzer@gmail.com>
Aleksa Sarai <cyphar@cyphar.com>
Aleksandar Dezelin <dezelin@gmail.com>
Aleksandr Lukinykh <a.lukinykh@xsolla.com>
Aleksandr Razumov <ar@cydev.ru>
Alekseev Artem <a.artem060@gmail.com>
Alessandro Arzilli <alessandro.arzilli@gmail.com>
Alessandro Baffa <alessandro.baffa@gmail.com>
Alex A Skinner <alex@lx.lc>
Alex Brainman <alex.brainman@gmail.com>
Alex Bramley <abramley@google.com>
Alex Browne <stephenalexbrowne@gmail.com>
Alex
Buchanan <buchanae@gmail.com>
Alex Carol <alex.carol.c@gmail.com>
Alex Gaynor <alex@alloy.us>
Alex Harford <alex.harford@saucelabs.com>
Alex Jin <toalexjin@gmail.com>
Alex Kohler <alexjohnkohler@gmail.com>
Alex Myasoedov <msoedov@gmail.com>
Alex Plugaru <alex@plugaru.org> <alexandru.plugaru@gmail.com>
Alex Schroeder <alex@gnu.org>
Alex Sergeyev <abc@alexsergeyev.com>
Alex Tokarev <aleksator@gmail.com>
Alex Vaghin <crhyme@google.com>
Alex Zhirov <azhirov@google.com>
Alexander Demakin <alexander.demakin@gmail.com>
Alexander Dring <email@alexd.ch>
Alexander F Rdseth <alexander.rodseth@appeartv.com>
Alexander Greim <alexxx@iltempo.de>
Alexander Guz <kalimatas@gmail.com>
Alexander Kauer <alexander@affine.space>
Alexander Kucherenko <alxkchr@gmail.com>
Alexander Larsson <alexander.larsson@gmail.com>
Alexander Lourier <aml@rulezz.ru>
Alexander Menzhinsky <amenzhinsky@gmail.com>
Alexander Morozov <lk4d4math@gmail.com>
Alexander Neumann <alexander@bumpern.de>
Alexander
Nohe <alex.nohe427@gmail.com>
Alexander Orlov <alexander.orlov@loxal.net>
Alexander Pantyukhin <apantykhin@gmail.com>
Alexander Polcyn <apolcyn@google.com>
Alexander Rakoczy <alex@golang.org>
Alexander Reece <awreece@gmail.com>
Alexander Surma <surma@surmair.de>
Alexander Zhavnerchik <alex.vizor@gmail.com>

Alexander Zillion <alex@alexzillion.com>
Alexander Zolotov <goldifit@gmail.com>
Alexandr Mayorskiy <a.mayorskiy@corp.mail.ru>
Alexandre Cesaro <alexandre.cesaro@gmail.com>
Alexandre Fiori <fiorix@gmail.com>
Alexandre Maari <draeron@gmail.com>
Alexandre Normand <alexandre.normand@gmail.com>
Alexandre Parentea <aubonbeurre@gmail.com>
Alexandre Viau <alexandre@alexandreviau.net>
Alexandru Mooi <brtzsnr@gmail.com>
Alexei Sholik <alcosholik@gmail.com>
Alexey Alexandrov <aalexand@google.com>
Alexey Borzenkov <snaury@gmail.com>
Alexey Naidonov <alexey.naidyonov@gmail.com>
Alexey Neganov <neganovalexey@gmail.com>
Alexey Palazhchenko <alexey.palazhchenko@gmail.com>
Alexey Semenyuk <alexsemenyuk88@gmail.com>
Alexis
Hildebrandt <surryhill@gmail.com>
Alexis Hunt <lexer@google.com>
Alexis Imperial-Legrand <ail@google.com>
Ali Farooq <ali.farooq0@pm.me>
Ali Rizvi-Santiago <arizvisa@gmail.com>
Aliaksandr Valialkin <valyala@gmail.com>
Alif Rachmawadi <subosito@gmail.com>
Allan Simon <allan.simon@supinfo.com>
Allen Li <ayatane@google.com>
Alok Menghrajani <alok.menghrajani@gmail.com>
Aman Gupta <aman@tmm1.net>
Amarjeet Anand <amarjeetanandsingh@gmail.com>
Amir Mohammad Saied <amir@gluegadget.com>
Amr Mohammed <merodiro@gmail.com>
Amrut Joshi <amrut.joshi@gmail.com>
An Long <aisk1988@gmail.com>
An Xiao <hac@zju.edu.cn>
Anand K. Mistry <anand@mistry.ninja>
Anders Pearson <anders@columbia.edu>
Anderson Queiroz <contato@andersonq.eti.br>
Andr Carvalho <asantostc@gmail.com>
Andr Martins <aanm90@gmail.com>
Andre Nathan <andrenth@gmail.com>
Andrea Nodari <andrea.nodari91@gmail.com>
Andrea Spadaccini <spadaccio@google.com>
Andreas Auernhammer <aead@mail.de>
Andreas Jellinghaus <andreas@ionisiert.de>
<anj@google.com>
Andreas Litt <andreas.litt@gmail.com>
Andrei Enshin <b1os@bk.ru>

Andrei Gherzan <andrei@resin.io>
Andrei Korzhevskii <a.korzhevskiy@gmail.com>
Andrei Matei <andrei@cockroachlabs.com>
Andrei Tudor Clin <mail@acln.ro>
Andrei Vagin <avagin@google.com>
Andrei Vieru <euvieru@gmail.com>
Andres Erbsen <andreser@google.com>
Andres Lowrie <andres.lowrie@gmail.com>
Andrew Austin <andrewaclt@gmail.com>
Andrew Balholm <andybalholm@gmail.com>
Andrew Benton <andrewmbenton@gmail.com>
Andrew Bonventre <andybons@chromium.org>
Andrew Braunstein <awbraunstein@gmail.com>
Andrew Bursavich <abursavich@gmail.com>
Andrew Ekstedt <andrew.ekstedt@gmail.com>
Andrew Etter <andrew.etter@gmail.com>
Andrew G. Morgan <agm@google.com>
Andrew Gerrand <adg@golang.org>
Andrew Harding <andrew@spacemonkey.com>
Andrew Jackura <ajackura@google.com>
Andrew Louis <alouis@digitalocean.com>
Andrew Lutomirski <andy@luto.us>
Andrew Medvedev <andrew.y.medvedev@gmail.com>
Andrew Pilloud <andrewpilloud@igneoussystems.com>
Andrew
Pogrebnoy <absourd.noise@gmail.com>
Andrew Poydence <apoydence@pivotal.io>
Andrew Pritchard <awpritchard@gmail.com>
Andrew Radev <andrey.radev@gmail.com>
Andrew Skiba <skibaa@gmail.com>
Andrew Stormont <astormont@racktopsystems.com>
Andrew Stribblehill <ads@wompom.org>
Andrew Szeto <andrew@jabagawee.com>
Andrew Todd <andrew.todd@wework.com>
Andrew Werner <andrew@upthere.com> <awerner32@gmail.com>
Andrew Wilkins <axwalk@gmail.com>
Andrew Williams <williams.andrew@gmail.com>
Andrew Z Allen <me@andrewzallen.com>
Andrey Mirtchovski <mirtchovski@gmail.com>
Andrey Petrov <andrey.petrov@shazow.net>
Andrii Soldatenko <andrii.soldatenko@gmail.com>
Andrii Soluk <isoluchok@gmail.com>
Andriy Lytvynov <lytvynov.a.v@gmail.com>
Andrzej eel <andrii.zhezhel@gmail.com>
Andy Balholm <andy@balholm.com>
Andy Davis <andy@bigandian.com>
Andy Finkenstadt <afinkenstadt@zynga.com>
Andy Lindeman <andy@lindeman.io>

Andy Maloney <asmaloney@gmail.com>
Andy Pan <panjf2000@gmail.com>
Andy Walker
<walkeraj@gmail.com>
Andy Wang <cbeuw.andy@gmail.com>
Andzej Maciusovic <andzej.maciusovic@gmail.com>
Anfernee Yongkun Gui <anfernee.gui@gmail.com>
Angelo Bulfone <mbulfone@gmail.com>
Anh Hai Trinh <anh.hai.trinh@gmail.com>
Anit Gandhi <anitgandhi@gmail.com>
Ankit Goyal <ankit3goyal@gmail.com>
Anmol Sethi <anmol@aubble.com>
Annirudh Prasad <annirudh@wandb.com>
Anschel Schaffer-Cohen <anschelsc@gmail.com>
Anthony Alves <cvballa3g0@gmail.com>
Anthony Canino <anthony.canino1@gmail.com>
Anthony Eufemio <anthony.eufemio@gmail.com>
Anthony Fok <foka@debian.org>
Anthony Martin <ality@pbrane.org>
Anthony Sottile <asottile@umich.edu>
Anthony Starks <ajstarks@gmail.com>
Anthony Voutas <voutasaurus@gmail.com>
Anthony Woods <awoods@raintank.io>
Antoine GIRARD <sapk@sapk.fr>
Antoine Martin <antoine97.martin@gmail.com>
Anton Gyllenberg <anton@iki.fi>
Anton Kuklin <anton.a.kuklin@gmail.com>
Antonin Amand <antonin.amand@gmail.com>
Antonio Antelo <aantelov87@gmail.com>
Antonio Bibiano <antbbn@gmail.com>
Antonio
Huete Jimenez <tuxillo@quantumachine.net>
Antonio Murdaca <runcom@redhat.com>
Antonio Troina <thoeni@gmail.com>
Anze Kolar <me@akolar.com>
Aofei Sheng <aofei@aofeisheng.com>
Apisak Darakananda <pongad@gmail.com>
Aram Hvrneanu <aram@mgk.ro>
Araragi Hokuto <kanseihonbucho@protonmail.com>
Arash Bina <arash@arash.io>
Arda Gl <ardaguclu@gmail.com>
Areski Belaid <areski@gmail.com>
Ariel Mashraki <ariel@mashraki.co.il>
Arkadi Pyuro <arkadi@google.com>
Arlo Breault <arlolra@gmail.com>
Arnaud Ysmal <arnaud.ysmal@gmail.com>
Arne Hormann <arnehormann@gmail.com>
Arnout Engelen <arnout@bzzt.net>

Aron Nopanen <aron.nopanen@gmail.com>
Artem Alekseev <artem.alekseev@intel.com>
Artem Kolin <artemkaxboy@gmail.com>
Arthur Fabre <arthur@arthurfabre.com>
Arthur Khashaev <arthur@khashaev.ru>
Artyom Pervukhin <artyom.pervukhin@gmail.com>
Arvindh Rajesh Tamilmani <art@a-30.net>
Ashish Gandhi <ag@ashishgandhi.org>
Asim Shankar <asimshankar@gmail.com>
Atin Malaviya <amalaviy@akamai.com>
Ato Araki
<ato.araki@gmail.com>
Audrey Lim <audreylh@gmail.com>
Audrius Butkevicius <audrius.butkevicius@gmail.com>
Augusto Roman <aroman@gmail.com>
Aulus Egnatius Varialus <varialus@gmail.com>
Aurlien Rainone <aurelien.rainone@gmail.com>
Aurlio A. Heckert <aurium@gmail.com>
Austin Clements <austin@google.com> <aclements@csail.mit.edu>
Avi Flax <avi@timehop.com>
awaw fumin <awawfumin@gmail.com>
Awn Umar <awn@cryptolosophy.io>
Axel Wagner <axel.wagner.hh@googlemail.com>
Ayan George <ayan@ayan.net>
Ayanamist Yang <ayanamist@gmail.com>
Ayke van Laethem <aykevanlaethem@gmail.com>
Aymerick Jhanne <aymerick@jehanne.org>
Azat Kaumov <kaumov.a.r@gmail.com>
Baiju Muthukadan <baiju.m.mail@gmail.com>
Balaram Makam <bmakam.qdt@qualcommdatacenter.com>
Balazs Lecz <leczb@google.com>
Baokun Lee <nototon@gmail.com>
Barnaby Keene <accounts@southcla.ws>
Bartosz Grzybowski <melkorm@gmail.com>
Bartosz Oler <brtsz@google.com>
Bastian Ike <bastian.ike@gmail.com>
Ben Burkert <ben@benburkert.com>
Ben Eitzen <eitzenb@golang.org>
Ben
Fried <ben.fried@gmail.com>
Ben Haines <bhainesva@gmail.com>
Ben Hoyt <benhoyt@gmail.com>
Ben Laurie <ben@links.org> <benl@google.com>
Ben Lubar <ben.lubar@gmail.com>
Ben Lynn <benlynn@gmail.com>
Ben Olive <sionide21@gmail.com>
Ben Schwartz <bemasc@google.com>
Ben Shi <powerman1st@163.com>

Ben Toews <mastahyeti@gmail.com>
Benjamin Black <b@b3k.us>
Benjamin Cable <cable.benjamin@gmail.com>
Benjamin Hsieh <tanookiben@users.noreply.github.com>
Benjamin Peterson <benjamin@python.org>
Benjamin Prosnitz <bprosnitz@google.com>
Benjamin Wester <bwester@squareup.com>
Benjamin Wuethrich <benjamin.wuethrich@gmail.com>
Benny Siegert <bsiegert@gmail.com>
Benoit Sigoure <tsunanet@gmail.com>
Berengar Lehr <Berengar.Lehr@gmx.de>
Berkant Ipek <41230766+0xbkt@users.noreply.github.com>
Bharath Thiruveedula <tbharath91@gmail.com>
Bhavin Gandhi <bhavin7392@gmail.com>
Bill Neubauer <wcn@golang.org> <wcn@google.com> <bill.neubauer@gmail.com>
Bill O'Farrell <billo@ca.ibm.com>
Bill Prin <waprin@google.com>
Bill
Thiede <couchmoney@gmail.com>
Bill Zissimopoulos <billziss@navimatics.com>
Billie Harold Cleek <bhcleek@gmail.com>
Billy Lynch <wlynch@google.com>
Billy Zaelani Malik <m.billyzaelani@gmail.com>
Bjrn Erik Pedersen <bjorn.erik.pedersen@gmail.com>
Bjorn Tillenius <bjorn@tillenius.me>
Bjorn Tipling <bjorn.tipling@gmail.com>
Blain Smith <rebelgeek@blainsmith.com>
Blake Gentry <blakesgentry@gmail.com>
Blake Mesdag <blakemesdag@gmail.com>
Blake Mizerany <blake.mizerany@gmail.com>
Blixt <me@blixt.nyc>
Bob Briski <rbriski@gmail.com>
Bob McNaughton <bobmcn@gmail.com>
Bob Potter <bobby.potter@gmail.com>
Bobby DeSimone <bobbydesimone@gmail.com>
Bobby Powers <bobbypowers@gmail.com>
Boqin Qin <bobbqqin@gmail.com>
Boris Nagaev <nagaev@google.com>
Borja Clemente <borja.clemente@gmail.com>
Brad Burch <brad.burch@gmail.com>
Brad Erickson <bderickson@gmail.com>
Brad Fitzpatrick <bradfitz@golang.org> <bradfitz@gmail.com>
Brad Garcia <bgarcia@golang.org>
Brad Jones <rbjones@google.com>
Brad
Morgan <brad@morgabra.com>
Brad Whitaker <bwhitaker@fastly.com>
Braden Bassingthwaite <bbassingthwaite@vendasta.com>

Bradford Lamson-Scribner <brad.lamson@gmail.com>
Bradley Falzon <brad@teambrad.net>
Brady Catherman <brady@gmail.com>
Brady Sullivan <brady@bsull.com>
Brandon Bennett <bbennett@fb.com>
Brandon Gilmore <varz@google.com>
Brandon Philips <brandon@ifup.org>
Brandon Ryan <bjryan19@gmail.com>
Brayden Cloud <bcloud@google.com>
Brendan Daniel Tracey <tracey.brendan@gmail.com>
Brendan O'Dea <bod@golang.org>
Brett Cannon <bcannon@gmail.com>
Brett Merrill <brett.j.merrill94@gmail.com>
Brian Dellisanti <briandellisanti@gmail.com>
Brian Downs <brian.downs@gmail.com>
Brian Falk <falk@logicparty.org>
Brian G. Merrell <bgmerrell@gmail.com>
Brian Gitonga Marete <marete@toshnix.com> <bgmarete@gmail.com> <bgm@google.com>
Brian Kennedy <btkennedy@gmail.com>
Brian Kessler <brian.m.kessler@gmail.com>
Brian Ketelsen <bketelsen@gmail.com>
Brian Slesinsky <skybrian@google.com>
Brian Smith <ohohvi@gmail.com>
Brian
Starke <brian.starke@gmail.com>
Bryan Alexander <Kozical@msn.com>
Bryan C. Mills <bcmills@google.com>
Bryan Chan <bryan.chan@ca.ibm.com>
Bryan Ford <brynosaurus@gmail.com>
Bryan Heden <b.heden@gmail.com>
Bulat Gaifullin <gaifullinbf@gmail.com>
Burak Guven <bguven@gmail.com>
Caine Tighe <arctanofyourface@gmail.com>
Caio Marcelo de Oliveira Filho <caio.oliveira@intel.com>
Caleb Martinez <accounts@calebmartinez.com>
Caleb Spare <cespare@gmail.com>
Carl Chatfield <carlchatfield@gmail.com>
Carl Henrik Lunde <chlunde@ifi.uio.no>
Carl Jackson <carl@stripe.com>
Carl Johnson <me@carlmjohnson.net>
Carl Mastrangelo <notcarl@google.com>
Carl Shapiro <cshapiro@google.com> <cshapiro@golang.org>
Carlisia Campos <carlisia@grokkingtech.io>
Carlo Alberto Ferraris <cafxx@strayorange.com>
Carlos Amedee <carlos@golang.org>
Carlos Castillo <cookieo9@gmail.com>
Carlos Cirello <uldericofilho@gmail.com>
Carlos Eduardo <me@carlosedp.com>

Carlos Eduardo Seo <cseo@linux.vnet.ibm.com>
Carlos Iriarte
<ciriarte@gmail.com>
Carlos Souza <carloshrsouza@gmail.com>
Carolyn Van Slyck <me@carolynvanslyck.com>
Carrie Bynon <cbynon@gmail.com>
Cary Hull <chull@google.com>
Case Nelson <case.nelson@gmail.com>
Casey Callendrello <squeed@gmail.com>
Casey Marshall <casey.marshall@gmail.com>
Catalin Nicutar <cnicutar@google.com>
Catalin Patulea <catalinp@google.com>
Cedric Staub <cs@squareup.com>
Cezar S Espinola <cezarsa@gmail.com>
Chad Rosier <mrosier.qdt@qualcommdatacenter.com>
ChaiShushan <chaishushan@gmail.com>
Changkun Ou <hi@changkun.us>
Channing Kimble-Brown <channing@golang.org>
Chao Xu <xuchao@google.com>
Charles Fenwick Elliott <Charles@FenwickElliott.io>
Charles Kenney <charlesc.kenney@gmail.com>
Charles L. Dorian <cldorian@gmail.com>
Charles Lee <zombie.fml@gmail.com>
Charles Weill <weill@google.com>
Chauncy Cullitan <chauncyc@google.com>
Chen Zhihan <energiehund@gmail.com>
Cherry Zhang <cherryyz@google.com>
Chew Choon Keat <choonkeat@gmail.com>
Cholerae Hu <choleraehyq@gmail.com>
Chotepud
Teo <AlexRouSg@users.noreply.github.com>
Chris Ball <chris@printf.net>
Chris Biscardi <chris@christopherbiscardi.com>
Chris Broadfoot <cbro@golang.org>
Chris Dollin <ehog.hedge@gmail.com>
Chris Farmiloe <chrisfarms@gmail.com>
Chris Hines <chris.cs.guy@gmail.com>
Chris Howey <howeyc@gmail.com>
Chris Hundt <hundt@google.com>
Chris Jones <chris@cjones.org> <chris.jones.yar@gmail.com>
Chris Kastorff <encryptio@gmail.com>
Chris Le Roy <brompwnie@users.noreply.github.com>
Chris Lennert <calennert@gmail.com>
Chris Liles <caveryliles@gmail.com>
Chris Manghane <cmang@golang.org>
Chris Marchesi <chrism@vancluevertech.com>
Chris McGee <sirnewton_01@yahoo.ca> <newton688@gmail.com>
Chris Raynor <raynor@google.com>

Chris Roche <rodaine@gmail.com>
Chris Smith <chrsmith@users.noreply.github.com>
Chris Stockton <chrisstocktonaz@gmail.com>
Chris Zou <chriszou@ca.ibm.com>
Christian Alexander <christian@linux.com>
Christian Couder <chriscool@tuxfamily.org>
Christian Himpel <chressie@googlemail.com>
<chressie@gmail.com>
Christian Muehlhaeuser <muesli@gmail.com>
Christian Pellegrin <chri@evolware.org>
Christian R. Petrin <christianpetrin@gmail.com>
Christine Hansmann <chhansmann@gmail.com>
Christoffer Buchholz <christoffer.buchholz@gmail.com>
Christoph Blecker <admin@toph.ca>
Christoph Hack <christoph@tux21b.org>
Christopher Cahoon <chris.cahoon@gmail.com>
Christopher Guiney <chris@guiney.net>
Christopher Henderson <chris@chenderson.org>
Christopher Koch <chrisko@google.com>
Christopher Loessl <cloessl+github@gmail.com>
Christopher Nelson <nadiasvertex@gmail.com>
Christopher Nielsen <m4dh4tt3r@gmail.com>
Christopher Redden <christopher.redden@gmail.com>
Christopher Swenson <cswenson@google.com>
Christopher Wedgwood <cw@f00f.org>
Christos Zoulas <christos@zoulas.com> <zoulasc@gmail.com>
Christy Perez <christy@linux.vnet.ibm.com>
CL Sung <clsung@gmail.com> <cl_sung@htc.com>
Clment Chigot <clement.chigot@atos.net>
Clement Skau <clementskau@gmail.com>
Clint J. Edwards <clint.j.edwards@gmail.com>
Cody
Oss <the.cody.oss@gmail.com>
Colby Ranger <cranger@google.com>
Colin Arnott <colin@urandom.co.uk>
Colin Cross <ccross@android.com>
Colin Edwards <colin@recursivepenguin.com>
Colin Kennedy <moshen.colin@gmail.com>
Colin Nelson <colnnelson@google.com>
Colin Rice <clr@google.com>
Conrad Irwin <conrad.irwin@gmail.com>
Conrad Meyer <cemeyer@cs.washington.edu>
Conrado Gouvea <conradoplg@gmail.com>
Constantin Konstantinidis <constantinkonstantinidis@gmail.com>
Corey Thomasson <cthom.lists@gmail.com>
Corne van der Plas <vdplas@gmail.com>
Cosmos Nicolaou <cnicolaou@google.com>
Costin Chirvasuta <ctin@google.com>

Craig Citro <craigcitro@google.com>
Cristian Staretu <unclejacksons@gmail.com>
Cuihtlauac ALVARADO <cuihtlauac.alvarado@orange.com>
Cyrill Schumacher <cyrill@schumacher.fm>
Daisuke Fujita <dtanshi45@gmail.com>
Daisuke Suzuki <daisuzu@gmail.com>
Daker Fernandes Pinheiro <daker.fernandes.pinheiro@intel.com>
Damian Gryski <dgryski@gmail.com>
Damien Lespiau <damien.lespiau@gmail.com>
<damien.lespiau@intel.com>
Damien Mathieu <42@dmathieu.com>
Damien Neil <dneil@google.com>
Damien Tournoud <damien@platform.sh>
Dan Ballard <dan@mindstab.net>
Dan Caddigan <goldcaddy77@gmail.com>
Dan Callahan <dan.callahan@gmail.com>
Dan Harrington <harringtond@google.com>
Dan Jacques <dnj@google.com>
Dan Johnson <computerdruid@google.com>
Dan Peterson <dpiddy@gmail.com>
Dan Pupius <dan@medium.com>
Dan Scales <danscales@google.com>
Dan Sinclair <dan.sinclair@gmail.com>
Daniel Cormier <danielc@knowbe4.com>
Danil de Kok <me@danieldk.eu>
Daniel Fleischman <danielfleischman@gmail.com>
Daniel Ingram <ingramds@appstate.edu>
Daniel Johansson <dajo2002@gmail.com>
Daniel Kerwin <d.kerwin@gini.net>
Daniel Krech <eikeon@eikeon.com>
Daniel Kumor <rdkumor@gmail.com>
Daniel Langner <s8572327@gmail.com>
Daniel Lidn <daniel.liden.87@gmail.com>
Daniel Lublin <daniel@lublin.se>
Daniel Mangum <georgedanielmangum@gmail.com>
Daniel Mart <mvdan@mvdan.cc>
Daniel Morsing <daniel.morsing@gmail.com>
Daniel
Nadasi <dnadasi@google.com>
Daniel Nephin <dnephin@gmail.com>
Daniel Ortiz Pereira da Silva <daniel.particular@gmail.com>
Daniel Skinner <daniel@dasa.cc>
Daniel Speichert <daniel@speichert.pl>
Daniel Theophanes <kardianos@gmail.com>
Daniel Upton <daniel@floppy.co>
Daniela Petruzalek <daniela.petruzalek@gmail.com>
Danish Dua <danishdua@google.com>
Danish Prakash <grafitykoncept@gmail.com>

Danny Rosseau <daniel.rosseau@gmail.com>
Daria Kolistratova <daria.kolistratova@intel.com>
Darien Raymond <admin@v2ray.com>
Darren Elwood <darren@textnode.com>
Darren Grant <darren.e.grant@gmail.com>
Darren McCleary <darren.rmc@gmail.com>
Darshan Parajuli <parajulidarshan@gmail.com>
Datong Sun <dndx@idndx.com>
Dave Borowitz <dborowitz@google.com>
Dave Bort <dbort@golang.org>
Dave Cheney <dave@cheney.net>
Dave Day <djd@golang.org>
Dave Grijalva <dgrijalva@ngmoco.com>
Dave MacFarlane <driusan@gmail.com>
Dave Russell <forfuncsake@gmail.com>
David Anderson <danderson@google.com>
David Barnett <dbarnett@google.com>
David
Benjamin <davidben@google.com>
David Bond <davidsbond93@gmail.com>
David Brophy <dave@brophy.uk>
David Brgin <676c7473@gmail.com>
David Calavera <david.calavera@gmail.com>
David Carlier <devnexen@gmail.com>
David Carter <fresco.raja@gmail.com>
David Chase <drchase@google.com>
David Covert <davidhcovert@gmail.com>
David Crawshaw <david.crawshaw@zentus.com> <crawshaw@google.com> <crawshaw@golang.org>
David du Colombier <0intro@gmail.com>
David Finkel <david.finkel@gmail.com>
David Forsythe <dforsythe@gmail.com>
David G. Andersen <dave.andersen@gmail.com>
David Glasser <glasser@meteor.com>
David Golden <david@autopragmatic.com>
David Heuschmann <heuschmann.d@gmail.com>
David Howden <dhowden@gmail.com>
David Hubbard <dsp@google.com>
David Jakob Fritz <david.jakob.fritz@gmail.com>
David Jones <dxjones@gmail.com>
David Lazar <lazard@golang.org>
David Leon Gil <coruus@gmail.com>
David McLeish <davemc@google.com>
David Ndungu <dnjuguna@gmail.com>
David NewHamlet <david@newhamlet.com>
David
Presotto <presotto@gmail.com>
David R. Jenni <david.r.jenni@gmail.com>
David Sansome <me@davidsansome.com>

David Stainton <dstainton415@gmail.com>
David Symonds <dsymonds@golang.org>
David Thomas <davidthomas426@gmail.com>
David Timm <dtimm@pivotal.io>
David Titarenco <david.titarenco@gmail.com>
David Tolpin <david.tolpin@gmail.com>
David Url <david@urld.io>
David Volquartz Lebech <david@lebech.info>
David Wimmer <davidlwimmer@gmail.com>
Davies Liu <davies.liu@gmail.com>
Davor Kapsa <davor.kapsa@gmail.com>
Dean Eigenmann <7621705+decanus@users.noreply.github.com>
Dean Prichard <dean.prichard@gmail.com>
Deepak Jois <deepak.jois@gmail.com>
Denis Bernard <db047h@gmail.com>
Denis Brandolini <denis.brandolini@gmail.com>
Denis Isaev <idenx@yandex.com>
Denis Nagorny <denis.nagorny@intel.com>
Dennis Kuhnert <mail.kuhnert@gmail.com>
Denys Honsiorovskyi <honsiorovskyi@gmail.com>
Denys Smirnov <denis.smirnov.91@gmail.com>
Derek Buitenhuis <derek.buitenhuis@gmail.com>
Derek
Che <drc@yahoo-inc.com>
Derek McGowan <derek@mcgstyle.net>
Derek Parker <parkerderek86@gmail.com>
Derek Phan <derekphan94@gmail.com>
Derek Shockey <derek.shockey@gmail.com>
Dev Ojha <dojha12@gmail.com>
Dev Zhoujun <dev.zhoujun@gmail.com>
Devon H. O'Dell <devon.odell@gmail.com>
Dhaivat Pandit <dhaivatpandit@gmail.com>
Dhananjay Nakrani <dhananjayn@google.com>
Dhiru Kholia <dhiru.kholia@gmail.com>
Dhruvdutt Jadhav <dhruvdutt.jadhav@gmail.com>
Di Xiao <dixiao@google.com>
Didier Spezia <didier.06@gmail.com>
Diego Siqueira <diego9889@gmail.com>
Dieter Plaetinck <dieter@raintank.io>
Dimitri Sokolyuk <sokolyuk@gmail.com>
Dimitri Tcaciuc <dtcaciuc@gmail.com>
Dina Garmash <dgrmsh@gmail.com>
Diogo Pinela <diogoid7400@gmail.com>
Dirk Gadsden <dirk@esherido.com>
Diwaker Gupta <diwakergupta@gmail.com>
Dmitri Goutnik <dgoutnik@gmail.com>
Dmitri Popov <operator@cv.dp-net.com>
Dmitri Shuralyov <dmitshur@golang.org> <dmitri@shuralyov.com>

Dmitriy Cherchenko <dcherchenko@gmail.com>
Dmitriy Dudkin <dudkin.dmitriy@gmail.com>
Dmitriy
Shelenin <deemok@googlemail.com> <deemok@gmail.com>
Dmitriy Vyukov <dvyukov@google.com>
Dmitry Chestnykh <dchest@gmail.com>
Dmitry Doroginin <doroginin@gmail.com>
Dmitry Mottl <dmitry.mottl@gmail.com>
Dmitry Neverov <dmitry.neverov@gmail.com>
Dmitry Savintsev <dsavints@gmail.com>
Dmitry Yakunin <nonamezeil@gmail.com>
Doga Fincan <doga@icloud.com>
Domas Tamaauskas <puerdomus@gmail.com>
Domen Ipavec <domen@ipavec.net>
Dominic Green <dominicgreen1@gmail.com>
Dominik Honnef <dominik.honnef@gmail.com>
Dominik Vogt <vogt@linux.vnet.ibm.com>
Don Byington <don@dbyington.com>
Donald Huang <don.hcd@gmail.com>
Dong-hee Na <donghee.na92@gmail.com>
Donovan Hide <donovanhide@gmail.com>
Doug Anderson <douga@google.com>
Doug Fawley <dfawley@google.com>
Douglas Danger Manley <doug.manley@gmail.com>
Drew Flower <drewvanstone@gmail.com>
Drew Hintz <adhintz@google.com>
Duco van Amstel <duco.vanamstel@gmail.com>
Duncan Holm <mail@frou.org>
Dustin Carlino <dcarlino@google.com>
Dustin
Herbison <djherbis@gmail.com>
Dustin Long <dustmop@gmail.com>
Dustin Sallings <dsallings@gmail.com>
Dustin Shields-Cloues <dcloues@gmail.com>
Dvir Volk <dvir@everything.me> <dvirsky@gmail.com>
Dylan Waits <dylan@waits.io>
Ed Schouten <ed@nuxi.nl>
Edan Bedrik <3d4nb3@gmail.com>
Eddie Scholtz <escholtz@google.com>
Eden Li <eden.li@gmail.com>
Eduard Urbach <e.urbach@gmail.com>
Eduardo Ramalho <eduardo.ramalho@gmail.com>
Eduardo Villaseor <evillasrmx@gmail.com>
Edward Muller <edwardam@interlix.com>
Egon Elbre <egonelbre@gmail.com>
Ehren Kret <ehren.kret@gmail.com>
Eitan Adler <lists@eitanadler.com>
Eivind Uggedal <eivind@uggedal.com>

Elbert Fliek <efliek@gmail.com>
Eldar Rakhimberdin <ibeono@gmail.com>
Elena Grahovac <elena@grahovac.me>
Eli Bendersky <eliben@google.com>
Elias Naur <mail@eliasnaur.com> <elias.naur@gmail.com>
Elliot Morrison-Reed <elliotmr@gmail.com>
Ellison Leao <ellisonleao@gmail.com>
Emerson Lin <linyintor@gmail.com>
Emil Hessman <emil@hessman.se>
Emil Mursalimov <mursalimovemeel@gmail.com>
Emilien
Kenler <hello@emilienkenler.com>
Emmanuel Odeke <emm.odeke@gmail.com> <odeke@ualberta.ca>
Emrecan Bati <emrecanbati@gmail.com>
Eno Compton <enocom@google.com>
Eoghan Sherry <ejsherry@gmail.com>
Eric Biggers <ebiggers@google.com>
Eric Brown <browne@vmware.com>
Eric Chiang <eric.chiang.m@gmail.com>
Eric Clark <zerohp@gmail.com>
Eric Daniels <eric@erdaniels.com>
Eric Engestrom <eric@engestrom.ch>
Eric Garrido <ekg@google.com>
Eric Koleda <ekoleda+devrel@google.com>
Eric Lagergren <ericscottlagergren@gmail.com>
Eric Milliken <emilliken@gmail.com>
Eric Pauley <eric@pauley.me>
Eric Ponce <tricokun@gmail.com>
Eric Rescorla <ekr@rtfm.com>
Eric Roshan-Eisner <eric.d.eisner@gmail.com>
Eric Rutherford <erutherford@gmail.com>
Eric Rykwalder <e.rykwalder@gmail.com>
Erick Tryzelaar <etryzelaar@google.com>
Erik Aigner <aigner.erik@gmail.com>
Erik Dubbelboer <erik@dubbelboer.com>
Erik St. Martin <alakriti@gmail.com>
Erik Staab <estaab@google.com>
Erik Westrup <erik.westrup@gmail.com>
Erin
Masatsugu <erin.masatsugu@gmail.com>
Ernest Chiang <ernest_chiang@htc.com>
Erwin Oegema <blablaechthema@hotmail.com>
Esko Luontola <esko.luontola@gmail.com>
Ethan Burns <eaburns@google.com>
Ethan Miller <eamiller@us.ibm.com>
Euan Kemp <euank@euank.com>
Eugene Formanenko <mo4islona@gmail.com>
Eugene Kalinin <e.v.kalinin@gmail.com>

Evan Broder <evan@stripe.com>
Evan Brown <evanbrown@google.com>
Evan Digby <evandigby@gmail.com>
Evan Hicks <evan.hicks2@gmail.com>
Evan Jones <ej@evanjones.ca>
Evan Klitzke <evan@eklitzke.org>
Evan Kroske <evankroske@google.com>
Evan Martin <evan.martin@gmail.com>
Evan Phoenix <evan@phx.io>
Evan Shaw <chickencha@gmail.com>
Evgeniy Kulikov <tuxuls@gmail.com>
Evgeniy Polyakov <zbr@ioremap.net>
Ewan Chou <coocood@gmail.com>
Ewan Valentine <ewan.valentine89@gmail.com>
Eyal Posener <posener@gmail.com>
Fabian Wickborn <fabian@wickborn.net>
Fabian Zaremba <fabian@youremail.eu>
Fabrizio Milo <mistobaan@gmail.com>
Faiyaz Ahmed <ahmedf@vmware.com>
Fan
Hongjian <fan.howard@gmail.com>
Fangming Fang <fangming.fang@arm.com>
Fannie Zhang <fannie.zhang@arm.com>
Fatih Arslan <fatih@arslan.io>
Fazal Majid <majid@apsalar.com>
Fazlul Shahriar <fshahriar@gmail.com>
Federico Bond <federicobond@gmail.com>
Federico Simoncelli <fsimonce@redhat.com>
Fedor Indutny <fedor@indutny.com>
Fedor Korotkiy <dartslon@gmail.com>
Felipe Oliveira <felipeweb.programador@gmail.com>
Felix Bnemann <Felix.Buenemann@gmail.com>
Felix Cornelius <9767036+fcornelius@users.noreply.github.com>
Felix Geisendrfer <haimuiba@gmail.com>
Felix Kollmann <fk@konsorten.de>
Ferenc Szabo <frncmx@gmail.com>
Filip Gruszczyski <gruszczy@gmail.com>
Filip Haglund <drathier@users.noreply.github.com>
Filip Stanis <fstanis@google.com>
Filippo Valsorda <filippo@golang.org> <filippo@cloudflare.com> <hi@filippo.io>
Firmansyah Adiputra <frm.adiputra@gmail.com>
Florian Forster <octo@google.com>
Florian Uekermann <florian@uekermann-online.de> <f1@uekermann-online.de>
Florian Weimer <fw@deneb.enyo.de>
Florin
Patan <florinpatan@gmail.com>
Folke Behrens <folke@google.com>
Ford Hurley <ford.hurley@gmail.com>

Francesc Campoy <campoy@golang.org>
Francesco Renzi <rentziass@gmail.com>
Francisco Claude <fclaude@recoded.cl>
Francisco Rojas <francisco.rojas.gallegos@gmail.com>
Francisco Souza <franciscossouza@gmail.com>
Frank Schroeder <frank.schroeder@gmail.com>
Frank Somers <fsomers@arista.com>
Frederic Guillot <frederic.guillot@gmail.com>
Frederick Kelly Mayle III <frederickmayle@gmail.com>
Frederik Ring <frederik.ring@gmail.com>
Frederik Zipp <fzipp@gmx.de>
Fredrik Enestad <fredrik.enestad@soundtrackyourbrand.com>
Fredrik Forsmo <fredrik.forsmo@gmail.com>
Fredrik Wallgren <fredrik.wallgren@gmail.com>
Frew Schmidt <github@frew.co>
Frithjof Schulze <schulze@math.uni-hannover.de> <sfrithjof@gmail.com>
Frits van Bommel <fvbommel@gmail.com>
Fujimoto Kyosuke <kyoro.f@gmail.com>
Fumitoshi Ukai <ukai@google.com>
G. Hussain Chinoy <ghchinoy@gmail.com>
Gaal Yahas <gaal@google.com>
Gabrel
Arthr Ptursson <gabriel@system.is>
Gabriel Aszalos <gabriel.aszalos@gmail.com>
Gabriel Guzman <gabe.guzman@gmail.com>
Gabriel Nelle <tehsphinx@web.de>
Gabriel Nicolas Avellaneda <avellaneda.gabriel@gmail.com>
Gabriel Rosenhouse <rosenhouse@gmail.com>
Gabriel Russell <gabriel.russell@gmail.com>
Gareth Paul Jones <gpj@foursquare.com>
Garret Kelly <gdk@google.com>
Garrick Evans <garrick@google.com>
Gary Burd <gary@beagledreams.com> <gary.burd@gmail.com>
Gary Elliott <garyelliott@google.com>
Gaurish Sharma <contact@gaurishsharma.com>
Gautham Thambidorai <gautham.dorai@gmail.com>
Gauthier Jolly <gauthier.jolly@gmail.com>
Gawen Arab <gawen.arab@c.zen.ly>
Geert-Johan Riemer <gjr19912@gmail.com>
Genevieve Luyt <genevieve.luyt@gmail.com>
Gengliang Wang <ltnwgl@gmail.com>
Geoff Berry <gberry.qdt@qualcommdatacenter.com>
Geoffroy Lorieux <lorieux.g@gmail.com>
Geon Kim <geon0250@gmail.com>
Georg Reinke <guelfey@gmail.com>
George Gkirtsou <ggirtsou@gmail.com>
George Hartzell <hartzell@alerce.com>
George

Shammas <george@shamm.as> <georgyo@gmail.com>
Gerasimos (Makis) Maropoulos <kataras2006@hotmail.com>
Gerasimos Dimitriadis <gedimitr@gmail.com>
Gergely Brautigam <skarlso777@gmail.com>
Gernot Vormayr <gvormayr@gmail.com>
Gert Cuykens <gert.cuykens@gmail.com>
Getulio Snchez <valentin2507@gmail.com>
Ghazni Nattarshah <ghazni.nattarshah@gmail.com>
Gianguido Sora` <g.sora4@gmail.com>
Gideon Jan-Wessel Redelinghuys <gjredelinghuys@gmail.com>
Giles Lean <giles.lean@pobox.com>
Giovanni Bajo <rasky@develer.com>
GitHub User @aca (50316549) <acadx0@gmail.com>
GitHub User @ajnirp (1688456) <ajnirp@users.noreply.github.com>
GitHub User @ajz01 (4744634) <ajzdenek@gmail.com>
GitHub User @alkesh26 (1019076) <alkesh26@gmail.com>
GitHub User @andig (184815) <cpuidle@gmx.de>
GitHub User @andrius4669 (4699695) <andrius4669@gmail.com>
GitHub User @as (8127015) <as.utf8@gmail.com>
GitHub User @bakape (7851952) <bakape@gmail.com>
GitHub User @bgadrian (830001) <aditza8@gmail.com>
GitHub User @bontequero
(2674999) <bontequero@gmail.com>
GitHub User @cch123 (384546) <buaa.cch@gmail.com>
GitHub User @chainhelen (7046329) <chainhelen@gmail.com>
GitHub User @chanxuehong (3416908) <chanxuehong@gmail.com>
GitHub User @cncal (23520240) <flycalvin@qq.com>
GitHub User @DQNEO (188741) <dqneoo@gmail.com>
GitHub User @Dreamacro (8615343) <chuainian@gmail.com>
GitHub User @dupoxy (1143957) <dupoxy@users.noreply.github.com>
GitHub User @erifan (31343225) <eric.fang@arm.com>
GitHub User @esell (9735165) <eujon.sellers@gmail.com>
GitHub User @fatedier (7346661) <fatedier@gmail.com>
GitHub User @frennkie (6499251) <mail@rhab.de>
GitHub User @geedchin (11672310) <geedchin@gmail.com>
GitHub User @GrigoriyMikhalkin (3637857) <grigoriymikhalkin@gmail.com>
GitHub User @hengwu0 (41297446) <41297446+hengwu0@users.noreply.github.com>
GitHub User @itchyny (375258) <itchyny@hatena.ne.jp>
GitHub User @jinmiaoluo (39730824) <jinmiaoluo@icloud.com>
GitHub User @jopbrown (6345470) <msshane2008@gmail.com>
GitHub User
@kazyshr (30496953) <kazyshr0301@gmail.com>
GitHub User @kc1212 (1093806) <kc1212@users.noreply.github.com>
GitHub User @Kropekk (13366453) <kamilkropiewnicki@gmail.com>
GitHub User @linguohua (3434367) <lghchinaidea@gmail.com>
GitHub User @LotusFenn (13775899) <fenn.lotus@gmail.com>
GitHub User @ly303550688 (11519839) <yang.liu636@gmail.com>
GitHub User @madiganz (18340029) <zacharywmadigan@gmail.com>

GitHub User @maltalex (10195391) <code@bit48.net>
GitHub User @Matts966 (28551465) <Matts966@users.noreply.github.com>
GitHub User @micnncim (21333876) <micnncim@gmail.com>
GitHub User @mkishere (224617) <224617+mkishere@users.noreply.github.com>
GitHub User @nu50218 (40682920) <nu_ll@icloud.com>
GitHub User @OlgaVlPetrova (44112727) <OVPpetrova@gmail.com>
GitHub User @pityonline (438222) <pityonline@gmail.com>
GitHub User @po3rin (29445112) <abctail30@gmail.com>
GitHub User @pokutuna (57545) <popopopopokutuna@gmail.com>
GitHub User @pytimer (17105586) <lixin20101023@gmail.com>
GitHub
User @ramenjuniti (32011829) <ramenjuniti@gmail.com>
GitHub User @saitarunreddy (21041941) <saitarunreddypalla@gmail.com>
GitHub User @shogo-ma (9860598) <Choroma194@gmail.com>
GitHub User @skanehira (7888591) <sho19921005@gmail.com>
GitHub User @tatsumack (4510569) <tatsu.mack@gmail.com>
GitHub User @tell-k (26263) <ffk2005@gmail.com>
GitHub User @tennashi (10219626) <tennashio@gmail.com>
GitHub User @uhei (2116845) <uhei@users.noreply.github.com>
GitHub User @uropek (39370426) <uropek@gmail.com>
GitHub User @utkarsh-extc (53217283) <utkarsh.extc@gmail.com>
GitHub User @witchard (4994659) <witchard@hotmail.co.uk>
GitHub User @yah01 (12216890) <kagaminehuan@gmail.com>
GitHub User @yuanhh (1298735) <yuan415030@gmail.com>
GitHub User @zikaeroh (48577114) <zikaeroh@gmail.com>
GitHub User @ZZMarquis (7624583) <zhonglingjian3821@163.com>
Giulio Iotti <dullgiulio@gmail.com>
Giulio Micheloni <giulio.micheloni@gmail.com>
Giuseppe Valente <gvalente@arista.com>
Gleb Stepanov <glebstepanov1992@gmail.com>
Glenn
Brown <glennb@google.com>
Glenn Lewis <gmlewis@google.com>
Gordon Klaus <gordon.klaus@gmail.com>
Gordon Tyler <gordon@doxxx.net>
Graham King <graham4king@gmail.com>
Graham Miller <graham.miller@gmail.com>
Grant Griffiths <ggp493@gmail.com>
Greg Poirier <greg.istehbest@gmail.com>
Greg Steuck <gnezdo+github@google.com>
Greg Thelen <gthelen@google.com>
Greg Ward <greg@gerg.ca>
Grgoire Delattre <gregoire.delattre@gmail.com>
Gregory Man <man.gregory@gmail.com>
Gregory Petrosyan <gregory.petrosyan@gmail.com>
Guilherme Caruso <gui.martinscaruso@gmail.com>
Guilherme Garnier <guilherme.garnier@gmail.com>
Guilherme Goncalves <guilhermeaugustosg@gmail.com>

Guilherme Rezende <guilhermebr@gmail.com>
Guillaume J. Charmes <guillaume@charmes.net>
Gnther Noack <gnoack@google.com>
Guobiao Mei <meiguobiao@gmail.com>
Guoliang Wang <iamwgliang@gmail.com>
Gustav Paul <gustav.paul@gmail.com>
Gustav Westling <gustav@westling.xyz>
Gustavo Franco <gustavorfranco@gmail.com>
Gustavo Niemeyer <gustavo@niemeyer.net>
<n13m3y3r@gmail.com>
Gwenael Treguier <gwenn.kahz@gmail.com>
Gyu-Ho Lee <gyuhox@gmail.com>
H. brahim Gngr <igungor@gmail.com>
Hajime Hoshi <hajimehoshi@gmail.com>
Hallgrimur Gunnarsson <halg@google.com>
HAMANO Tsukasa <hamano@osstech.co.jp>
Han-Wen Nienhuys <hanwen@google.com>
Hang Qian <hangqian90@gmail.com>
Hanjun Kim <hallazzang@gmail.com>
Haosdent Huang <haosdent@gmail.com>
Harald Nordgren <haraldnordgren@gmail.com>
Hari haran <hariharan.uno@gmail.com>
Hariharan Srinath <srinathh@gmail.com>
Harley Laue <losinggeneration@gmail.com>
Harry Moreno <morenoh149@gmail.com>
Harshavardhana <hrshvardhana@gmail.com>
Hasan Ozgan <hasan@ozgan.net>
Hasit Bhatt <hasit.p.bhatt@gmail.com>
Hauke Lffler <hloeffler@users.noreply.github.com>
Hvard Haugen <havard.haugen@gmail.com>
He Liu <liulonnie@gmail.com>
Hector Chu <hectorchu@gmail.com>
Hector Martin Cantero <hector@marcansoft.com>
Henning Schmiedehausen <henning@schmiedehausen.org>
Henrik Edwards <henrik.edwards@gmail.com>
Henrik
Hodne <henrik@hodne.io>
Henry Adi Sumarto <henry.adisumarto@gmail.com>
Henry Bubert <google@mindeco.de>
Henry Chang <mr.changyuheng@gmail.com>
Henry Clifford <h.a.clifford@gmail.com>
Henry Wong <liushuai.wang@elastic.co>
Herbert Georg Fischer <herbert.fischer@gmail.com>
Herbie Ong <herbie@google.com>
Heschi Kreinick <heschi@google.com>
Hidetatsu Yaginuma <ygnmhdtt@gmail.com>
Hilko Bengen <bengen@hilluzination.de>
Hiroaki Nakamura <hnakamur@gmail.com>

Hiromichi Ema <ema.hiro@gmail.com>
Hironao OTSUBO <motemen@gmail.com>
Hiroshi Ioka <hirochachacha@gmail.com>
Hitoshi Mitake <mitake.hitoshi@gmail.com>
Holden Huang <ttyh061@gmail.com>
Hong Ruiqi <hongruiqi@gmail.com>
Hongfei Tan <feilengcui008@gmail.com>
Horacio Duran <horacio.duran@gmail.com>
Horst Rutter <hhrutter@gmail.com>
Hossein Sheikh Attar <hattar@google.com>
Howard Zhang <howard.zhang@arm.com>
Hsin Tsao <tsao@google.com>
Hsin-Ho Yeh <yhh92u@gmail.com>
Hu Keping <hukeping@huawei.com>
Huan Du <i@huandu.me>
Hugues Bruant <hugues.bruant@gmail.com>
Huy
Le <huy.dinh.le.89@gmail.com>
Hyang-Ah Hana Kim <hakim@google.com> <hyangah@gmail.com>
Hyoyoung Chang <hyoyoung@gmail.com>
Ian Cottrell <iancottrell@google.com>
Ian Davis <nospam@iandavis.com>
Ian Gudger <ian@loosescre.ws>
Ian Haken <ihaken@netflix.com>
Ian Kent <iankent85@gmail.com>
Ian Lance Taylor <iant@golang.org>
Ian Leue <ian@appboy.com>
Ian Zapolsky <ianzapolsky@gmail.com>
Ibrahim AshShohail <ibra.sho@gmail.com>
Icarus Sparry <golang@icarus.freeuk.com>
Iccha Sethi <icchasethi@gmail.com>
Idora Shinatose <idora.shinatose@gmail.com>
Ignacio Hagopian <jsign.uy@gmail.com>
Igor Bernstein <igorbernstein@google.com>
Igor Dolzhikov <bluesriverz@gmail.com>
Igor Vashyst <ivashyst@gmail.com>
Igor Zhilianin <igor.zhilianin@gmail.com>
Illya Yalovyy <yalovoy@gmail.com>
Ilya Sinelnikov <sidhmangh@gmail.com>
Ilya Tocar <ilya.tocar@intel.com>
INADA Naoki <songofacandy@gmail.com>
Inanc Gumus <m@inanc.io>
Ingo Gottwald <in.gottwald@gmail.com>
Ingo Krabbe <ikrabbe.ask@gmail.com>
Ingo
Oeser <nightlyone@googlemail.com> <nightlyone@gmail.com>
Ioannis Georgoulas <geototti21@hotmail.com>
Irbe Krumina <irbekrm@gmail.com>

Irfan Sharif <irfanmahmoudsharif@gmail.com>
Irieda Noboru <irieda@gmail.com>
Isaac Ardis <isaac.ardis@gmail.com>
Isaac Wagner <ibw@isaacwagner.me>
Isfan Azhabil <isfanazhabil@gmail.com>
Iskander Sharipov <iskander.sharipov@intel.com> <quasilyte@gmail.com>
Issac Trotts <issactrotts@google.com>
Ivan Babrou <ivan@cloudflare.com>
Ivan Bertona <ivan.bertona@gmail.com>
Ivan Krasin <krasin@golang.org>
Ivan Kutuzov <arbrix@gmail.com>
Ivan Markin <sw@nogoegst.net>
Ivan Moscoso <moscoso@gmail.com>
Ivan Osadchiy <ivan.osadchii@gmail.com>
Ivan Sharavuev <shpiwan@gmail.com>
Ivan Trubach <mr.trubach@icloud.com>
Ivan Ukhov <ivan.ukhov@gmail.com>
Ivy Evans <ivy@ivyevans.net>
Jaana Burcu Dogan <jbd@google.com> <jbd@golang.org> <burcujdogan@gmail.com>
Jaap Aarts <jaap.aarts1@gmail.com>
Jack Britton <jackxbritton@gmail.com>
Jack Lindamood <jlindamo@justin.tv>
Jacob Baskin
<jbaskin@google.com>
Jacob Blain Christen <dweomer5@gmail.com>
Jacob H. Haven <jacob@cloudflare.com>
Jacob Hoffman-Andrews <github@hoffman-andrews.com>
Jacob Walker <jacobwalker0814@gmail.com>
Jae Kwon <jae@tendermint.com>
Jake B <doogie1012@gmail.com>
Jakob Borg <jakob@nym.se>
Jakob Weisblat <jakobw@mit.edu>
Jakub ajka <jcajka@redhat.com>
Jakub Kaczmarzyk <jakubk@mit.edu>
Jakub Ryszard Czarnowicz <j.czarnowicz@gmail.com>
Jamal Carvalho <jamal.a.carvalho@gmail.com>
James Aguilar <jaguilar@google.com>
James Bardin <j.bardin@gmail.com>
James Chacon <jchacon@google.com>
James Clarke <jrtc27@jrtc27.com>
James Cowgill <James.Cowgill@imgtec.com>
James Craig Burley <james-github@burleyarch.com>
James David Chalfant <james.chalfant@gmail.com>
James Eady <jmeady@google.com>
James Fysh <james.fysh@gmail.com>
James Gray <james@james4k.com>
James Hartig <fastest963@gmail.com>
James Lawrence <jljatone@gmail.com>

James Meneghello <rawrz0r@gmail.com>
James Myers <jfmyers9@gmail.com>
James Neve <jamesoneve@gmail.com>
James
Nugent <james@jen20.com>
James P. Cooper <jamespcooper@gmail.com>
James Robinson <jamesr@google.com> <jamesr.gatech@gmail.com>
James Schofield <james@shoeboxapp.com>
James Smith <jrs1995@icloud.com>
James Sweet <james.sweet88@googlemail.com>
James Toy <nil@opensesame.st>
James Treanor <jtreanor3@gmail.com>
James Tucker <raggi@google.com>
James Whitehead <jnwhiteh@gmail.com>
Jamie Beverly <jamie.r.beverly@gmail.com>
Jamie Gennis <jgennis@google.com> <jgennis@gmail.com>
Jamie Kerr <jkerr113@googlemail.com>
Jamie Liu <jamieliu@google.com>
Jamie Stackhouse <contin673@gmail.com>
Jamie Turner <jamwt@dropbox.com>
Jamie Wilkinson <jaq@spacepants.org>
Jamil Djadala <djadala@gmail.com>
Jan Berktold <jan@berktold.co>
Jan H. Hosang <jan.hosang@gmail.com>
Jan Kratochvil <jan.kratochvil@redhat.com>
Jan Lehnardt <jan@apache.org>
Jan Mercl <0xjnml@gmail.com> <befelemepeseveze@gmail.com>
Jan Newmarch <jan.newmarch@gmail.com>
Jan Pilzer <jan.pilzer@gmx.de>
Jan Steinke <jan.steinke@gmail.com>
Jan
Ziak <0xe2.0x9a.0x9b@gmail.com>
Jani Monoses <jani.monoses@ubuntu.com> <jani.monoses@gmail.com>
Jannis Andrija Schnitzer <jannis@schnitzer.im>
Jared Allard <jaredallard@users.noreply.github.com>
Jared Culp <jculp14@gmail.com>
Jaroslavas Poepko <jp@webmaster.ms>
Jason A. Donenfeld <Jason@zx2c4.com>
Jason Baker <jason-baker@users.noreply.github.com>
Jason Barnett <jason.w.barnett@gmail.com>
Jason Buberel <jbuberel@google.com>
Jason Chu <jasonchujc@gmail.com>
Jason Del Ponte <delpontej@gmail.com>
Jason Hall <jasonhall@google.com>
Jason Keene <jasonkeene@gmail.com>
Jason LeBrun <jblebrun@gmail.com>
Jason Smale <jsmale@zendesk.com>
Jason Travis <infomaniac7@gmail.com>

Jason Wangsadinata <jwangsadinata@gmail.com>
Javier Kohen <jkohen@google.com>
Javier Revillas <jrevillas@massivedynamic.io>
Javier Segura <javism@gmail.com>
Jay Conrod <jayconrod@google.com>
Jay Taylor <outtatime@gmail.com>
Jay Weisskopf <jay@jayschwa.net>
Jean de Klerk <deklerk@google.com>
Jean-Andr Santoni
<jean.andre.santoni@gmail.com>
Jean-Franois Bustarret <jf@bustarret.com>
Jean-Francois Cantin <jfcantin@gmail.com>
Jean-Marc Eurin <jmeurin@google.com>
Jean-Nicolas Moal <jn.moal@gmail.com>
Jed Denlea <jed@fastly.com>
Jdrzej Szczepaniak <jbszczepaniak@gmail.com>
Jeet Parekh <jeetparekh96@gmail.com>
Jeevanandam M <jeeva@myjeeva.com>
Jeff (Zhefu) Jiang <jeffjiang@google.com>
Jeff Craig <jeffcraig@google.com>
Jeff Dupont <jeff.dupont@gmail.com>
Jeff Hodges <jeff@somethingsimilar.com>
Jeff Johnson <jrjohnson@google.com>
Jeff R. Allen <jra@nella.org> <jeff.allen@gmail.com>
Jeff Sickel <jas@corpus-callosum.com>
Jeff Wendling <jeff@spacemonkey.com>
Jeffrey H <jeffreyh192@gmail.com>
Jelte Fennema <github-tech@jeltef.nl>
Jens Frederich <jfrederich@gmail.com>
Jeremiah Harmsen <jeremiah@google.com>
Jeremy Banks <_@jeremy.ca>
Jeremy Canady <jcanady@gmail.com>
Jeremy Faller <jeremy@golang.org>
Jeremy Jackins <jeremyjackins@gmail.com>
Jeremy Jay <jeremy@pbnjay.com>
Jeremy Schlatter <jeremy.schlatter@gmail.com>
Jeroen
Bobbeldijk <jerbob92@gmail.com>
Jeroen Simonetti <jeroen@simonetti.nl>
Jerrin Shaji George <jerrinsg@gmail.com>
Jess Frazelle <me@jessfraz.com>
Jesse Szwedko <jesse.szwedko@gmail.com>
Jess Espino <jespinog@gmail.com>
Jia Zhan <jzhan@uber.com>
Jiacai Liu <jiacai2050@gmail.com>
Jianing Yu <jnyu@google.com>
Jianqiao Li <jianqiaoli@google.com>
Jie Ma <jienius@outlook.com>

Jihyun Yu <yjh0502@gmail.com>
Jim Cote <jfcote87@gmail.com>
Jim Kingdon <jim@bolt.me>
Jim McGrath <jimmc2@gmail.com>
Jim Minter <jminter@redhat.com>
Jimmy Frasche <soapboxcicero@gmail.com>
Jimmy Zelinskie <jimmyzelinskie@gmail.com>
Jin-wook Jeong <jeweljar@hanmail.net>
Jingcheng Zhang <diogin@gmail.com>
Jingguo Yao <yaojingguo@gmail.com>
Jingnan Si <jingnan.si@gmail.com>
Jinkun Zhang <franksnolf@gmail.com>
Jiong Du <londevil@gmail.com>
Jirka Dank <dnk@mail.muni.cz>
Jiulong Wang <jiulongw@gmail.com>
Joakim Sernbrant <serbaut@gmail.com>
Joe Bowbeer <joe.bowbeer@gmail.com>
Joe Cortopassi <joe@joecortopassi.com>
Joe
Farrell <joe2farrell@gmail.com>
Joe Harrison <joehazzers@gmail.com>
Joe Henke <joed.henke@gmail.com>
Joe Kyo <xunianzu@gmail.com>
Joe Poirier <jdpoirier@gmail.com>
Joe Richey <joerichey@google.com>
Joe Shaw <joe@joeshaw.org>
Joe Sylve <joe.sylve@gmail.com>
Joe Tsai <joetsai@digital-static.net>
Joel Sing <joel@sing.id.au> <jsing@google.com>
Jol Stemmer <jstemmer@google.com>
Joel Stemmer <stemmertech@gmail.com>
Joey Geiger <jgeiger@users.noreply.github.com>
Johan Brandhorst <johan.brandhorst@gmail.com>
Johan Euphrosine <proppy@google.com>
Johan Jansson <johan.jansson@iki.fi>
Johan Sageryd <j@1616.se>
John Asmuth <jasmuth@gmail.com>
John Beisley <huin@google.com>
John C Barstow <jbowtie@amathaine.com>
John DeNero <denero@google.com>
John Dethridge <jcd@golang.org>
John Gibb <johngibb@gmail.com>
John Gilik <john@jgilik.com>
John Graham-Cumming <jgc@jgc.org> <jgrahamc@gmail.com>
John Howard Palevich <jack.palevich@gmail.com>
John Jeffery <jjeffery@sp.com.au>
John Jenkins <twodopeshaggy@gmail.com>
John

Leidegren <john.leidegren@gmail.com>
John McCabe <john@johnmccabe.net>
John Moore <johnkenneth.moore@gmail.com>
John Newlin <jnewlin@google.com>
John Papandriopoulos <jpap.code@gmail.com>
John Potocny <johnp@vividcortex.com>
John R. Lenton <jlenton@gmail.com>
John Schnake <schnake.john@gmail.com>
John Shahid <jvshahid@gmail.com>
John Tuley <john@tuley.org>
John Weldon <johnweldon4@gmail.com>
Johnny Luo <johnnyluo1980@gmail.com>
Jon Chen <jchen@justin.tv>
Jon Johnson <jonjohnson@google.com>
Jonas Bernoulli <jonas@bernoul.li>
Jonathan Allie <jonallie@google.com>
Jonathan Amsterdam <jba@google.com>
Jonathan Boulle <jonathanboulle@gmail.com>
Jonathan Chen <dijonkitchen@users.noreply.github.com>
Jonathan Feinberg <feinberg@google.com>
Jonathan Gold <jgold.bg@gmail.com>
Jonathan Hseu <jhseu@google.com>
Jonathan Mark <jhmark@xenops.com> <jhmark000@gmail.com>
Jonathan Nieder <jrn@google.com>
Jonathan Pentecost <pentecostjonathan@gmail.com>
Jonathan Pittman <jmpittman@google.com>
<jonathan.mark.pittman@gmail.com>
Jonathan Rudenberg <jonathan@titanous.com>
Jonathan Stacks <jonstacks13@gmail.com>
Jonathan Wills <runningwild@gmail.com>
Jonathon Lacher <jonathon.lacher@gmail.com>
Jongmin Kim <atomaths@gmail.com>
Joonas Kuorilehto <joneskoo@derbian.fi>
Joop Kiefte <ikojba@gmail.com> <joop@kiefte.net>
Jordan Christiansen <xordspar0@gmail.com>
Jordan Krage <jmank88@gmail.com>
Jordan Lewis <jordanthelewis@gmail.com>
Jordan Liggitt <liggitt@google.com>
Jordan Rhee <jordanrh@microsoft.com>
Jordi Martin <jordimartin@gmail.com>
Jorge Araya <jorgejavieran@yahoo.com.mx>
Jorge L. Fatta <jorge.fatta@auth0.com>
Jos Visser <josv@google.com>
Josa Gesell <josa@gesell.me>
Jose Luis Vzquez Gonzlez <josvazg@gmail.com>
Joseph Bonneau <jcb@google.com>
Joseph Holsten <joseph@josephholsten.com>
Josh Baum <joshbaum@google.com>

Josh Bleecher Snyder <josharian@gmail.com>
Josh Chorlton <jchorlton@gmail.com>
Josh Deprez <josh.deprez@gmail.com>
Josh Goebel <dreamer3@gmail.com>
Josh Hoak
<jhoak@google.com>
Josh Holland <jrh@joshh.co.uk>
Josh Roppo <joshroppo@gmail.com>
Josh Varga <josh.varga@gmail.com>
Joshua Bezaleel Abednego <joshua.bezaleel@gmail.com>
Joshua Boelter <joshua.boelter@intel.com>
Joshua Chase <jcjoshuachase@gmail.com>
Joshua Crowgey <jcrowgey@uw.edu>
Joshua M. Clulow <josh.clulow@joyent.com>
Joshua Rubin <joshua@rubixconsulting.com>
Josselin Costanzi <josselin@costanzi.fr>
Jostein Stuhaug <js@solidsystem.no>
JP Sugarbroad <jpsugar@google.com>
JT Olds <jtolds@xnet5.com>
JT Olio <hello@jtolio.com>
Juan Carlos <juanjcsr@gmail.com>
Juan Pablo Civile <elementohb@gmail.com>
Jude Pereira <judebpereira@gmail.com>
Jukka-Pekka Kekkonen <karatepekka@gmail.com>
Julia Hansbrough <flowerhack@google.com>
Julian Kornberger <jk+github@digineo.de>
Julian Pastarmov <pastarmovj@google.com>
Julian Phillips <julian@quantumfyre.co.uk>
Julian Tibble <julian.tibble@gmail.com>
Julie Qiu <julie@golang.org>
Julien Kauffmann <julien.kauffmann@freelan.org>
Julien Salleyron <julien.salleyron@gmail.com>
Julien
Schmidt <google@julienschmidt.com>
Julio Montes <julio.montes@intel.com>
Jun Zhang <jim.zoumo@gmail.com>
Junda Liu <junda@celer.network>
Jungho Ahn <jhahn@google.com>
Junya Hayashi <ledmonster@gmail.com>
Juraj Sukop <sukop@users.noreply.github.com>
Jure Ham <jure.ham@zemanta.com>
Justin Gracenin <jgracenin@gmail.com>
Justin Li <git@justinli.net>
Justin Nu <nuss.justin@gmail.com>
Justyn Temme <justyntemme@gmail.com>
Kai Backman <kaib@golang.org>
Kai Dong <dokia2357@gmail.com>
Kai Trukenmller <ktye78@gmail.com>

Kale Blankenship <kale@lemnisys.com>
Kaleb Elwert <kelwert@atlassian.com>
Kalman Bekesi <kalmanb@google.com>
Kamal Aboul-Hosn <aboulhosn@google.com>
Kamil Chmielewski <kamil.chm@gmail.com>
Kamil Kisiel <kamil@kamilkisiel.net> <kamil.kisiel@gmail.com>
Kamil Rytarowski <krytarowski@users.noreply.github.com>
Kang Hu <hukangustc@gmail.com>
Kanta Ebihara <kantaebihara@gmail.com>
Karan Dhiman <karandhi@ca.ibm.com>
Karel Pazdera <pazderak@gmail.com>
Karoly
Negyesi <chx1975@gmail.com>
Karsten Khler <karsten.koehler95@gmail.com>
Karthik Nayak <karthik.188@gmail.com>
Kashav Madan <kshvmdn@gmail.com>
Kate Manson <kate.manson@izettle.com>
Katharine Berry <ktbry@google.com>
Katie Hockman <katie@golang.org>
Kato Kazuyoshi <kato.kazuyoshi@gmail.com>
Katrina Owen <katrina.owen@gmail.com>
Kaviraj Kanagaraj <kavirajkanagaraj@gmail.com>
Kay Zhu <kayzhu@google.com>
Kazuhiro Sera <seratch@gmail.com>
KB Sriram <kbsriram@google.com>
Keegan Carruthers-Smith <keegan.csmith@gmail.com>
Kei Son <hey.calmdown@gmail.com>
Keiji Yoshida <keijiyoshida.mail@gmail.com>
Keisuke Kishimoto <keisuke.kishimoto@gmail.com>
Keith Ball <inflatablewoman@gmail.com>
Keith Randall <khr@golang.org>
Keith Rarick <kr@xph.us>
Kelly Heller <pestophagous@gmail.com>
Kelsey Hightower <kelsey.hightower@gmail.com>
Kelvin Foo Chuan Lyi <vmirage@gmail.com>
Ken Friedenbach <kenliz@cruzio.com>
Ken Rockot <ken@oz.gs> <ken.rockot@gmail.com>
Ken Sedgwick <ken@bonsai.com>
Ken Thompson <ken@golang.org>
Kenichi
Tsunokawa <kenichi.tsunokawa@gmail.com>
Kenji Kaneda <kenji.kaneda@gmail.com>
Kenji Yano <kenji.yano@gmail.com>
Kenneth Shaw <kenshaw@gmail.com>
Kenny Grant <kennygrant@gmail.com>
Kenta Mori <zoncoen@gmail.com>
Kerollos Magdy <kerolloz@yahoo.com>
Ketan Parmar <ketanbparmar@gmail.com>

Kevan Swanberg <kevswanberg@gmail.com>
Kevin Ballard <kevin@sb.org>
Kevin Burke <kev@inburke.com>
Kvin Dunglas <dunglas@gmail.com>
Kevin Gillette <extemporalgenome@gmail.com>
Kevin Kirsche <kev.kirsche@gmail.com>
Kevin Klues <klueska@gmail.com> <klueska@google.com>
Kevin Malachowski <chowski@google.com>
Kevin Ruffin <kruffin@gmail.com>
Kevin Vu <kevin.m.vu@gmail.com>
Kevin Zita <bleedgreenandgold@gmail.com>
Keyan Pishdadian <kpishdadian@gmail.com>
Kezhu Wang <kezhuw@gmail.com>
Khosrow Moossavi <khos2ow@gmail.com>
Kieran Colford <kieran@kcolford.com>
Kim Shrier <kshrier@racktopsystems.com>
Kim Yongbin <kybinz@gmail.com>
Kir Kolyshkin <kolyshkin@gmail.com>
Kirill Korotaev <kirillx@gmail.com>
Kirill
Motkov <Motkov.Kirill@gmail.com>
Kirill Smelkov <kirr@nexedi.com>
Kirill Tatchihin <kirabsuir@gmail.com>
Kirk Han <kirk91.han@gmail.com>
Kirklin McDonald <kirklin.mcdonald@gmail.com>
Klaus Post <klauspost@gmail.com>
Kodie Goodwin <kodiegoodwin@gmail.com>
Koichi Shiraishi <zchee.io@gmail.com>
Koki Ide <niconegoto@yahoo.co.jp>
Koki Tomoshige <tomocy.dev@gmail.com>
Komu Wairagu <komuw05@gmail.com>
Konstantin <konstantin8105@gmail.com>
Konstantin Shaposhnikov <k.shaposhnikov@gmail.com>
Koya IWAMURA <kiwamura0314@gmail.com>
Kris Kwiatkowski <kris@cloudflare.com>
Kris Nova <kris@nivenly.com>
Kris Rousey <krousey@google.com>
Kristopher Watts <traetox@gmail.com>
Kshitij Saraogi <kshitijsaraogi@gmail.com>
Kun Li <likunarmstrong@gmail.com>
Kunpei Sakai <namusyaka@gmail.com>
Kuntal Majumder <hellozee@disroot.org>
Kush Patel <kush.patel@hootsuite.com>
Kyle Consalus <consalus@gmail.com>
Kyle Isom <kyle@gokyle.net>
Kyle Jones <kyle@kyledj.com>
Kyle Lemons <kyle@kylelemons.net> <kevlar@google.com>
Kyle

Nusbaum <kyle@datadog.com>
Kyle Shannon <kyle@pobox.com>
Kyle Spiers <eiais@google.com>
Kyle Wood <kyle@kylewood.cc>
Kyohei Kadota <lufia@lufia.org>
Kyrylo Silin <silin@kyrylo.org>
L Campbell <unpantsu@gmail.com>
Lai Jiangshan <eag0628@gmail.com>
Lajos Papp <lalyos@yahoo.com>
Lakshay Garg <lakshay.garg.1996@gmail.com>
Lann Martin <lannm@google.com>
Lanre Adelowo <yo@lanre.wtf>
Larry Clapp <larry@theclapp.org>
Larry Hosken <lahosken@golang.org>
Lars Jeppesen <jeppesen.lars@gmail.com>
Lars Lehtonen <lars.lehtonen@gmail.com>
Lars Wiegman <lars@namsral.com>
Larz Conwell <larzconwell@gmail.com>
Laurent Voisin <lpvoisin@gmail.com>
Laurie Clark-Michalek <laurie@qubit.com>
LE Manh Cuong <cuong.manhle.vn@gmail.com>
Lee Hinman <hinman@gmail.com>
Lee Packham <lpackham@gmail.com>
Lehner Florian <dev@der-flo.net>
Leigh McCulloch <leighmcc@gmail.com>
Leo Antunes <leo@costela.net>
Leo Rudberg <ljr@google.com>
Leon Klingele <git@leonklingele.de>
Leonardo Comelli <leonardo.comelli@gmail.com>
Leonel
Quinteros <leonel.quinteros@gmail.com>
Lev Shamardin <shamardin@gmail.com>
Lewin Bormann <lewin.bormann@gmail.com>
Liam Haworth <liam@haworth.id.au>
Lily Chung <lilithkchung@gmail.com>
Lion Yang <lion@aosc.xyz>
Liz Rice <liz@lizrice.com>
Lloyd Dewolf <foolswisdom@gmail.com>
Lorenz Bauer <lmb@cloudflare.com>
Lorenz Brun <lorenz@brun.one>
Lorenz Nickel <mail@lorenznickel.de>
Lorenzo Masini <rugginoso@develer.com>
Lorenzo Stoakes <lstoakes@gmail.com>
Louis Kruger <louisk@google.com>
Luan Santos <cfcluan@gmail.com>
Lubomir I. Ivanov <neolit123@gmail.com>
Luca Bruno <luca.bruno@coreos.com>
Luca Greco <luca.greco@alcacoop.it>

Lucas Bremgartner <lucas.bremgartner@gmail.com>
Lucas Clemente <lclemente@google.com>
Lucien Stuker <lucien.stuker@gmail.com>
Lucio De Re <lucio.dere@gmail.com>
Ludi Rehak <ludi317@gmail.com>
Luigi Riefolo <luigi.riefolo@gmail.com>
Luit van Drongelen <luitvd@gmail.com>
Luka Zakrajek <tr00.g33k@gmail.com>
Luka Zitnik <luka.zitnik@gmail.com>
Lukasz Milewski <lmmilewski@gmail.com>
Luke
Champine <luke.champine@gmail.com>
Luke Curley <qpingu@gmail.com>
Luke Granger-Brown <git@lukegb.com>
Luke Young <bored-engineer@users.noreply.github.com>
Luna Duclos <luna.duclos@palmstonegames.com>
Luuk van Dijk <lvd@golang.org> <lvd@google.com>
Lyle Franklin <lylejfranklin@gmail.com>
Lynn Boger <laboger@linux.vnet.ibm.com>
Ma Peiqi <mapeiqi2017@gmail.com>
Maarten Bezemer <maarten.bezemer@gmail.com>
Maciej Dbski <maciejd@google.com>
Madhu Rajanna <madhupr007@gmail.com>
Magnus Hiie <magnus.hiie@gmail.com>
Maicon Costa <maiconscosta@gmail.com>
Mak Kolybabi <mak@kolybabi.com>
Maksym Trykur <maksym.trykur@gmail.com>
Mal Curtis <mal@mal.co.nz>
Manfred Touron <m@42.am>
Manigandan Dharmalingam <manigandan.jeff@gmail.com>
Manish Goregaokar <manishsmail@gmail.com>
Manoj Dayaram <platform-dev@moovweb.com> <manoj.dayaram@moovweb.com>
Mansour Rahimi <rahimi.mnr@gmail.com>
Manu Garg <manugarg@google.com>
Manu S Ajith <neo@codingarena.in>
Manuel Mendez <mmendez534@gmail.com>
Marat
Khabibullin <marat.khabibullin@jetbrains.com>
Marc Sanmiquel <marcsanmiquel@gmail.com>
Marc Weistroff <marc@weistroff.net>
Marc-Antoine Ruel <maruel@chromium.org>
Marcel Edmund Franke <marcel.edmund.franke@gmail.com>
Marcel van Lohuizen <mpvl@golang.org>
Marcelo Cantos <marcelo.cantos@gmail.com>
Marcelo E. Magallon <marcelo.magallon@gmail.com>
Marco Hennings <marco.hennings@freiheit.com>
Marcus Weiner <marcus.weiner@gmail.com>
Marcus Willock <crazcalm@gmail.com>

Marga Manterola <marga@google.com>
Mariano Cano <mariano@smallstep.com>
Marin Bai <marin.basic02@gmail.com>
Mario Arranz <marioarranzr@gmail.com>
Marius A. Eriksen <marius@grailbio.com>
Marius Nuennerich <mnu@google.com>
Mark Adams <mark@markadams.me>
Mark Bucciarelli <mkbucc@gmail.com>
Mark Glines <mark@glines.org>
Mark Harrison <marhar@google.com>
Mark Percival <m@mdp.im>
Mark Pulford <mark@kyne.com.au>
Mark Rushakoff <mark.rushakoff@gmail.com>
Mark Ryan <mark.d.ryan@intel.com>
Mark Severson <miquella@gmail.com>
Mark Theunissen
<mark.theunissen@gmail.com>
Mark Villacampa <m@markvillacampa.com>
Mark Wolfe <mark@wolfe.id.au>
Mark Zavislak <zavislak@google.com>
Marko Juhani Silokunnas <marko.silokunnas@gmail.com>
Marko Kevac <marko@kevac.org>
Marko Kungla <marko.kungla@gmail.com>
Marko Mikulicic <mkm@google.com>
Marko Mudrinic <mudrinic.mare@gmail.com>
Marko Tiikkaja <marko@joh.to>
Markus Duft <markus.duft@salomon.at>
Markus Sonderegger <marraison@gmail.com>
Markus Zimmermann <zimmski@gmail.com>
Marten Seemann <martenseemann@gmail.com>
Martin Asquino <martin.asquino@gmail.com>
Martin Bertschler <mbertschler@gmail.com>
Martin Garton <garton@gmail.com>
Martin Habbecke <marhab@google.com>
Martin Hamrle <martin.hamrle@gmail.com>
Martin Hoefling <martin.hoefling@gmx.de>
Martin Kreichgauer <martinkr@google.com>
Martin Kunc <martinkunc@users.noreply.github.com>
Martin Lindhe <martin.j.lindhe@gmail.com>
Martin Mohrmann <moehrmann@google.com> <martisch@uos.de>
Martin Neubauer <m.ne@gmx.net>
Martin Olsen <github.com@martinolsen.net>
Martin
Olsson <martin@minimum.se>
Martin Probst <martin@probst.io>
Martin Sucha <anty.sk+git@gmail.com>
Martin Tournoij <martin@arp242.net>
Martins Sipenko <martins.sipenko@gmail.com>

Martynas Budrinas <mabu@google.com>
Marvin Stenger <marvin.stenger94@gmail.com>
Marwan Sulaiman <marwan.sulaiman@work.co>
Maryan Hratson <gmarik@gmail.com>
Masahiro Furudate <masahiro.furudate@gmail.com>
Masahiro Wakame <vvakame@gmail.com>
Masaki Yoshida <yoshida.masaki@gmail.com>
Masaya Watanabe <sfbgwm30@gmail.com>
Mat Byczkowski <mbyczkowski@gmail.com>
Mat Ryer <thatmatryer@gmail.com>
Mt Gulys <mgulyas86@gmail.com>
Matej Bao <matejbaco@gmail.com>
Mateus Amin <mateus.amin@gmail.com>
Mateusz Czapliski <czapkofan@gmail.com>
Mathias Beke <git@denbeke.be>
Mathias Hall-Andersen <mathias@hall-andersen.dk>
Mathias Leppich <mleppich@muhqu.de>
Mathieu Lonjaret <mathieu.lonjaret@gmail.com>
Mats Lidell <mats.lidell@cag.se> <mats.lidell@gmail.com>
Matt Aimonetti <mattaimonetti@gmail.com>
Matt Blair
<me@matthewblair.net>
Matt Bostock <matt@mattbostock.com>
Matt Brown <mdbrown@google.com>
Matt Dee <mdee@hioscar.com>
Matt Drollette <matt@drollette.com>
Matt Harden <matt.harden@gmail.com>
Matt Jibson <matt.jibson@gmail.com>
Matt Joiner <anacrolix@gmail.com>
Matt Jones <mrjones@google.com>
Matt Juran <thepciet@gmail.com>
Matt Layher <mdlayher@gmail.com>
Matt Reiferson <mreiferson@gmail.com>
Matt Robenolt <matt@ydekproductions.com>
Matt Strong <mstrong1341@gmail.com>
Matt T. Proud <matt.proud@gmail.com>
Matt Williams <gh@mattyw.net> <mattyjwilliams@gmail.com>
Matthew Brennan <matty.brennan@gmail.com>
Matthew Broberg <matthewbbroberg@gmail.com>
Matthew Cottingham <mattcottingham@gmail.com>
Matthew Dempsky <mdempsky@google.com>
Matthew Denton <mdenton@skyportsystems.com>
Matthew Holt <Matthew.Holt+git@gmail.com>
Matthew Horsnell <matthew.horsnell@gmail.com>
Matthew Waters <mwwaters@gmail.com>
Matthieu Hauglustaine <matt.hauglustaine@gmail.com>
Matthieu Olivier <olivier.matthieu@gmail.com>
Matthijs

Kooijman <matthijs@stdin.nl>
Max Riveiro <kavu13@gmail.com>
Max Schmitt <max@schmitt.mx>
Max Semenik <maxsem.wiki@gmail.com>
Max Ushakov <ushmax@gmail.com>
Maxim Eryomenko <moeryomenko@gmail.com>
Maxim Khitrov <max@mxcrypt.com>
Maxim Pimenov <mpimenov@google.com>
Maxim Pugachev <pugachev.mm@gmail.com>
Maxim Ushakov <ushakov@google.com>
Maxime de Roucy <maxime.deroucy@gmail.com>
Mximo Cuadros Ortiz <mcuadros@gmail.com>
Maxwell Krohn <themax@gmail.com>
Maya Rashish <maya@NetBSD.org>
Mayank Kumar <krmayankk@gmail.com>
Meir Fischer <meirfischer@gmail.com>
Meng Zhuo <mengzhuo1203@gmail.com> <mzh@golangcn.org>
Mhd Sulhan <m.shulhan@gmail.com>
Micah Stetson <micah.stetson@gmail.com>
Michael Anthony Knyszek <mknyszek@google.com>
Michael Brandenburg <mbrandenburg@bolste.com>
Michael Chaten <mchaten@gmail.com>
Michael Cook <code@mdcook.net>
Michael Darakananda <pongad@google.com>
Michael Dorner <mail@michaeldorner.de>
Michael Edwards <medwards@walledcity.ca>
Michael Elkins <michael.elkins@gmail.com>
Michael
Ellis <micellis@justin.tv>
Michael Fraenkel <michael.fraenkel@gmail.com>
Michael Fromberger <michael.j.fromberger@gmail.com>
Michael Gehring <mg@ebfe.org> <gnirheg.leahcim@gmail.com>
Michael Henderson <mdhender@users.noreply.github.com>
Michael Hendricks <michael@ndrix.org>
Michael Hoisie <hoisie@gmail.com>
Michael Hudson-Doyle <michael.hudson@linaro.org>
Michael Kasch <michael.kasch@gmail.com>
Michael Kufl <golang@c.michael-kaeufl.de>
Michael Kelly <mjk@google.com>
Michael Lewis <mikelikespie@gmail.com>
Michael MacInnis <Michael.P.MacInnis@gmail.com>
Michael Marineau <michael.marineau@coreos.com>
Michael Matloob <matloob@google.com>
Michael McConville <momcconville@gmail.com>
Michael McGreevy <mcgreevy@golang.org>
Michael McLoughlin <mmcloughlin@gmail.com>
Michael Munday <mike.munday@ibm.com>
Michael Pearson <mipearson@gmail.com>

Michael Piatek <piatek@google.com>
Michael Pratt <mpratt@google.com>
Michael Schaller <michael@5challer.de>
Michael Schurter <michael.schurter@gmail.com>
Michael
Shields <mshields@google.com>
Michael Stapelberg <michael@stapelberg.de> <mstplbrg@googlemail.com>
Michael Steinert <mike.steinert@gmail.com>
Michael T. Jones <mtj@google.com> <michael.jones@gmail.com>
Michael Teichgrber <mteichgraeber@gmx.de> <mt4swm@googlemail.com>
Michael Traver <mtraver@google.com>
Michael Vetter <g.bluehut@gmail.com>
Michael Vogt <mvo@ubuntu.com>
Michal Bohuslvek <mbohuslavek@gmail.com>
Michal Cierniak <cierniak@google.com>
Micha Derkacz <ziutek@lnet.pl>
Michal Franc <lam.michal.franc@gmail.com>
Micha owicki <mlowicki@gmail.com>
Michal Pristas <michal.pristas@gmail.com>
Michal Rostecki <mrostecki@suse.de>
Michalis Kargakis <michaliskargakis@gmail.com>
Michel Lespinasse <walken@google.com>
Mickael Kerjean <mickael.kerjean@gmail.com>
Mickey Reiss <mickeyreiss@gmail.com>
Miek Gieben <miek@miek.nl> <remigius.gieben@gmail.com>
Miguel Acero <acero@google.com>
Miguel Mendez <stxmendez@gmail.com>
Miguel Molina <hi@mvader.me>
Mihai Borobocea
<MihaiBorobocea@gmail.com>
Mihai Moldovan <ionic@ionic.de>
Mihai Todor <todormihai@gmail.com>
Mihail Minaev <minaev.mike@gmail.com>
Mikael Tillenius <mikti42@gmail.com>
Mike Andrews <mra@xoba.com>
Mike Appleby <mike@app.leby.org>
Mike Danese <mikedanese@google.com>
Mike Houston <mike@kothar.net>
Mike Kabischev <kabischev@gmail.com>
Mike Rosset <mike.rosset@gmail.com>
Mike Samuel <mikesamuel@gmail.com>
Mike Solomon <msolo@gmail.com>
Mike Strosaker <strosake@us.ibm.com>
Mike Tsao <mike@sowbug.com>
Mike Wiacek <mjwiacek@google.com>
Mikhail Fesenko <proggga@gmail.com>
Mikhail Gusarov <dottedmag@dottedmag.net>
Mikhail Panchenko <m@mihasya.com>

Miki Tebeka <miki.tebeka@gmail.com>
Mikio Hara <mikioh.mikioh@gmail.com>
Mikkel Krautz <mikkel@krautz.dk> <krautz@gmail.com>
Mikoaj Baranowski <mikolajb@gmail.com>
Milan Knezevic <milan.knezevic@mips.com>
Milan Patel <bicelot3@gmail.com>
Milutin Jovanovic <jovanovic.milutin@gmail.com>
MinJae Kwon <mingrammer@gmail.com>
Miquel Sabat Sol <mikisabate@gmail.com>
Mirko
Hansen <baaazen@gmail.com>
Miroslav Genov <mgenov@gmail.com>
Misty De Meo <mistydemeo@gmail.com>
Mohit Agarwal <mohit@sdf.org>
Mohit kumar Bajoria <mohitbajo36@gmail.com>
Mohit Verma <vmohit.93@gmail.com>
Momchil Velikov <momchil.velikov@gmail.com>
Monis Khan <mkhan@redhat.com>
Monty Taylor <mordred@inaugust.com>
Moritz Fain <moritz@fain.io>
Moriyoshi Koizumi <mozo@mozo.jp>
Morten Siebuhr <sbhr@sbhr.dk>
Mshe van der Sterre <moshevds@gmail.com>
Mostyn Bramley-Moore <mostyn@antipode.se>
Mrunal Patel <mrunalp@gmail.com>
Muhammad Falak R Wani <falakreyaz@gmail.com>
Muhammed Uluyol <uluyol0@gmail.com>
Muir Manders <muir@mnd.rs>
Mukesh Sharma <sharma.mukesh439@gmail.com>
Mura Li <mura_li@castech.com.tw>
Mykhailo Lesyk <mikhail@lesyk.org>
Naman Aggarwal <aggarwal.nam@gmail.com>
Nan Deng <monnand@gmail.com>
Nao Yonashiro <owan.orisano@gmail.com>
Naoki Kanatani <k12naoki@gmail.com>
Nate Wilkinson <nathanwilk7@gmail.com>
Nathan Cantelmo <n.cantelmo@gmail.com>
Nathan Caza <mastercactapus@gmail.com>
Nathan
Dias <nathan.dias@orijtech.com>
Nathan Fiscaletti <nathan.fiscaletti@vrazo.com>
Nathan Humphreys <nkhumphreys@gmail.com>
Nathan John Youngman <nj@nathany.com>
Nathan Otterness <otternes@cs.unc.edu>
Nathan P Finch <nate.finch@gmail.com>
Nathan VanBenschoten <nvanbenschoten@gmail.com>
Nathan Youngman <git@nathany.com>
Nathan(yinian) Hu <nathanhu@google.com>

Nathaniel Cook <nvcook42@gmail.com>
Naveen Kumar Sangi <naveenkumarsangi@protonmail.com>
Neeilan Selvalingam <neeilan96@gmail.com>
Neelesh Chandola <neelesh.c98@gmail.com>
Neil Lyons <nwjlyons@googlemail.com>
Neuman Vong <neuman.vong@gmail.com>
Neven Sajko <nsajko@gmail.com>
Nevins Bartolomeo <nevins.bartolomeo@gmail.com>
Niall Sheridan <nsheridan@gmail.com>
Nic Day <nic.day@me.com>
Nicholas Katsaros <nick@nickkatsaros.com>
Nicholas Maniscalco <nicholas@maniscalco.com>
Nicholas Ng <nickng@nickng.io>
Nicholas Presta <nick@nickpresta.ca> <nick1presta@gmail.com>
Nicholas Sullivan <nicholas.sullivan@gmail.com>
Nicholas
Waples <nwaples@gmail.com>
Nick Anthony <Liberatys@outlook.com>
Nick Cooper <nmvc@google.com>
Nick Craig-Wood <nick@craig-wood.com> <nickcw@gmail.com>
Nick Harper <nharper@google.com>
Nick Kubala <nkubala@google.com>
Nick Leli <nicholasleli@gmail.com>
Nick Miyake <nmiyake@users.noreply.github.com>
Nick Patavalis <nick.patavalis@gmail.com>
Nick Petroni <npetroni@cs.umd.edu>
Nick Robinson <nrobinson13@gmail.com>
Nick Smolin <nick27surgut@gmail.com>
Nicolas BRULEZ <n.brulez@gmail.com>
Nicolas Kaiser <nikai@nikai.net>
Nicolas Owens <mischief@offblast.org>
Nicolas S. Dade <nic.dade@gmail.com>
Niek Sanders <niek.sanders@gmail.com>
Niels Widger <niels.widger@gmail.com>
Nigel Kerr <nigel.kerr@gmail.com>
Nigel Tao <nigeltao@golang.org>
Nik Nyby <nnyby@columbia.edu>
Nikhil Benesch <nikhil.benesch@gmail.com>
Nikita Gillmann <nikita@n0.is> <ng0@n0.is>
Nikita Kryuchkov <nkryuchkov10@gmail.com>
Nikita Vanyasin <nikita.vanyasin@gmail.com>
Niklas Schnelle <niklas.schnelle@gmail.com>
Niko Dziemba
<niko@dziemba.com>
Nikolay Turpitko <nikolay@turpitko.com>
Nikson Kanti Paul <nikson.sust@gmail.com>
Nils Larsgrd <nilsmagnus@gmail.com>
Nir Soffer <nirsof@gmail.com>

Niranjan Godbole <niranjan8192@gmail.com>
Nishanth Shanmugham <nishanth.gerrard@gmail.com>
Noah Campbell <noahcampbell@gmail.com>
Noah Goldman <noahg34@gmail.com>
Noble Johnson <noblepoly@gmail.com>
Nodir Turakulov <nodir@google.com>
Noel Georgi <git@frezbo.com>
Norberto Lopes <nlopes.ml@gmail.com>
Norman B. Lancaster <qbradq@gmail.com>
Nuno Cruces <ncruces@users.noreply.github.com>
Obeyda Djeffal <djefobey@gmail.com>
Odin Ugedal <odin@ugedal.com>
Oleg Bulatov <dmage@yandex-team.ru>
Oleg Vakheta <helginet@gmail.com>
Oleku Konko <oleku.konko@gmail.com>
Oling Cat <olingcat@gmail.com>
Oliver Hookins <ohookins@gmail.com>
Oliver Powell <oliverpowell84@gmail.com>
Oliver Stenbom <ostenbom@pivotal.io>
Oliver Tonnhofer <olt@bogosoft.com>
Olivier Antoine <olivier.antoine@gmail.com>
Olivier Duperray <duperray.olivier@gmail.com>
Olivier
Poitrey <rs@dailymotion.com>
Olivier Saingre <osaingre@gmail.com>
Omar Jarjur <ojarjur@google.com>
Oryan Moshe <iamoryanmoshe@gmail.com>
Osamu TONOMORI <osamingo@gmail.com>
zgr Kesim <oec-go@kesim.org>
Pablo Caderno <kaderno@gmail.com>
Pablo Lalloni <plalloni@gmail.com>
Pablo Rozas Larraondo <pablo.larraondo@anu.edu.au>
Pablo Santiago Blum de Aguiar <scorphus@gmail.com>
Padraig Kitterick <padraigkitterick@gmail.com>
Pallat Anchaleechamaikorn <yod.pallat@gmail.com>
Panos Georgiadis <pgeorgiadis@suse.de>
Pantelis Sampaziotis <psampaz@gmail.com>
Paolo Giarrusso <p.giarrusso@gmail.com>
Paolo Martini <mrtnpaolo@gmail.com>
Parker Moore <parkrmoore@gmail.com>
Parminder Singh <parmsingh101@gmail.com>
Pascal Dierich <pascal@pascaldierich.com>
Pascal S. de Kloe <pascal@quies.net>
Paschalis Tsilias <paschalis.tsilias@gmail.com>
Pasi Thkp <pasi.tahkapaa@gmail.com>
Pat Moroney <pat@pat.email>
Patrick Barker <barkerp@vmware.com>
Patrick Crosby <patrick@stathat.com>

Patrick Gavlin <pgavlin@gmail.com>
Patrick
Higgins <patrick.allen.higgins@gmail.com>
Patrick Lee <pattyshack101@gmail.com>
Patrick Mzard <patrick@mezard.eu>
Patrick Mylund Nielsen <patrick@patrickmn.com>
Patrick Pelletier <pp.pelletier@gmail.com>
Patrick Riley <pfr@google.com>
Patrick Smith <pat42smith@gmail.com>
Patrik Lundin <patrik@sigterm.se>
Paul A Querna <paul.querna@gmail.com>
Paul Borman <borman@google.com>
Paul Boyd <boyd.paul2@gmail.com>
Paul Chang <paulchang@google.com>
Paul D. Weber <x0bdev@gmail.com>
Paul Hammond <paul@paulhammond.org>
Paul Hankin <paulhankin@google.com>
Paul Jolly <paul@myitcv.org.uk>
Paul Lalonde <paul.a.lalonde@gmail.com>
Paul M Furley <paul@paulfurley.com>
Paul Marks <pmarks@google.com>
Paul Meyer <paul.meyer@microsoft.com>
Paul Nasrat <pnasrat@google.com>
Paul PISCUC <paul.piscuc@gmail.com>
Paul Querna <pquerna@apache.org>
Paul Rosania <paul.rosania@gmail.com>
Paul Ruest <pruest@gmail.com>
Paul Sbarra <Sbarra.Paul@gmail.com>
Paul Smith <paulsmith@pobox.com> <paulsmith@gmail.com>
Paul
Tyng <paul@paultyng.net>
Paul van Brouwershaven <paul@vanbrouwershaven.com>
Paul Wankadia <junyer@google.com>
Paulo Casaretto <pcasaretto@gmail.com>
Paulo Flabiano Smorigo <pfsmorigo@linux.vnet.ibm.com>
Paulo Gomes <paulo.gomes.uk@gmail.com>
Pavel Paulau <pavel.paulau@gmail.com>
Pavel Zinovkin <pavel.zinovkin@gmail.com>
Pavlo Sumkin <ymkins@gmail.com>
Pawel Knap <pawelknap88@gmail.com>
Pawel Szczur <filemon@google.com>
Pei Xian Chee <luciolas1991@gmail.com>
Percy Wegmann <ox.to.a.cart@gmail.com>
Perry Abbott <perry.j.abbott@gmail.com>
Petar Dambovaliev <petar.atanasov.1987@gmail.com>
Petar Maymounkov <petarm@gmail.com>
Peter Armitage <peter.armitage@gmail.com>
Peter Bourgon <peter@bourgon.org>

Peter Collingbourne <pcc@google.com>
Peter Conerly <pconerly@gmail.com>
Peter Dotchev <dotchev@gmail.com>
Peter Froehlich <peter.hans.froehlich@gmail.com>
Peter Gonda <pgonda@google.com>
Peter Hoyes <pahoyes@gmail.com>
Peter Kleiweg <pkleiweg@xs4all.nl>
Peter McKenzie <petermck@google.com>
Peter
Moody <pmoody@uber.com>
Peter Morjan <pmorjan@gmail.com>
Peter Mundy <go.peter.90@gmail.com>
Peter Nguyen <peter@mictis.com>
Pter Surnyi <speter.go1@gmail.com>
Pter Szab <pts@google.com>
Pter Szilgyi <peterke@gmail.com>
Peter Teichman <pteichman@fastly.com>
Peter Tseng <ptseng@squareup.com>
Peter Waldschmidt <peter@waldschmidt.com>
Peter Waller <peter.waller@gmail.com>
Peter Weinberger <pjw@golang.org>
Peter Williams <pwil3058@gmail.com>
Peter Wu <pwu@cloudflare.com>
Peter Zhang <i@ddatsh.com>
Petr Jedin <petr.jediny@gmail.com>
Petrica Voicu <pvoicu@paypal.com>
Phil Pearl <philip.j.r.pearl@gmail.com>
Phil Pennock <pdp@golang.org>
Philip Brgesen <philip.borgesen@gmail.com>
Philip Brown <phil@bolthole.com>
Philip Hofer <phofer@umich.edu>
Philip K. Warren <pkwarren@gmail.com>
Philip Nelson <me@pnelson.ca>
Philipp Stephani <phst@google.com>
Pierre Carru <pierre.carru@eshard.com>
Pierre Durand <pierredurand@gmail.com>
Pierre Prinetti <pierreprinetti@gmail.com>
Pierre Roullon <pierre.roullon@gmail.com>
Piers
<google@hellopiers.pro>
Pieter Droogendijk <pieter@binky.org.uk>
Pietro Gagliardi <pietro10@mac.com>
Piyush Mishra <piyush@codeitout.com>
Plekhanov Maxim <kishtatix@gmail.com>
Polina Osadcha <polliosa@google.com>
Pontus Leitzler <leitzler@gmail.com>
Povilas Versockas <p.versockas@gmail.com>
Prasanga Siripala <pj@pjebs.com.au>

Prasanna Swaminathan <prasanna@mediamath.com>
Prashant Agrawal <prashant.a.vjti@gmail.com>
Prashant Varanasi <prashant@prashantv.com>
Praveen Kumar <praveen+git@kumar.in>
Pravendra Singh <hackpravj@gmail.com>
Preetam Jinka <pj@preet.am>
Pure White <wu.purewhite@gmail.com>
Qais Patankar <qaisjp@gmail.com>
Qiuxuan Zhu <ilsh1022@gmail.com>
Quan Tran <qeed.quan@gmail.com>
Quan Yong Zhai <qyzhai@gmail.com>
Quentin Perez <qperez@ocs.online.net>
Quentin Renard <contact@asticode.com>
Quentin Smith <quentin@golang.org>
Quey-Liang Kao <s101062801@m101.nthu.edu.tw>
Quinn Slack <sqs@sourcegraph.com>
Quinten Yearsley <qyearsley@chromium.org>
Quoc-Viet Nguyen
<afelion@gmail.com>
Radek Sohlich <sohlich@gmail.com>
Radu Berinde <radu@cockroachlabs.com>
Rafal Jeczalik <rjeczalik@gmail.com>
Raghavendra Nagaraj <jamdagni86@gmail.com>
Rahul Chaudhry <rahulchaudhry@chromium.org>
Raif S. Naffah <go@naffah-raif.name>
Rajat Goel <rajat.goel2010@gmail.com>
Rajath Agasthya <rajathagasthya@gmail.com>
Rajender Reddy Kompally <rajenderreddykompally@gmail.com>
Ralph Corderoy <ralph@inputplus.co.uk>
Ramazan AYYILDIZ <rayyildiz@gmail.com>
Ramesh Dharan <dharan@google.com>
Raph Levien <raph@google.com>
Raphael Geronimi <raphael.geronimi@gmail.com>
Raul Silvera <rsilvera@google.com>
Ravil Bikbulatov <weeellz12@gmail.com>
RaviTeja Pothana <ravi.tezu@gmail.com>
Ray Tung <rtung@thoughtworks.com>
Raymond Kazlauskas <raima220@gmail.com>
Rebecca Stambler <rstambler@golang.org>
Reilly Watson <reillywatson@gmail.com>
Reinaldo de Souza Jr <juniorz@gmail.com>
Remi Gillig <remigillig@gmail.com>
Rmy Oudompheng <oudomphe@phare.normalesup.org> <remyoudompheng@gmail.com>
Ren
Ogaki <re.yuz77777@gmail.com>
Rens Rikkerink <Ikkerens@users.noreply.github.com>
Rhys Hiltner <rhys@justin.tv>
Ricardo Padilha <ricardospadilha@gmail.com>

Ricardo Seriani <ricardo.seriani@gmail.com>
Richard Barnes <rlb@ipv.sx>
Richard Crowley <r@rcrowley.org>
Richard Dingwall <rdingwall@gmail.com>
Richard Eric Gavaletz <gavaletz@gmail.com>
Richard Gibson <richard.gibson@gmail.com>
Richard Miller <miller.research@gmail.com>
Richard Musiol <mail@richard-musiol.de> <neelance@gmail.com>
Richard Ulmer <codesoap@mailbox.org>
Richard Wilkes <wilkes@me.com>
Rick Arnold <rickarnoldjr@gmail.com>
Rick Hudson <rlh@golang.org>
Rick Sayre <whorfin@gmail.com>
Rijnard van Tonder <rvantonder@gmail.com>
Riku Voipio <riku.voipio@linaro.org>
Risto Jaakko Saarelma <rsaarelm@gmail.com>
Rob Earhart <earhart@google.com>
Rob Findley <rfindley@google.com>
Rob Norman <rob.norman@infinitycloud.com>
Rob Phoenix <rob@robphoenix.com>
Rob Pike <r@golang.org>
Robert Ayrapetyan <robert.ayrapetyan@gmail.com>
Robert
Daniel Kortschak <dan.kortschak@adelaide.edu.au> <dan@kortschak.io>
Robert Dinu <r@varp.se>
Robert Figueiredo <robfig@gmail.com>
Robert Griesemer <gri@golang.org>
Robert Hencke <robert.hencke@gmail.com>
Robert Iannucci <iannucci@google.com>
Robert Kuska <rkuska@gmail.com>
Robert Obryk <robryk@gmail.com>
Robert Sesek <rsesek@google.com>
Robert Snedegar <roberts@google.com>
Robert Stepanek <robert.stepanek@gmail.com>
Robert van Gent <rvangent@google.com>
Robert-Andr Mauchin <zebob.m@gmail.com>
Roberto Clapis <robclap8@gmail.com>
Roberto Selbach <roberto@selbach.ca>
Robin Eklind <r.eklind.87@gmail.com>
Robin Zhong <robin@robinzhong.co>
Rodolfo Carvalho <rhcarvalho@gmail.com>
Rodolfo Rodriguez <rodolfobgibson@gmail.com>
Rodrigo Moraes de Oliveira <rodrigo.moraes@gmail.com>
Rodrigo Rafael Monti Kochenburger <divoxx@gmail.com>
Roger Pau Monn <royger@gmail.com>
Roger Peppe <rogpeppe@gmail.com>
Rohan Challa <rohan@golang.org>
Rohan Verma <rohanverma2004@gmail.com>

Rohith Ravi <entombedvirus@gmail.com>
Roland
Illig <roland.illig@gmx.de>
Roland Shoemaker <rolandshoemaker@gmail.com>
Romain Baugue <romain.baugue@elwinar.com>
Roman Budnikov <romanyx90@yandex.ru>
Roman Kollr <roman.kollar.0@gmail.com>
Roman Shchekin <mrqtros@gmail.com>
Ron Hashimoto <mail@h2so5.net>
Ron Minnich <rminnich@gmail.com>
Ross Chater <rdchater@gmail.com>
Ross Kinsey <rossikinsey@gmail.com>
Ross Light <light@google.com> <rlight2@gmail.com>
Ross Smith II <ross@smithii.com>
Rowan Marshall <rowanajmarshall@gmail.com>
Rowan Worth <sqweek@gmail.com>
Rudi Kramer <rudi.kramer@gmail.com>
Rui Ueyama <ruiu@google.com>
Ruixin Bao <ruixin.bao@ibm.com>
Ruslan Nigmatullin <elessar@dropbox.com>
Russ Cox <rsc@golang.org>
Russell Haering <russellhaering@gmail.com>
Ryan Bagwell <ryanbagwell@outlook.com>
Ryan Barrett <ryanb@google.com>
Ryan Boehning <ryan.boehning@apcera.com>
Ryan Brown <ribrdb@google.com>
Ryan Canty <jrcanty@gmail.com>
Ryan Dahl <ry@tinyclouds.org>
Ryan Hitchman <hitchmanr@gmail.com>
Ryan Lower <rpjlower@gmail.com>
Ryan
Roden-Corrent <ryan@rcorre.net>
Ryan Seys <ryan@ryanseys.com>
Ryan Slade <ryanslade@gmail.com>
Ryan Zhang <ryan.zhang@docker.com>
Ryoichi KATO <ryo1kato@gmail.com>
Ryuji Iwata <qt.luigi@gmail.com>
Ryuma Yoshida <ryuma.y1117@gmail.com>
Ryuzo Yamamoto <ryuzo.yamamoto@gmail.com>
S.alar Onur <caglar@10ur.org>
Sabin Mihai Rapan <sabin.rapan@gmail.com>
Sad Pencil <qh06@qq.com>
Sai Cheemalapati <saicheems@google.com>
Sakeven Jiang <jc5930@sina.cn>
Salmn Aljammz <s@0x65.net>
Sam Arnold <sarnold64@bloomberg.net>
Sam Boyer <tech@samboyer.org>
Sam Chen <chenxsan@gmail.com>

Sam Cross <samgcdev@gmail.com>
Sam Ding <samding@ca.ibm.com>
Sam Hug <samuel.b.hug@gmail.com>
Sam Thorogood <thorogood@google.com> <sam.thorogood@gmail.com>
Sam Whited <sam@samwhited.com>
Sameer Ajmani <sameer@golang.org> <ajmani@gmail.com>
Sami Commerot <samic@google.com>
Sami Pnknen <sami.ponkanen@gmail.com>
Samuel Kelemen <SCKelemen@users.noreply.github.com>
Samuel Tan <samueltan@google.com>
Samuele Pedroni
<pedronis@lucediurna.net>
Sander van Harmelen <sander@vanharmelen.nl>
Sanjay Menakuru <balasanjay@gmail.com>
Santhosh Kumar Tekuri <santhosh.tekuri@gmail.com>
Sarah Adams <shadams@google.com>
Sardorbek Pulatov <sardorbek.pulatov@outlook.com>
Sascha Brawer <sascha@brawer.ch>
Sasha Lionheart <lionhearts@google.com>
Sasha Sobol <sasha@scaledinference.com>
Scott Barron <scott.barron@github.com>
Scott Bell <scott@sctsm.com>
Scott Crunkleton <crunk1@gmail.com>
Scott Ferguson <scottwferg@gmail.com>
Scott Lawrence <bytbox@gmail.com>
Scott Mansfield <smansfield@netflix.com>
Scott Ragan <ragansa@fb.com>
Scott Schwartz <scotts@golang.org>
Scott Van Woudenberg <scottvw@google.com>
Sean Burford <sburford@google.com>
Sean Chen <oohcode@gmail.com>
Sean Chittenden <seanc@joyent.com>
Sean Christopherson <sean.j.christopherson@intel.com>
Sean Dolphin <Sean.Dolphin@kpcompass.com>
Sean Harger <sharger@google.com>
Sean Liao <seankhliao@gmail.com>
Sean Rees <sean@erifax.org>
Sebastiaan van Stijn <github@gone.nl>
Sebastian
Chlopecki <sebsebmc@gmail.com>
Sebastian Kinne <skinne@google.com>
Sebastian Schmidt <yath@google.com>
Sebastien Binet <seb.binet@gmail.com>
Sbastien Paolacci <sebastien.paolacci@gmail.com>
Sebastien Williams-Wynn <sebastien@cytora.com>
Segev Finer <segev208@gmail.com>
Seiji Takahashi <timaki.st@gmail.com>
Sergei Lemeshkin <sergeilem@gmail.com>

Sergei Skorobogatov <skorobo@rambler.ru>
Sergei Zagurskii <gvozdoder@gmail.com>
Sergey 'SnakE' Gromov <snake.scaly@gmail.com>
Sergey Arseev <sergey.arseev@intel.com>
Sergey Dobrodey <sergey.dobrodey@synesis.ru>
Sergey Frolov <sfrolov@google.com>
Sergey Glushchenko <gsserge@gmail.com>
Sergey Ivanov <ser1325@gmail.com>
Sergey Lukjanov <me@slukjanov.name>
Sergey Mishin <sergeymishine@gmail.com>
Sergey Mudrik <sergey.mudrik@gmail.com>
Sergey Semin <gray12511@gmail.com>
Sergey Yanykin <syanykin@ozon.ru>
Sergio Luis O. B. Correia <sergio@correia.cc>
Sergiusz Bazanski <bazanski@gmail.com>
Serhat Giydiren <serhatgiydiren@gmail.com>
Serhii
Aheienko <serhii.aheienko@gmail.com>
Seth Hoenig <seth.a.hoenig@gmail.com>
Seth Vargo <sethvargo@gmail.com>
Shahar Kohanim <skohanim@gmail.com>
Shamil Garatuev <garatuev@gmail.com>
Shane Hansen <shanemhansen@gmail.com>
Shang Jian Ding <sding3@ncsu.edu>
Shaozhen Ding <dsz0111@gmail.com>
Shaquille Wyan Que <shaqqywyan@gmail.com>
Shaun Dunning <shaun.dunning@uservoice.com>
Shawn Elliott <selliott@microsoft.com>
Shawn Ledbetter <sledbetter@google.com>
Shawn Smith <shawn.p.smith@gmail.com>
Shawn Walker-Salas <shawn.walker@oracle.com>
Shenghou Ma <minux@golang.org> <minux.ma@gmail.com>
Shengjing Zhu <zsj950618@gmail.com>
Shengyu Zhang <shengyu.zhang@chaitin.com>
Shi Han Ng <shihanng@gmail.com>
Shijie Hao <haormj@gmail.com>
Shinji Tanaka <shinji.tanaka@gmail.com>
Shintaro Kaneko <kaneshin0120@gmail.com>
Shivakumar GN <shivakumar.gn@gmail.com>
Shivani Singhal <shivani.singhal2804@gmail.com>
Shivansh Rai <shivansh@freebsd.org>
Shivashis Padhi <shivashispadhi@gmail.com>
Shubham Sharma <shubham.sha12@gmail.com>
Shun
Fan <sfan@google.com>
Silvan Jegen <s.jegen@gmail.com>
Simarpreet Singh <simar@linux.com>
Simon Drake <simondrake1990@gmail.com>

Simon Ferquel <simon.ferquel@docker.com>
Simon Jefford <simon.jefford@gmail.com>
Simon Rawet <simon@rawet.se>
Simon Rozman <simon@rozman.si>
Simon Thulbourn <simon+github@thulbourn.com>
Simon Whitehead <chemnova@gmail.com>
Sina Siadat <siadat@gmail.com>
Sjoerd Siebinga <sjoerd.siebinga@gmail.com>
Sokolov Yura <funny.falcon@gmail.com>
Song Gao <song@gao.io>
Soojin Nam <jsunam@gmail.com>
Sren L. Hansen <soren@linux2go.dk>
Spencer Kocot <spencerkocot@gmail.com>
Spencer Nelson <s@spenczar.com>
Spencer Tung <spencertung@google.com>
Spring Mc <heresy.mc@gmail.com>
Srdjan Petrovic <spetrovic@google.com>
Sridhar Venkatakrishnan <sridhar@laddoo.net>
Srinidhi Kaushik <shrinidhi.kaushik@gmail.com>
StalkR <stalkr@stalkr.net>
Stan Schwertly <stan@schwertly.com>
Stanislav Afanasev <php.progger@gmail.com>
Steeve Morin <steeve.morin@gmail.com>
Stefan Baebler
<sbaebler@outbrain.com>
Stefan Nilsson <snilsson@nada.kth.se> <trolleriprofessorn@gmail.com>
Stepan Shabalin <neverliberty@gmail.com>
Stephan Renatus <srenatus@chef.io>
Stephan Zuercher <zuercher@gmail.com>
Stphane Travostino <stephane.travostino@gmail.com>
Stephen Lewis <stephen@sock.org.uk>
Stephen Lu <steuhs@users.noreply.github.com>
Stephen Ma <stephenm@golang.org>
Stephen McQuay <stephen@mcquay.me>
Stephen Searles <stephens2424@gmail.com>
Stephen Weinberg <stephen@q5comm.com>
Steve Francia <spf@golang.org>
Steve Gilbert <stevegilbert23@gmail.com>
Steve LoFurno <slofurno@gmail.com>
Steve McCoy <mccoyst@gmail.com>
Steve Mynott <steve.mynott@gmail.com>
Steve Newman <snewman@google.com>
Steve Phillips <elimisteve@gmail.com>
Steve Streeting <steve@stevestreeting.com>
Steven Buss <sbuss@google.com>
Steven Elliot Harris <seharris@gmail.com>
Steven Erenst <stevenerenst@gmail.com>
Steven Hartland <steven.hartland@multiplay.co.uk>

Steven Littiebrant <imgroxx@gmail.com>
Steven Wilkin
<stevenwilkin@gmail.com>
Stuart Jansen <sjansen@buscaluz.org>
Sue Spence <virtuallysue@gmail.com>
Sugu Sougoumarane <ssougou@gmail.com>
Suharsh Sivakumar <suharshs@google.com>
Sukrit Handa <sukrit.handa@utoronto.ca>
Sunny <me@darkowlzz.space>
Suriyaa Sundararuban <suriyaasundararuban@gmail.com>
Suyash <dextrous93@gmail.com>
Suzy Mueller <suzmue@golang.org>
Sven Almgren <sven@tras.se>
Sven Blumenstein <svbl@google.com>
Sven Taute <sven.taute@gmail.com>
Sylvain Zimmer <sylvain@sylvainzimmer.com>
Syohei YOSHIDA <syohex@gmail.com>
Szabolcs Nagy <nsz@port70.net>
Taavi Kivisik <taavi.kivisik@gmail.com>
Tad Fisher <tadfisher@gmail.com>
Tad Glines <tad.glines@gmail.com>
Tadas Valiukas <tadovas@gmail.com>
Tadeo Kondrak <me@tadeo.ca>
Taesu Pyo <pyotaesu@gmail.com>
Tai Le <letientai299@gmail.com>
Taj Khattra <taj.khattra@gmail.com>
Takashi Matsuo <tmatsuo@google.com>
Takayoshi Nishida <takayoshi.nishida@gmail.com>
Takeshi YAMANASHI <9.nashi@gmail.com>
Takuto Ikuta <tikuta@google.com>
Takuya Ueda
<uedatakuya@gmail.com>
Tal Shprecher <tshprecher@gmail.com>
Tams Gulcsi <tgulacsi78@gmail.com>
Tamir Duberstein <tamird@gmail.com>
Tao Qingyun <qingyunha@gmail.com>
Tao Shen <shentaoskyking@gmail.com>
Tao Wang <twang2218@gmail.com>
Tarmigan Casebolt <tarmigan@gmail.com>
Taro Aoki <aizu.s1230022@gmail.com>
Taru Karttunen <taruti@taruti.net>
Tatsuhiro Tsujikawa <tatsuhiro.t@gmail.com>
Tatsuya Kaneko <m.ddotx.f@gmail.com>
Taufiq Rahman <taufiqrx8@gmail.com>
Teague Cole <tnc1443@gmail.com>
Ted Kornish <golang@tedkornish.com>
Tejasvi Nareddy <tejunareddy@gmail.com>
Terin Stock <terinjokes@gmail.com>

Terrel Shumway <gopher@shumway.us>
Tetsuo Kiso <tetsuokiso9@gmail.com>
Than McIntosh <thanm@google.com>
Thanabodee Charoenpiriyakij <wingyminus@gmail.com>
Thanatat Tamtan <acoshift@gmail.com>
The Hatsune Daishi <nao20010128@gmail.com>
Thiago Avelino <t@avelino.xxx>
Thiago Fransosi Farina <thiago.farina@gmail.com> <tfarina@chromium.org>
Thomas Alan Copeland <talan.copeland@gmail.com>
Thomas Bonfort
<thomas.bonfort@gmail.com>
Thomas Bouldin <inlined@google.com>
Thomas Bruyelle <thomas.bruyelle@gmail.com>
Thomas Bushnell, BSG <tbushnell@google.com>
Thomas de Zeeuw <thomasdezeeuw@gmail.com>
Thomas Desrosiers <thomasdesr@gmail.com>
Thomas Habets <habets@google.com>
Thomas Kappler <tkappler@gmail.com>
Thomas Meson <zllak@hycik.org>
Thomas Symborski <thomas.symborski@gmail.com>
Thomas Wanielista <tomwans@gmail.com>
Thorben Krueger <thorben.krueger@gmail.com>
Thordur Bjornsson <thorduri@secnorth.net>
Tiago Queiroz <contato@tiago.eti.br>
Tianji Wu <the729@gmail.com>
Tianon Gravi <admwiggin@gmail.com>
Tilman Dilo <tilman.dilo@gmail.com>
Tim Cooijmans <timcooijmans@gmail.com>
Tim Cooper <tim.cooper@layeh.com>
Tim Ebringer <tim.ebringer@gmail.com>
Tim Heckman <t@heckman.io>
Tim Henderson <tim.tadh@gmail.com>
Tim Hockin <thockin@google.com>
Tim Mhlmann <muhlemmer@gmail.com>
Tim Swast <swast@google.com>
Tim Wright <tenortim@gmail.com>
Tim Xu <xiaoxubeii@gmail.com>
Timmy Douglas <timmyd983@gmail.com>
Timo
Savola <timo.savola@gmail.com>
Timo Truyts <alkaloid.btx@gmail.com>
Timothy Studd <tim@timstudd.com>
Tipp Moseley <tipp@google.com>
Tobias Assarsson <tobias.assarsson@gmail.com>
Tobias Columbus <tobias.columbus@gmail.com> <tobias.columbus@googlemail.com>
Tobias Klauser <tklauser@distanz.ch>
Toby Burress <kurin@google.com>
Todd Kulesza <tkulesza@google.com>

Todd Neal <todd@tneal.org>
Todd Wang <toddwang@gmail.com>
Tom Anthony <git@tomanthony.co.uk>
Tom Bergan <tombergan@google.com>
Tom Heng <zhm20070928@gmail.com>
Tom Lanyon <tomlanyon@google.com>
Tom Levy <tomlevy93@gmail.com>
Tom Limoncelli <tal@whatexit.org>
Tom Linford <tomlinford@gmail.com>
Tom Parkin <tom.parkin@gmail.com>
Tom Payne <twpayne@gmail.com>
Tom Szymanski <tgs@google.com>
Tom Thorogood <me+google@tomthorogood.co.uk>
Tom Wilkie <tom@weave.works>
Tomas Dabasinskas <tomas@dabasinskas.net>
Tommy Schaefer <tommy.schaefer@teecom.com>
Tomohiro Kusumoto <zabio1192@gmail.com>
Tomoya Ishizaki <zaq1tomo@gmail.com>
Tonis
Tiigi <tonistiigi@gmail.com>
Tony Reix <tony.reix@bull.net>
Tony Walker <walkert.uk@gmail.com>
Tooru Takahashi <tooru.takahashi134@gmail.com>
Tor Andersson <tor.andersson@gmail.com>
Torben Schinke <torben.schinke@neotos.de>
Tormod Erevik Lea <tormodlea@gmail.com>
Toshihiro Shiino <shiino.toshihiro@gmail.com>
Toshiki Shima <hayabusa1419@gmail.com>
Totoro W <tw19881113@gmail.com>
Travis Bischel <travis.bischel@gmail.com>
Travis Cline <travis.cline@gmail.com>
Trevor Strohman <trevor.strohman@gmail.com>
Trey Lawrence <lawrence.trey@gmail.com>
Trey Roessig <trey.roessig@gmail.com>
Trey Tacon <ttacon@gmail.com>
Tristan Amini <tamini01@ca.ibm.com>
Tristan Colgate <tcolgate@gmail.com>
Tristan Ooohry <ooohry@gmail.com>
Tristan Rice <rice@fn.lc>
Troels Thomsen <troels@thomsen.io>
Trung Nguyen <trung.n.k@gmail.com>
Tsuji Daishiro <dram.dt.shonan@gmail.com>
Tudor Golubenco <tudor.g@gmail.com>
Tugdual Saunier <tugdual.saunier@gmail.com>
Tuo Shan <sturbo89@gmail.com> <shantuo@google.com>
Tyler
Bui-Palsulich <tpalsulich@google.com>
Tyler Bunnell <tylerbunnell@gmail.com>

Tyler Treat <ttreat31@gmail.com>
Tyson Andre <tysonandre775@gmail.com>
Tzach Shabtay <tzachshabtay@gmail.com>
Tzu-Jung Lee <roylee17@currant.com>
Udalov Max <re.udalov@gmail.com>
Ugorji Nwoke <ugorji@gmail.com>
Ulf Holm Nielsen <doktor@dyregod.dk>
Ulrich Kunitz <uli.kunitz@gmail.com>
Umang Parmar <umangjparmar@gmail.com>
Uriel Mangado <uriel@berlinblue.org>
Urvil Patel <patelurvil38@gmail.com>
Uttam C Pawar <uttam.c.pawar@intel.com>
Vadim Grek <vadimprog@gmail.com>
Vadim Vygonets <unixdj@gmail.com>
Val Polouchkine <vpolouch@justin.tv>
Valentin Vidic <vvidic@valentin-vidic.from.hr>
Vee Zhang <veezhang@126.com> <vveezhang@gmail.com>
Vega Garcia Luis Alfonso <vegacom@gmail.com>
Venil Noronha <veniln@vmware.com>
Veselkov Konstantin <kostozyb@gmail.com>
Viacheslav Poturaev <vearutop@gmail.com>
Victor Chudnovsky <vchudnov@google.com>
Victor Vrantchan <vrancean+github@gmail.com>
Vignesh Ramachandra <vickyramachandra@gmail.com>
Vikas
Kedia <vikask@google.com>
Ville Skytt <ville.skytta@iki.fi>
Vincent Ambo <tazjin@googlemail.com>
Vincent Batts <vbatts@hashbangbash.com> <vbatts@gmail.com>
Vincent Vanackere <vincent.vanackere@gmail.com>
Vinu Rajashekhar <vinutheraj@gmail.com>
Vish Subramanian <vish@google.com>
Vishvananda Ishaya <vishvananda@gmail.com>
Visweswara R <r.visweswara@gmail.com>
Vitaly Zdanevich <zdanevich.vitaly@ya.ru>
Vitor De Mario <vitordemario@gmail.com>
Vivek Sekhar <vsekhar@google.com>
Vivian Liang <vliang88@gmail.com>
Vlad Krasnov <vlad@cloudflare.com>
Vladimir Evgrafov <evgrafov.vladimir@gmail.com>
Vladimir Kovpak <cn007b@gmail.com>
Vladimir Kuzmin <vkuzmin@uber.com>
Vladimir Mihailenco <vladimir.webdev@gmail.com>
Vladimir Nikishenko <vova616@gmail.com>
Vladimir Stefanovic <vladimir.stefanovic@imgtec.com>
Vladimir Varankin <nek.narqo@gmail.com>
Vojtech Bocek <vbocek@gmail.com>
Volker Dobler <dr.volker.dobler@gmail.com>

Volodymyr Paprotski <vpaprots@ca.ibm.com>
W. Trevor King <wking@tremily.us>
Wade
Simmons <wade@wades.im>
Wagner Riffel <wgrriffel@gmail.com>
Walt Della <walt@javins.net>
Walter Poupore <wpoupore@google.com>
Wander Lairson Costa <wcosta@mozilla.com>
Wang Xuerui <git@xen0n.name>
Warren Fernandes <warren.f.fernandes@gmail.com>
Wayne Ashley Berry <wayneashleyberry@gmail.com>
Wedson Almeida Filho <wedsonaf@google.com>
Weerasak Chongnguluam <singpor@gmail.com>
Wi Cngru <crvv.mail@gmail.com>
Wei Fu <fhfuwei@163.com>
Wei Guangjing <vcc.163@gmail.com>
Wei Xiao <wei.xiao@arm.com>
Wei Xikai <xykwei@gmail.com>
Weichao Tang <tevic.tt@gmail.com>
Wembley G. Leach, Jr <wembley.gl@gmail.com>
Wenlei (Frank) He <wlhe@google.com>
Wenzel Lowe <lowewenzel@gmail.com>
Wil Selwood <wselwood@gmail.com>
Wilfried Teiken <wteiken@google.com>
Will Beason <willbeason@gmail.com>
Will Chan <willchan@google.com>
Will Faught <will.faught@gmail.com>
Will Morrow <wmorrow.qdt@qualcommdatacenter.com>
Will Norris <willnorris@google.com>
Will Storey <will@summercat.com>
Willem van der Schyff
<willemvds@gmail.com>
William Chan <willchan@chromium.org>
William Chang <mr.williamchang@gmail.com>
William Josephson <wjosephson@gmail.com>
William Orr <will@worrbase.com> <ay1244@gmail.com>
William Poussier <william.poussier@gmail.com>
Wisdom Omuya <deafgoat@gmail.com>
Wu Yunzhou <yunzhouwu@gmail.com>
Xi Ruoyao <xry23333@gmail.com>
Xia Bin <snyh@snyh.org>
Xiangdong Ji <xiangdong.ji@arm.com>
Xing Xing <mikespook@gmail.com>
Xingqang Bai <bxq2011hust@qq.com>
Xu Fei <badgangkiller@gmail.com>
Xudong Zhang <felixmelon@gmail.com>
Xudong Zheng <7pkvm5aw@slicealias.com>
Xuyang Kang <xuyangkang@gmail.com>

Yamagishi Kazutoshi <ykzts@desire.sh>
Yan Zou <yzou@google.com>
Yang Hau <vulxj0j8j8@gmail.com>
Yang Tian <linuxty@gmail.com>
Yann Hodique <yhodique@google.com>
Yann Kerherv <yann.kerherve@gmail.com>
Yann Salan <yannsalaun1@gmail.com>
Yannic Bonenberger <contact@yannic-bonenberger.com>
Yao Zhang <lunaria21@gmail.com>
Yaron de Leeuw <jarondl@google.com>
Yaroslav Vorobiov <yar.vorobiov@gmail.com>
Yasha
Bubnov <girokompass@gmail.com>
Yasser Abdolmaleki <yasser@yasser.ca>
Yasuharu Goto <matope.ono@gmail.com>
Yasuhiro Matsumoto <mattn.jp@gmail.com>
Yasuyuki Oka <yasuyk@gmail.com>
Yazen Shunnar <yazen.shunnar@gmail.com>
Yestin Sun <ylh@pdx.edu>
Yesudeep Mangalapilly <yesudeep@google.com>
Yissakhar Z. Beck <yissakhar.beck@gmail.com>
Yo-An Lin <yoanlin93@gmail.com>
Yohei Takeda <yo.tak0812@gmail.com>
Yongjian Xu <i3dmaster@gmail.com>
Yorman Arias <cixtords@gmail.com>
Yoshiyuki Kanno <nekotaroh@gmail.com> <yoshiyuki.kanno@stoic.co.jp>
Yoshiyuki Mineo <yoshiyuki.mineo@gmail.com>
Yosuke Akatsuka <yosuke.akatsuka@gmail.com>
Yu Heng Zhang <annita.zhang@cn.ibm.com>
Yu Xuan Zhang <zyxsh@cn.ibm.com>
Yuichi Kishimoto <yk2220s@gmail.com>
Yuichi Nishiwaki <yuichi.nishiwaki@gmail.com>
Yuji Yaginuma <yuuji.yaginuma@gmail.com>
Yuki OKUSHI <huyuumi.dev@gmail.com>
Yuki Yugui Sonoda <yugui@google.com>
Yukihiro Nishinaka <6elpinal@gmail.com>
Yury Smolsky <yury@smolsky.by>
Yusuke Kagiwada <block.rxckin.beats@gmail.com>
Yuusei
Kuwana <kuwana@kumama.org>
Yuval Pavel Zholkover <paulzhol@gmail.com>
Yves Junqueira <yvesj@google.com> <yves.junqueira@gmail.com>
Zac Bergquist <zbergquist99@gmail.com>
Zach Bintliff <zbintliff@gmail.com>
Zach Gershman <zachgersh@gmail.com>
Zach Jones <zachj1@gmail.com>
Zachary Amsden <zach@thundertoken.com>
Zachary Gershman <zgershman@pivotal.io>

Zak <zrjknill@gmail.com>
Zakatell Kanda <hi@zkanda.io>
Zellyn Hunter <zellyn@squareup.com> <zellyn@gmail.com>
Zev Goldstein <zev.goldstein@gmail.com>
Zhang Boyang <zhangboyang.id@gmail.com>
Zheng Dayu <davidzheng23@gmail.com>
Zheng Xu <zheng.xu@arm.com>
Zhengyu He <hzy@google.com>
Zhongpeng Lin <zplin@uber.com>
Zhongtao Chen <chenzhongtao@126.com>
Zhongwei Yao <zhongwei.yao@arm.com>
Zhou Peng <p@ctriple.cn>
Ziad Hatahet <hatahet@gmail.com>
Ziheng Liu <lzhfromustc@gmail.com>
Zorion Arrizabalaga <zorionk@gmail.com>
<a.maksadbek@gmail.com>
<max.faceless.frei@gmail.com>
<hagen1778@gmail.com>
<tbunyk@gmail.com>
<faxriddinjon@gmail.com>
<zs349596@gmail.com>
<bronze1man@gmail.com>

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at http://tip.golang.org/CONTRIBUTORS.
People who have agreed to one of the CLAs and can contribute patches.
The AUTHORS file lists the copyright holders; this file
lists people. For example, Google employees are listed here
but not in AUTHORS, because Google holds the copyright.
#
https://developers.google.com/open-source/cla/individual

https://developers.google.com/open-source/cla/corporate
#
Names should be added to this file as:
Name <email address>
Raul Silvera <rsilvera@google.com>
Tipp Moseley <tipp@google.com>
Hyoun Kyu Cho <netforce@google.com>
Martin Spier <spiermar@gmail.com>
Taco de Wolff <tacodewolff@gmail.com>
Andrew Hunter <andrewhhunter@gmail.com>
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at https://tip.golang.org/CONTRIBUTORS.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2010-2017 Mike Bostock
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of the author nor the names of contributors may be used to
endorse or promote products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2019 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2009-2017 Andrea Leofreddi <a.leofreddi@vleo.net>. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are
permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its
   contributors may be used to endorse or promote products derived from
   this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR
 PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL COPYRIGHT HOLDERS OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The views and conclusions contained in the software and documentation are those of the
authors and should not be interpreted as representing official policies, either expressed
or implied, of Andrea Leofreddi.

1.373 tzdata 2021e-0ubuntu0.20.04

1.373.1 Available under license :

Unless specified below, all files in the tz code and data (including
this LICENSE file) are in the public domain.

If the files date.c, newstrftime.3, and strftime.c are present, they
contain material derived from BSD and use the BSD 3-clause license.
This is the Debian prepackaged version of the Time Zone and Daylight
Saving Time Data.

It was downloaded from https://www.iana.org/time-zones

Upstream Author: The Internet Assigned Numbers Authority (IANA)
Commentary should be addressed to tz@iana.org

Copyright: This database is in the public domain.

Files: debian/icu/*.txt
Copyright: 2016-2020 Unicode, Inc. and others.
This is just the tzdata "Data Files" which uses "Third-Party
Software Licenses 5. Time Zone Database"
License: ICU
COPYRIGHT AND PERMISSION NOTICE (ICU 58 and later)
.
Copyright 1991-2020 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in https://www.unicode.org/copyright.html.
.
Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation
 the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.
.
THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE
 OF THE DATA FILES OR SOFTWARE.
.
Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.
.

.

Third-Party Software Licenses

.

This section contains third-party software notices and/or additional
terms for licensed third-party software components included within ICU
libraries.

.

5. Time Zone Database

.

ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.

.

7. Database Ownership
#
The TZ database itself is not an IETF Contribution or an IETF
document. Rather it is a pre-existing and regularly updated work
that is in the public domain, and is intended to remain
in the
public domain. Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
not apply to the TZ Database or contributions that individuals make
to it. Should any claims be made and substantiated against the TZ
Database, the organization that is providing the IANA
Considerations defined in this RFC, under the memorandum of
understanding with the IETF, currently ICANN, may act in accordance
with all competent court orders. No ownership claims will be made
by ICANN or the IETF Trust on the database or the code. Any person
making a contribution to the database or code waives all rights to
future claims in that contribution or in the TZ Database.

1.374 golang 1.13.4

1.374.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at http://tip.golang.org/CONTRIBUTORS.
People who have agreed to one of the CLAs and can contribute patches.
The AUTHORS file lists the copyright holders; this file
lists people. For example, Google employees are listed here
but not in AUTHORS, because Google holds the copyright.
#
https://developers.google.com/open-source/cla/individual
https://developers.google.com/open-source/cla/corporate
#
Names should be added to this file as:
Name <email address>
Raul Silvera <rsilvera@google.com>
Tipp Moseley <tipp@google.com>
Hyoun Kyu Cho <netforce@google.com>
Martin Spier <spiermar@gmail.com>
Taco de Wolff <tacodewolff@gmail.com>
Andrew Hunter <andrewhhunter@gmail.com>
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at https://tip.golang.org/CONTRIBUTORS.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the

editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of

this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

```
# This is the official list of people who can contribute
# (and typically have contributed) code to the Go repository.
# The AUTHORS file lists the copyright holders; this file
# lists people.  For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
# Names should be added to this file only after verifying that
# the individual or the individual's organization has agreed to
# the appropriate Contributor License Agreement, found here:
#
#     http://code.google.com/legal/individual-cla-v1.0.html
#     http://code.google.com/legal/corporate-cla-v1.0.html
#
# The agreement for individuals can be filled out on the web.

# Names should be added to this file like so:
#     Individual's name <submission email address>
#     Individual's name <submission email address> <email2> <emailN>
#
# An entry with multiple email addresses specifies that the
# first address should be used in the submit logs and
# that the other addresses should be recognized
 as the
# same person when interacting with Gerrit.
```

Please keep the list sorted.

Aamir Khan <syst3m.w0rm@gmail.com>
Aaron Cannon <cannona@fireantproductions.com>
Aaron France <aaron.l.france@gmail.com>
Aaron Jacobs <jacobsa@google.com>
Aaron Kemp <kemp.aaron@gmail.com>
Aaron Stein <aaronstein12@gmail.com>
Aaron Torres <tcboox@gmail.com>
Aaron Zinman <aaron@azinman.com>
Aarti Parikh <aarti.parikh@gmail.com>
Abdullah Al Maruf <mymail.maruf@gmail.com>
Abe Haskins <abeisgreat@abeisgreat.com>
Abhinav Gupta <abhinav.g90@gmail.com>
Adam Azarchs <adam.azarchs@10xgenomics.com>
Adam Bender <abender@google.com>
Adam Eijdenberg <adam@continusec.com>
Adam Harvey <aharvey@php.net>
Adam Kisala <adam.kisala@gmail.com>
Adam Langley <agl@golang.org>
Adam Medzinski <adam.medzinski@gmail.com>
Adam Shannon <adamkshannon@gmail.com>
Adam Sindelar <adamsh@google.com>
Adam Thomason <athomason@gmail.com>
Adam Woodbeck <adam@woodbeck.net>
Adarsh Ravichandran <adarshravichandran91@gmail.com>
Aditya Mukerjee
<dev@chimeracoder.net>
Adrian Hesketh <adrianhesketh@hushmail.com>
Adrian Nos <nos.adrian@gmail.com>
Adrian O'Grady <elpollouk@gmail.com>
Adrien Bustany <adrien-xx-google@bustany.org>
Adrien Petel <peteladrien@gmail.com>
Acio Jnior <aeciodantasjunior@gmail.com>
Aeneas Rekkas (arekkas) <aeneas@ory.am>
Afanasev Stanislav <phpprogger@gmail.com>
Agis Anastasopoulos <agis.anast@gmail.com>
Agniva De Sarker <agnivade@yahoo.co.in>
Ahmed Wahed <oneofone@gmail.com>
Ahmet Alp Balkan <ahmetb@google.com>
Ahmet Soormally <ahmet@mangomm.co.uk>
Ahmy Yulrizka <yulrizka@gmail.com>
Ahsun Ahmed <ahmed.ahsun@gmail.com>
Aiden Scandella <ai@uber.com>
Ainar Garipov <gugl.zadolbal@gmail.com>
Aishraj Dahal <aishraj@users.noreply.github.com>
Akhil Indurti <contact@akhilindurti.com>
Akihiro Suda <suda.kyoto@gmail.com>

Akshat Kumar <seed@mail.nanosouffle.net>
Al Cutter <al@google.com>
Alan Braithwaite <alan@ipaddr.org>
Alan Donovan <adonovan@google.com>
Alan Shreve <alan@inconshreveable.com>
Albert Nigmatzianov <albertnigma@gmail.com>
Albert
Strasheim <fullung@gmail.com>
Albert Teoh <albert.teoh@gmail.com>
Albert Yu <yukinying@gmail.com>
Alberto Bertogli <albertito@blitiri.com.ar>
Alberto Donizetti <alb.donizetti@gmail.com>
Alberto Garca Hierro <alberto@garciahierro.com> <alberto.garcia.hierro@gmail.com>
Aleksa Sarai <cyphar@cyphar.com>
Aleksandar Dezelin <dezelin@gmail.com>
Aleksandr Lukinykh <a.lukinykh@xsolla.com>
Aleksandr Razumov <ar@cydev.ru>
Alekseev Artem <a.artem060@gmail.com>
Alessandro Arzilli <alessandro.arzilli@gmail.com>
Alessandro Baffa <alessandro.baffa@gmail.com>
Alex A Skinner <alex@lx.lc>
Alex Brainman <alex.brainman@gmail.com>
Alex Bramley <abramley@google.com>
Alex Browne <stephenalexbrowne@gmail.com>
Alex Carol <alex.carol.c@gmail.com>
Alex Jin <toalexjin@gmail.com>
Alex Kohler <alexjohnkohler@gmail.com>
Alex Myasoedov <msoedov@gmail.com>
Alex Plugaru <alex@plugaru.org> <alexandru.plugaru@gmail.com>
Alex Schroeder <alex@gnu.org>
Alex Sergeyev <abc@alexsergeyev.com>
Alex Tokarev
<aleksator@gmail.com>
Alex Vaghin <crhyme@google.com>
Alexander Demakin <alexander.demakin@gmail.com>
Alexander Dring <email@alexd.ch>
Alexander F Rdseth <alexander.rodseth@appeartv.com>
Alexander Guz <kalimatas@gmail.com>
Alexander Kauer <alexander@affine.space>
Alexander Kucherenko <alxkchr@gmail.com>
Alexander Larsson <alexander.larsson@gmail.com>
Alexander Lourier <aml@rulezz.ru>
Alexander Menzhinsky <amenzhinsky@gmail.com>
Alexander Morozov <lk4d4math@gmail.com>
Alexander Neumann <alexander@bumpern.de>
Alexander Orlov <alexander.orlov@loxal.net>
Alexander Pantyukhin <apantykhin@gmail.com>
Alexander Polcyn <apolcyn@google.com>

Alexander Rakoczy <alex@golang.org>
Alexander Reece <awreece@gmail.com>
Alexander Surma <surma@surmair.de>
Alexander Zhavnerchik <alex.vizor@gmail.com>
Alexander Zillion <alex@alexzillion.com>
Alexander Zolotov <goldifit@gmail.com>
Alexandre Cesaro <alexandre.cesaro@gmail.com>
Alexandre Fiori <fiorix@gmail.com>
Alexandre Maari <draeron@gmail.com>
Alexandre
Normand <alexandre.normand@gmail.com>
Alexandre Parentea <aubonbeurre@gmail.com>
Alexandre Viau <alexandre@alexandreviau.net>
Alexandru Mooi <brtzsnr@gmail.com>
Alexei Sholik <alcosholik@gmail.com>
Alexey Alexandrov <aalexand@google.com>
Alexey Borzenkov <snaury@gmail.com>
Alexey Naidonov <alexey.naidyonov@gmail.com>
Alexey Neganov <neganovalexey@gmail.com>
Alexey Palazhchenko <alexey.palazhchenko@gmail.com>
Alexis Hildebrandt <surryhill@gmail.com>
Alexis Hunt <lexer@google.com>
Alexis Imperial-Legrand <ail@google.com>
Ali Rizvi-Santiago <arizvisa@gmail.com>
Aliaksandr Valialkin <valyala@gmail.com>
Alif Rachmawadi <subosito@gmail.com>
Allan Simon <allan.simon@supinfo.com>
Allen Li <ayatane@google.com>
Alok Menghrajani <alok.menghrajani@gmail.com>
Aman Gupta <aman@tmm1.net>
Amir Mohammad Saied <amir@gluegadget.com>
Amr Mohammed <merodiro@gmail.com>
Amrut Joshi <amrut.joshi@gmail.com>
Anand K. Mistry <anand@mistry.ninja>
Anders Pearson <anders@columbia.edu>
Anderson Queiroz <contato@andersonq.eti.br>
Andr
Carvalho <asantostc@gmail.com>
Andre Nathan <andrenth@gmail.com>
Andrea Nodari <andrea.nodari91@gmail.com>
Andrea Spadaccini <spadaccio@google.com>
Andreas Auernhammer <aead@mail.de>
Andreas Jellinghaus <andreas@ionisiert.de> <anj@google.com>
Andreas Litt <andreas.litt@gmail.com>
Andrei Gherzan <andrei@resin.io>
Andrei Korzhevskii <a.korzhevskiy@gmail.com>
Andrei Matei <andrei@cockroachlabs.com>
Andrei Tudor Clin <mail@acln.ro>

Andrei Vagin <avagin@google.com>
Andrei Vieru <euvieru@gmail.com>
Andres Erbsen <andreser@google.com>
Andres Lowrie <andres.lowrie@gmail.com>
Andrew Austin <andrewaclt@gmail.com>
Andrew Balholm <andybalholm@gmail.com>
Andrew Benton <andrewmbenton@gmail.com>
Andrew Bonventre <andybons@chromium.org>
Andrew Braunstein <awbraunstein@gmail.com>
Andrew Bursavich <abursavich@gmail.com>
Andrew Ekstedt <andrew.ekstedt@gmail.com>
Andrew Etter <andrew.etter@gmail.com>
Andrew Gerrand <adg@golang.org>
Andrew Harding <andrew@spacemonkey.com>
Andrew Jackura
<ajackura@google.com>
Andrew Lutomirski <andy@luto.us>
Andrew Pilloud <andrewpilloud@igneoussystems.com>
Andrew Pogrebnoy <absourd.noise@gmail.com>
Andrew Poydence <apoydence@pivotal.io>
Andrew Pritchard <awpritchard@gmail.com>
Andrew Radev <andrey.radev@gmail.com>
Andrew Skiba <skibaa@gmail.com>
Andrew Stribblehill <ads@wompom.org>
Andrew Szeto <andrew@jabagawee.com>
Andrew Todd <andrew.todd@wework.com>
Andrew Werner <andrew@upthere.com> <awerner32@gmail.com>
Andrew Wilkins <axwalk@gmail.com>
Andrew Williams <williams.andrew@gmail.com>
Andrew Z Allen <me@andrewzallen.com>
Andrey Mirtchovski <mirtchovski@gmail.com>
Andrey Petrov <andrey.petrov@shazow.net>
Andrii Soldatenko <andrii.soldatenko@gmail.com>
Andrii Soluk <isoluchok@gmail.com>
Andriy Lytvynov <lytvynov.a.v@gmail.com>
Andrzej eel <andrii.zhezhel@gmail.com>
Andy Balholm <andy@balholm.com>
Andy Davis <andy@bigandian.com>
Andy Finkenstadt <afinkenstadt@zynga.com>
Andy Lindeman <andy@lindeman.io>
Andy Maloney <asmaloney@gmail.com>
Andy
Walker <walkeraj@gmail.com>
Andzej Maciusovic <andzej.maciusovic@gmail.com>
Anfernee Yongkun Gui <anfernee.gui@gmail.com>
Angelo Bulfone <mbulfone@gmail.com>
Anh Hai Trinh <anh.hai.trinh@gmail.com>
Anit Gandhi <anitgandhi@gmail.com>

Ankit Goyal <ankit3goyal@gmail.com>
Anmol Sethi <anmol@aubble.com>
Anschel Schaffer-Cohen <anschelsc@gmail.com>
Anthony Alves <cvballa3g0@gmail.com>
Anthony Canino <anthony.canino1@gmail.com>
Anthony Eufemio <anthony.eufemio@gmail.com>
Anthony Fok <foka@debian.org>
Anthony Martin <ality@pbrane.org>
Anthony Sottile <asottile@umich.edu>
Anthony Starks <ajstarks@gmail.com>
Anthony Voutas <voutasaurus@gmail.com>
Anthony Woods <awoods@raintank.io>
Antoine GIRARD <sapk@sapk.fr>
Antoine Martin <antoine97.martin@gmail.com>
Anton Gyllenberg <anton@iki.fi>
Antonin Amand <antonin.amand@gmail.com>
Antonio Antelo <aantelov87@gmail.com>
Antonio Bibiano <antbbn@gmail.com>
Antonio Murdaca <runcom@redhat.com>
Antonio Troina <thoeni@gmail.com>
Aofei Sheng <aofei@aofeisheng.com>
Apisak
Darakananda <pongad@gmail.com>
Aram Hvrneanu <aram@mgk.ro>
Arash Bina <arash@arash.io>
Areski Belaid <areski@gmail.com>
Ariel Mashraki <ariel@mashraki.co.il>
Arkadi Pyuro <arkadi@google.com>
Arlo Breault <arlolra@gmail.com>
Arnaud Ysmal <arnaud.ysmal@gmail.com>
Arne Hormann <arnehormann@gmail.com>
Arnout Engelen <arnout@bzzt.net>
Aron Nopanen <aron.nopanen@gmail.com>
Artem Kolin <artemkaxboy@gmail.com>
Arthur Fabre <arthur@arthurfabre.com>
Arthur Khashaev <arthur@khashaev.ru>
Artyom Pervukhin <artyom.pervukhin@gmail.com>
Arvindh Rajesh Tamilmani <art@a-30.net>
Ashish Gandhi <ag@ashishgandhi.org>
Asim Shankar <asimshankar@gmail.com>
Atin Malaviya <amalaviy@akamai.com>
Ato Araki <ato.araki@gmail.com>
Audrey Lim <audreylh@gmail.com>
Audrius Butkevicius <audrius.butkevicius@gmail.com>
Augusto Roman <aroman@gmail.com>
Aulus Egnatius Varialus <varialus@gmail.com>
Aurlien Rainone <aurelien.rainone@gmail.com>
Austin Clements <austin@google.com> <aclements@csail.mit.edu>

Avi
Flax <avi@timehop.com>
awaw fumin <awawfumin@gmail.com>
Awn Umar <awn@cryptolosophy.io>
Axel Wagner <axel.wagner.hh@googlemail.com>
Ayanamist Yang <ayanamist@gmail.com>
Aymerick Jhanne <aymerick@jehanne.org>
Azat Kaumov <kaumov.a.r@gmail.com>
Baiju Muthukadan <baiju.m.mail@gmail.com>
Balaram Makam <bmakam.qdt@qualcommdatacenter.com>
Balazs Lecz <leczb@google.com>
Baokun Lee <nototon@gmail.com>
Bartosz Grzybowski <melkorm@gmail.com>
Bartosz Oler <brtsz@google.com>
Bastian Ike <bastian.ike@gmail.com>
Ben Burkert <ben@benburkert.com>
Ben Eitzen <eitzenb@golang.org>
Ben Fried <ben.fried@gmail.com>
Ben Haines <bhainesva@gmail.com>
Ben Hoyt <benhoyt@gmail.com>
Ben Laurie <ben@links.org> <benl@google.com>
Ben Lubar <ben.lubar@gmail.com>
Ben Lynn <benlynn@gmail.com>
Ben Olive <sionide21@gmail.com>
Ben Schwartz <bemasc@google.com>
Ben Shi <powerman1st@163.com>
Benjamin Black <b@b3k.us>
Benjamin Cable <cable.benjamin@gmail.com>
Benjamin Hsieh <tanookiben@users.noreply.github.com>
Benjamin Peterson
<benjamin@python.org>
Benjamin Prosnitz <bprosnitz@google.com>
Benjamin Wester <bwester@squareup.com>
Benny Siegert <bsiegert@gmail.com>
Benoit Sigoure <tsunanet@gmail.com>
Berengar Lehr <Berengar.Lehr@gmx.de>
Berkant Ipek <41230766+0xbkt@users.noreply.github.com>
Bharath Thiruveedula <tbharath91@gmail.com>
Bill Neubauer <wcn@golang.org> <wcn@google.com> <bill.neubauer@gmail.com>
Bill O'Farrell <billo@ca.ibm.com>
Bill Prin <waprin@google.com>
Bill Thiede <couchmoney@gmail.com>
Bill Zissimopoulos <billziss@navimatics.com>
Billie Harold Cleek <bhcleek@gmail.com>
Billy Lynch <wlynch@google.com>
Bjrn Erik Pedersen <bjorn.erik.pedersen@gmail.com>
Bjorn Tillenius <bjorn@tillenius.me>
Bjorn Tipling <bjorn.tipling@gmail.com>

Blain Smith <rebelgeek@blainsmith.com>
Blake Gentry <blakesgentry@gmail.com>
Blake Mesdag <blakemesdag@gmail.com>
Blake Mizerany <blake.mizerany@gmail.com>
Blixt <me@blixt.nyc>
Bob Briski <rbriski@gmail.com>
Bob Potter <bobby.potter@gmail.com>
Bobby DeSimone <bobbydesimone@gmail.com>
Bobby
Powers <bobbypowers@gmail.com>
Boris Nagaev <nagaev@google.com>
Borja Clemente <borja.clemente@gmail.com>
Brad Burch <brad.burch@gmail.com>
Brad Fitzpatrick <bradfitz@golang.org> <bradfitz@gmail.com>
Brad Garcia <bgarcia@golang.org>
Brad Jones <rbjones@google.com>
Brad Morgan <brad@morgabra.com>
Brad Whitaker <bwhitaker@fastly.com>
Braden Bassingthwaite <bbassingthwaite@vendasta.com>
Bradley Falzon <brad@teambrad.net>
Brady Catherman <brady@gmail.com>
Brady Sullivan <brady@bsull.com>
Brandon Bennett <bbennett@fb.com>
Brandon Gilmore <varz@google.com>
Brandon Ryan <bjryan19@gmail.com>
Brendan Daniel Tracey <tracey.brendan@gmail.com>
Brendan O'Dea <bod@golang.org>
Brett Cannon <bcannon@gmail.com>
Brett Merrill <brett.j.merrill94@gmail.com>
Brian Dellisanti <briandellisanti@gmail.com>
Brian Downs <brian.downs@gmail.com>
Brian G. Merrell <bgmerrell@gmail.com>
Brian Gitonga Marete <marete@toshnix.com> <bgmarete@gmail.com> <bgm@google.com>
Brian Kennedy <btkennedy@gmail.com>
Brian
Kessler <brian.m.kessler@gmail.com>
Brian Ketelsen <bketelsen@gmail.com>
Brian Slesinsky <skybrian@google.com>
Brian Smith <ohohvi@gmail.com>
Brian Starke <brian.starke@gmail.com>
Bryan Alexander <Kozical@msn.com>
Bryan C. Mills <bcmills@google.com>
Bryan Chan <bryan.chan@ca.ibm.com>
Bryan Ford <brynosaurus@gmail.com>
Bryan Heden <b.heden@gmail.com>
Bulat Gaifullin <gaifullinbf@gmail.com>
Burak Guven <bguven@gmail.com>
Caine Tighe <arctanofyourface@gmail.com>

Caio Marcelo de Oliveira Filho <caio.oliveira@intel.com>
Caleb Martinez <accounts@calebmartinez.com>
Caleb Spare <cespare@gmail.com>
Carl Chatfield <carlchatfield@gmail.com>
Carl Henrik Lunde <chlunde@ifi.uio.no>
Carl Jackson <carl@stripe.com>
Carl Johnson <me@carlmjohnson.net>
Carl Mastrangelo <notcarl@google.com>
Carl Shapiro <cshapiro@google.com> <cshapiro@golang.org>
Carlisia Campos <carlisia@grokkingtech.io>
Carlo Alberto Ferraris <cafxx@strayorange.com>
Carlos Castillo <cookieo9@gmail.com>
Carlos Cirello <uldericofilho@gmail.com>
Carlos
Eduardo <me@carlosedp.com>
Carlos Eduardo Seo <cseo@linux.vnet.ibm.com>
Carlos Souza <carloshrsouza@gmail.com>
Carolyn Van Slyck <me@carolynvanslyck.com>
Carrie Bynon <cbynon@gmail.com>
Cary Hull <chull@google.com>
Case Nelson <case.nelson@gmail.com>
Casey Callendrello <squeed@gmail.com>
Casey Marshall <casey.marshall@gmail.com>
Catalin Nicutar <cnicutar@google.com>
Catalin Patulea <catalinp@google.com>
Cedric Staub <cs@squareup.com>
Cezar S Espinola <cezarsa@gmail.com>
Chad Rosier <mrosier.qdt@qualcommdatacenter.com>
ChaiShushan <chaishushan@gmail.com>
Channing Kimble-Brown <channing@golang.org>
Charles Fenwick Elliott <Charles@FenwickElliott.io>
Charles Kenney <charlesc.kenney@gmail.com>
Charles L. Dorian <cldorian@gmail.com>
Charles Lee <zombie.fml@gmail.com>
Charles Weill <weill@google.com>
Cherry Zhang <cherryyz@google.com>
Chew Choon Keat <choonkeat@gmail.com>
Cholerae Hu <choleraehyq@gmail.com>
Chotepud Teo <AlexRouSg@users.noreply.github.com>
Chris Ball
<chris@printf.net>
Chris Biscardi <chris@christopherbiscardi.com>
Chris Broadfoot <cbro@golang.org>
Chris Dollin <ehog.hedge@gmail.com>
Chris Farmiloe <chrisfarms@gmail.com>
Chris Hines <chris.cs.guy@gmail.com>
Chris Howey <howeyc@gmail.com>
Chris Hundt <hundt@google.com>

Chris Jones <chris@cjones.org> <chris.jones.yar@gmail.com>
Chris Kastorff <encryptio@gmail.com>
Chris Lennert <calennert@gmail.com>
Chris Liles <caveryliles@gmail.com>
Chris Manghane <cmang@golang.org>
Chris Marchesi <chrism@vancluevertech.com>
Chris McGee <sirnewton_01@yahoo.ca> <newton688@gmail.com>
Chris Raynor <raynor@google.com>
Chris Roche <rodaine@gmail.com>
Chris Smith <chrsmith@users.noreply.github.com>
Chris Stockton <chrisstocktonaz@gmail.com>
Chris Zou <chriszou@ca.ibm.com>
Christian Alexander <christian@linux.com>
Christian Couder <chriscool@tuxfamily.org>
Christian Himpel <chressie@googlemail.com> <chressie@gmail.com>
Christian Muehlhaeuser <muesli@gmail.com>
Christian Pellegrin <chri@evolware.org>
Christian
R. Petrin <christianpetrin@gmail.com>
Christine Hansmann <chhansmann@gmail.com>
Christoffer Buchholz <christoffer.buchholz@gmail.com>
Christoph Blecker <admin@toph.ca>
Christoph Hack <christoph@tux21b.org>
Christopher Cahoon <chris.cahoon@gmail.com>
Christopher Guiney <chris@guiney.net>
Christopher Henderson <chris@chenderson.org>
Christopher Koch <chrisko@google.com>
Christopher Nelson <nadiasvertex@gmail.com>
Christopher Nielsen <m4dh4tt3r@gmail.com>
Christopher Redden <christopher.redden@gmail.com>
Christopher Swenson <cswenson@google.com>
Christopher Wedgwood <cw@f00f.org>
Christos Zoulas <christos@zoulas.com> <zoulasc@gmail.com>
Christy Perez <christy@linux.vnet.ibm.com>
CL Sung <clsung@gmail.com> <cl_sung@htc.com>
Clment Chigot <clement.chigot@atos.net>
Clement Skau <clementskau@gmail.com>
Cody Oss <the.cody.oss@gmail.com>
Colby Ranger <cranger@google.com>
Colin Arnott <colin@urandom.co.uk>
Colin Cross <ccross@android.com>
Colin Edwards <colin@recursivepenguin.com>
Colin
Kennedy <moshen.colin@gmail.com>
Colin Nelson <colnnelson@google.com>
Colin Rice <clr@google.com>
Conrad Irwin <conrad.irwin@gmail.com>
Conrad Meyer <cemeyer@cs.washington.edu>

Conrado Gouvea <conradoplg@gmail.com>
Constantin Konstantinidis <constantinkonstantinidis@gmail.com>
Corey Thomasson <cthom.lists@gmail.com>
Cosmos Nicolaou <cnicolaou@google.com>
Costin Chirvasuta <ctin@google.com>
Craig Citro <craigcitro@google.com>
Cristian Staretu <unclejacksons@gmail.com>
Cuihtlauac ALVARADO <cuihtlauac.alvarado@orange.com>
Cyrill Schumacher <cyrill@schumacher.fm>
Daisuke Fujita <dtanshi45@gmail.com>
Daker Fernandes Pinheiro <daker.fernandes.pinheiro@intel.com>
Damian Gryski <dgryski@gmail.com>
Damien Lespiau <damien.lespiau@gmail.com> <damien.lespiau@intel.com>
Damien Mathieu <42@dmathieu.com>
Damien Neil <dneil@google.com>
Damien Tournoud <damien@platform.sh>
Dan Ballard <dan@mindstab.net>
Dan Caddigan <goldcaddy77@gmail.com>
Dan Callahan <dan.callahan@gmail.com>
Dan Harrington <harringtond@google.com>
Dan
Jacques <dnj@google.com>
Dan Johnson <computerdruid@google.com>
Dan Peterson <dpiddy@gmail.com>
Dan Pupius <dan@medium.com>
Dan Sinclair <dan.sinclair@gmail.com>
Daniel Cormier <danielc@knowbe4.com>
Danil de Kok <me@danieldk.eu>
Daniel Fleischman <danielfleischman@gmail.com>
Daniel Ingram <ingramds@appstate.edu>
Daniel Johansson <dajo2002@gmail.com>
Daniel Kerwin <d.kerwin@gini.net>
Daniel Krech <eikeon@eikeon.com>
Daniel Langner <s8572327@gmail.com>
Daniel Lidn <daniel.liden.87@gmail.com>
Daniel Lublin <daniel@lublin.se>
Daniel Mart <mvdan@mvdan.cc>
Daniel Morsing <daniel.morsing@gmail.com>
Daniel Nadasi <dnadasi@google.com>
Daniel Nephin <dnephin@gmail.com>
Daniel Ortiz Pereira da Silva <daniel.particular@gmail.com>
Daniel Skinner <daniel@dasa.cc>
Daniel Speichert <daniel@speichert.pl>
Daniel Theophanes <kardianos@gmail.com>
Daniel Upton <daniel@floppy.co>
Daniela Petruzalek <daniela.petruzalek@gmail.com>
Danny Rosseau <daniel.rosseau@gmail.com>
Daria Kolistratova

<daria.kolistratova@intel.com>
Darien Raymond <admin@v2ray.com>
Darren Elwood <darren@textnode.com>
Darren Grant <darren.e.grant@gmail.com>
Darren McCleary <darren.rmc@gmail.com>
Darshan Parajuli <parajulidarshan@gmail.com>
Datong Sun <dndx@idndx.com>
Dave Borowitz <dborowitz@google.com>
Dave Bort <dbort@golang.org>
Dave Cheney <dave@cheney.net>
Dave Day <djd@golang.org>
Dave Grijalva <dgrijalva@ngmoco.com>
Dave MacFarlane <driusan@gmail.com>
Dave Russell <forfuncsake@gmail.com>
David Anderson <danderson@google.com>
David Barnett <dbarnett@google.com>
David Benjamin <davidben@google.com>
David Brophy <dave@brophy.uk>
David Brgin <676c7473@gmail.com>
David Calavera <david.calavera@gmail.com>
David Carlier <devnexen@gmail.com>
David Chase <drchase@google.com>
David Covert <davidhcovert@gmail.com>
David Crawshaw <david.crawshaw@zentus.com> <crawshaw@google.com> <crawshaw@golang.org>
David du Colombier <0intro@gmail.com>
David Finkel <david.finkel@gmail.com>
David Forsythe <dforsythe@gmail.com>
David
G. Andersen <dave.andersen@gmail.com>
David Glasser <glasser@meteor.com>
David Heuschmann <heuschmann.d@gmail.com>
David Howden <dhowden@gmail.com>
David Hubbard <dsp@google.com>
David Jakob Fritz <david.jakob.fritz@gmail.com>
David Jones <dxjones@gmail.com>
David Lazar <lazard@golang.org>
David Leon Gil <coruus@gmail.com>
David McLeish <davemc@google.com>
David Ndungu <dnjuguna@gmail.com>
David NewHamlet <david@newhamlet.com>
David Presotto <presotto@gmail.com>
David R. Jenni <david.r.jenni@gmail.com>
David Sansome <me@davidsansome.com>
David Stainton <dstainton415@gmail.com>
David Symonds <dsymonds@golang.org>
David Thomas <davidthomas426@gmail.com>
David Timm <dtimm@pivotal.io>
David Titarenco <david.titarenco@gmail.com>

David Tolpin <david.tolpin@gmail.com>
David Url <david@urld.io>
David Volquartz Lebech <david@lebech.info>
David Wimmer <davidlwimmer@gmail.com>
Davies Liu <davies.liu@gmail.com>
Davor Kapsa <davor.kapsa@gmail.com>
Dean Prichard <dean.prichard@gmail.com>
Deepak
Jois <deepak.jois@gmail.com>
Denis Bernard <db047h@gmail.com>
Denis Brandolini <denis.brandolini@gmail.com>
Denis Nagorny <denis.nagorny@intel.com>
Dennis Kuhnert <mail.kuhnert@gmail.com>
Denys Honsiorovskyi <honsiorovskyi@gmail.com>
Denys Smirnov <denis.smirnov.91@gmail.com>
Derek Buitenhuis <derek.buitenhuis@gmail.com>
Derek Che <drc@yahoo-inc.com>
Derek McGowan <derek@mcgstyle.net>
Derek Parker <parkerderek86@gmail.com>
Derek Phan <derekphan94@gmail.com>
Derek Shockey <derek.shockey@gmail.com>
Dev Ojha <dojha12@gmail.com>
Dev Zhoujun <dev.zhoujun@gmail.com>
Devon H. O'Dell <devon.odell@gmail.com>
Dhaivat Pandit <dhaivatpandit@gmail.com>
Dhananjay Nakrani <dhananjayn@google.com>
Dhiru Kholia <dhiru.kholia@gmail.com>
Dhruvdutt Jadhav <dhruvdutt.jadhav@gmail.com>
Di Xiao <dixiao@google.com>
Didier Spezia <didier.06@gmail.com>
Diego Siqueira <diego9889@gmail.com>
Dieter Plaetinck <dieter@raintank.io>
Dimitri Sokolyuk <sokolyuk@gmail.com>
Dimitri Tcaciuc <dtcaciuc@gmail.com>
Dina
Garmash <dgrmsh@gmail.com>
Diogo Pinela <diogoid7400@gmail.com>
Dirk Gadsden <dirk@esherido.com>
Diwaker Gupta <diwakergupta@gmail.com>
Dmitri Goutnik <dgoutnik@gmail.com>
Dmitri Popov <operator@cv.dp-net.com>
Dmitri Shuralyov <dmitshur@golang.org> <dmitri@shuralyov.com>
Dmitriy Cherchenko <dcherchenko@gmail.com>
Dmitriy Dudkin <dudkin.dmitriy@gmail.com>
Dmitriy Shelenin <deemok@googlemail.com> <deemok@gmail.com>
Dmitriy Vyukov <dvyukov@google.com>
Dmitry Chestnykh <dchest@gmail.com>
Dmitry Doroginin <doroginin@gmail.com>

Dmitry Mottl <dmitry.mottl@gmail.com>
Dmitry Neverov <dmitry.neverov@gmail.com>
Dmitry Savintsev <dsavints@gmail.com>
Dmitry Yakunin <nonamezeil@gmail.com>
Domen Ipavec <domen@ipavec.net>
Dominic Green <dominicgreen1@gmail.com>
Dominik Honnef <dominik.honnef@gmail.com>
Dominik Vogt <vogt@linux.vnet.ibm.com>
Don Byington <don@dbyington.com>
Donald Huang <don.hcd@gmail.com>
Dong-hee Na <donghee.na92@gmail.com>
Donovan Hide <donovanhide@gmail.com>
Doug Anderson <douga@google.com>
Doug
Fawley <dfawley@google.com>
Douglas Danger Manley <doug.manley@gmail.com>
Drew Flower <drewvanstone@gmail.com>
Drew Hintz <adhintz@google.com>
Duncan Holm <mail@frou.org>
Dustin Carlino <dcarlino@google.com>
Dustin Herbison <djherbis@gmail.com>
Dustin Long <dustmop@gmail.com>
Dustin Sallings <dsallings@gmail.com>
Dustin Shields-Cloues <dcloues@gmail.com>
Dvir Volk <dvir@everything.me> <dvirsky@gmail.com>
Dylan Waits <dylan@waits.io>
Edan Bedrik <3d4nb3@gmail.com>
Eddie Scholtz <escholtz@google.com>
Eden Li <eden.li@gmail.com>
Eduard Urbach <e.urbach@gmail.com>
Eduardo Ramalho <eduardo.ramalho@gmail.com>
Edward Muller <edwardam@interlix.com>
Egon Elbre <egonelbre@gmail.com>
Ehren Kret <ehren.kret@gmail.com>
Eitan Adler <lists@eitanadler.com>
Eivind Uggedal <eivind@uggedal.com>
Elbert Fliek <efliek@gmail.com>
Eldar Rakhimberdin <ibeono@gmail.com>
Elena Grahovac <elena@grahovac.me>
Eli Bendersky <eliben@google.com>
Elias Naur <mail@eliasnaur.com> <elias.naur@gmail.com>
Elliot
Morrison-Reed <elliotmr@gmail.com>
Emerson Lin <linyintor@gmail.com>
Emil Hessman <emil@hessman.se>
Emil Mursalimov <mursalimovemeel@gmail.com>
Emilien Kenler <hello@emilienkenler.com>
Emmanuel Odeke <emm.odeke@gmail.com> <odeke@ualberta.ca>

Eno Compton <enocom@google.com>
Eoghan Sherry <ejsherry@gmail.com>
Eric Chiang <eric.chiang.m@gmail.com>
Eric Clark <zerohp@gmail.com>
Eric Daniels <eric@erdaniels.com>
Eric Engestrom <eric@engestrom.ch>
Eric Garrido <ekg@google.com>
Eric Koleda <ekoleda+devrel@google.com>
Eric Lagergren <ericscottlagergren@gmail.com>
Eric Milliken <emilliken@gmail.com>
Eric Pauley <eric@pauley.me>
Eric Ponce <tricokun@gmail.com>
Eric Rescorla <ekr@rtfm.com>
Eric Roshan-Eisner <eric.d.eisner@gmail.com>
Eric Rykwalder <e.rykwalder@gmail.com>
Erik Aigner <aigner.erik@gmail.com>
Erik Dubbelboer <erik@dubbelboer.com>
Erik St. Martin <alakriti@gmail.com>
Erik Staab <estaab@google.com>
Erik Westrup <erik.westrup@gmail.com>
Erin Masatsugu <erin.masatsugu@gmail.com>
Ernest
Chiang <ernest_chiang@htc.com>
Erwin Oegema <blablaechthema@hotmail.com>
Esko Luontola <esko.luontola@gmail.com>
Ethan Burns <eaburns@google.com>
Ethan Miller <eamiller@us.ibm.com>
Euan Kemp <euank@euank.com>
Eugene Kalinin <e.v.kalinin@gmail.com>
Evan Broder <evan@stripe.com>
Evan Brown <evanbrown@google.com>
Evan Digby <evandigby@gmail.com>
Evan Hicks <evan.hicks2@gmail.com>
Evan Jones <ej@evanjones.ca>
Evan Klitzke <evan@eklitzke.org>
Evan Kroske <evankroske@google.com>
Evan Martin <evan.martin@gmail.com>
Evan Phoenix <evan@phx.io>
Evan Shaw <chickencha@gmail.com>
Evgeniy Polyakov <zbr@ioremap.net>
Ewan Chou <coocood@gmail.com>
Ewan Valentine <ewan.valentine89@gmail.com>
Eyal Posener <posener@gmail.com>
Fabian Wickborn <fabian@wickborn.net>
Fabian Zaremba <fabian@youremail.eu>
Fabrizio Milo <mistobaan@gmail.com>
Faiyaz Ahmed <ahmedf@vmware.com>
Fan Hongjian <fan.howard@gmail.com>

Fangming Fang <fangming.fang@arm.com>
Fannie Zhang <fannie.zhang@arm.com>
Fatih Arslan <fatih@arslan.io>
Fazal
Majid <majid@apsalar.com>
Fazlul Shahriar <fshahriar@gmail.com>
Federico Bond <federicobond@gmail.com>
Federico Simoncelli <fsimonce@redhat.com>
Fedor Indutny <fedor@indutny.com>
Fedor Korotkiy <dartslon@gmail.com>
Felipe Oliveira <felipeweb.programador@gmail.com>
Felix Bnemann <Felix.Buenemann@gmail.com>
Felix Geisendrfer <haimuiba@gmail.com>
Felix Kollmann <fk@konsorten.de>
Filip Gruszczyski <gruszczy@gmail.com>
Filip Haglund <drathier@users.noreply.github.com>
Filip Stanis <fstanis@google.com>
Filippo Valsorda <filippo@golang.org> <filippo@cloudflare.com> <hi@filippo.io>
Firmansyah Adiputra <frm.adiputra@gmail.com>
Florian Forster <octo@google.com>
Florian Uekermann <florian@uekermann-online.de> <f1@uekermann-online.de>
Florian Weimer <fw@deneb.enyo.de>
Florin Patan <florinpatan@gmail.com>
Folke Behrens <folke@google.com>
Ford Hurley <ford.hurley@gmail.com>
Francesc Campoy <campoy@golang.org>
Francesco Renzi <rentziass@gmail.com>
Francisco Claude <fclaude@recoded.cl>
Francisco
Rojas <francisco.rojas.gallegos@gmail.com>
Francisco Souza <franciscossouza@gmail.com>
Frank Schroeder <frank.schroeder@gmail.com>
Frank Somers <fsomers@arista.com>
Frederic Guillot <frederic.guillot@gmail.com>
Frederick Kelly Mayle III <frederickmayle@gmail.com>
Frederik Ring <frederik.ring@gmail.com>
Fredrik Enestad <fredrik.enestad@soundtrackyourbrand.com>
Fredrik Forsmo <fredrik.forsmo@gmail.com>
Fredrik Wallgren <fredrik.wallgren@gmail.com>
Frew Schmidt <github@frew.co>
Frithjof Schulze <schulze@math.uni-hannover.de> <sfrithjof@gmail.com>
Frits van Bommel <fvbommel@gmail.com>
Fumitoshi Ukai <ukai@google.com>
G. Hussain Chinoy <ghchinoy@gmail.com>
Gaal Yahas <gaal@google.com>
Gabrel Arthr Ptursson <gabriel@system.is>
Gabriel Aszalos <gabriel.aszalos@gmail.com>
Gabriel Guzman <gabe.guzman@gmail.com>

Gabriel Nelle <tehsphinx@web.de>
Gabriel Nicolas Avellaneda <avellaneda.gabriel@gmail.com>
Gabriel Russell <gabriel.russell@gmail.com>
Gareth Paul Jones <gpj@foursquare.com>
Garret
Kelly <gdk@google.com>
Garrick Evans <garrick@google.com>
Gary Burd <gary@beagledreams.com> <gary.burd@gmail.com>
Gary Elliott <garyelliott@google.com>
Gaurish Sharma <contact@gaurishsharma.com>
Gautham Thambidorai <gautham.dorai@gmail.com>
Gauthier Jolly <gauthier.jolly@gmail.com>
Geert-Johan Riemer <gjr19912@gmail.com>
Genevieve Luyt <genevieve.luyt@gmail.com>
Gengliang Wang <ltnwgl@gmail.com>
Geoff Berry <gberry.qdt@qualcommdatacenter.com>
Geoffroy Lorieux <lorieux.g@gmail.com>
Geon Kim <geon0250@gmail.com>
Georg Reinke <guelfey@gmail.com>
George Gkirtsou <ggirtsou@gmail.com>
George Shammas <george@shamm.as> <georgyo@gmail.com>
Gerasimos (Makis) Maropoulos <kataras2006@hotmail.com>
Gerasimos Dimitriadis <gedimitr@gmail.com>
Gergely Brautigam <skarlso777@gmail.com>
Gernot Vormayr <gvormayr@gmail.com>
Getulio Snchez <valentin2507@gmail.com>
Gianguido Sora` <g.sora4@gmail.com>
Gideon Jan-Wessel Redelinghuys <gjredelinghuys@gmail.com>
Giles Lean <giles.lean@pobox.com>
Giovanni Bajo <rasky@develer.com>
GitHub
User @ajnirp (1688456) <ajnirp@users.noreply.github.com>
GitHub User @alkesh26 (1019076) <alkesh26@gmail.com>
GitHub User @andrius4669 (4699695) <andrius4669@gmail.com>
GitHub User @as (8127015) <as.utf8@gmail.com>
GitHub User @bakape (7851952) <bakape@gmail.com>
GitHub User @bgadrian (830001) <aditza8@gmail.com>
GitHub User @bontequero (2674999) <bontequero@gmail.com>
GitHub User @cch123 (384546) <buaa.cch@gmail.com>
GitHub User @chanxuehong (3416908) <chanxuehong@gmail.com>
GitHub User @dupoxy (1143957) <dupoxy@users.noreply.github.com>
GitHub User @erifan (31343225) <eric.fang@arm.com>
GitHub User @esell (9735165) <eujon.sellers@gmail.com>
GitHub User @frennkie (6499251) <mail@rhab.de>
GitHub User @hengwu0 (41297446) <41297446+hengwu0@users.noreply.github.com>
GitHub User @itchyny (375258) <itchyny@hatena.ne.jp>
GitHub User @kazyshr (30496953) <kazyshr0301@gmail.com>
GitHub User @kc1212 (1093806) <kc1212@users.noreply.github.com>

GitHub User @Kropekk (13366453)
<kamilkropiewnicki@gmail.com>
GitHub User @linguohua (3434367) <lghchinaidea@gmail.com>
GitHub User @LotusFenn (13775899) <fenn.lotus@gmail.com>
GitHub User @madiganz (18340029) <zacharywmadigan@gmail.com>
GitHub User @micnncim (21333876) <micnncim@gmail.com>
GitHub User @mkishere (224617) <224617+mkishere@users.noreply.github.com>
GitHub User @OlgaVlPetrova (44112727) <OVPpetrova@gmail.com>
GitHub User @pityonline (438222) <pityonline@gmail.com>
GitHub User @pytimer (17105586) <lixin20101023@gmail.com>
GitHub User @saitarunreddy (21041941) <saitarunreddypalla@gmail.com>
GitHub User @shogo-ma (9860598) <Choroma194@gmail.com>
GitHub User @tatsumack (4510569) <tatsu.mack@gmail.com>
GitHub User @tell-k (26263) <ffk2005@gmail.com>
GitHub User @uhei (2116845) <uhei@users.noreply.github.com>
GitHub User @uropek (39370426) <uropek@gmail.com>
GitHub User @utkarsh-extc (53217283) <53217283+utkarsh-extc@users.noreply.github.com>
GitHub User @yuanhh (1298735) <yuan415030@gmail.com>
GitHub User
@ZZMarquis (7624583) <zhonglingjian3821@163.com>
Giulio Iotti <dullgiulio@gmail.com>
Giulio Micheloni <giulio.micheloni@gmail.com>
Giuseppe Valente <gvalente@arista.com>
Gleb Stepanov <glebstepanov1992@gmail.com>
Glenn Brown <glennb@google.com>
Glenn Lewis <gmlewis@google.com>
Gordon Klaus <gordon.klaus@gmail.com>
Gordon Tyler <gordon@doxxx.net>
Graham King <graham4king@gmail.com>
Graham Miller <graham.miller@gmail.com>
Grant Griffiths <ggp493@gmail.com>
Greg Poirier <greg.istehbest@gmail.com>
Greg Steuck <gnezdo+github@google.com>
Greg Thelen <gthelen@google.com>
Greg Ward <greg@gerg.ca>
Grgoire Delattre <gregoire.delattre@gmail.com>
Gregory Man <man.gregory@gmail.com>
Guilherme Caruso <gui.martinscaruso@gmail.com>
Guilherme Garnier <guilherme.garnier@gmail.com>
Guilherme Goncalves <guilhermeaugustosg@gmail.com>
Guilherme Rezende <guilhermebr@gmail.com>
Guillaume J. Charmes <guillaume@charmes.net>
Guobiao Mei <meiguobiao@gmail.com>
Guoliang Wang <iamwgliang@gmail.com>
Gustav Paul <gustav.paul@gmail.com>
Gustav
Westling <gustav@westling.xyz>
Gustavo Franco <gustavorfranco@gmail.com>

Gustavo Niemeyer <gustavo@niemeyer.net> <n13m3y3r@gmail.com>
Gwenael Treguier <gwenn.kahz@gmail.com>
Gyu-Ho Lee <gyuhox@gmail.com>
H. brahim Gngr <igungor@gmail.com>
Hajime Hoshi <hajimehoshi@gmail.com>
Hallgrimur Gunnarsson <halg@google.com>
HAMANO Tsukasa <hamano@osstech.co.jp>
Han-Wen Nienhuys <hanwen@google.com>
Hang Qian <hangqian90@gmail.com>
Hanjun Kim <hallazzang@gmail.com>
Haosdent Huang <haosdent@gmail.com>
Harald Nordgren <haraldnordgren@gmail.com>
Hari haran <hariharan.uno@gmail.com>
Hariharan Srinath <srinathh@gmail.com>
Harley Laue <losinggeneration@gmail.com>
Harry Moreno <morenoh149@gmail.com>
Harshavardhana <hrshvardhana@gmail.com>
Hasan Ozgan <hasan@ozgan.net>
Hauke Lffler <hloeffler@users.noreply.github.com>
Hvard Haugen <havard.haugen@gmail.com>
He Liu <liulonnie@gmail.com>
Hector Chu <hectorchu@gmail.com>
Hector Martin Cantero <hector@marcansoft.com>
Henning Schmiedehausen
<henning@schmiedehausen.org>
Henrik Edwards <henrik.edwards@gmail.com>
Henrik Hodne <henrik@hodne.io>
Henry Adi Sumarto <henry.adisumarto@gmail.com>
Henry Bubert <google@mindeco.de>
Henry Chang <mr.changyuheng@gmail.com>
Henry Clifford <h.a.clifford@gmail.com>
Henry Wong <liushuai.wang@elastic.co>
Herbert Georg Fischer <herbert.fischer@gmail.com>
Herbie Ong <herbie@google.com>
Heschi Kreinick <heschi@google.com>
Hidetatsu Yaginuma <ygnmhdtt@gmail.com>
Hilko Bengen <bengen@hilluzination.de>
Hiroaki Nakamura <hnakamur@gmail.com>
Hironao OTSUBO <motemen@gmail.com>
Hiroshi Ioka <hirochachacha@gmail.com>
Hitoshi Mitake <mitake.hitoshi@gmail.com>
Holden Huang <ttyh061@gmail.com>
Hong Ruiqi <hongruiqi@gmail.com>
Hongfei Tan <feilengcui008@gmail.com>
Horst Rutter <hhrutter@gmail.com>
Hossein Sheikh Attar <hattar@google.com>
Hsin Tsao <tsao@google.com>
Hsin-Ho Yeh <yhh92u@gmail.com>

Hu Keping <hukeping@huawei.com>
Hugues Bruant <hugues.bruant@gmail.com>
Huy Le <huy.dinh.le.89@gmail.com>
Hyang-Ah
Hana Kim <hakim@google.com> <hyangah@gmail.com>
Ian Cottrell <iancottrell@google.com>
Ian Davis <nospam@iandavis.com>
Ian Gudger <ian@loosescre.ws>
Ian Haken <ihaken@netflix.com>
Ian Kent <iankent85@gmail.com>
Ian Lance Taylor <iant@golang.org>
Ian Leue <ian@appboy.com>
Ian Zapolsky <ianzapolsky@gmail.com>
Ibrahim AshShohail <ibra.sho@gmail.com>
Icarus Sparry <golang@icarus.freeuk.com>
Iccha Sethi <icchasethi@gmail.com>
Idora Shinatose <idora.shinatose@gmail.com>
Igor Bernstein <igorbernstein@google.com>
Igor Dolzhikov <bluesriverz@gmail.com>
Igor Vashyst <ivashyst@gmail.com>
Igor Zhilianin <igor.zhilianin@gmail.com>
Illya Yalovyy <yalovoy@gmail.com>
Ilya Tocar <ilya.tocar@intel.com>
INADA Naoki <songofacandy@gmail.com>
Inanc Gumus <m@inanc.io>
Ingo Gottwald <in.gottwald@gmail.com>
Ingo Krabbe <ikrabbe.ask@gmail.com>
Ingo Oeser <nightlyone@googlemail.com> <nightlyone@gmail.com>
Ioannis Georgoulas <geototti21@hotmail.com>
Irfan Sharif <irfanmahmoudsharif@gmail.com>
Irieda Noboru
<irieda@gmail.com>
Isaac Ardis <isaac.ardis@gmail.com>
Isaac Wagner <ibw@isaacwagner.me>
Iskander Sharipov <iskander.sharipov@intel.com> <quasilyte@gmail.com>
Issac Trotts <issactrotts@google.com>
Ivan Babrou <ivan@cloudflare.com>
Ivan Bertona <ivan.bertona@gmail.com>
Ivan Krasin <krasin@golang.org>
Ivan Kutuzov <arbrix@gmail.com>
Ivan Markin <sw@nogoegst.net>
Ivan Moscoso <moscoso@gmail.com>
Ivan Osadchiy <ivan.osadchii@gmail.com>
Ivan Sharavuev <shpiwan@gmail.com>
Ivan Ukhov <ivan.ukhov@gmail.com>
Ivy Evans <ivy@ivyevans.net>
Jaana Burcu Dogan <jbd@google.com> <jbd@golang.org> <burcujdogan@gmail.com>
Jack Britton <jackxbritton@gmail.com>

Jack Lindamood <jlindamo@justin.tv>
Jacob Baskin <jbaskin@google.com>
Jacob Blain Christen <dweomer5@gmail.com>
Jacob H. Haven <jacob@cloudflare.com>
Jacob Hoffman-Andrews <github@hoffman-andrews.com>
Jacob Walker <jacobwalker0814@gmail.com>
Jae Kwon <jae@tendermint.com>
Jake B <doogie1012@gmail.com>
Jakob Borg <jakob@nym.se>
Jakob Weisblat <jakobw@mit.edu>
Jakub
ajka <jcajka@redhat.com>
Jakub Ryszard Czarnowicz <j.czarnowicz@gmail.com>
James Aguilar <jaguilar@google.com>
James Bardin <j.bardin@gmail.com>
James Chacon <jchacon@google.com>
James Clarke <jrtc27@jrtc27.com>
James Cowgill <James.Cowgill@imgtec.com>
James Craig Burley <james-github@burleyarch.com>
James David Chalfant <james.chalfant@gmail.com>
James Eady <jmeady@google.com>
James Fysh <james.fysh@gmail.com>
James Gray <james@james4k.com>
James Hartig <fastest963@gmail.com>
James Lawrence <jljatone@gmail.com>
James Meneghello <rawrz0r@gmail.com>
James Myers <jfmyers9@gmail.com>
James Neve <jamesoneve@gmail.com>
James Nugent <james@jen20.com>
James P. Cooper <jamespcooper@gmail.com>
James Robinson <jamesr@google.com> <jamesr.gatech@gmail.com>
James Schofield <james@shoeboxapp.com>
James Smith <jrs1995@icloud.com>
James Sweet <james.sweet88@googlemail.com>
James Toy <nil@opensesame.st>
James Treanor <jtreanor3@gmail.com>
James Tucker <raggi@google.com>
James Whitehead
<jnwhiteh@gmail.com>
Jamie Beverly <jamie.r.beverly@gmail.com>
Jamie Gennis <jgennis@google.com> <jgennis@gmail.com>
Jamie Kerr <jkerr113@googlemail.com>
Jamie Liu <jamieliu@google.com>
Jamie Stackhouse <contin673@gmail.com>
Jamie Turner <jamwt@dropbox.com>
Jamie Wilkinson <jaq@spacepants.org>
Jamil Djadala <djadala@gmail.com>
Jan Berktold <jan@berktold.co>

Jan H. Hosang <jan.hosang@gmail.com>
Jan Kratochvil <jan.kratochvil@redhat.com>
Jan Lehnardt <jan@apache.org>
Jan Mercl <0xjnml@gmail.com> <befelemepeseveze@gmail.com>
Jan Newmarch <jan.newmarch@gmail.com>
Jan Pilzer <jan.pilzer@gmx.de>
Jan Steinke <jan.steinke@gmail.com>
Jan Ziak <0xe2.0x9a.0x9b@gmail.com>
Jani Monoses <jani.monoses@ubuntu.com> <jani.monoses@gmail.com>
Jannis Andrija Schnitzer <jannis@schnitzer.im>
Jared Culp <jculp14@gmail.com>
Jaroslavas Poepko <jp@webmaster.ms>
Jason A. Donenfeld <Jason@zx2c4.com>
Jason Barnett <jason.w.barnett@gmail.com>
Jason Buberel <jbuberel@google.com>
Jason Chu <jasonchujc@gmail.com>
Jason
Del Ponte <delpontej@gmail.com>
Jason Hall <jasonhall@google.com>
Jason Keene <jasonkeene@gmail.com>
Jason LeBrun <jblebrun@gmail.com>
Jason Smale <jsmale@zendesk.com>
Jason Travis <infomaniac7@gmail.com>
Jason Wangsadinata <jwangsadinata@gmail.com>
Javier Kohen <jkohen@google.com>
Javier Revillas <jrevillas@massivedynamic.io>
Javier Segura <javism@gmail.com>
Jay Conrod <jayconrod@google.com>
Jay Taylor <outtatime@gmail.com>
Jay Weisskopf <jay@jayschwa.net>
Jean de Klerk <deklerk@google.com>
Jean-Andr Santoni <jean.andre.santoni@gmail.com>
Jean-Franois Bustarret <jf@bustarret.com>
Jean-Francois Cantin <jfcantin@gmail.com>
Jean-Marc Eurin <jmeurin@google.com>
Jean-Nicolas Moal <jn.moal@gmail.com>
Jed Denlea <jed@fastly.com>
Jeet Parekh <jeetparekh96@gmail.com>
Jeevanandam M <jeeva@myjeeva.com>
Jeff (Zhefu) Jiang <jeffjiang@google.com>
Jeff Craig <jeffcraig@google.com>
Jeff Dupont <jeff.dupont@gmail.com>
Jeff Hodges <jeff@somethingsimilar.com>
Jeff Johnson <jrjohnson@google.com>
Jeff
R. Allen <jra@nella.org> <jeff.allen@gmail.com>
Jeff Sickel <jas@corpus-callosum.com>
Jeff Wendling <jeff@spacemonkey.com>

Jeffrey H <jeffreyh192@gmail.com>
Jelte Fennema <github-tech@jeltef.nl>
Jens Frederich <jfrederich@gmail.com>
Jeremiah Harmsen <jeremiah@google.com>
Jeremy Banks <_@jeremy.ca>
Jeremy Canady <jcanady@gmail.com>
Jeremy Jackins <jeremyjackins@gmail.com>
Jeremy Jay <jeremy@pbnjay.com>
Jeremy Schlatter <jeremy.schlatter@gmail.com>
Jeroen Bobbeldijk <jerbob92@gmail.com>
Jeroen Simonetti <jeroen@simonetti.nl>
Jerrin Shaji George <jerrinsg@gmail.com>
Jess Frazelle <me@jessfraz.com>
Jesse Szwedko <jesse.szwedko@gmail.com>
Jess Espino <jespinog@gmail.com>
Jianing Yu <jnyu@google.com>
Jianqiao Li <jianqiaoli@google.com>
Jihyun Yu <yjh0502@gmail.com>
Jim Cote <jfcote87@gmail.com>
Jim Kingdon <jim@bolt.me>
Jim McGrath <jimmc2@gmail.com>
Jim Minter <jminter@redhat.com>
Jimmy Frasche <soapboxcicero@gmail.com>
Jimmy Zelinskie <jimmyzelinskie@gmail.com>
Jin-wook Jeong <jeweljar@hanmail.net>
Jingcheng
Zhang <diogin@gmail.com>
Jingguo Yao <yaojingguo@gmail.com>
Jingnan Si <jingnan.si@gmail.com>
Jinkun Zhang <franksnolf@gmail.com>
Jiong Du <londevil@gmail.com>
Jirka Dank <dnk@mail.muni.cz>
Jiulong Wang <jiulongw@gmail.com>
Joakim Sernbrant <serbaut@gmail.com>
Joe Bowbeer <joe.bowbeer@gmail.com>
Joe Cortopassi <joe@joecortopassi.com>
Joe Farrell <joe2farrell@gmail.com>
Joe Harrison <joehazzers@gmail.com>
Joe Henke <joed.henke@gmail.com>
Joe Kyo <xunianzu@gmail.com>
Joe Poirier <jdpoirier@gmail.com>
Joe Richey <joerichey@google.com>
Joe Shaw <joe@joeshaw.org>
Joe Sylve <joe.sylve@gmail.com>
Joe Tsai <joetsai@digital-static.net>
Joel Sing <joel@sing.id.au> <jsing@google.com>
Jol Stemmer <jstemmer@google.com>
Joel Stemmer <stemmertech@gmail.com>

Joey Geiger <jgeiger@users.noreply.github.com>
Johan Brandhorst <johan.brandhorst@gmail.com>
Johan Euphrosine <proppy@google.com>
Johan Sageryd <j@1616.se>
John Asmuth <jasmuth@gmail.com>
John Beisley <huin@google.com>
John C Barstow
<jbowtie@amathaine.com>
John DeNero <denero@google.com>
John Dethridge <jcd@golang.org>
John Gibb <johngibb@gmail.com>
John Gilik <john@jgilik.com>
John Graham-Cumming <jgc@jgc.org> <jgrahamc@gmail.com>
John Howard Palevich <jack.palevich@gmail.com>
John Jeffery <jjeffery@sp.com.au>
John Jenkins <twodopeshaggy@gmail.com>
John Leidegren <john.leidegren@gmail.com>
John Moore <johnkenneth.moore@gmail.com>
John Newlin <jnewlin@google.com>
John Potocny <johnp@vividcortex.com>
John R. Lenton <jlenton@gmail.com>
John Schnake <schnake.john@gmail.com>
John Shahid <jvshahid@gmail.com>
John Tuley <john@tuley.org>
John Weldon <johnweldon4@gmail.com>
Johnny Luo <johnnyluo1980@gmail.com>
Jon Chen <jchen@justin.tv>
Jonas Bernoulli <jonas@bernoul.li>
Jonathan Allie <jonallie@google.com>
Jonathan Amsterdam <jba@google.com>
Jonathan Boulle <jonathanboulle@gmail.com>
Jonathan Chen <dijonkitchen@users.noreply.github.com>
Jonathan Feinberg <feinberg@google.com>
Jonathan Gold <jgold.bg@gmail.com>
Jonathan
Hseu <jhseu@google.com>
Jonathan Mark <jhmark@xenops.com> <jhmark000@gmail.com>
Jonathan Nieder <jrn@google.com>
Jonathan Pentecost <pentecostjonathan@gmail.com>
Jonathan Pittman <jmpittman@google.com> <jonathan.mark.pittman@gmail.com>
Jonathan Rudenberg <jonathan@titanous.com>
Jonathan Stacks <jonstacks13@gmail.com>
Jonathan Wills <runningwild@gmail.com>
Jonathon Lacher <jonathon.lacher@gmail.com>
Jongmin Kim <atomaths@gmail.com>
Joonas Kuorilehto <joneskoo@derbian.fi>
Joop Kiefte <ikojba@gmail.com> <joop@kiefte.net>
Jordan Krage <jmank88@gmail.com>

Jordan Lewis <jordanthelewis@gmail.com>
Jordan Liggitt <liggitt@google.com>
Jordan Rhee <jordanrh@microsoft.com>
Jordi Martin <jordimartin@gmail.com>
Jorge Araya <jorgejavieran@yahoo.com.mx>
Jos Visser <josv@google.com>
Jose Luis Vzquez Gonzlez <josvazg@gmail.com>
Joseph Bonneau <jcb@google.com>
Joseph Holsten <joseph@josephholsten.com>
Josh Bleecher Snyder <josharian@gmail.com>
Josh Chorlton <jchorlton@gmail.com>
Josh Deprez <josh.deprez@gmail.com>
Josh
Goebel <dreamer3@gmail.com>
Josh Hoak <jhoak@google.com>
Josh Holland <jrh@joshh.co.uk>
Josh Roppo <joshroppo@gmail.com>
Josh Varga <josh.varga@gmail.com>
Joshua Boelter <joshua.boelter@intel.com>
Joshua Chase <jcjoshuachase@gmail.com>
Joshua M. Clulow <josh.clulow@joyent.com>
Joshua Rubin <joshua@rubixconsulting.com>
Josselin Costanzi <josselin@costanzi.fr>
Jostein Stuhaug <js@solidsystem.no>
JP Sugarbroad <jpsugar@google.com>
JT Olds <jtolds@xnet5.com>
JT Olio <hello@jtolio.com>
Juan Carlos <juanjcsr@gmail.com>
Juan Pablo Civile <elementohb@gmail.com>
Jude Pereira <judebpereira@gmail.com>
Jukka-Pekka Kekkonen <karatepekka@gmail.com>
Julia Hansbrough <flowerhack@google.com>
Julian Kornberger <jk+github@digineo.de>
Julian Pastarmov <pastarmovj@google.com>
Julian Phillips <julian@quantumfyre.co.uk>
Julie Qiu <julie@golang.org>
Julien Kauffmann <julien.kauffmann@freelan.org>
Julien Salleyron <julien.salleyron@gmail.com>
Julien Schmidt <google@julienschmidt.com>
Julio
Montes <julio.montes@intel.com>
Junda Liu <junda@celer.network>
Jungho Ahn <jhahn@google.com>
Junya Hayashi <ledmonster@gmail.com>
Juraj Sukop <sukop@users.noreply.github.com>
Jure Ham <jure.ham@zemanta.com>
Justin Gracenin <jgracenin@gmail.com>
Justin Li <git@justinli.net>

Justin Nu <nuss.justin@gmail.com>
Justyn Temme <justyntemme@gmail.com>
Kelly Heller <pestophagous@gmail.com>
Kai Backman <kaib@golang.org>
Kai Dong <dokia2357@gmail.com>
Kai Trukenmller <ktye78@gmail.com>
Kale Blankenship <kale@lemnisys.com>
Kaleb Elwert <kelwert@atlassian.com>
Kamal Aboul-Hosn <aboulhosn@google.com>
Kamil Chmielewski <kamil.chm@gmail.com>
Kamil Kisiel <kamil@kamilkisiel.net> <kamil.kisiel@gmail.com>
Kamil Rytarowski <krytarowski@users.noreply.github.com>
Kang Hu <hukangustc@gmail.com>
Karan Dhiman <karandhi@ca.ibm.com>
Karel Pazdera <pazderak@gmail.com>
Karoly Negyesi <chx1975@gmail.com>
Karsten Khler <karsten.koehler95@gmail.com>
Karthik Nayak <karthik.188@gmail.com>
Kashav Madan <kshvmdn@gmail.com>
Kate
Manson <kate.manson@izettle.com>
Katie Hockman <katie@golang.org>
Kato Kazuyoshi <kato.kazuyoshi@gmail.com>
Katrina Owen <katrina.owen@gmail.com>
Kaviraj Kanagaraj <kavirajkanagaraj@gmail.com>
Kay Zhu <kayzhu@google.com>
Kazuhiro Sera <seratch@gmail.com>
KB Sriram <kbsriram@google.com>
Keegan Carruthers-Smith <keegan.csmith@gmail.com>
Kei Son <hey.calmdown@gmail.com>
Keiji Yoshida <keijiyoshida.mail@gmail.com>
Keith Ball <inflatablewoman@gmail.com>
Keith Randall <khr@golang.org>
Keith Rarick <kr@xph.us>
Kelsey Hightower <kelsey.hightower@gmail.com>
Kelvin Foo Chuan Lyi <vmirage@gmail.com>
Ken Friedenbach <kenliz@cruzio.com>
Ken Rockot <ken@oz.gs> <ken.rockot@gmail.com>
Ken Sedgwick <ken@bonsai.com>
Ken Thompson <ken@golang.org>
Kenichi Tsunokawa <kenichi.tsunokawa@gmail.com>
Kenji Kaneda <kenji.kaneda@gmail.com>
Kenji Yano <kenji.yano@gmail.com>
Kenneth Shaw <kenshaw@gmail.com>
Kenny Grant <kennygrant@gmail.com>
Kenta Mori <zoncoen@gmail.com>
Ketan Parmar <ketanbparmar@gmail.com>
Kevin

Ballard <kevin@sb.org>
Kevin Burke <kev@inburke.com>
Kevin Gillette <extemporalgenome@gmail.com>
Kevin Kirsche <kev.kirsche@gmail.com>
Kevin Klues <klueska@gmail.com> <klueska@google.com>
Kevin Malachowski <chowski@google.com>
Kevin Ruffin <kruffin@gmail.com>
Kevin Vu <kevin.m.vu@gmail.com>
Kevin Zita <bleedgreenandgold@gmail.com>
Kieran Colford <kieran@kcolford.com>
Kim Shrier <kshrier@racktopsystems.com>
Kim Yongbin <kybinz@gmail.com>
Kir Kolyshkin <kolyshkin@gmail.com>
Kirill Motkov <Motkov.Kirill@gmail.com>
Kirill Smelkov <kirr@nexedi.com>
Kirk Han <kirk91.han@gmail.com>
Kirklin McDonald <kirklin.mcdonald@gmail.com>
Klaus Post <klauspost@gmail.com>
Kodie Goodwin <kodiegoodwin@gmail.com>
Koichi Shiraishi <zchee.io@gmail.com>
Koki Ide <niconegoto@yahoo.co.jp>
Komu Wairagu <komuw05@gmail.com>
Konstantin <konstantin8105@gmail.com>
Konstantin Shaposhnikov <k.shaposhnikov@gmail.com>
Kris Kwiatkowski <kris@cloudflare.com>
Kris Nova <kris@nivenly.com>
Kris Rousey <krousey@google.com>
Kristopher
Watts <traetox@gmail.com>
Kshitij Saraogi <kshitijsaraogi@gmail.com>
Kun Li <likunarmstrong@gmail.com>
Kunpei Sakai <namusyaka@gmail.com>
Kuntal Majumder <hellozee@disroot.org>
Kyle Consalus <consalus@gmail.com>
Kyle Isom <kyle@gokyle.net>
Kyle Jones <kyle@kyledj.com>
Kyle Lemons <kyle@kylelemons.net> <kevlar@google.com>
Kyle Shannon <kyle@pobox.com>
Kyle Spiers <eiais@google.com>
Kyle Wood <kyle@kylewood.cc>
Kyohei Kadota <lufia@lufia.org>
Kyrylo Silin <silin@kyrylo.org>
L Campbell <unpantsu@gmail.com>
Lai Jiangshan <eag0628@gmail.com>
Lajos Papp <lalyos@yahoo.com>
Lakshay Garg <lakshay.garg.1996@gmail.com>
Lann Martin <lannm@google.com>
Lanre Adelowo <yo@lanre.wtf>

Larry Clapp <larry@theclapp.org>
Larry Hosken <lahosken@golang.org>
Lars Jeppesen <jeppesen.lars@gmail.com>
Lars Lehtonen <lars.lehtonen@gmail.com>
Lars Wiegman <lars@namsral.com>
Larz Conwell <larzconwell@gmail.com>
Laurent Voisin <lpvoisin@gmail.com>
Laurie Clark-Michalek <laurie@qubit.com>
LE Manh Cuong
<cuong.manhle.vn@gmail.com>
Lee Hinman <hinman@gmail.com>
Lee Packham <lpackham@gmail.com>
Lehner Florian <dev@der-flo.net>
Leigh McCulloch <leighmcc@gmail.com>
Leo Antunes <leo@costela.net>
Leo Rudberg <ljr@google.com>
Leon Klingele <git@leonklingele.de>
Leonardo Comelli <leonardo.comelli@gmail.com>
Leonel Quinteros <leonel.quinteros@gmail.com>
Lev Shamardin <shamardin@gmail.com>
Lewin Bormann <lewin.bormann@gmail.com>
Lion Yang <lion@aosc.xyz>
Lloyd Dewolf <foolswisdom@gmail.com>
Lorenz Bauer <lmb@cloudflare.com>
Lorenz Nickel <mail@lorenznickel.de>
Lorenzo Masini <rugginoso@develer.com>
Lorenzo Stoakes <lstoakes@gmail.com>
Louis Kruger <louisk@google.com>
Luan Santos <cfcluan@gmail.com>
Lubomir I. Ivanov <neolit123@gmail.com>
Luca Bruno <luca.bruno@coreos.com>
Luca Greco <luca.greco@alcacoop.it>
Lucas Bremgartner <lucas.bremgartner@gmail.com>
Lucas Clemente <lclemente@google.com>
Lucien Stuker <lucien.stuker@gmail.com>
Lucio De Re <lucio.dere@gmail.com>
Ludi Rehak <ludi317@gmail.com>
Luigi
Riefolo <luigi.riefolo@gmail.com>
Luit van Drongelen <luitvd@gmail.com>
Luka Zakrajek <tr00.g33k@gmail.com>
Luka Zitnik <luka.zitnik@gmail.com>
Lukasz Milewski <lmmilewski@gmail.com>
Luke Champine <luke.champine@gmail.com>
Luke Curley <qpingu@gmail.com>
Luke Granger-Brown <git@lukegb.com>
Luna Duclos <luna.duclos@palmstonegames.com>
Luuk van Dijk <lvd@golang.org> <lvd@google.com>

Lyle Franklin <lylejfranklin@gmail.com>
Lynn Boger <laboger@linux.vnet.ibm.com>
Ma Peiqi <mapeiqi2017@gmail.com>
Maarten Bezemer <maarten.bezemer@gmail.com>
Maciej Dbski <maciejd@google.com>
Madhu Rajanna <madhupr007@gmail.com>
Magnus Hiie <magnus.hiie@gmail.com>
Maicon Costa <maiconscosta@gmail.com>
Mak Kolybabi <mak@kolybabi.com>
Maksym Trykur <maksym.trykur@gmail.com>
Mal Curtis <mal@mal.co.nz>
Manfred Touron <m@42.am>
Manigandan Dharmalingam <manigandan.jeff@gmail.com>
Manish Goregaokar <manishsmail@gmail.com>
Manoj Dayaram <platform-dev@moovweb.com> <manoj.dayaram@moovweb.com>
Mansour Rahimi <rahimi.mnr@gmail.com>
Manu
Garg <manugarg@google.com>
Manu S Ajith <neo@codingarena.in>
Manuel Mendez <mmendez534@gmail.com>
Marat Khabibullin <marat.khabibullin@jetbrains.com>
Marc Weistroff <marc@weistroff.net>
Marc-Antoine Ruel <maruel@chromium.org>
Marcel Edmund Franke <marcel.edmund.franke@gmail.com>
Marcel van Lohuizen <mpvl@golang.org>
Marcelo Cantos <marcelo.cantos@gmail.com>
Marcelo E. Magallon <marcelo.magallon@gmail.com>
Marco Hennings <marco.hennings@freiheit.com>
Marcus Willock <crazcalm@gmail.com>
Marga Manterola <marga@google.com>
Marin Bai <marin.basic02@gmail.com>
Mario Arranz <marioarranzr@gmail.com>
Marius A. Eriksen <marius@grailbio.com>
Marius Nuennerich <mnu@google.com>
Mark Adams <mark@markadams.me>
Mark Bucciarelli <mkbucc@gmail.com>
Mark Glines <mark@glines.org>
Mark Harrison <marhar@google.com>
Mark Percival <m@mdp.im>
Mark Pulford <mark@kyne.com.au>
Mark Rushakoff <mark.rushakoff@gmail.com>
Mark Ryan <mark.d.ryan@intel.com>
Mark Severson <miquella@gmail.com>
Mark
Theunissen <mark.theunissen@gmail.com>
Mark Villacampa <m@markvillacampa.com>
Mark Wolfe <mark@wolfe.id.au>
Mark Zavislak <zavislak@google.com>

Marko Juhani Silokunnas <marko.silokunnas@gmail.com>
Marko Kevac <marko@kevac.org>
Marko Mikulicic <mkm@google.com>
Marko Mudrinic <mudrinic.mare@gmail.com>
Marko Tiikkaja <marko@joh.to>
Markus Duft <markus.duft@salomon.at>
Markus Sonderegger <marraison@gmail.com>
Markus Zimmermann <zimmski@gmail.com>
Marten Seemann <martenseemann@gmail.com>
Martin Bertschler <mbertschler@gmail.com>
Martin Garton <garton@gmail.com>
Martin Habbecke <marhab@google.com>
Martin Hamrle <martin.hamrle@gmail.com>
Martin Hoefling <martin.hoefling@gmx.de>
Martin Kreichgauer <martinkr@google.com>
Martin Kunc <martinkunc@users.noreply.github.com>
Martin Lindhe <martin.j.lindhe@gmail.com>
Martin Mohrmann <moehrmann@google.com> <martisch@uos.de>
Martin Neubauer <m.ne@gmx.net>
Martin Olsen <github.com@martinolsen.net>
Martin Olsson <martin@minimum.se>
Martin Probst <martin@probst.io>
Martin
Sucha <anty.sk+git@gmail.com>
Martin Tournoij <martin@arp242.net>
Martins Sipenko <martins.sipenko@gmail.com>
Martynas Budrinas <mabu@google.com>
Marvin Stenger <marvin.stenger94@gmail.com>
Marwan Sulaiman <marwan.sulaiman@work.co>
Maryan Hratson <gmarik@gmail.com>
Masahiro Furudate <masahiro.furudate@gmail.com>
Masahiro Wakame <vvakame@gmail.com>
Masaki Yoshida <yoshida.masaki@gmail.com>
Mat Byczkowski <mbyczkowski@gmail.com>
Mat Ryer <thatmatryer@gmail.com>
Mt Gulys <mgulyas86@gmail.com>
Matej Bao <matejbaco@gmail.com>
Mateus Amin <mateus.amin@gmail.com>
Mateusz Czapliski <czapkofan@gmail.com>
Mathias Beke <git@denbeke.be>
Mathias Hall-Andersen <mathias@hall-andersen.dk>
Mathias Leppich <mleppich@muhqu.de>
Mathieu Lonjaret <mathieu.lonjaret@gmail.com>
Mats Lidell <mats.lidell@cag.se> <mats.lidell@gmail.com>
Matt Aimonetti <mattaimonetti@gmail.com>
Matt Blair <me@matthewblair.net>
Matt Bostock <matt@mattbostock.com>
Matt Brown <mdbrown@google.com>

Matt Dee <mdee@hioscar.com>
Matt
Drollette <matt@drollette.com>
Matt Harden <matt.harden@gmail.com>
Matt Jibson <matt.jibson@gmail.com>
Matt Joiner <anacrolix@gmail.com>
Matt Jones <mrjones@google.com>
Matt Juran <thepciet@gmail.com>
Matt Layher <mdlayher@gmail.com>
Matt Reiferson <mreiferson@gmail.com>
Matt Robenolt <matt@ydekproductions.com>
Matt Strong <mstrong1341@gmail.com>
Matt T. Proud <matt.proud@gmail.com>
Matt Williams <gh@mattyw.net> <mattyjwilliams@gmail.com>
Matthew Brennan <matty.brennan@gmail.com>
Matthew Broberg <matthewbbroberg@gmail.com>
Matthew Cottingham <mattcottingham@gmail.com>
Matthew Dempsky <mdempsky@google.com>
Matthew Denton <mdenton@skyportsystems.com>
Matthew Holt <Matthew.Holt+git@gmail.com>
Matthew Horsnell <matthew.horsnell@gmail.com>
Matthew Waters <mwwaters@gmail.com>
Matthieu Hauglustaine <matt.hauglustaine@gmail.com>
Matthieu Olivier <olivier.matthieu@gmail.com>
Matthijs Kooijman <matthijs@stdin.nl>
Max Riveiro <kavu13@gmail.com>
Max Schmitt <max@schmitt.mx>
Max Semenik
<maxsem.wiki@gmail.com>
Max Ushakov <ushmax@gmail.com>
Maxim Eryomenko <moeryomenko@gmail.com>
Maxim Khitrov <max@mxcrypt.com>
Maxim Pimenov <mpimenov@google.com>
Maxim Ushakov <ushakov@google.com>
Maxime de Roucy <maxime.deroucy@gmail.com>
Mximo Cuadros Ortiz <mcuadros@gmail.com>
Maxwell Krohn <themax@gmail.com>
Maya Rashish <maya@NetBSD.org>
Mayank Kumar <krmayankk@gmail.com>
Meir Fischer <meirfischer@gmail.com>
Meng Zhuo <mengzhuo1203@gmail.com>
Mhd Sulhan <m.shulhan@gmail.com>
Micah Stetson <micah.stetson@gmail.com>
Michael Anthony Knyszek <mknyszek@google.com>
Michael Brandenburg <mbrandenburg@bolste.com>
Michael Chaten <mchaten@gmail.com>
Michael Cook <code@mdcook.net>
Michael Darakananda <pongad@google.com>

Michael Dorner <mail@michaeldorner.de>
Michael Edwards <medwards@walledcity.ca>
Michael Elkins <michael.elkins@gmail.com>
Michael Ellis <micellis@justin.tv>
Michael Fraenkel <michael.fraenkel@gmail.com>
Michael Fromberger <michael.j.fromberger@gmail.com>
Michael Gehring <mg@ebfe.org>
<gnirheg.leahcim@gmail.com>
Michael Henderson <mdhender@users.noreply.github.com>
Michael Hendricks <michael@ndrix.org>
Michael Hoisie <hoisie@gmail.com>
Michael Hudson-Doyle <michael.hudson@linaro.org>
Michael Kasch <michael.kasch@gmail.com>
Michael Kufl <golang@c.michael-kaeufl.de>
Michael Kelly <mjk@google.com>
Michael Lewis <mikelikespie@gmail.com>
Michael MacInnis <Michael.P.MacInnis@gmail.com>
Michael Marineau <michael.marineau@coreos.com>
Michael Matloob <matloob@google.com>
Michael McConville <momcconville@gmail.com>
Michael McGreevy <mcgreevy@golang.org>
Michael McLoughlin <mmcloughlin@gmail.com>
Michael Munday <mike.munday@ibm.com>
Michael Pearson <mipearson@gmail.com>
Michael Piatek <piatek@google.com>
Michael Pratt <mpratt@google.com>
Michael Schaller <michael@5challer.de>
Michael Schurter <michael.schurter@gmail.com>
Michael Shields <mshields@google.com>
Michael Stapelberg <michael@stapelberg.de> <mstplbrg@googlemail.com>
Michael Steinert <mike.steinert@gmail.com>
Michael
T. Jones <mtj@google.com> <michael.jones@gmail.com>
Michael Teichgrber <mteichgraeber@gmx.de> <mt4swm@googlemail.com>
Michael Traver <mtraver@google.com>
Michael Vetter <g.bluehut@gmail.com>
Michael Vogt <mvo@ubuntu.com>
Michal Bohuslvek <mbohuslavek@gmail.com>
Michal Cierniak <cierniak@google.com>
Micha Derkacz <ziutek@lnet.pl>
Michal Franc <lam.michal.franc@gmail.com>
Michal Pristas <michal.pristas@gmail.com>
Michal Rostecki <mrostecki@suse.de>
Michalis Kargakis <michaliskargakis@gmail.com>
Michel Lespinasse <walken@google.com>
Mickael Kerjean <mickael.kerjean@gmail.com>
Mickey Reiss <mickeyreiss@gmail.com>
Miek Gieben <miek@miek.nl> <remigius.gieben@gmail.com>

Miguel Mendez <stxmendez@gmail.com>
Miguel Molina <hi@mvader.me>
Mihai Borobocea <MihaiBorobocea@gmail.com>
Mihai Moldovan <ionic@ionic.de>
Mihai Todor <todormihai@gmail.com>
Mihail Minaev <minaev.mike@gmail.com>
Mikael Tillenius <mikti42@gmail.com>
Mike Andrews <mra@xoba.com>
Mike Appleby <mike@app.leby.org>
Mike
Danese <mikedanese@google.com>
Mike Houston <mike@kothar.net>
Mike Kabischev <kabischev@gmail.com>
Mike Rosset <mike.rosset@gmail.com>
Mike Samuel <mikesamuel@gmail.com>
Mike Solomon <msolo@gmail.com>
Mike Strosaker <strosake@us.ibm.com>
Mike Tsao <mike@sowbug.com>
Mike Wiacek <mjwiacek@google.com>
Mikhail Gusarov <dottedmag@dottedmag.net>
Mikhail Panchenko <m@mihasya.com>
Miki Tebeka <miki.tebeka@gmail.com>
Mikio Hara <mikioh.mikioh@gmail.com>
Mikkel Krautz <mikkel@krautz.dk> <krautz@gmail.com>
Mikoaj Baranowski <mikolajb@gmail.com>
Milan Knezevic <milan.knezevic@mips.com>
Milutin Jovanovic <jovanovic.milutin@gmail.com>
MinJae Kwon <mingrammer@gmail.com>
Miquel Sabat Sol <mikisabate@gmail.com>
Mirko Hansen <baaazen@gmail.com>
Miroslav Genov <mgenov@gmail.com>
Misty De Meo <mistydemeo@gmail.com>
Mohit Agarwal <mohit@sdf.org>
Mohit kumar Bajoria <mohitbajo36@gmail.com>
Momchil Velikov <momchil.velikov@gmail.com>
Monis Khan <mkhan@redhat.com>
Monty Taylor <mordred@inaugust.com>
Moriyoshi
Koizumi <mozo@mozo.jp>
Morten Siebuhr <sbhr@sbhr.dk>
Mshe van der Sterre <moshevds@gmail.com>
Mostyn Bramley-Moore <mostyn@antipode.se>
Mrunal Patel <mrunalp@gmail.com>
Muhammad Falak R Wani <falakreyaz@gmail.com>
Muhammed Uluyol <uluyol0@gmail.com>
Muir Manders <muir@mnd.rs>
Mura Li <mura_li@castech.com.tw>
Mykhailo Lesyk <mikhail@lesyk.org>

Nan Deng <monnand@gmail.com>
Nao Yonashiro <owan.orisano@gmail.com>
Naoki Kanatani <k12naoki@gmail.com>
Nate Wilkinson <nathanwilk7@gmail.com>
Nathan Cantelmo <n.cantelmo@gmail.com>
Nathan Caza <mastercactapus@gmail.com>
Nathan Humphreys <nkhumphreys@gmail.com>
Nathan John Youngman <nj@nathany.com>
Nathan Otterness <otternes@cs.unc.edu>
Nathan P Finch <nate.finch@gmail.com>
Nathan VanBenschoten <nvanbenschoten@gmail.com>
Nathan Youngman <git@nathany.com>
Nathan(yinian) Hu <nathanhu@google.com>
Nathaniel Cook <nvcook42@gmail.com>
Naveen Kumar Sangi <naveenkumarsangi@protonmail.com>
Neelesh Chandola <neelesh.c98@gmail.com>
Neil Lyons <nwjlyons@googlemail.com>
Neuman
Vong <neuman.vong@gmail.com>
Neven Sajko <nsajko@gmail.com>
Nevins Bartolomeo <nevins.bartolomeo@gmail.com>
Niall Sheridan <nsheridan@gmail.com>
Nic Day <nic.day@me.com>
Nicholas Katsaros <nick@nickkatsaros.com>
Nicholas Maniscalco <nicholas@maniscalco.com>
Nicholas Ng <nickng@nickng.io>
Nicholas Presta <nick@nickpresta.ca> <nick1presta@gmail.com>
Nicholas Sullivan <nicholas.sullivan@gmail.com>
Nicholas Waples <nwaples@gmail.com>
Nick Anthony <Liberatys@outlook.com>
Nick Cooper <nmvc@google.com>
Nick Craig-Wood <nick@craig-wood.com> <nickcw@gmail.com>
Nick Harper <nharper@google.com>
Nick Kubala <nkubala@google.com>
Nick Leli <nicholasleli@gmail.com>
Nick Miyake <nmiyake@users.noreply.github.com>
Nick Patavalis <nick.patavalis@gmail.com>
Nick Petroni <npetroni@cs.umd.edu>
Nick Robinson <nrobinson13@gmail.com>
Nick Smolin <nick27surgut@gmail.com>
Nicolas BRULEZ <n.brulez@gmail.com>
Nicolas Kaiser <nikai@nikai.net>
Nicolas Owens <mischief@offblast.org>
Nicolas S. Dade
<nic.dade@gmail.com>
Niek Sanders <niek.sanders@gmail.com>
Niels Widger <niels.widger@gmail.com>
Nigel Kerr <nigel.kerr@gmail.com>

Nigel Tao <nigeltao@golang.org>
Nik Nyby <nnyby@columbia.edu>
Nikhil Benesch <nikhil.benesch@gmail.com>
Nikita Kryuchkov <nkryuchkov10@gmail.com>
Niklas Schnelle <niklas.schnelle@gmail.com>
Niko Dziemba <niko@dziemba.com>
Nikolay Turpitko <nikolay@turpitko.com>
Nils Larsgrd <nilsmagnus@gmail.com>
Nir Soffer <nirsof@gmail.com>
Niranjan Godbole <niranjan8192@gmail.com>
Nishanth Shanmugham <nishanth.gerrard@gmail.com>
Noah Campbell <noahcampbell@gmail.com>
Noble Johnson <noblepoly@gmail.com>
Nodir Turakulov <nodir@google.com>
Noel Georgi <git@frezbo.com>
Norberto Lopes <nlopes.ml@gmail.com>
Norman B. Lancaster <qbradq@gmail.com>
Odin Ugedal <odin@ugedal.com>
Oleg Bulatov <dmage@yandex-team.ru>
Oleg Vakheta <helginet@gmail.com>
Oleku Konko <oleku.konko@gmail.com>
Oling Cat <olingcat@gmail.com>
Oliver Hookins <ohookins@gmail.com>
Oliver Stenbom <ostenbom@pivotal.io>
Oliver
Tonnhofer <olt@bogosoft.com>
Olivier Antoine <olivier.antoine@gmail.com>
Olivier Duperray <duperray.olivier@gmail.com>
Olivier Poitrey <rs@dailymotion.com>
Olivier Saingre <osaingre@gmail.com>
Omar Jarjur <ojarjur@google.com>
Oryan Moshe <iamoryanmoshe@gmail.com>
Osamu TONOMORI <osamingo@gmail.com>
zgr Kesim <oec-go@kesim.org>
Pablo Lalloni <plalloni@gmail.com>
Pablo Rozas Larraondo <pablo.larraondo@anu.edu.au>
Pablo Santiago Blum de Aguiar <scorphus@gmail.com>
Padraig Kitterick <padraigkitterick@gmail.com>
Pallat Anchaleechamaikorn <yod.pallat@gmail.com>
Paolo Giarrusso <p.giarrusso@gmail.com>
Paolo Martini <mrtnpaolo@gmail.com>
Parker Moore <parkrmoore@gmail.com>
Parminder Singh <parmsingh101@gmail.com>
Pascal Dierich <pascal@pascaldierich.com>
Pascal S. de Kloe <pascal@quies.net>
Pat Moroney <pat@pat.email>
Patrick Barker <barkerp@vmware.com>
Patrick Crosby <patrick@stathat.com>

Patrick Gavlin <pgavlin@gmail.com>
Patrick Higgins <patrick.allen.higgins@gmail.com>
Patrick
Lee <pattyshack101@gmail.com>
Patrick Mzard <patrick@mezard.eu>
Patrick Mylund Nielsen <patrick@patrickmn.com>
Patrick Pelletier <pp.pelletier@gmail.com>
Patrick Riley <pfr@google.com>
Patrick Smith <pat42smith@gmail.com>
Patrik Lundin <patrik@sigterm.se>
Paul A Querna <paul.querna@gmail.com>
Paul Borman <borman@google.com>
Paul Boyd <boyd.paul2@gmail.com>
Paul Chang <paulchang@google.com>
Paul Hammond <paul@paulhammond.org>
Paul Hankin <paulhankin@google.com>
Paul Jolly <paul@myitcv.org.uk>
Paul Lalonde <paul.a.lalonde@gmail.com>
Paul M Furley <paul@paulfurley.com>
Paul Marks <pmarks@google.com>
Paul Meyer <paul.meyer@microsoft.com>
Paul Nasrat <pnasrat@google.com>
Paul PISCUC <paul.piscuc@gmail.com>
Paul Querna <pquerna@apache.org>
Paul Rosania <paul.rosania@gmail.com>
Paul Ruest <pruest@gmail.com>
Paul Sbarra <Sbarra.Paul@gmail.com>
Paul Smith <paulsmith@pobox.com> <paulsmith@gmail.com>
Paul Tyng <paul@paultyng.net>
Paul van Brouwershaven <paul@vanbrouwershaven.com>
Paul Wankadia <junyer@google.com>
Paulo
Casaretto <pcasaretto@gmail.com>
Paulo Flabiano Smorigo <pfsmorigo@linux.vnet.ibm.com>
Pavel Paulau <pavel.paulau@gmail.com>
Pavel Zinovkin <pavel.zinovkin@gmail.com>
Pavlo Sumkin <ymkins@gmail.com>
Pawel Knap <pawelknap88@gmail.com>
Pawel Szczur <filemon@google.com>
Percy Wegmann <ox.to.a.cart@gmail.com>
Perry Abbott <perry.j.abbott@gmail.com>
Petar Maymounkov <petarm@gmail.com>
Peter Armitage <peter.armitage@gmail.com>
Peter Bourgon <peter@bourgon.org>
Peter Collingbourne <pcc@google.com>
Peter Conerly <pconerly@gmail.com>
Peter Dotchev <dotchev@gmail.com>
Peter Froehlich <peter.hans.froehlich@gmail.com>

Peter Gonda <pgonda@google.com>
Peter Hoyes <pahoyes@gmail.com>
Peter Kleiweg <pkleiweg@xs4all.nl>
Peter McKenzie <petermck@google.com>
Peter Moody <pmoody@uber.com>
Peter Morjan <pmorjan@gmail.com>
Peter Mundy <go.peter.90@gmail.com>
Peter Nguyen <peter@mictis.com>
Pter Surnyi <speter.go1@gmail.com>
Pter Szab <pts@google.com>
Pter Szilgyi <peterke@gmail.com>
Peter
Teichman <pteichman@fastly.com>
Peter Tseng <ptseng@squareup.com>
Peter Waldschmidt <peter@waldschmidt.com>
Peter Waller <peter.waller@gmail.com>
Peter Weinberger <pjw@golang.org>
Peter Williams <pwil3058@gmail.com>
Peter Wu <pwu@cloudflare.com>
Peter Zhang <i@ddatsh.com>
Petr Jedin <petr.jediny@gmail.com>
Petrica Voicu <pvoicu@paypal.com>
Phil Pearl <philip.j.r.pearl@gmail.com>
Phil Pennock <pdp@golang.org>
Philip Brgesen <philip.borgesen@gmail.com>
Philip Brown <phil@bolthole.com>
Philip Hofer <phofer@umich.edu>
Philip K. Warren <pkwarren@gmail.com>
Philip Nelson <me@pnelson.ca>
Philipp Stephani <phst@google.com>
Pierre Durand <pierredurand@gmail.com>
Pierre Prinetti <pierreprinetti@gmail.com>
Pierre Roullon <pierre.roullon@gmail.com>
Piers <google@hellopiers.pro>
Pieter Droogendijk <pieter@binky.org.uk>
Pietro Gagliardi <pietro10@mac.com>
Piyush Mishra <piyush@codeitout.com>
Plekhanov Maxim <kishtatix@gmail.com>
Pontus Leitzler <leitzler@gmail.com>
Prasanna Swaminathan <prasanna@mediamath.com>
Prashant
Varanasi <prashant@prashantv.com>
Pravendra Singh <hackpravj@gmail.com>
Preetam Jinka <pj@preet.am>
Pure White <wu.purewhite@gmail.com>
Qais Patankar <qaisjp@gmail.com>
Qiuxuan Zhu <ilsh1022@gmail.com>
Quan Tran <qeed.quan@gmail.com>

Quan Yong Zhai <qyzhai@gmail.com>
Quentin Perez <qperez@ocs.online.net>
Quentin Renard <contact@asticode.com>
Quentin Smith <quentin@golang.org>
Quinn Slack <sqs@sourcegraph.com>
Quinten Yearsley <qyearsley@chromium.org>
Quoc-Viet Nguyen <afelion@gmail.com>
Radek Sohlich <sohlich@gmail.com>
Radu Berinde <radu@cockroachlabs.com>
Rafal Jeczalik <rjeczalik@gmail.com>
Raghavendra Nagaraj <jamdagni86@gmail.com>
Rahul Chaudhry <rahulchaudhry@chromium.org>
Raif S. Naffah <go@naffah-raif.name>
Rajat Goel <rajat.goel2010@gmail.com>
Rajath Agasthya <rajathagasthya@gmail.com>
Rajender Reddy Kompally <rajenderreddykompally@gmail.com>
Ralph Corderoy <ralph@inputplus.co.uk>
Ramazan AYYILDIZ <rayyildiz@gmail.com>
Ramesh Dharan <dharan@google.com>
Raph
Levien <raph@google.com>
Raphael Geronimi <raphael.geronimi@gmail.com>
Raul Silvera <rsilvera@google.com>
Ravil Bikbulatov <weeellz12@gmail.com>
RaviTeja Pothana <ravi.tezu@gmail.com>
Ray Tung <rtung@thoughtworks.com>
Raymond Kazlauskas <raima220@gmail.com>
Rebecca Stambler <rstambler@golang.org>
Reilly Watson <reillywatson@gmail.com>
Reinaldo de Souza Jr <juniorz@gmail.com>
Remi Gillig <remigillig@gmail.com>
Rmy Oudompheng <oudomphe@phare.normalesup.org> <remyoudompheng@gmail.com>
Rens Rikkerink <Ikkerens@users.noreply.github.com>
Rhys Hiltner <rhys@justin.tv>
Ricardo Padilha <ricardospadilha@gmail.com>
Richard Barnes <rlb@ipv.sx>
Richard Crowley <r@rcrowley.org>
Richard Dingwall <rdingwall@gmail.com>
Richard Eric Gavaletz <gavaletz@gmail.com>
Richard Gibson <richard.gibson@gmail.com>
Richard Miller <miller.research@gmail.com>
Richard Musiol <mail@richard-musiol.de> <neelance@gmail.com>
Rick Arnold <rickarnoldjr@gmail.com>
Rick Hudson <rlh@golang.org>
Rick Sayre <whorfin@gmail.com>
Rijnard
van Tonder <rvantonder@gmail.com>
Riku Voipio <riku.voipio@linaro.org>

Risto Jaakko Saarelma <rsaarelm@gmail.com>
Rob Earhart <earhart@google.com>
Rob Norman <rob.norman@infinitycloud.com>
Rob Phoenix <rob@robphoenix.com>
Rob Pike <r@golang.org>
Robert Ayrapetyan <robert.ayrapetyan@gmail.com>
Robert Daniel Kortschak <dan.kortschak@adelaide.edu.au> <dan@kortschak.io>
Robert Dinu <r@varp.se>
Robert Figueiredo <robfig@gmail.com>
Robert Griesemer <gri@golang.org>
Robert Hencke <robert.hencke@gmail.com>
Robert Iannucci <iannucci@google.com>
Robert Obryk <robryk@gmail.com>
Robert Sesek <rsesek@google.com>
Robert Snedegar <roberts@google.com>
Robert Stepanek <robert.stepanek@gmail.com>
Robert van Gent <rvangent@google.com>
Robert-Andr Mauchin <zebob.m@gmail.com>
Roberto Clapis <robclap8@gmail.com>
Roberto Selbach <roberto@selbach.ca>
Robin Eklind <r.eklind.87@gmail.com>
Rodolfo Carvalho <rhcarvalho@gmail.com>
Rodolfo Rodriguez <rodolfobgibson@gmail.com>
Rodrigo Moraes de Oliveira
<rodrigo.moraes@gmail.com>
Rodrigo Rafael Monti Kochenburger <divoxx@gmail.com>
Roger Pau Monn <royger@gmail.com>
Roger Peppe <rogpeppe@gmail.com>
Rohan Verma <rohanverma2004@gmail.com>
Roland Illig <roland.illig@gmx.de>
Roland Shoemaker <rolandshoemaker@gmail.com>
Romain Baugue <romain.baugue@elwinar.com>
Roman Budnikov <romanyx90@yandex.ru>
Roman Shchekin <mrqtros@gmail.com>
Ron Hashimoto <mail@h2so5.net>
Ron Minnich <rminnich@gmail.com>
Ross Chater <rdchater@gmail.com>
Ross Light <light@google.com> <rlight2@gmail.com>
Ross Smith II <ross@smithii.com>
Rowan Marshall <rowanajmarshall@gmail.com>
Rowan Worth <sqweek@gmail.com>
Rudi Kramer <rudi.kramer@gmail.com>
Rui Ueyama <ruiu@google.com>
Ruslan Nigmatullin <elessar@dropbox.com>
Russ Cox <rsc@golang.org>
Russell Haering <russellhaering@gmail.com>
Ryan Bagwell <ryanbagwell@outlook.com>
Ryan Barrett <ryanb@google.com>

Ryan Boehning <ryan.boehning@apcera.com>
Ryan Brown <ribrdb@google.com>
Ryan Canty <jrcanty@gmail.com>
Ryan Dahl <ry@tinyclouds.org>
Ryan
Hitchman <hitchmanr@gmail.com>
Ryan Lower <rpjlower@gmail.com>
Ryan Roden-Corrent <ryan@rcorre.net>
Ryan Seys <ryan@ryanseys.com>
Ryan Slade <ryanslade@gmail.com>
Ryan Zhang <ryan.zhang@docker.com>
Ryoichi KATO <ryo1kato@gmail.com>
Ryuji Iwata <qt.luigi@gmail.com>
Ryuma Yoshida <ryuma.y1117@gmail.com>
Ryuzo Yamamoto <ryuzo.yamamoto@gmail.com>
S.alar Onur <caglar@10ur.org>
Sabin Mihai Rapan <sabin.rapan@gmail.com>
Sad Pencil <qh06@qq.com>
Sai Cheemalapati <saicheems@google.com>
Sakeven Jiang <jc5930@sina.cn>
Salmn Aljammz <s@0x65.net>
Sam Arnold <sarnold64@bloomberg.net>
Sam Boyer <tech@samboyer.org>
Sam Ding <samding@ca.ibm.com>
Sam Hug <samuel.b.hug@gmail.com>
Sam Thorogood <thorogood@google.com> <sam.thorogood@gmail.com>
Sam Whited <sam@samwhited.com>
Sameer Ajmani <sameer@golang.org> <ajmani@gmail.com>
Sami Commerot <samic@google.com>
Sami Pnknen <sami.ponkanen@gmail.com>
Samuel Kelemen <SCKelemen@users.noreply.github.com>
Samuel Tan <samueltan@google.com>
Samuele
Pedroni <pedronis@lucediurna.net>
Sander van Harmelen <sander@vanharmelen.nl>
Sanjay Menakuru <balasanjay@gmail.com>
Santhosh Kumar Tekuri <santhosh.tekuri@gmail.com>
Sarah Adams <shadams@google.com>
Sascha Brawer <sascha@brawer.ch>
Sasha Lionheart <lionhearts@google.com>
Sasha Sobol <sasha@scaledinference.com>
Scott Barron <scott.barron@github.com>
Scott Bell <scott@sctsm.com>
Scott Crunkleton <crunk1@gmail.com>
Scott Ferguson <scottwferg@gmail.com>
Scott Lawrence <bytbox@gmail.com>
Scott Mansfield <smansfield@netflix.com>
Scott Schwartz <scotts@golang.org>

Scott Van Woudenberg <scottvw@google.com>
Sean Burford <sburford@google.com>
Sean Chen <oohcode@gmail.com>
Sean Chittenden <seanc@joyent.com>
Sean Christopherson <sean.j.christopherson@intel.com>
Sean Dolphin <Sean.Dolphin@kpcompass.com>
Sean Harger <sharger@google.com>
Sean Rees <sean@erifax.org>
Sebastiaan van Stijn <github@gone.nl>
Sebastian Schmidt <yath@google.com>
Sebastien Binet <seb.binet@gmail.com>
Sbastien Paolacci <sebastien.paolacci@gmail.com>
Sebastien
Williams-Wynn <sebastien@cytora.com>
Segev Finer <segev208@gmail.com>
Seiji Takahashi <timaki.st@gmail.com>
Sergei Skorobogatov <skorobo@rambler.ru>
Sergei Zagurskii <gvozdoder@gmail.com>
Sergey 'SnakE' Gromov <snake.scaly@gmail.com>
Sergey Arseev <sergey.arseev@intel.com>
Sergey Dobrodey <sergey.dobrodey@synesis.ru>
Sergey Frolov <sfrolov@google.com>
Sergey Lukjanov <me@slukjanov.name>
Sergey Mishin <sergeymishine@gmail.com>
Sergey Mudrik <sergey.mudrik@gmail.com>
Sergey Semin <gray12511@gmail.com>
Sergey Yanykin <syanykin@ozon.ru>
Sergio Luis O. B. Correia <sergio@correia.cc>
Sergiusz Bazanski <bazanski@gmail.com>
Serhii Aheienko <serhii.aheienko@gmail.com>
Seth Hoenig <seth.a.hoenig@gmail.com>
Seth Vargo <sethvargo@gmail.com>
Shahar Kohanim <skohanim@gmail.com>
Shamil Garatuev <garatuev@gmail.com>
Shane Hansen <shanemhansen@gmail.com>
Shaozhen Ding <dsz0111@gmail.com>
Shaun Dunning <shaun.dunning@uservoice.com>
Shawn Elliott <selliott@microsoft.com>
Shawn
Ledbetter <sledbetter@google.com>
Shawn Smith <shawn.p.smith@gmail.com>
Shawn Walker-Salas <shawn.walker@oracle.com>
Shenghou Ma <minux@golang.org> <minux.ma@gmail.com>
Shengjing Zhu <zsj950618@gmail.com>
Shengyu Zhang <shengyu.zhang@chaitin.com>
Shi Han Ng <shihanng@gmail.com>
Shijie Hao <haormj@gmail.com>
Shinji Tanaka <shinji.tanaka@gmail.com>

Shintaro Kaneko <kaneshin0120@gmail.com>
Shivakumar GN <shivakumar.gn@gmail.com>
Shivani Singhal <shivani.singhal2804@gmail.com>
Shivansh Rai <shivansh@freebsd.org>
Shubham Sharma <shubham.sha12@gmail.com>
Shun Fan <sfan@google.com>
Silvan Jegen <s.jegen@gmail.com>
Simon Jefford <simon.jefford@gmail.com>
Simon Rawet <simon@rawet.se>
Simon Thulbourn <simon+github@thulbourn.com>
Simon Whitehead <chemnova@gmail.com>
Sina Siadat <siadat@gmail.com>
Sokolov Yura <funny.falcon@gmail.com>
Song Gao <song@gao.io>
Spencer Nelson <s@spenczar.com>
Spencer Tung <spencertung@google.com>
Spring Mc <heresy.mc@gmail.com>
Srdjan Petrovic <spetrovic@google.com>
Sridhar
Venkatakrishnan <sridhar@laddoo.net>
StalkR <stalkr@stalkr.net>
Stan Schwertly <stan@schwertly.com>
Stanislav Afanasev <php.progger@gmail.com>
Steeve Morin <steeve.morin@gmail.com>
Stefan Baebler <sbaebler@outbrain.com>
Stefan Nilsson <snilsson@nada.kth.se> <trolleriprofessorn@gmail.com>
Stepan Shabalin <neverliberty@gmail.com>
Stephan Renatus <srenatus@chef.io>
Stephan Zuercher <zuercher@gmail.com>
Stphane Travostino <stephane.travostino@gmail.com>
Stephen Lewis <stephen@sock.org.uk>
Stephen Lu <steuhs@users.noreply.github.com>
Stephen Ma <stephenm@golang.org>
Stephen McQuay <stephen@mcquay.me>
Stephen Searles <stephens2424@gmail.com>
Stephen Weinberg <stephen@q5comm.com>
Steve Francia <spf@golang.org>
Steve Gilbert <stevegilbert23@gmail.com>
Steve LoFurno <slofurno@gmail.com>
Steve McCoy <mccoyst@gmail.com>
Steve Mynott <steve.mynott@gmail.com>
Steve Newman <snewman@google.com>
Steve Phillips <elimisteve@gmail.com>
Steve Streeting <steve@stevestreeting.com>
Steven Buss
<sbuss@google.com>
Steven Elliot Harris <seharris@gmail.com>
Steven Erenst <stevenerenst@gmail.com>

Steven Hartland <steven.hartland@multiplay.co.uk>
Steven Littiebrant <imgroxx@gmail.com>
Steven Wilkin <stevenwilkin@gmail.com>
Stuart Jansen <sjansen@buscaluz.org>
Sue Spence <virtuallysue@gmail.com>
Sugu Sougoumarane <ssougou@gmail.com>
Suharsh Sivakumar <suharshs@google.com>
Sukrit Handa <sukrit.handa@utoronto.ca>
Sunny <me@darkowlzz.space>
Suriyaa Sundararuban <suriyaasundararuban@gmail.com>
Suyash <dextrous93@gmail.com>
Suzy Mueller <suzmue@golang.org>
Sven Almgren <sven@tras.se>
Sven Blumenstein <svbl@google.com>
Sylvain Zimmer <sylvain@sylvainzimmer.com>
Syohei YOSHIDA <syohex@gmail.com>
Szabolcs Nagy <nsz@port70.net>
Taavi Kivisik <taavi.kivisik@gmail.com>
Tad Fisher <tadfisher@gmail.com>
Tad Glines <tad.glines@gmail.com>
Tadas Valiukas <tadovas@gmail.com>
Taesu Pyo <pyotaesu@gmail.com>
Tai Le <letientai299@gmail.com>
Taj Khattra <taj.khattra@gmail.com>
Takashi Matsuo <tmatsuo@google.com>
Takayoshi
Nishida <takayoshi.nishida@gmail.com>
Takeshi YAMANASHI <9.nashi@gmail.com>
Takuto Ikuta <tikuta@google.com>
Takuya Ueda <uedatakuya@gmail.com>
Tal Shprecher <tshprecher@gmail.com>
Tamir Duberstein <tamird@gmail.com>
Tao Shen <shentaoskyking@gmail.com>
Tao Wang <twang2218@gmail.com>
Tarmigan Casebolt <tarmigan@gmail.com>
Taro Aoki <aizu.s1230022@gmail.com>
Taru Karttunen <taruti@taruti.net>
Tatsuhiro Tsujikawa <tatsuhiro.t@gmail.com>
Tatsuya Kaneko <m.ddotx.f@gmail.com>
Taufiq Rahman <taufiqrx8@gmail.com>
Teague Cole <tnc1443@gmail.com>
Ted Kornish <golang@tedkornish.com>
Tejasvi Nareddy <tejunareddy@gmail.com>
Terin Stock <terinjokes@gmail.com>
Terrel Shumway <gopher@shumway.us>
Tetsuo Kiso <tetsuokiso9@gmail.com>
Than McIntosh <thanm@google.com>
Thanabodee Charoenpiriyakij <wingyminus@gmail.com>

Thanatat Tamtan <acoshift@gmail.com>
Thiago Avelino <t@avelino.xxx>
Thiago Fransosi Farina <thiago.farina@gmail.com> <tfarina@chromium.org>
Thomas Alan Copeland <talan.copeland@gmail.com>
Thomas
Bonfort <thomas.bonfort@gmail.com>
Thomas Bouldin <inlined@google.com>
Thomas Bruyelle <thomas.bruyelle@gmail.com>
Thomas Bushnell, BSG <tbushnell@google.com>
Thomas de Zeeuw <thomasdezeeuw@gmail.com>
Thomas Desrosiers <thomasdesr@gmail.com>
Thomas Habets <habets@google.com>
Thomas Kappler <tkappler@gmail.com>
Thomas Meson <zllak@hycik.org>
Thomas Wanielista <tomwans@gmail.com>
Thorben Krueger <thorben.krueger@gmail.com>
Thordur Bjornsson <thorduri@secnorth.net>
Tiago Queiroz <contato@tiago.eti.br>
Tianon Gravi <admwiggin@gmail.com>
Tilman Dilo <tilman.dilo@gmail.com>
Tim Cooijmans <timcooijmans@gmail.com>
Tim Cooper <tim.cooper@layeh.com>
Tim Ebringer <tim.ebringer@gmail.com>
Tim Heckman <t@heckman.io>
Tim Henderson <tim.tadh@gmail.com>
Tim Hockin <thockin@google.com>
Tim Swast <swast@google.com>
Tim Wright <tenortim@gmail.com>
Tim Xu <xiaoxubeii@gmail.com>
Timo Savola <timo.savola@gmail.com>
Timo Truyts <alkaloid.btx@gmail.com>
Timothy Studd <tim@timstudd.com>
Tipp
Moseley <tipp@google.com>
Tobias Assarsson <tobias.assarsson@gmail.com>
Tobias Columbus <tobias.columbus@gmail.com> <tobias.columbus@googlemail.com>
Tobias Klauser <tklauser@distanz.ch>
Toby Burress <kurin@google.com>
Todd Kulesza <tkulesza@google.com>
Todd Neal <todd@tneal.org>
Todd Wang <toddwang@gmail.com>
Tom Anthony <git@tomanthony.co.uk>
Tom Bergan <tombergan@google.com>
Tom Heng <zhm20070928@gmail.com>
Tom Lanyon <tomlanyon@google.com>
Tom Levy <tomlevy93@gmail.com>
Tom Limoncelli <tal@whatexit.org>
Tom Linford <tomlinford@gmail.com>

Tom Payne <twpayne@gmail.com>
Tom Szymanski <tgs@google.com>
Tom Thorogood <me+google@tomthorogood.co.uk>
Tom Wilkie <tom@weave.works>
Tommy Schaefer <tommy.schaefer@teecom.com>
Tomoya Ishizaki <zaq1tomo@gmail.com>
Tonis Tiigi <tonistiigi@gmail.com>
Tony Reix <tony.reix@bull.net>
Tony Walker <walkert.uk@gmail.com>
Tooru Takahashi <tooru.takahashi134@gmail.com>
Tor Andersson <tor.andersson@gmail.com>
Tormod Erevik Lea <tormodlea@gmail.com>
Toshihiro
Shiino <shiino.toshihiro@gmail.com>
Toshiki Shima <hayabusa1419@gmail.com>
Totoro W <tw19881113@gmail.com>
Travis Bischel <travis.bischel@gmail.com>
Travis Cline <travis.cline@gmail.com>
Trevor Strohman <trevor.strohman@gmail.com>
Trey Lawrence <lawrence.trey@gmail.com>
Trey Roessig <trey.roessig@gmail.com>
Trey Tacon <ttacon@gmail.com>
Tristan Amini <tamini01@ca.ibm.com>
Tristan Colgate <tcolgate@gmail.com>
Tristan Ooohry <ooohry@gmail.com>
Tristan Rice <rice@fn.lc>
Troels Thomsen <troels@thomsen.io>
Trung Nguyen <trung.n.k@gmail.com>
Tudor Golubenco <tudor.g@gmail.com>
Tugdual Saunier <tugdual.saunier@gmail.com>
Tuo Shan <sturbo89@gmail.com> <shantuo@google.com>
Tyler Bui-Palsulich <tpalsulich@google.com>
Tyler Bunnell <tylerbunnell@gmail.com>
Tyler Treat <ttreat31@gmail.com>
Tzu-Jung Lee <roylee17@currant.com>
Udalov Max <re.udalov@gmail.com>
Ugorji Nwoke <ugorji@gmail.com>
Ulf Holm Nielsen <doktor@dyregod.dk>
Ulrich Kunitz <uli.kunitz@gmail.com>
Umang Parmar <umangjparmar@gmail.com>
Uriel
Mangado <uriel@berlinblue.org>
Urvil Patel <patelurvil38@gmail.com>
Uttam C Pawar <uttam.c.pawar@intel.com>
Vadim Grek <vadimprog@gmail.com>
Vadim Vygonets <unixdj@gmail.com>
Val Polouchkine <vpolouch@justin.tv>
Valentin Vidic <vvidic@valentin-vidic.from.hr>

Vega Garcia Luis Alfonso <vegacom@gmail.com>
Venil Noronha <veniln@vmware.com>
Veselkov Konstantin <kostozyb@gmail.com>
Viacheslav Poturaev <vearutop@gmail.com>
Victor Chudnovsky <vchudnov@google.com>
Victor Vrantchan <vrancean+github@gmail.com>
Vignesh Ramachandra <vickyramachandra@gmail.com>
Vikas Kedia <vikask@google.com>
Vincent Ambo <tazjin@googlemail.com>
Vincent Batts <vbatts@hashbangbash.com> <vbatts@gmail.com>
Vincent Vanackere <vincent.vanackere@gmail.com>
Vinu Rajashekhar <vinutheraj@gmail.com>
Vish Subramanian <vish@google.com>
Vishvananda Ishaya <vishvananda@gmail.com>
Visweswara R <r.visweswara@gmail.com>
Vitor De Mario <vitordemario@gmail.com>
Vivek Sekhar <vsekhar@google.com>
Vlad Krasnov <vlad@cloudflare.com>
Vladimir
Kovpak <cn007b@gmail.com>
Vladimir Kuzmin <vkuzmin@uber.com>
Vladimir Mihailenco <vladimir.webdev@gmail.com>
Vladimir Nikishenko <vova616@gmail.com>
Vladimir Stefanovic <vladimir.stefanovic@imgtec.com>
Vladimir Varankin <nek.narqo@gmail.com>
Volker Dobler <dr.volker.dobler@gmail.com>
Volodymyr Paprotski <vpaprots@ca.ibm.com>
W. Trevor King <wking@tremily.us>
Wade Simmons <wade@wades.im>
Wagner Riffel <wgrriffel@gmail.com>
Walter Poupore <wpoupore@google.com>
Wander Lairson Costa <wcosta@mozilla.com>
Warren Fernandes <warren.f.fernandes@gmail.com>
Wayne Ashley Berry <wayneashleyberry@gmail.com>
Wedson Almeida Filho <wedsonaf@google.com>
Weerasak Chongnguluam <singpor@gmail.com>
Wi Cngru <crvv.mail@gmail.com>
Wei Fu <fhfuwei@163.com>
Wei Guangjing <vcc.163@gmail.com>
Wei Xiao <wei.xiao@arm.com>
Wei Xikai <xykwei@gmail.com>
Weichao Tang <tevic.tt@gmail.com>
Wembley G. Leach, Jr <wembley.gl@gmail.com>
Wenlei (Frank) He <wlhe@google.com>
Wenzel Lowe <lowewenzel@gmail.com>
Wil
Selwood <wselwood@gmail.com>
Wilfried Teiken <wteiken@google.com>

Will Beason <willbeason@gmail.com>
Will Chan <willchan@google.com>
Will Faught <will.faught@gmail.com>
Will Morrow <wmorrow.qdt@qualcommdatacenter.com>
Will Norris <willnorris@google.com>
Will Storey <will@summercat.com>
Willem van der Schyff <willemvds@gmail.com>
William Chan <willchan@chromium.org>
William Chang <mr.williamchang@gmail.com>
William Josephson <wjosephson@gmail.com>
William Orr <will@worrbase.com> <ay1244@gmail.com>
Wisdom Omuya <deafgoat@gmail.com>
Wu Yunzhou <yunzhouwu@gmail.com>
Xi Ruoyao <xry23333@gmail.com>
Xia Bin <snyh@snyh.org>
Xing Xing <mikespook@gmail.com>
Xu Fei <badgangkiller@gmail.com>
Xudong Zhang <felixmelon@gmail.com>
Xudong Zheng <7pkvm5aw@slicealias.com>
Xuyang Kang <xuyangkang@gmail.com>
Yamagishi Kazutoshi <ykzts@desire.sh>
Yan Zou <yzou@google.com>
Yang Tian <linuxty@gmail.com>
Yann Hodique <yhodique@google.com>
Yann Kerherv <yann.kerherve@gmail.com>
Yann Salan <yannsalaun1@gmail.com>
Yao
Zhang <lunaria21@gmail.com>
Yaron de Leeuw <jarondl@google.com>
Yasha Bubnov <girokompass@gmail.com>
Yasser Abdolmaleki <yasser@yasser.ca>
Yasuharu Goto <matope.ono@gmail.com>
Yasuhiro Matsumoto <mattn.jp@gmail.com>
Yasuyuki Oka <yasuyk@gmail.com>
Yazen Shunnar <yazen.shunnar@gmail.com>
Yestin Sun <ylh@pdx.edu>
Yesudeep Mangalapilly <yesudeep@google.com>
Yissakhar Z. Beck <yissakhar.beck@gmail.com>
Yo-An Lin <yoanlin93@gmail.com>
Yohei Takeda <yo.tak0812@gmail.com>
Yongjian Xu <i3dmaster@gmail.com>
Yorman Arias <cixtords@gmail.com>
Yoshiyuki Kanno <nekotaroh@gmail.com> <yoshiyuki.kanno@stoic.co.jp>
Yoshiyuki Mineo <yoshiyuki.mineo@gmail.com>
Yosuke Akatsuka <yosuke.akatsuka@gmail.com>
Yu Heng Zhang <annita.zhang@cn.ibm.com>
Yu Xuan Zhang <zyxsh@cn.ibm.com>
Yuji Yaginuma <yuuji.yaginuma@gmail.com>

Yuki OKUSHI <huyuumi.dev@gmail.com>
Yuki Yugui Sonoda <yugui@google.com>
Yukihiro Nishinaka <6elpinal@gmail.com>
Yury Smolsky <yury@smolsky.by>
Yusuke Kagiwada <block.rxckin.beats@gmail.com>
Yuusei
Kuwana <kuwana@kumama.org>
Yuval Pavel Zholkover <paulzhol@gmail.com>
Yves Junqueira <yvesj@google.com> <yves.junqueira@gmail.com>
Zac Bergquist <zbergquist99@gmail.com>
Zach Bintliff <zbintliff@gmail.com>
Zach Gershman <zachgersh@gmail.com>
Zach Jones <zachj1@gmail.com>
Zachary Amsden <zach@thundertoken.com>
Zachary Gershman <zgershman@pivotal.io>
Zak <zrjknill@gmail.com>
Zakatell Kanda <hi@zkanda.io>
Zellyn Hunter <zellyn@squareup.com> <zellyn@gmail.com>
Zev Goldstein <zev.goldstein@gmail.com>
Zheng Dayu <davidzheng23@gmail.com>
Zheng Xu <zheng.xu@arm.com>
Zhengyu He <hzy@google.com>
Zhongpeng Lin <zplin@uber.com>
Zhongtao Chen <chenzhongtao@126.com>
Zhongwei Yao <zhongwei.yao@arm.com>
Zhou Peng <p@ctriple.cn>
Ziad Hatahet <hatahet@gmail.com>
Zorion Arrizabalaga <zorionk@gmail.com>
<a.maksadbek@gmail.com>
<max.faceless.frei@gmail.com>
<hagen1778@gmail.com>
<tbunyk@gmail.com>
<faxriddinjon@gmail.com>
<zs349596@gmail.com>
<bronze1man@gmail.com>
<antocuni@gmail.com>
<ifreund@ifreund.xyz>
<antocuni@gmail.com>
<ifreund@ifreund.xyz>
<antocuni@gmail.com>
<ifreund@ifreund.xyz

* Neither the name of the author nor the names of contributors may be used to
endorse or promote products derived from this software without specific prior
written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2009-2017 Andrea Leofreddi <a.leofreddi@vleo.net>. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are
permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its
   contributors may be used to endorse or promote products derived from
   this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR
 PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL COPYRIGHT HOLDERS OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The views and conclusions contained in the software and documentation are those of the
authors and should not be interpreted as representing official policies, either expressed
or implied, of Andrea Leofreddi.

1.375 zlib 1.2.11.dfsg-2ubuntu1.1

1.375.1 Available under license :

Found license 'General Public License 2.0' in 'No. PKWare has apparently decided to keep that format proprietary, since 42. The match.asm code in contrib is under the GNU General Public License. GNU GPL?'

1.376 nginx 1.18.0

1.376.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.376.2 Available under license :

/*
* Copyright (C) 2002-2019 Igor Sysoev
* Copyright (C) 2011-2019 Nginx, Inc.

* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.377 docker 19.03.6

1.377.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of,

publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2017 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and

distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently
incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the Work and such
Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable (except as stated in this section) patent license to make, have
made, use, offer to sell, sell, import, and otherwise transfer the Work, where
such license applies only to those patent claims licensable by such Contributor
that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was
submitted. If You institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work or a
Contribution incorporated within the Work constitutes direct or contributory
patent infringement, then any patent licenses granted to You under this License
for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof
in any medium, with or without modifications, and in Source or Object form,
provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of
this License; and
You must cause any modified files to carry prominent notices stating that You
changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the
Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any
Derivative Works that You distribute must include a readable copy of the
attribution notices contained within such NOTICE file, excluding those notices

that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed as modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks,
or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence),

contract, or otherwise, unless required by applicable law (such as deliberate
and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or
out of the use or inability to use the Work (including but not limited to
damages for loss of goodwill, work stoppage, computer failure or malfunction, or
any and all other commercial damages or losses), even if such Contributor has
been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to
offer, and charge a fee for, acceptance of support, warranty, indemnity, or
other liability obligations and/or rights consistent with this License. However,
in accepting such obligations, You may act only on Your own behalf and on Your
sole responsibility, not on behalf of any other Contributor, and only if You
agree to indemnify, defend, and hold each Contributor harmless for any liability
incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate
notice, with the fields enclosed by brackets "[]" replaced with your own
identifying information. (Don't include the brackets!) The text should be
enclosed in the appropriate comment syntax for the file format. We also
recommend that a file or class name and description of purpose be included on
the same "printed page" as the copyright notice for easier identification within
third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2011-2016 Canonical Ltd.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
MIT License

Copyright (c) 2016 json-iterator

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but

not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

package licensing

import (
"context"

```
 "crypto/hmac"
 "crypto/sha256"
 "encoding/base64"
 "encoding/json"
 "fmt"
 "time"

 "github.com/docker/libtrust"
 "github.com/docker/licensing/lib/errors"
 "github.com/docker/licensing/lib/go-clientlib"
 "github.com/docker/licensing/model"
)

func (c *client) getLicenseFile(ctx context.Context, subID string) (*model.IssuedLicense, error) {
 url := c.baseURI
 url.Path += fmt.Sprintf("/api/billing/v4/subscriptions/%s/license-file", subID)

 license := new(model.IssuedLicense)
 if _, _, err := c.doReq(ctx, "GET", &url, clientlib.RecvJSON(license)); err != nil {
  return nil, err
 }

 return license, nil
}

// Check verifies that the license identified by the given key id is valid. Note that it does not
// interrogate the contents of the license.
func (c *client) check(ctx context.Context, license model.IssuedLicense) (*model.CheckResponse, error) {
 keyID := license.KeyID
 privateKey := license.PrivateKey

 authorization, err := c.getAuthorization(ctx,
 license)
 if err != nil {
  return nil, err
 }

 // TODO: Mason - replace this parseJWS with a non libtrust lib
 signature, err := libtrust.ParseJWS(authorization)
 if err != nil {
  return nil, errors.Wrapf(err, errors.Fields{
   "key_id": keyID,
  }, "license parse JWS failed")
 }

 keys, err := signature.Verify()
 if err != nil {
  return nil, errors.Wrapf(err, errors.Fields{
```

```
  "key_id": keyID,
 }, "license signature verification failed")
}

keyCnt := len(keys)
if keyCnt != 1 {
 err = fmt.Errorf("unexpected number of signing keys (%d)", keyCnt)
 return nil, errors.WithStack(err).With(errors.Fields{
  "key_id": keyID,
 })
}

key := keys[0]

if !c.recognizedSigningKey(key) {
 return nil, errors.New("unrecognized signing key")
}

payload, err := signature.Payload()
if err != nil {
 return nil, errors.Wrapf(err, errors.Fields{
  "key_id": keyID,
 }, "malformed signature payload")
}

checkRes := new(model.CheckResponse)

err = json.Unmarshal(payload, &checkRes)
if
err != nil {
 return nil, errors.Wrapf(err, errors.Fields{
  "key_id": keyID,
 }, "license payload unmarshal failed")
}

msg := checkRes.Expiration.Format(time.RFC3339)
if err := checkToken(msg, checkRes.Token, privateKey); err != nil {
 return nil, errors.Wrap(err, errors.Fields{
  "key_id": keyID,
 })
}

 return checkRes, nil
}

// recognizedSigningKey returns true if the given key is signed with a recognized signing key, false otherwise
func (c *client) recognizedSigningKey(key libtrust.PublicKey) bool {
 for _, publicKey := range c.publicKeys {
```

```
 if key.KeyID() == publicKey.KeyID() {
  return true
 }
}
return false
}

// getAuthorization returns the decoded license authorization
func (c *client) getAuthorization(ctx context.Context, license model.IssuedLicense) ([]byte, error) {
 decoded, err := base64.StdEncoding.DecodeString(license.Authorization)
 if err != nil {
  return nil, errors.Wrapf(err, errors.Fields{
   "key_id": license.KeyID,
  }, "decoding license authorization
 failed")
 }
 return decoded, nil
}

// All of the functions in this file assume that they are receiving a properly
// formatted private key.

// checkToken performs a MAC algorithm (where token is generated by hashing the
// message with the privateKey via GenerateToken) with the purpose of authenticating
// the validity of both the message and the private key of the person who generated
// the token.
func checkToken(message, token, privateKey string) error {
 tokenBytes, err := base64.URLEncoding.DecodeString(token)
 if err != nil {
  return errors.Wrap(err, errors.Fields{"token": token})
 }

 generatedToken, err := generateToken(message, privateKey)
 if err != nil {
  return errors.Wrap(err, errors.Fields{"token": token})
 }

 generatedBytes, err := base64.URLEncoding.DecodeString(generatedToken)
 if err != nil {
  return errors.Wrap(err, errors.Fields{"token": token})
 }

 if !hmac.Equal(tokenBytes, generatedBytes) {
  return errors.Forbidden(errors.Fields{"token": token},
 "invalid token")
 }

 return nil
```

```
}

// generateToken generates a hash of the message with the privateKey via the
// sha256 algorithm.
func generateToken(message, privateKey string) (string, error) {
 key, err := base64.URLEncoding.DecodeString(privateKey)
 if err != nil {
  return "", errors.Wrap(err, errors.Fields{"msg": message})
 }

 h := hmac.New(sha256.New, key)
 h.Write([]byte(message))
 return base64.URLEncoding.EncodeToString(h.Sum(nil)), nil
}
```

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their

Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE

WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Castañé. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and

limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015 xeipuuv

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
The MIT License (MIT)

Copyright (c) 2014 Alex Saskevich

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Looking for existing licenses for ...
NUM OWNER PRODUCT ID EXPIRES PRICING COMPONENTS
0 2010-01-01 00:00:00 +0000 UTC
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a
Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable

by such Contributor that
would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b)
ownership of more than fifty percent (50%) of the
outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes

such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent
Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent

required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and

all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then
You may include the notice in a location (such as a LICENSE file in a relevant
directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its

Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to

grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license
for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered

Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor

are reinstated (a) provisionally, unless and until such Contributor explicitly
and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License
shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under
this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been

informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not
apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a

modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

```
package model

import "time"

// A CheckResponse is the internal content of the PublicCheckResponse signed
// json blob.
type CheckResponse struct {
 Expiration      time.Time `json:"expiration"`
 Token           string    `json:"token"`
 MaxEngines      int       `json:"maxEngines"`
 ScanningEnabled bool      `json:"scanningEnabled"`
 Type            string    `json:"licenseType"`
 Tier            string    `json:"tier"`
}

// IssuedLicense represents an issued license
```

```
type IssuedLicense struct {
 KeyID         string `json:"key_id"`
 PrivateKey    string `json:"private_key"`
 Authorization string `json:"authorization"`
}

// Valid returns true if the License is syntactically valid, false otherwise
func (l *IssuedLicense) Valid() (bool, string) {
 if l.KeyID == "" {
  return false, "empty key_id"
 }

 if l.PrivateKey == "" {
  return false, "empty private_key"
 }

 if l.Authorization == "" {
  return false, "empty authorization"
 }

 return true, ""
}
```

Blackfriday is distributed under the Simplified BSD License:

```
> Copyright  2011 Russ Ross
> All rights reserved.
>
> Redistribution and use in source and binary forms, with or without
> modification, are permitted provided that the following conditions
> are met:
>
> 1.  Redistributions of source code must retain the above copyright
>     notice, this list of conditions and the following disclaimer.
>
> 2.  Redistributions in binary form must reproduce the above
>     copyright notice, this list of conditions and the following
>     disclaimer in the documentation and/or other materials provided with
>     the distribution.
>
> THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
> "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
> LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
> FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
> COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
> INCIDENTAL, SPECIAL, EXEMPLARY,
 OR CONSEQUENTIAL DAMAGES (INCLUDING,
> BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
> LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
```

> CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
> LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
> ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
> POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2015 Frits van Bommel

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

ISC License

Copyright (c) 2012-2016 Dave Collins <dave@davec.name>

Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is

furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Copyright (c) 2012 Dave Grijalva

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
package engine

```
import (
 "time"

 "github.com/docker/cli/cli/command/formatter"
 "github.com/docker/cli/internal/licenseutils"
 "github.com/docker/licensing/model"
)

const (
 defaultSubscriptionsTableFormat = "table
{{.Num}}\t{{.Owner}}\t{{.ProductID}}\t{{.Expires}}\t{{.ComponentsString}}"
 defaultSubscriptionsQuietFormat = "{{.Num}}:{{.Summary}}"

 numHeader             = "NUM"
 ownerHeader           = "OWNER"
 licenseNameHeader     = "NAME"
```

```
 idHeader              = "ID"
 dockerIDHeader        = "DOCKER ID"
 productIDHeader       = "PRODUCT ID"
 productRatePlanHeader   = "PRODUCT RATE PLAN"
 productRatePlanIDHeader = "PRODUCT RATE PLAN ID"
 startHeader           = "START"
 expiresHeader         = "EXPIRES"
 stateHeader           = "STATE"
 eusaHeader            = "EUSA"
 pricingComponentsHeader = "PRICING COMPONENTS"
)

// NewSubscriptionsFormat returns a Format for rendering using a license Context
func NewSubscriptionsFormat(source string, quiet bool) formatter.Format
 {
 switch source {
 case formatter.TableFormatKey:
  if quiet {
   return defaultSubscriptionsQuietFormat
  }
  return defaultSubscriptionsTableFormat
 case formatter.RawFormatKey:
  if quiet {
   return `license: {{.ID}}`
  }
  return `license: {{.ID}}\nname: {{.Name}}\nowner: {{.Owner}}\ncomponents: {{.ComponentsString}}\n`
 }
 return formatter.Format(source)
}

// SubscriptionsWrite writes the context
func SubscriptionsWrite(ctx formatter.Context, subs []licenseutils.LicenseDisplay) error {
 render := func(format func(subContext formatter.SubContext) error) error {
  for _, sub := range subs {
   licenseCtx := &licenseContext{trunc: ctx.Trunc, l: sub}
   if err := format(licenseCtx); err != nil {
    return err
   }
  }
  return nil
 }
 licenseCtx := licenseContext{}
 licenseCtx.Header = map[string]string{
  "Num":              numHeader,
  "Owner":            ownerHeader,
  "Name":             licenseNameHeader,
  "ID":               idHeader,
  "DockerID":         dockerIDHeader,
```

```
 "ProductID":
       productIDHeader,
 "ProductRatePlan":   productRatePlanHeader,
 "ProductRatePlanID": productRatePlanIDHeader,
 "Start":            startHeader,
 "Expires":          expiresHeader,
 "State":            stateHeader,
 "Eusa":             eusaHeader,
 "ComponentsString":  pricingComponentsHeader,
 }
 return ctx.Write(&licenseCtx, render)
}

type licenseContext struct {
 formatter.HeaderContext
 trunc bool
 l     licenseutils.LicenseDisplay
}

func (c *licenseContext) MarshalJSON() ([]byte, error) {
 return formatter.MarshalJSON(c)
}

func (c *licenseContext) Num() int {
 return c.l.Num
}

func (c *licenseContext) Owner() string {
 return c.l.Owner
}

func (c *licenseContext) ComponentsString() string {
 return c.l.ComponentsString
}

func (c *licenseContext) Summary() string {
 return c.l.String()
}

func (c *licenseContext) Name() string {
 return c.l.Name
}

func (c *licenseContext) ID() string {
 return c.l.ID
}

func (c *licenseContext) DockerID()
```

```
 string {
 return c.l.DockerID
}

func (c *licenseContext) ProductID() string {
 return c.l.ProductID
}

func (c *licenseContext) ProductRatePlan() string {
 return c.l.ProductRatePlan
}

func (c *licenseContext) ProductRatePlanID() string {
 return c.l.ProductRatePlanID
}

func (c *licenseContext) Start() *time.Time {
 return c.l.Start
}

func (c *licenseContext) Expires() *time.Time {
 return c.l.Expires
}

func (c *licenseContext) State() string {
 return c.l.State
}

func (c *licenseContext) Eusa() *model.EusaState {
 return c.l.Eusa
}

func (c *licenseContext) PricingComponents() []model.SubscriptionPricingComponent {
 // Dereference the pricing component pointers in the pricing components
 // so it can be rendered properly with the template formatter

 var ret []model.SubscriptionPricingComponent
 for _, spc := range c.l.PricingComponents {
  if spc == nil {
   continue
  }
  ret = append(ret, *spc)
 }
 return ret
}
```

Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining

a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2014 Brian Goff

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2012 Pter Surnyi. Portions Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Dmitri Shuralyov

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH

THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and

subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
The following files were ported to Go from C files of libyaml, and thus
are still covered by their original copyright and license:

apic.go
emitterc.go
parserc.go
readerc.go
scannerc.go
writerc.go
yamlh.go
yamlprivateh.go

Copyright (c) 2006 Kirill Simonov

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,

including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 Miek Gieben. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Miek Gieben nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2015, Gengo, Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

* Neither the name of Gengo, Inc. nor the names of its
  contributors may be used to endorse or promote products derived from this
  software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or

otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one

of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be

liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Attribution-ShareAlike 4.0 International

==========

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and conditions that creators and other rights holders may use to share original works of authorship and other material subject to copyright and certain other rights specified in the public license below. The following
considerations are for informational purposes only, are not exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are intended for use by those authorized to give the public permission to use material in ways otherwise restricted by copyright and certain other rights. Our licenses are irrevocable. Licensors should read and understand the terms and conditions of the license they choose before applying it. Licensors should also secure all rights necessary before applying our licenses so that the public can reuse the material as expected. Licensors should clearly mark any material not subject to the license. This includes other CC-licensed material, or material used under an exception or limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public licenses,
a licensor grants the public permission to use the licensed material under specified terms and conditions. If the licensor's permission is not necessary for any reason--for example, because of any applicable exception or limitation to copyright--then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More_considerations for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree to be bound by the terms and conditions of this Creative Commons Attribution-ShareAlike 4.0 International Public License ("Public License"). To the extent this Public License may be interpreted as a contract, You are granted the Licensed Rights in consideration of Your acceptance of these terms and conditions, and the Licensor grants You such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section 2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or

may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by, the Licensor or others designated to receive attribution as provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Docker Inc.
Copyright (c) 2014-2015 Prime Directive, Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Prime Directive, Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2016 David Calavera

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE

OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2015 James Aguilar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER

LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,

or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of

this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) 2017 Tnis Tiigi

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier

identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0
Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer

in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014, Evan Phoenix
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.
* Neither the name of the Evan Phoenix nor the names of its contributors
 may be used to endorse or promote products derived from this software
 without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally

submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/kr/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
License: Quantity: 1 Nodes Expiration date: 2018-03-18 Expired! You will no longer receive updates. Please renew at https://docker.com/licensing
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its
 contributors may be used to endorse or promote products derived from
 this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
 OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,

OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

   * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
   * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
   * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Sam Ghods

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
package engine

import (
"bytes"

```
 "encoding/json"
 "strings"
 "testing"
 "time"

 "github.com/docker/cli/cli/command/formatter"
 "github.com/docker/cli/internal/licenseutils"
 "github.com/docker/licensing/model"
 "gotest.tools/assert"
 is "gotest.tools/assert/cmp"
)

func TestSubscriptionContextWrite(t *testing.T) {
 cases := []struct {
  context  formatter.Context
  expected string
 }{
  // Errors
  {
   formatter.Context{Format: "{{InvalidFunction}}"},
   `Template parsing error: template: :1: function "InvalidFunction" not defined
`,
  },
  {
   formatter.Context{Format: "{{nil}}"},
   `Template parsing error: template: :1:2: executing "" at <nil>: nil is not a command
`,
  },
  // Table format
  {
   formatter.Context{Format: NewSubscriptionsFormat("table", false)},
   `NUM                OWNER               PRODUCT ID          EXPIRES                         PRICING COMPONENTS
1                   owner1              productid1          2020-01-01 10:00:00 +0000 UTC   compstring
2
                    owner2              productid2          2020-01-01 10:00:00 +0000 UTC   compstring
`,
  },
  {
   formatter.Context{Format: NewSubscriptionsFormat("table", true)},
   `1:License Name: name1 Quantity: 10 nodes Expiration date: 2020-01-01
2:License Name: name2 Quantity: 20 nodes Expiration date: 2020-01-01
`,
  },
  {
   formatter.Context{Format: NewSubscriptionsFormat("table {{.Owner}}", false)},
   `OWNER
owner1
owner2
```

```
`,
  },
  {
   formatter.Context{Format: NewSubscriptionsFormat("table {{.Owner}}", true)},
   `OWNER
owner1
owner2
`,
  },
  // Raw Format
  {
   formatter.Context{Format: NewSubscriptionsFormat("raw", false)},
   `license: id1
name: name1
owner: owner1
components: compstring

license: id2
name: name2
owner: owner2
components: compstring

`,
  },
  {
   formatter.Context{Format: NewSubscriptionsFormat("raw", true)},
   `license: id1
license: id2
`,
  },
  // Custom Format
  {
   formatter.Context{Format: NewSubscriptionsFormat("{{.Owner}}", false)},
   `owner1
owner2
`,
  },
 }

 expiration,
 _ := time.Parse(time.RFC822, "01 Jan 20 10:00 UTC")

 for _, testcase := range cases {
  subscriptions := []licenseutils.LicenseDisplay{
   {
    Num:   1,
    Owner: "owner1",
    Subscription: model.Subscription{
```

```
    ID:        "id1",
    Name:      "name1",
    ProductID: "productid1",
    Expires:   &expiration,
    PricingComponents: model.PricingComponents{
     &model.SubscriptionPricingComponent{
      Name:  "nodes",
      Value: 10,
     },
    },
   },
   ComponentsString: "compstring",
  },
  {
   Num:   2,
   Owner: "owner2",
   Subscription: model.Subscription{
    ID:        "id2",
    Name:      "name2",
    ProductID: "productid2",
    Expires:   &expiration,
    PricingComponents: model.PricingComponents{
     &model.SubscriptionPricingComponent{
      Name:  "nodes",
      Value: 20,
     },
    },
   },
   ComponentsString: "compstring",
  },
 }
 out := &bytes.Buffer{}
 testcase.context.Output
= out
 err := SubscriptionsWrite(testcase.context, subscriptions)
 if err != nil {
  assert.Error(t, err, testcase.expected)
 } else {
  assert.Check(t, is.Equal(testcase.expected, out.String()))
 }
}
}

func TestSubscriptionContextWriteJSON(t *testing.T) {
 expiration, _ := time.Parse(time.RFC822, "01 Jan 20 10:00 UTC")
 subscriptions := []licenseutils.LicenseDisplay{
  {
   Num:   1,
```

```
  Owner: "owner1",
  Subscription: model.Subscription{
   ID:        "id1",
   Name:      "name1",
   ProductID: "productid1",
   Expires:   &expiration,
   PricingComponents: model.PricingComponents{
    &model.SubscriptionPricingComponent{
     Name:  "nodes",
     Value: 10,
    },
   },
  },
  ComponentsString: "compstring",
 },
 {
  Num:   2,
  Owner: "owner2",
  Subscription: model.Subscription{
   ID:        "id2",
   Name:      "name2",
   ProductID: "productid2",
   Expires:   &expiration,
   PricingComponents: model.PricingComponents{
    &model.SubscriptionPricingComponent{
     Name:
 "nodes",
     Value: 20,
    },
   },
  },
  ComponentsString: "compstring",
 },
}
expectedJSONs := []map[string]interface{}{
 {
  "Owner":            "owner1",
  "ComponentsString": "compstring",
  "Expires":          "2020-01-01T10:00:00Z",
  "DockerID":         "",
  "Eusa":             nil,
  "ID":               "id1",
  "Start":            nil,
  "Name":             "name1",
  "Num":              float64(1),
  "PricingComponents": []interface{}{
   map[string]interface{}{
    "name":  "nodes",
```

```
    "value": float64(10),
   },
  },
  "ProductID":         "productid1",
  "ProductRatePlan":   "",
  "ProductRatePlanID": "",
  "State":             "",
  "Summary":           "License Name: name1\tQuantity: 10 nodes\tExpiration date: 2020-01-01",
 },
 {
  "Owner":           "owner2",
  "ComponentsString": "compstring",
  "Expires":         "2020-01-01T10:00:00Z",
  "DockerID":        "",
  "Eusa":            nil,
  "ID":
            "id2",
  "Start":           nil,
  "Name":            "name2",
  "Num":             float64(2),
  "PricingComponents": []interface{}{
   map[string]interface{}{
    "name":  "nodes",
    "value": float64(20),
   },
  },
  "ProductID":         "productid2",
  "ProductRatePlan":   "",
  "ProductRatePlanID": "",
  "State":             "",
  "Summary":           "License Name: name2\tQuantity: 20 nodes\tExpiration date: 2020-01-01",
 },
}

out := &bytes.Buffer{}
err := SubscriptionsWrite(formatter.Context{Format: "{{json .}}", Output: out}, subscriptions)
if err != nil {
 t.Fatal(err)
}
for i, line := range strings.Split(strings.TrimSpace(out.String()), "\n") {
 var m map[string]interface{}
 if err := json.Unmarshal([]byte(line), &m); err != nil {
  t.Fatal(err)
 }
 assert.Check(t, is.DeepEqual(expectedJSONs[i], m))
}
}
```

```
func TestSubscriptionContextWriteJSONField(t *testing.T) {
 subscriptions := []licenseutils.LicenseDisplay{
  {Num: 1, Owner:
 "owner1"},
  {Num: 2, Owner: "owner2"},
 }
 out := &bytes.Buffer{}
 err := SubscriptionsWrite(formatter.Context{Format: "{{json .Owner}}", Output: out}, subscriptions)
 if err != nil {
  t.Fatal(err)
 }
 for i, line := range strings.Split(strings.TrimSpace(out.String()), "\n") {
  var s string
  if err := json.Unmarshal([]byte(line), &s); err != nil {
   t.Fatal(err)
  }
  assert.Check(t, is.Equal(subscriptions[i].Owner, s))
 }
}
```

1.378 python-dotenv 0.19.2

1.378.1 Available under license :

BSD-3-Clause
python-dotenv
Copyright (c) 2014, Saurabh Kumar

All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.
* Neither the name of python-dotenv nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE
 DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,

EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

django-dotenv-rw
Copyright (c) 2013, Ted Tieken

All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following
disclaimer in the documentation
and/or other materials provided with the distribution.
* Neither the name of django-dotenv nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Original django-dotenv
Copyright (c) 2013, Jacob Kaplan-Moss

All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,

this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
* Neither the name of django-dotenv nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.379 spring-boot 2.3.3.RELEASE

1.379.1 Available under license :

Copyright 2012-2013 the original author or authors.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
open_source_licenses.txt

Spring Boot CLI
==========

Pivotal makes available all content in this download ("Content").
Unless otherwise indicated below, the Content is provided to you under
the terms and conditions of the Apache License 2.0 (the "License"). A
copy of the license is available in the file called LICENSE.txt or you
may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

The following copyright statements and licenses apply to various open
source software packages (or portions thereof) that are distributed with
this content.

==========
TABLE OF CONTENTS
==========

The following is a listing of the open source components detailed in this
document. This list is provided for your convenience; please read further if
you wish to review the copyright notice(s) and the full text of
the license
associated with each component.

SECTION 1: BSD-STYLE, MIT-STYLE, OR SIMILAR STYLE LICENSES

>>> JLine (jline:jline)
>>> JOpt Simple (net.sf.jopt-simple:jopt-simple)
>>> ASM 4.0 (org.ow2.asm:asm)

SECTION 2: Apache License, V2.0

>>> JSON library from Android SDK (com.vaadin.external.google:android-json)
>>> Apache Commons Codec (commons-codec:commons-codec)
>>> Apache HttpClient (org.apache.httpcomponents:httpclient)
>>> Apache HttpCore (org.apache.httpcomponents:httpcore)
>>> Plexus Cipher: encryption/decryption Component (org.sonatype.plexus:plexus-cipher)
>>> Plexus Security Dispatcher Component (org.sonatype.plexus:plexus-sec-dispatcher)
>>> Apache Commons Logging (commons-logging:commons-logging)
>>> Apache Groovy (org.codehaus.groovy:groovy)
>>> Maven Aether Provider (org.apache.maven:maven-aether-provider)
>>> Maven Model (org.apache.maven:maven-model)
>>> Maven Model Builder (org.apache.maven:maven-model-builder)
>>>
Maven Repository Metadata Model (org.apache.maven:maven-repository-metadata)
>>> Maven Settings (org.apache.maven:maven-settings)
>>> Maven Settings Builder (org.apache.maven:maven-settings-builder)
>>> Plexus :: Component Annotations (org.codehaus.plexus:plexus-component-annotations)
>>> Plexus Common Utilities (org.codehaus.plexus:plexus-utils)
>>> Plexus Component API (org.codehaus.plexus:plexus-component-api)
>>> Plexus Interpolation API (org.codehaus.plexus:plexus-interpolation)

SECTION 3: Eclipse Public License, Version 1.0

>>> Aether API (org.eclipse.aether:aether-api)
>>> Aether Connector Basic (org.eclipse.aether:aether-connector-basic)
>>> Aether Implementation (org.eclipse.aether:aether-impl)
>>> Aether SPI (org.eclipse.aether:aether-spi)
>>> Aether Transport File (org.eclipse.aether:aether-transport-file)
>>> Aether Transport HTTP (org.eclipse.aether:aether-transport-http)
>>> Aether Utilities (org.eclipse.aether:aether-util)

SECTION 1: BSD-STYLE, MIT-STYLE, OR SIMILAR STYLE LICENSES ----------

BSD-STYLE, MIT-STYLE, OR SIMILAR STYLE LICENSES are applicable to the following component(s).

>>> JLine (jline:jline)

Copyright (c) 2002-2006, Marc Prud'hommeaux <mwp1@cornell.edu>
All rights reserved.

Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the following
conditions are met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with
the distribution.

Neither the name of JLine nor the names of its contributors
may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,

OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

>>> net.sf.jopt-simple:jopt-simple:4.5

The MIT License (MIT)

Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

>>> org.ow2.asm:asm

Copyright (c) 2000-2011 INRIA, France Telecom
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGE.

---------- SECTION 2: Apache License, V2.0 ----------

Apache License, V2.0 is applicable to the following component(s).

>>> org.apache.httpcomponents:httpclient
>>> org.apache.httpcomponents:httpcore
>>> org.sonatype.plexus:plexus-cipher
>>> org.sonatype.plexus:plexus-sec-dispatcher
>>> commons-logging:commons-logging
>>> org.codehaus.groovy:groovy
>>> org.apache.maven:maven-aether-provider
>>> org.apache.maven:maven-model
>>> org.apache.maven:maven-model-builder
>>> org.apache.maven:maven-repository-metadata
>>> org.apache.maven:maven-settings
>>> org.apache.maven:maven-settings-builder
>>> org.codehaus.plexus:plexus-component-annotations
>>>
org.codehaus.plexus:plexus-utils
>>> org.codehaus.plexus:plexus-component-api
>>> org.codehaus.plexus:plexus-interpolation

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License

>>> CGLIB 3.0 (cglib:cglib:3.0):

Per the LICENSE file in the CGLIB JAR distribution downloaded from
https://sourceforge.net/projects/cglib/files/cglib3/3.0/cglib-3.0.jar/download,
CGLIB 3.0 is licensed under the Apache License, version 2.0, the text of which
is included above.

---------- SECTION 3: Eclipse Public License, Version
1.0 ----------

Eclipse Public License, Version 1.0 is applicable to the following component(s).

>>> org.eclipse.aether:aether-api
>>> org.eclipse.aether:aether-connector-basic
>>> org.eclipse.aether:aether-impl
>>> org.eclipse.aether:aether-spi
>>> org.eclipse.aether:aether-transport-file
>>> org.eclipse.aether:aether-transport-http
>>> org.eclipse.aether:aether-util

The Eclipse Foundation makes available all content in this plug-in ("Content").
Unless otherwise indicated below, the Content is provided to you under the terms
and conditions of the Eclipse Public License Version 1.0 ("EPL"). A copy of the
EPL is available at https://www.eclipse.org/legal/epl-v10.html.

For purposes of the EPL, "Program" will mean the Content.

If you did not receive this Content directly from the Eclipse Foundation, the
Content is being redistributed by another party ("Redistributor") and different
terms and conditions may apply to your use of any object code in the Content.
Check the Redistributor's
license that was provided with the Content. If no such
license exists, contact the Redistributor. Unless otherwise indicated below, the
terms and conditions of the EPL still apply to any source code in the Content and
such source code may be obtained at https://www.eclipse.org/

==========

To the extent any open source subcomponents are licensed under the EPL and/or
other similar licenses that require the source code and/or modifications to
source code to be made available (as would be noted above), you may obtain a
copy of the source code corresponding to the binaries for such open source
components and modifications thereto, if any, (the "Source Files"), by
downloading the Source Files from https://github.com/spring-projects/spring-boot,
or by sending a request, with your name and address to:

Pivotal, Inc., 875 Howard St,
San Francisco, CA 94103
United States of America

or email info@pivotal.io.
All such requests should clearly specify:

OPEN SOURCE FILES REQUEST
Attention General Counsel
Spring Boot ${version}
Copyright (c) 2012-2020 Pivotal, Inc.

This product is licensed to you under the Apache License, Version 2.0
(the "License"). You may not use this product except in compliance with
the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
[legal]
= Legal

{spring-boot-version}

Copyright © 2012-2020

Copies of this document may be made for your own use and for distribution to others, provided that you do not charge any fee for such copies and further provided that each copy contains this Copyright Notice, whether distributed in print or electronically.

1.380 hibernate-core 5.4.20

1.380.1 Available under license :

Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionTemplate(public DomainDataStorageAccess getCacheStorageAccess() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html * version.'
Found license 'GNU Lesser General Public License' in '* indicated by the @author tags or express copyright attribution * distributed under license by Red Hat Middleware LLC. * This copyrighted material is made available to anyone wishing to use, modify, * copy, or redistribute it subject to the terms and conditions of the GNU * Lesser General Public License, as published by the Free Software Foundation. * This program is distributed in the hope that it will be useful, * but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY * or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License * for more details. * You should have received a copy of the GNU Lesser General Public License * Boston, MA 02110-1301 USA'
Found license 'GNU Lesser General Public License' in '~ License: GNU Lesser General Public License (LGPL), version 2.1 or later. ~ See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegion buildDomainDataRegion('
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionConfigImpl build() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. // "proprietary" methods is better (this class is "proprietary" too).'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. "5.3 in upgrading. It will be removed in a later version."'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. public DomainDataRegion buildDomainDataRegion('

Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Expert Group and released to the public domain, as explained at * released to the public domain, as explained at'
Found license 'GNU Lesser General Public License' in '# License: GNU Lesser General Public License (LGPL), version 2.1 or later. # See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Expert Group and released to the public domain, as explained at'
Found license 'GNU Lesser General Public License' in '~ License: GNU Lesser General Public License (LGPL), version 2.1 or later ~ See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * Instead, for common transaction-related tasks users must utilize a proprietary API known as ExtendedJTATransaction.'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegionImpl('
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later * See the lgpl.txt file in the root directory or http://www.gnu.org/licenses/lgpl-2.1.html public DomainDataRegion getRegion() {'
Found license 'GNU Lesser General Public License' in '* License: GNU Lesser General Public License (LGPL), version 2.1 or later. * See the lgpl.txt file in the root directory or <http://www.gnu.org/licenses/lgpl-2.1.html>. * * a proprietary CDI extension SPI (that we have proposed to'

1.381 bridgeutils 1.5

1.381.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to

your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed

under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this

License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time
you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not

excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free

Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show
c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the

library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.382 busybox 1.30.1

1.382.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which

gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the
Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot

impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

The application is an BusyBox installer for Android.
Copyright (C) 2015 Anton Skshidlevsky

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

BusyBox Copyright (C) 2012 Anton Skshidlevsky

This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain
conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.383 ethtool 3.2

1.383.1 Available under license :

ethtool is available under the terms of the GNU Public License version 2.

See COPYING for details.
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program"

means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on

the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source

code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this

License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software

Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>

Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General

Public License instead of this License.

1.384 hd-parm 9.38

1.384.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public
Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission

to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under

the scope of this License.

3. You may copy and distribute the Program
(or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program
in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under

this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing

to distribute
software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies
a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this

when it starts in an interactive mode:

```
  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.
```

The hypothetical
commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

```
 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
BSD-Style Open Source License:

You may freely use, modify, and redistribute the hdparm program,
as either binary or source, or both.

The only condition is that my name and copyright notice
remain in the source code as-is.

Mark Lord (mlord@pobox.com)
This package was debianized by Christopher L Cheney <ccheney@debian.org> on
Wed, 21 Nov 2001 15:51:14 -0600.

It was downloaded from http://www.ibiblio.org/pub/Linux/system/hardware

Upstream Author: Mark S. Lord <mlord@pobox.com>

Copyright:

```
/* hdparm.c - Command line interface to get/set hard disk parameters */
/*          - by Mark Lord  1994-2008 -- freely distributable */
```

You are free to distribute this software under the terms of the BSD License.
On Debian systems, the complete text of the BSD License can be found in
/usr/share/common-licenses/BSD

1.385 inotify-tools 3.14

1.385.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty;

and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably
considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program

with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work
based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if you
received the program in object code
or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is

void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed

through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS

TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.

The hypothetical commands
 `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.386 ipmi-tool 1.8.18

1.386.1 Available under license :

Copyright (c) 2003 Sun Microsystems, Inc. All Rights Reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistribution of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistribution in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

Neither the name of Sun Microsystems, Inc. or the names of
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

This software is provided "AS IS," without a warranty of any kind.
ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES,
INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A
PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE HEREBY EXCLUDED.
SUN MICROSYSTEMS,
INC. ("SUN") AND ITS LICENSORS SHALL NOT BE LIABLE
FOR ANY DAMAGES SUFFERED BY LICENSEE AS A RESULT OF USING, MODIFYING
OR DISTRIBUTING THIS SOFTWARE OR ITS DERIVATIVES. IN NO EVENT WILL
SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA,
OR FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR
PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF
LIABILITY, ARISING OUT OF THE USE OF OR INABILITY TO USE THIS SOFTWARE,
EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

1.387 libpcap 1.2.1

1.387.1 Available under license :

License: BSD

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in
   the documentation and/or other materials provided with the
   distribution.
3. The names of the authors may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

1.388 docker v19.03.5

1.388.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED
 TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
 ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices

that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction,
or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the
NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by,
or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2013 Keith Rarick

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation

and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication

that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any

Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed as modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks,
or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2016, Google Inc.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a

cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with

the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted

against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Casta. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its

Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of

such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some

reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License
may be brought only in the courts of
a jurisdiction where the defendant maintains its principal place of business
and such litigation shall be governed by laws of that jurisdiction, without
reference to its conflict-of-law provisions. Nothing in this Section shall
prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter
hereof. If any provision of this License is held to be unenforceable, such
provision shall be reformed only to the extent necessary to make it
enforceable. Any law or regulation which provides that the language of a
contract shall be construed against the drafter shall not be used to construe
this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section
10.3, no one other than the license steward has the right to modify or
publish new versions of this License. Each version will be given a
distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of
the License under which You originally received the Covered Software, or
under the terms of any subsequent version published by the license
steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to
create a new license for such software, you may create and use a modified
version of this License if you rename the license and remove any
references to the name of the license steward (except to note that such
modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses
If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License,

the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the
terms of the Mozilla Public License, v.
2.0. If a copy of the MPL was not
distributed with this file, You can
obtain one at
http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then
You may include the notice in a location (such as a LICENSE file in a relevant
directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements

in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost

of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license
for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers
of warranty, or
limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due
to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute,

judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly
and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License
shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential

part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a

distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

Apache License
Version 2.0, January 2004

https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate

comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2012-2018 Mat Ryer and Tyler Bunnell

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2017 Sean Chittenden
Copyright (c) 2016 Alex Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

Bits of Go-lang's `once.Do()` were cribbed and reused here, too.

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.

(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2015, Philip Hofer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of,

publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and

subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding

those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise,

unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and

do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all

other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION

WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Attribution-ShareAlike 4.0 International

===

Creative Commons Corporation ("Creative Commons") is not a law firm and does not provide legal services or legal advice. Distribution of Creative Commons public licenses does not create a lawyer-client or other relationship. Creative Commons makes its licenses and related information available on an "as-is" basis. Creative Commons gives no warranties regarding its licenses, any material licensed under their terms and conditions, or any related information. Creative Commons disclaims all liability for damages resulting from their use to the fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and conditions that creators and other rights holders may use to share

original works of authorship and other material subject to copyright and certain other rights specified in the public license below. The following
considerations are for informational purposes only, are not exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are intended for use by those authorized to give the public permission to use material in ways otherwise restricted by copyright and certain other rights. Our licenses are irrevocable. Licensors should read and understand the terms and conditions of the license they choose before applying it. Licensors should also secure all rights necessary before applying our licenses so that the public can reuse the material as expected. Licensors should clearly mark any material not subject to the license. This includes other CC-licensed material, or material used under an exception or limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public licenses,
a licensor grants the public permission to use the licensed material under specified terms and conditions. If the licensor's permission is not necessary for any reason--for example, because of any applicable exception or limitation to copyright--then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More_considerations for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public License

By exercising the Licensed Rights (defined below), You accept and agree to be bound by the terms and conditions of this Creative Commons Attribution-ShareAlike 4.0 International Public License ("Public License"). To the extent this Public License may be interpreted as a

contract, You are granted the Licensed Rights in consideration of Your acceptance of these terms and conditions, and the Licensor grants You such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section 2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name

of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by,
the Licensor or others designated to receive attribution as

provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) Microsoft Corporation. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE

Mozilla Public License Version 2.0
==========

1. Definitions

1.1. "Contributor"
means each individual or legal entity that creates, contributes to
the creation of, or owns Covered Software.

1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used
by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
means Covered Software of a particular Contributor.

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached
the notice in Exhibit A, the Executable Form of such Source Code
Form, and Modifications of such Source Code Form, in each case
including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described

in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of

version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"
means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method,

process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark)
Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes
such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not

attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by

You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum
extent possible; and (b)
describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing
basis if such Contributor
notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License

prior to termination shall survive termination.

****
*
*
* 6. Disclaimer of Warranty *
* ------------------------- *
* *
* Covered Software is provided under this License on an "as is" *
* basis, without warranty of any kind, either expressed, implied, or *
* statutory, including, without limitation, warranties that the *
* Covered Software is free of defects, merchantable, fit for a *
* particular purpose or non-infringing. The entire risk as to the *
* quality and performance of the Covered Software is with You. *
* Should any Covered Software prove defective in any respect, You *
* (not any Contributor) assume the cost of any necessary servicing, *
* repair, or correction. This disclaimer of warranty constitutes an *
* essential part of this License. No use of any Covered
Software is *
* authorized under this License except under this disclaimer. *
* *
****

****
* *
* 7. Limitation of Liability *
* -------------------------- *
* *
* Under no circumstances and under no legal theory, whether tort *
* (including negligence), contract, or otherwise, shall any *
* Contributor, or anyone who distributes Covered Software as *
* permitted above, be liable to You for any direct, indirect, *
* special, incidental, or consequential damages of any character *
* including, without limitation,
damages for lost profits, loss of *
* goodwill, work stoppage, computer failure or malfunction, or any *
* and all other commercial damages or losses, even if such party *
* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place
of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2.
Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License, the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source
Code Form is subject to the terms of the Mozilla Public
License, v. 2.0. If a copy of the MPL was not distributed with this
file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular
file, then You may include the notice in a location (such as a LICENSE
file in a relevant directory) where a recipient would be likely to look
for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as
defined by the Mozilla Public License, v. 2.0.
The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,

each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems

that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0
Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015-Present CloudFoundry.org Foundation, Inc. All Rights Reserved.

This project contains software that is Copyright (c) 2015 Pivotal Software, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

This project may include a number of subcomponents with separate
copyright notices and license terms. Your use of these subcomponents
is subject to the terms and conditions of each subcomponent's license,
as noted in the LICENSE file.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
 names of its contributors may be used to endorse or promote products
 derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT
 SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner

or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/creack/pty) developed by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
 OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2017 Gal Ben-Haim

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell

copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit

persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
AWS SDK for Go
Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.
Copyright 2014-2015 Stripe, Inc.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner

or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and

limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,

SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2016, opentracing-contrib
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of go-stdlib nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from

this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.389 dmidecode 2.12

1.389.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses
are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission
to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program

is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based
on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit
royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.390 kubernetes-client 1.8.11

1.390.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED
 TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable

copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor
hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of
the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices
that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction,
or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the
NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by,
or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2013 Keith Rarick

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
 OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,

OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute

copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following

boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"

AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
 this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
 to endorse or promote products derived from this software
 without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and
distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual

or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently
incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the Work and such
Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable (except as stated in this section) patent license to make, have
made, use, offer to sell, sell, import, and otherwise transfer the Work, where
such license applies only to those patent claims licensable by such Contributor
that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was
submitted. If You institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work or a
Contribution incorporated within the Work constitutes direct or contributory
patent infringement, then any patent licenses granted to You under this License
for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof
in any medium, with or without modifications, and in Source or Object form,
provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of
this License; and
You must cause any modified files to carry prominent notices stating that You
changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the
Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any
Derivative Works that You distribute must include a readable copy of the
attribution notices contained within such NOTICE file, excluding those notices
that do not pertain to any part of the Derivative Works, in at least one of the
following places: within a NOTICE text file distributed as part of the

Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed as modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks,
or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall

any Contributor be
liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or
out of the use or inability to use the Work (including but not limited to
damages for loss of goodwill, work stoppage, computer failure or malfunction, or
any and all other commercial damages or losses), even if such Contributor has
been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to
offer, and charge a fee for, acceptance of support, warranty, indemnity, or
other liability obligations and/or rights consistent with this License. However,
in accepting such obligations, You may act only on Your own behalf and on Your
sole responsibility, not on behalf of any other Contributor, and only if You
agree to indemnify, defend, and hold each Contributor harmless for any liability
incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate
notice, with the fields enclosed by brackets "[]" replaced with your own
identifying information. (Don't include the brackets!) The text should be
enclosed in the appropriate comment syntax for the file format. We also
recommend that a file or class name and description of purpose be included on
the same "printed page" as the copyright notice for easier identification within
third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2016, Google Inc.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS

BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Apache License

Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Castañé. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a

Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion

from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent
Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by

some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License
may be brought only in the courts of
a jurisdiction where the defendant maintains its principal place of business
and such litigation shall be governed by laws of that jurisdiction, without
reference to its conflict-of-law provisions. Nothing in this Section shall
prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter
hereof. If any provision of this License is held to be unenforceable, such
provision shall be reformed only to the extent necessary to make it
enforceable. Any law or regulation which provides that the language of a
contract shall be construed against the drafter shall not be used to construe
this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section
10.3, no one other than the license steward has the right to modify or
publish new versions of this License. Each version will be given a
distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of
the License under which You originally received the Covered Software, or
under the terms of any subsequent version published by the license
steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to
create a new license for such software, you may create and use a modified
version of this License if you rename the license and remove any
references to the name of the license steward (except to note that such
modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses
If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License,
the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the
terms of the Mozilla Public License, v.
2.0. If a copy of the MPL was not
distributed with this file, You can
obtain one at
http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then
You may include the notice in a location (such as a LICENSE file in a relevant
directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote
products derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the

license
for the Executable Form does not attempt to limit or alter the
recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers
of warranty, or
limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due
to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under

this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not
apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at

SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal

in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions

to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal

in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2017 Sean Chittenden
Copyright (c) 2016 Alex Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

Bits of Go-lang's `once.Do()` were cribbed and reused here, too.

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2012-2018 Mat Ryer and Tyler Bunnell

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this

License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER

OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2015, Philip Hofer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their

Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this

License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Attribution-ShareAlike 4.0 International

===

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The

following
considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are
intended for use by those authorized to give the public
permission to use material in ways otherwise restricted by
copyright and certain other rights. Our licenses are
irrevocable. Licensors should read and understand the terms
and conditions of the license they choose before applying it.
Licensors should also secure all rights necessary before
applying our licenses so that the public can reuse the
material as expected. Licensors should clearly mark any
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public
licenses,
a licensor grants the public permission to use the
licensed material under specified terms and conditions. If
the licensor's permission is not necessary for any reason--for
example, because of any applicable exception or limitation to
copyright--then that use is not regulated by the license. Our
licenses grant only permissions under copyright and certain
other rights that a licensor has authority to grant. Use of
the licensed material may still be restricted for other
reasons, including because others have copyright or other
rights in the material. A licensor may make special requests,
such as asking that all changes be marked or described.
Although not required by our licenses, you are encouraged to
respect those requests where reasonable. More_considerations
for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree
to be bound by the terms and conditions of this Creative Commons
Attribution-ShareAlike 4.0 International Public License ("Public
License"). To the extent this Public License may be interpreted as a
contract, You are granted the Licensed Rights in consideration of Your
acceptance of these terms and conditions, and the Licensor grants You

such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section 2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public

License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by, the Licensor or others designated to receive attribution as provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

MIT License

Copyright (c) Microsoft Corporation. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE

Mozilla Public License Version 2.0
==========

1. Definitions

1.1. "Contributor"
means each individual or legal entity that creates, contributes to
the creation of, or owns Covered Software.

1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used
by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
means Covered Software of a particular Contributor.

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached
the notice in Exhibit A, the Executable Form of such Source Code
Form, and Modifications of such Source Code Form, in each case
including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described

in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of

version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"
means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method,

process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark)
Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes
such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not

attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by

You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum
extent possible; and (b)
describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing
basis if such Contributor
notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License

prior to termination shall survive termination.

****
*
*
* 6. Disclaimer of Warranty *
* ---------- *
* *
* Covered Software is provided under this License on an "as is" *
* basis, without warranty of any kind, either expressed, implied, or *
* statutory, including, without limitation, warranties that the *
* Covered Software is free of defects, merchantable, fit for a *
* particular purpose or non-infringing. The entire risk as to the *
* quality and performance of the Covered Software is with You. *
* Should any Covered Software prove defective in any respect, You *
* (not any Contributor) assume the cost of any necessary servicing, *
* repair, or correction. This disclaimer of warranty constitutes an *
* essential part of this License. No use of any Covered
Software is *
* authorized under this License except under this disclaimer. *
* *
****

****
* *
* 7. Limitation of Liability *
* ---------- *
* *
* Under no circumstances and under no legal theory, whether tort *
* (including negligence), contract, or otherwise, shall any *
* Contributor, or anyone who distributes Covered Software as *
* permitted above, be liable to You for any direct, indirect, *
* special, incidental, or consequential damages of any character *
* including, without limitation,
damages for lost profits, loss of *
* goodwill, work stoppage, computer failure or malfunction, or any *
* and all other commercial damages or losses, even if such party *
* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place
of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2.
Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License, the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source
Code Form is subject to the terms of the Mozilla Public
License, v. 2.0. If a copy of the MPL was not distributed with this
file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular
file, then You may include the notice in a location (such as a LICENSE
file in a relevant directory) where a recipient would be likely to look
for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as
defined by the Mozilla Public License, v. 2.0.
The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work
or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,

each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems

that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0
Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015-Present CloudFoundry.org Foundation, Inc. All Rights Reserved.

This project contains software that is Copyright (c) 2015 Pivotal Software, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

This project may include a number of subcomponents with separate
copyright notices and license terms. Your use of these subcomponents
is subject to the terms and conditions of each subcomponent's license,
as noted in the LICENSE file.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
 names of its contributors may be used to endorse or promote products
 derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT
 SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner

or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/creack/pty) developed by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
 OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2017 Gal Ben-Haim

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell

copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit

persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
AWS SDK for Go
Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.
Copyright 2014-2015 Stripe, Inc.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner

or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and

limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,

SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2016, opentracing-contrib
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of go-stdlib nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from

this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.391 kubernetes-apimachinery 1.8.11

1.391.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED
 TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
 ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and
issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor
hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of
the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices
that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction,
or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade

names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the
NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by,
or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a

file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2013 Keith Rarick

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION

OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of,

publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
 GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
 this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
 to endorse or promote products derived from this software
 without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that

is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by
combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed as
modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks,

service marks,
or product names of the Licensor, except as required for
reasonable and customary use in describing the origin of the Work and
reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the
Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied,
including, without limitation, any warranties or conditions of TITLE,
NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are
solely responsible for determining the appropriateness of using or
redistributing the Work and assume any risks associated with Your exercise of
permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence),
contract, or otherwise, unless required by applicable law (such as deliberate
and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or
out of the use or inability to use the Work (including but not limited to
damages for loss of goodwill, work stoppage, computer failure or malfunction, or
any and all other commercial damages or losses), even if such Contributor has
been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to
offer, and charge a fee for, acceptance of support, warranty, indemnity, or
other liability obligations and/or rights consistent with this License. However,
in accepting such obligations, You may act only on Your own behalf and on Your
sole responsibility, not on behalf of any other Contributor, and only if You
agree to indemnify, defend, and hold each Contributor harmless for any liability
incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate
notice, with the fields enclosed by brackets "[]" replaced with your own
identifying information. (Don't include the brackets!) The text should be

enclosed in the appropriate comment syntax for the file format. We also
recommend that a file or class name and description of purpose be included on
the same "printed page" as the copyright notice for easier identification within
third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

Copyright 2016, Google Inc.
All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly

negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS

OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Dario Casta. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the
creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a
Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent
Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including

copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without

reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses
If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not

distributed with this file, You can
obtain one at
http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then
You may include the notice in a location (such as a LICENSE file in a relevant
directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the

creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark)

Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license
for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice,

provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You

fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly
and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License
shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized
under
this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of

goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not
apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote products derived from this software without specific prior written

permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice,
 this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
 BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
 ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,

this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

(except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,

and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2017 Sean Chittenden
Copyright (c) 2016 Alex Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

Bits of Go-lang's `once.Do()` were cribbed and reused here, too.

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer

in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED
 WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2012-2018 Mat Ryer and Tyler Bunnell

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
 OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to

the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2015, Philip Hofer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
 THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR

CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by

the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but

excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the

appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally

submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute

copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally

submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the

content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Attribution-ShareAlike 4.0 International

==========

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The
following
considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are
intended for use by those authorized to give the public
permission to use material in ways otherwise restricted by
copyright and certain other rights. Our licenses are
irrevocable. Licensors should read and understand the terms
and conditions of the license they choose before applying it.
Licensors should also secure all rights necessary before
applying our licenses so that the public can reuse the
material as expected. Licensors should clearly mark any
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public
licenses,
a licensor grants the public permission to use the
licensed material under specified terms and conditions. If
the licensor's permission is not necessary for any reason--for
example, because of any applicable exception or limitation to

copyright--then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More_considerations for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree to be bound by the terms and conditions of this Creative Commons Attribution-ShareAlike 4.0 International Public License ("Public License"). To the extent this Public License may be interpreted as a contract, You are granted the Licensed Rights in consideration of Your acceptance of these terms and conditions, and the Licensor grants You such rights in consideration of benefits the Licensor receives from making the Licensed Material available under these terms and conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For
purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative

Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section
2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the terms and conditions of this
Public License, which are limited to all Copyright and Similar Rights that apply to Your use of the Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights under this Public License.

k. Share means to provide material to the public by any means or process that requires permission under the Licensed Rights, such as reproduction, public display, public performance, distribution, dissemination, communication, or importation, and to make material available to the public including in ways that members of the public may access the material from a place and at a time individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright resulting from Directive 96/9/EC of the European Parliament and of

the Council of 11 March 1996 on the legal protection of databases, as amended and/or succeeded, as well as other essentially equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License, the Licensor hereby grants You a worldwide, royalty-free, non-sublicensable, non-exclusive, irrevocable license to exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where Exceptions and Limitations apply to Your use, this Public License does not apply, and You do not need to comply with its terms and conditions.

3. Term. The term of this Public License is specified in Section 6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under

the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material.
Every recipient of Adapted Material from You
automatically receives an offer from the Licensor to
exercise the Licensed Rights in the Adapted Material
under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose
any additional or different terms or conditions on, or
apply any Effective Technological Measures to, the
Licensed Material if doing so restricts exercise of the
Licensed Rights by any recipient of the Licensed
Material.

6. No endorsement. Nothing in this Public License constitutes or
may be construed as permission to assert or imply that You
are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by,
the Licensor or others designated to receive attribution as
provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not
licensed under this Public License, nor are publicity,
privacy, and/or other similar personality rights; however, to
the extent possible, the Licensor waives and/or agrees not to
assert any such rights held by the Licensor to the limited
extent necessary to allow You to exercise the Licensed
Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this
Public License.

3. To the extent possible, the Licensor waives any right to
collect royalties from You for the exercise of the Licensed
Rights, whether directly or through a collecting society
under any voluntary or waivable statutory or compulsory
licensing scheme. In all other cases the Licensor expressly
reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the

following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In

addition to the conditions in Section 3(a), if You Share
Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons
license with the same License Elements, this version or
later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the
Adapter's License You apply. You may satisfy this condition
in any reasonable manner based on the medium, means, and
context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms
or conditions on, or apply any Effective Technological
Measures to, Adapted Material that restrict exercise of the
rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that
apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right
to extract, reuse, reproduce, and Share all or a substantial
portion of the contents of the database;

b. if You include all or a substantial portion of the database
contents in a database in which You have Sui Generis Database
Rights, then the database in which You have Sui Generis Database
Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and
c. You must comply with the conditions in Section 3(a) if You Share
all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not
replace Your obligations under this Public License where the Licensed
Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE
EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF
ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS,

IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so

will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as

otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT
 OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but

not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT License

Copyright (c) Microsoft Corporation. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE
Mozilla Public License Version 2.0
==================================

1. Definitions

1.1. "Contributor"
means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
means Covered Software of a particular Contributor.

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of

version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"
means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to,

deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method,

process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"
means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes
such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes
additional grants as a result of Your choice to
distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this

License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional
Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum
extent possible; and (b)
describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular

Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

```
************************************************************************
*                                                                      *
*  6. Disclaimer of Warranty                                           *
*  -------------------------                                           *
*                                                                      *
*  Covered Software is provided under this License on an "as is"       *
*  basis, without warranty of any kind, either expressed, implied, or  *
*  statutory, including, without limitation, warranties that the       *
*  Covered Software is free of defects, merchantable, fit for a        *
*  particular purpose or non-infringing. The entire risk as to the     *
*  quality and performance of the Covered Software is with You.        *
*  Should any Covered Software prove defective in any respect, You     *
*  (not any Contributor) assume the cost of any necessary servicing,   *
*  repair, or correction. This disclaimer of warranty constitutes an   *
*  essential part of this License. No use of any Covered Software is   *
*  authorized under this License except under this disclaimer.         *
*                                                                      *
************************************************************************

************************************************************************
*                                                                      *
*  7. Limitation of Liability                                          *
```

* ------------------------- *
* *
* Under no circumstances and under no legal theory, whether tort *
* (including negligence), contract, or otherwise, shall any *
* Contributor, or anyone who distributes Covered Software as *
* permitted above, be liable to You for any direct, indirect, *
* special, incidental, or consequential damages of any character *
* including, without limitation,
damages for lost profits, loss of *
* goodwill, work stoppage, computer failure or malfunction, or any *
* and all other commercial damages or losses, even if such party *
* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the
courts of a jurisdiction where the defendant maintains its principal
place
of business and such litigation shall be governed by laws of that
jurisdiction, without reference to its conflict-of-law provisions.
Nothing in this Section shall prevent a party's ability to bring
cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject
matter hereof. If any provision of this License is held to be
unenforceable, such provision shall be reformed only to the extent
necessary to make it enforceable. Any law or regulation which provides
that the language of a contract shall be construed against the drafter
shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2.
Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source
Code Form is subject to the terms of the Mozilla Public
License, v. 2.0. If a copy of the MPL was not distributed with this
file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as
defined by the Mozilla Public License, v. 2.0.

The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a

copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You

institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,

reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein

See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0
Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015-Present CloudFoundry.org Foundation, Inc. All Rights Reserved.

This project contains software that is Copyright (c) 2015 Pivotal Software, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

This project may include a number of subcomponents with separate
copyright notices and license terms. Your use of these subcomponents
is subject to the terms and conditions of each subcomponent's license,
as noted in the LICENSE file.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright

notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
names of its contributors may be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in

the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/creack/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its

contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its
 contributors may be used to endorse or promote products derived from
 this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
 OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2017 Gal Ben-Haim

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from

this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
AWS SDK for Go
Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.
Copyright 2014-2015 Stripe, Inc.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to

use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2016, opentracing-contrib
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of go-stdlib nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.392 kubernetes-api 1.8.11

1.392.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED
 TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright

notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations,
elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this License, each Contributor
hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of
the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices
that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction,
or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the
NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by,
or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2013 Keith Rarick

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
 OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 TOML authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR
 IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier

identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2018 gotest.tools authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2012 Matt T. Proud (matt.proud@gmail.com)
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and
distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright
owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities
that control, are controlled by, or are under common control with that entity.

For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark,
and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that

You distribute, alongside or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed as
modifying the License.
You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks,
or product names of the Licensor, except as required for
reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or
redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or

any and all other commercial damages or losses), even if such Contributor has
been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to
offer, and charge a fee for, acceptance of support, warranty, indemnity, or
other liability obligations and/or rights consistent with this License. However,
in accepting such obligations, You may act only on Your own behalf and on Your
sole responsibility, not on behalf of any other Contributor, and only if You
agree to indemnify, defend, and hold each Contributor harmless for any liability
incurred by, or
claims asserted against, such Contributor by reason of your
accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate
notice, with the fields enclosed by brackets "[]" replaced with your own
identifying information. (Don't include the brackets!) The text should be
enclosed in the appropriate comment syntax for the file format. We also
recommend that a file or class name and description of purpose be included on
the same "printed page" as the copyright notice for easier identification within
third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright 2017 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including

without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2016, Google Inc.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work

or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed

with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following

boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor

has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2016 Taihei Morikuni

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF

OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2011 Keith Rarick

Permission is hereby granted, free of charge, to any person
obtaining a copy of this software and associated
documentation files (the "Software"), to deal in the
Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute,
sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall
be included in all copies or substantial portions of the
Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY
KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS
OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2013 Dario Casta. All rights reserved.

Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE

ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE

GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but
not also under the terms of a
Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate

file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b)

ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all

distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis,
if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user
license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation

of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License
may be brought only in the courts of
a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license

steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible With Secondary Licenses, as defined by the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the

documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the

License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims,
in any patent Licensable by such
Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements
in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under
the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not

attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license
for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers
of warranty, or
limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by

You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not

be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible
With Secondary Licenses", as defined by
the Mozilla Public License, v. 2.0.

Copyright (c) 2013, Patrick Mezard
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
The names of its contributors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
(The MIT License)

Copyright (c) 2017 marvin + konsorten GmbH (open-source@konsorten.de)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 The OpenTracing Authors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2016 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2016, gRPC Ecosystem
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of grpc-opentracing nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
MIT License

Copyright (c) 2017 Sean Chittenden
Copyright (c) 2016 Alex Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

Bits of Go-lang's `once.Do()` were cribbed and reused here, too.

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2012-2018 Mat Ryer and Tyler Bunnell

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but

not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014-2015, Philip Hofer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH
THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012-2018 The Gorilla Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and

do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all

other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable

by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2018 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in

the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but

not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this
License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Attribution-ShareAlike 4.0 International

===

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The
following
considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are
intended for use by those authorized to give the public

permission to use material in ways otherwise restricted by
copyright and certain other rights. Our licenses are
irrevocable. Licensors should read and understand the terms
and conditions of the license they choose before applying it.
Licensors should also secure all rights necessary before
applying our licenses so that the public can reuse the
material as expected. Licensors should clearly mark any
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public
licenses,
a licensor grants the public permission to use the
licensed material under specified terms and conditions. If
the licensor's permission is not necessary for any reason--for
example, because of any applicable exception or limitation to
copyright--then that use is not regulated by the license. Our
licenses grant only permissions under copyright and certain
other rights that a licensor has authority to grant. Use of
the licensed material may still be restricted for other
reasons, including because others have copyright or other
rights in the material. A licensor may make special requests,
such as asking that all changes be marked or described.
Although not required by our licenses, you are encouraged to
respect those requests where reasonable. More_considerations
for the public:
wiki.creativecommons.org/Considerations_for_licensees

==========

Creative Commons
Attribution-ShareAlike 4.0 International Public
License

By exercising the Licensed Rights (defined below), You accept and agree
to be bound by the terms and conditions of this Creative Commons
Attribution-ShareAlike 4.0 International Public License ("Public
License"). To the extent this Public License may be interpreted as a
contract, You are granted the Licensed Rights in consideration of Your
acceptance of these terms and conditions, and the Licensor grants You
such rights in consideration of benefits the Licensor receives from
making the Licensed Material available under these terms and
conditions.

Section 1 -- Definitions.

a. Adapted Material means material subject to Copyright and Similar Rights that is derived from or based upon the Licensed Material and in which the Licensed Material is translated, altered, arranged, transformed, or otherwise modified in a manner requiring permission under the Copyright and Similar Rights held by the Licensor. For
purposes of this Public License, where the Licensed Material is a musical work, performance, or sound recording, Adapted Material is always produced where the Licensed Material is synched in timed relation with a moving image.

b. Adapter's License means the license You apply to Your Copyright and Similar Rights in Your contributions to Adapted Material in accordance with the terms and conditions of this Public License.

c. BY-SA Compatible License means a license listed at creativecommons.org/compatiblelicenses, approved by Creative Commons as essentially the equivalent of this Public License.

d. Copyright and Similar Rights means copyright and/or similar rights closely related to copyright including, without limitation, performance, broadcast, sound recording, and Sui Generis Database Rights, without regard to how the rights are labeled or categorized. For purposes of this Public License, the rights specified in Section
2(b)(1)-(2) are not Copyright and Similar Rights.

e. Effective Technological Measures means those measures that, in the absence of proper authority, may not be circumvented under laws fulfilling obligations under Article 11 of the WIPO Copyright Treaty adopted on December 20, 1996, and/or similar international agreements.

f. Exceptions and Limitations means fair use, fair dealing, and/or any other exception or limitation to Copyright and Similar Rights that applies to Your use of the Licensed Material.

g. License Elements means the license attributes listed in the name of a Creative Commons Public License. The License Elements of this Public License are Attribution and ShareAlike.

h. Licensed Material means the artistic or literary work, database, or other material to which the Licensor applied this Public License.

i. Licensed Rights means the rights granted to You subject to the

terms and conditions of this
Public License, which are limited to
all Copyright and Similar Rights that apply to Your use of the
Licensed Material and that the Licensor has authority to license.

j. Licensor means the individual(s) or entity(ies) granting rights
under this Public License.

k. Share means to provide material to the public by any means or
process that requires permission under the Licensed Rights, such
as reproduction, public display, public performance, distribution,
dissemination, communication, or importation, and to make material
available to the public including in ways that members of the
public may access the material from a place and at a time
individually chosen by them.

l. Sui Generis Database Rights means rights other than copyright
resulting from Directive 96/9/EC of the European Parliament and of
the Council of 11 March 1996 on the legal protection of databases,
as amended and/or succeeded, as well as other essentially
equivalent rights anywhere in the world.

m. You means the individual or entity exercising the Licensed Rights
under this Public License. Your has a corresponding meaning.

Section 2 -- Scope.

a. License grant.

1. Subject to the terms and conditions of this Public License,
the Licensor hereby grants You a worldwide, royalty-free,
non-sublicensable, non-exclusive, irrevocable license to
exercise the Licensed Rights in the Licensed Material to:

a. reproduce and Share the Licensed Material, in whole or
in part; and

b. produce, reproduce, and Share Adapted Material.

2. Exceptions and Limitations. For the avoidance of doubt, where
Exceptions and Limitations apply to Your use, this Public
License does not apply, and You do not need to comply with
its terms and conditions.

3. Term. The term of this Public License is specified in Section
6(a).

4. Media and formats; technical modifications allowed. The Licensor authorizes You to exercise the Licensed Rights in all media and formats whether now known or hereafter created, and to make technical modifications necessary to do so. The Licensor waives and/or agrees not to assert any right or authority to forbid You from making technical modifications necessary to exercise the Licensed Rights, including technical modifications necessary to circumvent Effective Technological Measures. For purposes of this Public License, simply making modifications authorized by this Section 2(a)(4) never produces Adapted Material.

5. Downstream recipients.

a. Offer from the Licensor -- Licensed Material. Every recipient of the Licensed Material automatically receives an offer from the Licensor to exercise the Licensed Rights under
the terms and conditions of this
Public License.

b. Additional offer from the Licensor -- Adapted Material. Every recipient of Adapted Material from You automatically receives an offer from the Licensor to exercise the Licensed Rights in the Adapted Material under the conditions of the Adapter's License You apply.

c. No downstream restrictions. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, the Licensed Material if doing so restricts exercise of the Licensed Rights by any recipient of the Licensed Material.

6. No endorsement. Nothing in this Public License constitutes or may be construed as permission to assert or imply that You are, or that Your use of the Licensed Material is, connected

with, or sponsored, endorsed, or granted official status by,
the Licensor or others designated to receive attribution as provided in Section 3(a)(1)(A)(i).

b. Other rights.

1. Moral rights, such as the right of integrity, are not licensed under this Public License, nor are publicity, privacy, and/or other similar personality rights; however, to the extent possible, the Licensor waives and/or agrees not to

assert any such rights held by the Licensor to the limited extent necessary to allow You to exercise the Licensed Rights, but not otherwise.

2. Patent and trademark rights are not licensed under this Public License.

3. To the extent possible, the Licensor waives any right to collect royalties from You for the exercise of the Licensed Rights, whether directly or through a collecting society under any voluntary or waivable statutory or compulsory licensing scheme. In all other cases the Licensor expressly reserves any right to collect such royalties.

Section 3 -- License Conditions.

Your exercise of the Licensed Rights is expressly made subject to the following conditions.

a. Attribution.

1. If You Share the Licensed Material (including in modified form), You must:

a. retain the following if it is supplied by the Licensor with the Licensed Material:

i. identification of the creator(s) of the Licensed Material and any others designated to receive attribution, in any reasonable manner requested by the Licensor (including by pseudonym if designated);

ii. a copyright notice;

iii. a notice that refers to this Public License;

iv. a notice that refers to the disclaimer of warranties;

v. a URI or hyperlink to the Licensed Material to the extent reasonably practicable;

b. indicate if You modified the Licensed Material and retain an indication of any previous modifications; and

c. indicate the Licensed Material is licensed under this Public License, and include the text of, or the URI or hyperlink to, this Public License.

2. You may satisfy the conditions in Section 3(a)(1) in any reasonable manner based on the medium, means, and context in which You Share the Licensed Material. For example, it may be reasonable to satisfy the conditions by providing a URI or hyperlink to a resource that includes the required information.

3. If requested by the Licensor, You must remove any of the information required by Section 3(a)(1)(A) to the extent reasonably practicable.

b. ShareAlike.

In addition to the conditions in Section 3(a), if You Share Adapted Material You produce, the following conditions also apply.

1. The Adapter's License You apply must be a Creative Commons license with the same License Elements, this version or later, or a BY-SA Compatible License.

2. You must include the text of, or the URI or hyperlink to, the Adapter's License You apply. You may satisfy this condition in any reasonable manner based on the medium, means, and context in which You Share Adapted Material.

3. You may not offer or impose any additional or different terms or conditions on, or apply any Effective Technological Measures to, Adapted Material that restrict exercise of the rights granted under the Adapter's License You apply.

Section 4 -- Sui Generis Database Rights.

Where the Licensed Rights include Sui Generis Database Rights that apply to Your use of the Licensed Material:

a. for the avoidance of doubt, Section 2(a)(1) grants You the right to extract, reuse, reproduce, and Share all or a substantial portion of the contents of the database;

b. if You include all or a substantial portion of the database contents in a database in which You have Sui Generis Database Rights, then the database in which You have Sui Generis Database

Rights (but not its individual contents) is Adapted Material,

including for purposes of Section 3(b); and

c. You must comply with the conditions in Section 3(a) if You Share all or a substantial portion of the contents of the database.

For the avoidance of doubt, this Section 4 supplements and does not replace Your obligations under this Public License where the Licensed Rights include other Copyright and Similar Rights.

Section 5 -- Disclaimer of Warranties and Limitation of Liability.

a. UNLESS OTHERWISE SEPARATELY UNDERTAKEN BY THE LICENSOR, TO THE EXTENT POSSIBLE, THE
LICENSOR OFFERS THE LICENSED MATERIAL AS-IS
AND AS-AVAILABLE, AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED MATERIAL, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHER. THIS INCLUDES, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OR ABSENCE OF ERRORS, WHETHER OR NOT KNOWN OR DISCOVERABLE. WHERE DISCLAIMERS OF WARRANTIES ARE NOT ALLOWED IN FULL OR IN PART, THIS DISCLAIMER MAY NOT APPLY TO YOU.

b. TO THE EXTENT POSSIBLE, IN NO EVENT WILL THE LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE) OR OTHERWISE FOR ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR OTHER LOSSES, COSTS, EXPENSES, OR DAMAGES ARISING OUT OF THIS PUBLIC LICENSE OR USE OF THE LICENSED MATERIAL, EVEN IF THE LICENSOR HAS BEEN

ADVISED OF THE POSSIBILITY OF SUCH LOSSES, COSTS, EXPENSES, OR DAMAGES. WHERE A LIMITATION OF LIABILITY IS NOT ALLOWED IN FULL OR IN PART, THIS LIMITATION MAY NOT APPLY TO YOU.

c. The disclaimer of warranties and limitation of liability provided above shall be interpreted in a manner that, to the extent possible, most closely approximates an absolute disclaimer and waiver of all liability.

Section 6 -- Term and Termination.

a. This Public License applies for the term of the Copyright and Similar Rights licensed here. However, if You fail to comply with this Public License, then Your rights under this Public License terminate automatically.

b. Where Your right to use the Licensed Material has terminated under Section 6(a), it reinstates:

1. automatically as of the date the violation is cured, provided it is cured within 30 days of Your discovery of the violation; or

2. upon express reinstatement by the Licensor.

For the avoidance of doubt, this Section 6(b) does not affect any right the Licensor may have to seek remedies for Your violations of this Public License.

c. For the avoidance of doubt, the Licensor may also offer the Licensed Material under separate terms or conditions or stop distributing the Licensed Material at any time; however, doing so will not terminate this Public License.

d. Sections 1, 5, 6, 7, and 8 survive termination of this Public License.

Section 7 -- Other Terms and Conditions.

a. The Licensor shall not be bound by any additional or different terms or conditions communicated by You unless expressly agreed.

b. Any arrangements, understandings, or agreements regarding the Licensed Material not stated herein are separate from and independent of the terms and conditions of this Public License.

Section 8 -- Interpretation.

a. For the avoidance of doubt, this Public License does not, and shall not be interpreted to, reduce, limit, restrict, or impose conditions on any use of the Licensed Material that could lawfully be made without permission under this Public License.

b. To the extent possible, if any provision of this Public License is deemed unenforceable, it shall be automatically reformed to the minimum extent necessary to make it enforceable. If the provision cannot be reformed, it shall be severed from this Public License without affecting the enforceability of the remaining terms and conditions.

c. No term or condition of this Public License will be waived and no failure to comply consented to unless expressly agreed to by the Licensor.

d. Nothing in this Public License constitutes or may be interpreted as a limitation upon, or waiver of, any privileges and immunities that apply to the Licensor or You, including from the legal processes of any jurisdiction or authority.

==========

Creative
Commons is not a party to its public licenses.
Notwithstanding, Creative Commons may elect to apply one of its public licenses to material it publishes and in those instances will be considered the "Licensor." Except for the limited purpose of indicating that material is shared under a Creative Commons public license or as otherwise permitted by the Creative Commons policies published at creativecommons.org/policies, Creative Commons does not authorize the use of the trademark "Creative Commons" or any other trademark or logo of Creative Commons without its prior written consent including, without limitation, in connection with any unauthorized modifications to any of its public licenses or any other arrangements, understandings, or agreements concerning use of licensed material. For the avoidance of doubt, this paragraph does not form part of the public licenses.

Creative Commons may be contacted at creativecommons.org.
Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2017 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT License

Copyright (c) Microsoft Corporation. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell

copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE

Mozilla Public License Version 2.0
==========

1. Definitions

1.1. "Contributor"
means each individual or legal entity that creates, contributes to
the creation of, or owns Covered Software.

1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used
by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
means Covered Software of a particular Contributor.

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached
the notice in Exhibit A, the Executable Form of such Source Code
Form, and Modifications of such Source Code Form, in each case
including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described
in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of

version 1.1 or earlier of the License, but not also under the
terms of a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method,

process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"
means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity,

whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes
such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code

Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute
a Larger Work under terms of Your choice,
provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional
Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum
extent possible; and (b)
describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing
basis if such Contributor
notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

****
*
*
* 6. Disclaimer of Warranty *
* ---------- *
* *

* Covered Software is provided under this License on an "as is" *
* basis, without warranty of any kind, either expressed, implied, or *
* statutory, including, without limitation, warranties that the *
* Covered Software is free of defects, merchantable, fit for a *
* particular purpose or non-infringing. The entire risk as to the *
* quality and performance of the Covered Software is with You. *
* Should any Covered Software prove defective in any respect, You *
* (not any Contributor) assume the cost of any necessary servicing, *
* repair, or correction. This disclaimer of warranty constitutes an *
* essential part of this License. No use of any Covered
Software is *
* authorized under this License except under this disclaimer. *
* *
****

****
* *
* 7. Limitation of Liability *
* ---------- *
* *
* Under no circumstances and under no legal theory, whether tort *
* (including negligence), contract, or otherwise, shall any *
* Contributor, or anyone who distributes Covered Software as *
* permitted above, be liable to You for any direct, indirect, *
* special, incidental, or consequential damages of any character *
* including, without limitation,
damages for lost profits, loss of *
* goodwill, work stoppage, computer failure or malfunction, or any *
* and all other commercial damages or losses, even if such party *
* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the
courts of a jurisdiction where the defendant maintains its principal
place
of business and such litigation shall be governed by laws of that
jurisdiction, without reference to its conflict-of-law provisions.
Nothing in this Section shall prevent a party's ability to bring

cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2.
Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source
Code Form is subject to the terms of the Mozilla Public
License, v. 2.0. If a copy of the MPL was not distributed with this
file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular
file, then You may include the notice in a location (such as a LICENSE
file in a relevant directory) where a recipient would be likely to look
for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as
defined by the Mozilla Public License, v. 2.0.
The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a

copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a

cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with

the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or

otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly

negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2015, Google Inc
Copyright 2018, GoGo Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and

limitations under the License.
CoreOS Project
Copyright 2018 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0
Copyright (c) 2014-2018 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015-Present CloudFoundry.org Foundation, Inc. All Rights Reserved.

This project contains software that is Copyright (c) 2015 Pivotal Software, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

This project may include a number of subcomponents with separate
copyright notices and license terms. Your use of these subcomponents
is subject to the terms and conditions of each subcomponent's license,
as noted in the LICENSE file.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2016-2018 Docker Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
names of its contributors may be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;

LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Docker
Copyright 2012-2017 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/creack/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not

violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2017 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT

LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Tim Heckman
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of linode-netint nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER
OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the

United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.
Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
 OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
MIT License

Copyright (c) 2017 Gal Ben-Haim

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER

LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright 2010 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN

AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

AWS SDK for Go

Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.

Copyright 2014-2015 Stripe, Inc.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the

editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of

this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright The containerd Authors

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013, The GoGo Authors. All rights reserved.

Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2016, opentracing-contrib
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
 list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.

* Neither the name of go-stdlib nor the names of its
 contributors may be used to endorse or promote products derived from
 this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.393 icu 66.1-2ubuntu2.1

1.393.1 Available under license :

```
## -*-makefile-*-
## Copyright (C) 2016 and later: Unicode, Inc. and others.
## License & terms of use: http://www.unicode.org/copyright.html
## BSD-specific setup (FreeBSD, OpenBSD, NetBSD, *BSD)
## Copyright (c) 1999-2013, International Business Machines Corporation and
## others. All Rights Reserved.

## Commands to generate dependency files
GEN_DEPS.c= $(CC) -E -MM $(DEFS) $(CPPFLAGS)
GEN_DEPS.cc= $(CXX) -E -MM $(DEFS) $(CPPFLAGS)

## Flags for position independent code
SHAREDLIBCFLAGS = -fPIC
SHAREDLIBCXXFLAGS = -fPIC
SHAREDLIBCPPFLAGS = -DPIC

## Additional flags when building libraries and with threads
THREADSCPPFLAGS = -D_REENTRANT
LIBCPPFLAGS =

## Compiler switch to embed a runtime search path
LD_RPATH=
LD_RPATH_PRE= -Wl,-rpath,

## Compiler switch to embed a library name
LD_SONAME = -Wl,-soname -Wl,$(notdir $(MIDDLE_SO_TARGET))

## Shared library options
LD_SOOPTIONS= -Wl,-Bsymbolic

## Shared object suffix
SO = so
## Non-shared intermediate object suffix
STATIC_O = ao

## Compilation
 rules
%.$(STATIC_O): $(srcdir)/%.c
```

```
 $(COMPILE.c) $(STATICCPPFLAGS) $(STATICCFLAGS) -o $@ $<
%.o: $(srcdir)/%.c
 $(COMPILE.c) $(DYNAMICCPPFLAGS) $(DYNAMICCFLAGS) -o $@ $<

%.$(STATIC_O): $(srcdir)/%.cpp
 $(COMPILE.cc) $(STATICCPPFLAGS) $(STATICCXXFLAGS) -o $@ $<
%.o: $(srcdir)/%.cpp
 $(COMPILE.cc) $(DYNAMICCPPFLAGS) $(DYNAMICCXXFLAGS) -o $@ $<


## Dependency rules
%.d: $(srcdir)/%.c
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.c) $< \
  | sed '\"s/\($*\)\.o[ :]*/\1.o $@ : /g'\" > $@; \
  [ -s $@ ] || rm -f $@'

%.d: $(srcdir)/%.cpp
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.cc) $< \
  | sed '\"s/\($*\)\.o[ :]*/\1.o $@ : /g'\" > $@; \
  [ -s $@ ] || rm -f $@'

## Versioned libraries rules

%.$(SO).$(SO_TARGET_VERSION_MAJOR): %.$(SO).$(SO_TARGET_VERSION)
 $(RM) $@ && ln -s ${<F} $@
%.$(SO): %.$(SO).$(SO_TARGET_VERSION_MAJOR)
 $(RM) $@ && ln -s ${*F}.$(SO).$(SO_TARGET_VERSION) $@

##  Bind internal references

# LDflags that pkgdata will use
BIR_LDFLAGS= -Wl,-Bsymbolic

# Dependencies [i.e. map files] for the final library
BIR_DEPS=

## Remove shared library 's'
STATIC_PREFIX_WHEN_USED =
STATIC_PREFIX =

## End BSD-specific setup
```

Copyright 2006-2011, the V8 project authors. All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
  copyright notice, this list of conditions and the following
  disclaimer in the documentation and/or other materials provided
  with the distribution.
* Neither the name of Google Inc. nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE
 DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
COPYRIGHT AND PERMISSION NOTICE (ICU 58 and later)

Copyright 1991-2020 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in https://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT
 NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,

DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

Third-Party Software Licenses

This section contains third-party software notices and/or additional terms for licensed third-party software components included within ICU libraries.

1. ICU License - ICU 1.8.1 to ICU 57.1

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2016 International Business Machines Corporation and others
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR
HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use

or other dealings in this Software without prior written authorization
of the copyright holder.

All trademarks and registered trademarks mentioned herein are the
property of their respective owners.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

```
#     The Google Chrome software developed by Google is licensed under
# the BSD license. Other software included in this distribution is
# provided under other licenses, as set forth below.
#
#  The BSD License
#  http://opensource.org/licenses/bsd-license.php
 #  Copyright (C) 2006-2008, Google Inc.
#
#  All rights reserved.
#
#  Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are met:
#
#  Redistributions of source code must retain the above copyright notice,
# this list of conditions and the following disclaimer.
#  Redistributions in binary form must reproduce the above
# copyright notice, this list of conditions and the following
# disclaimer in the documentation and/or other materials provided with
# the distribution.
#  Neither the name of  Google Inc. nor the names of its
# contributors may be used to endorse or promote products derived from
# this software without specific prior written permission.
#
#
#  THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
# CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
# INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
# MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 PURPOSE ARE
# DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
# LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
# CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
# SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
# BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
# LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
# NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
# SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
#
#  The word list in cjdict.txt are generated by combining three word lists
```

```
# listed below with further processing for compound word breaking. The
# frequency is generated with an iterative training against Google web
# corpora.
#
#  * Libtabe (Chinese)
#    - https://sourceforge.net/project/?group_id=1519
#    - Its license terms and conditions are shown below.
#
#  * IPADIC (Japanese)
#    - http://chasen.aist-nara.ac.jp/chasen/distribution.html
 #    - Its license terms and conditions are shown below.
#
#  ---------COPYING.libtabe ---- BEGIN--------------------
#
#  /*
#   * Copyright (c) 1999 TaBE Project.
#   * Copyright (c) 1999 Pai-Hsiang Hsiao.
#   * All rights reserved.
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the TaBE Project nor the names of its
#   *   contributors may be used to endorse or promote products derived
#   *   from this software
 without specific prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
```

```
# /*
#  * Copyright (c) 1999 Computer Systems and Communication Lab,
#  *                    Institute
 of Information Science, Academia
#     *                  Sinica. All rights reserved.
#  *
#  * Redistribution and use in source and binary forms, with or without
#  * modification, are permitted provided that the following conditions
#  * are met:
#  *
#  * . Redistributions of source code must retain the above copyright
#  *   notice, this list of conditions and the following disclaimer.
#  * . Redistributions in binary form must reproduce the above copyright
#  *   notice, this list of conditions and the following disclaimer in
#  *   the documentation and/or other materials provided with the
#  *   distribution.
#  * . Neither the name of the Computer Systems and Communication Lab
#  *   nor the names of its contributors may be used to endorse or
#  *   promote products derived from this software without specific
#  *   prior written permission.
#  *
#  * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#  * "AS IS" AND
 ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#  * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#  * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#  * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#  * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#  * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#  * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#  * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#  * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#  * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#  * OF THE POSSIBILITY OF SUCH DAMAGE.
#  */
#
# Copyright 1996 Chih-Hao Tsai @ Beckman Institute,
#    University of Illinois
# c-tsai4@uiuc.edu  http://casper.beckman.uiuc.edu/~c-tsai4
#
# ----------COPYING.libtabe-----END--------------------------------
#
#
# ----------COPYING.ipadic-----BEGIN-------------------------------
 #
# Copyright 2000, 2001, 2002, 2003 Nara Institute of Science
# and Technology.  All Rights Reserved.
#
```

```
#  Use, reproduction, and distribution of this software is permitted.
#  Any copy of this software, whether in its original form or modified,
#  must include both the above copyright notice and the following
#  paragraphs.
#
#  Nara Institute of Science and Technology (NAIST),
#  the copyright holders, disclaims all warranties with regard to this
#  software, including all implied warranties of merchantability and
#  fitness, in no event shall NAIST be liable for
#  any special, indirect or consequential damages or any damages
#  whatsoever resulting from loss of use, data or profits, whether in an
#  action of contract, negligence or other tortuous action, arising out
#  of or in connection with the use or performance of this software.
#
#  A large portion of the dictionary entries
#  originate from ICOT
 Free Software.  The following conditions for ICOT
#  Free Software applies to the current dictionary as well.
#
#  Each User may also freely distribute the Program, whether in its
#  original form or modified, to any third party or parties, PROVIDED
#  that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear
#  on, or be attached to, the Program, which is distributed substantially
#  in the same form as set out herein and that such intended
#  distribution, if actually made, will neither violate or otherwise
#  contravene any of the laws and regulations of the countries having
#  jurisdiction over the User or the intended distribution itself.
#
#  NO WARRANTY
#
#  The program was produced on an experimental basis in the course of the
#  research and development conducted during the project and is provided
#  to users as so produced on an experimental basis.  Accordingly, the
#  program is provided without any warranty whatsoever, whether express,
#  implied,
 statutory or otherwise.  The term "warranty" used herein
#  includes, but is not limited to, any warranty of the quality,
#  performance, merchantability and fitness for a particular purpose of
#  the program and the nonexistence of any infringement or violation of
#  any right of any third party.
#
#  Each user of the program will agree and understand, and be deemed to
#  have agreed and understood, that there is no warranty whatsoever for
#  the program and, accordingly, the entire risk arising from or
#  otherwise connected with the program is assumed by the user.
#
#  Therefore, neither ICOT, the copyright holder, or any other
#  organization that participated in or was otherwise related to the
```

development of the program and their respective officials, directors,
officers and other employees shall be held liable for any and all
damages, including, without limitation, general, special, incidental
and consequential damages, arising out of or otherwise in
connection
with the use or inability to use the program or any product, material
or result produced or otherwise obtained by using the program,
regardless of whether they have been advised of, or otherwise had
knowledge of, the possibility of such damages at any time during the
project or thereafter. Each user will be deemed to have agreed to the
foregoing by his or her commencement of use of the program. The term
"use" as used herein includes, but is not limited to, the use,
modification, copying and distribution of the program and the
production of secondary products from the program.
#
In the case where the program, whether in its original form or
modified, was distributed or delivered to or received by a user from
any person, organization or entity other than ICOT, unless it makes or
grants independently of ICOT any specific warranty to the user in
writing, such person, organization or entity, will also be exempted
from
and not be held liable to the user for any such damages as noted
above as far as the program is concerned.
#
----------COPYING.ipadic-----END----------

3. Lao Word Break Dictionary Data (laodict.txt)

Copyright (c) 2013 International Business Machines Corporation
and others. All Rights Reserved.
#
Project: http://code.google.com/p/lao-dictionary/
Dictionary: http://lao-dictionary.googlecode.com/git/Lao-Dictionary.txt
License: http://lao-dictionary.googlecode.com/git/Lao-Dictionary-LICENSE.txt
(copied below)
#
This file is derived from the above dictionary, with slight
modifications.

Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification,
are permitted provided that the following conditions are met:
#
#
Redistributions of source code must retain the above copyright notice, this

list of conditions and the following disclaimer. Redistributions in
binary form must reproduce the above copyright notice, this list of
conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.
#
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.
--

4. Burmese Word Break Dictionary Data (burmesedict.txt)

Copyright (c) 2014 International Business Machines Corporation
and others. All Rights Reserved.
#
This list is part of a project hosted at:
github.com/kanyawtech/myanmar-karen-word-lists
#
--
Copyright (c) 2013, LeRoy Benjamin Sharon
All rights reserved.
#
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met: Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer. Redistributions in binary form must reproduce the
above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.
#
Neither the name Myanmar Karen Word Lists, nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND

CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.
--

5. Time Zone Database

ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.

7. Database Ownership
#
The TZ database itself is not an IETF Contribution or an IETF
document. Rather it is a pre-existing and regularly updated work
that is in the public domain, and is intended to remain in the
public domain. Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
not apply to the TZ Database or contributions that individuals make
to it. Should any claims be made and substantiated against the TZ
Database, the organization that is providing
the IANA
Considerations defined in this RFC, under the memorandum of
understanding with the IETF, currently ICANN, may act in accordance
with all competent court orders. No ownership claims will be made
by ICANN or the IETF Trust on the database or the code. Any person
making a contribution to the database or code waives all rights to
future claims in that contribution or in the TZ Database.

6. Google double-conversion

Copyright 2006-2011, the V8 project authors. All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided
with the distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.394 bolt 1.2.1

1.394.1 Available under license :

Copyright (c) 2015 GraphAware Ltd

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is furnished
to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

1.395 fileutil 1.13.0

1.395.1 Available under license :

Docker
Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.
Extensions of the original work are copyright (c) 2011 Miek Gieben

As this is fork of the official Go code the same license applies:

Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED
 TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,

DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 Alex Ogier. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software

Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a

notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or

executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each
time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent

infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number

of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest

to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

  <one line to give the program's name and a brief idea of what it does.>
  Copyright (C) <year> <name of author>

  This program is free software; you can redistribute it and/or modify
  it under the terms of the GNU General Public License as published by
  the Free Software Foundation; either version 2 of the License,
or
  (at your option) any later version.

  This program is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
  GNU General Public License for more details.

  You should have received a copy of the GNU General Public License along
  with this program; if not, write to the Free Software Foundation, Inc.,
  51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

  Gnomovision version 69, Copyright (C) year name of author
  Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
  This is free software, and you are welcome to redistribute it
  under certain conditions; type `show c' for details.

The hypothetical commands `show w'
 and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the program
 `Gnomovision' (which makes passes at compilers) written by James Hacker.

 <signature of Ty Coon>, 1 April 1989
 Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
Copyright 2015 James Saryerwinnie

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

(except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,

and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by

the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but

excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the

appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2014 Google Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Yasuhiro Matsumoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015, Dave Cheney <dave@cheney.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER

CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012, 2013 Ugorji Nwoke.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
 this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
 this list of conditions and the following disclaimer in the documentation
 and/or other materials provided with the distribution.
* Neither the name of the author nor the names of its contributors may be used
 to endorse or promote products derived from this software
 without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising
permissions granted by this License.

"Source" form shall mean the
preferred form for making modifications, including
but not limited to software source code, documentation source, and configuration
files.

"Object" form shall mean any form resulting from mechanical transformation or
translation of a Source form, including but not limited to compiled object code,
generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made
available under the License, as indicated by a copyright notice that is included
in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that
is based on (or derived from) the Work and for which the editorial revisions,
annotations, elaborations, or other modifications represent, as a whole, an
original work of authorship. For the purposes of this License, Derivative Works
shall not include works that remain separable from, or merely link (or bind by
name)
to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version
of the Work and any modifications or additions to that Work or Derivative Works
thereof, that is intentionally submitted to Licensor for inclusion in the Work
by the copyright owner or by an individual or Legal Entity authorized to submit
on behalf of the copyright owner. For the purposes of this definition,
"submitted" means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems, and
issue tracking systems that are managed by, or on behalf of, the Licensor for
the purpose of discussing and improving the Work, but excluding communication
that is conspicuously marked or otherwise designated in writing by the copyright
owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual
or Legal Entity on behalf
of whom a Contribution has been received by Licensor and subsequently
incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby
grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free,

irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination
of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form
of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed as
modifying the License.
You may add Your own copyright statement to Your modifications and may provide
additional or different license terms and conditions for use, reproduction, or
distribution of Your modifications, or for any such Derivative Works as a whole,
provided Your use, reproduction, and distribution of the Work otherwise complies
with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted
for inclusion in the Work by You to the Licensor shall be under the terms and
conditions of this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify the terms of
any separate license agreement you may have executed with Licensor regarding
such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks,
service marks,
or product names of the Licensor, except as required for
reasonable and customary use in describing the origin of the Work and
reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the
Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied,
including, without limitation, any warranties or conditions of TITLE,
NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are
solely responsible for determining the appropriateness of using or
redistributing the Work and assume any risks associated with Your exercise of
permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence),
contract, or otherwise, unless required by applicable law (such as deliberate
and grossly negligent acts) or agreed to in writing, shall
any Contributor be
liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or
out of the use or inability to use the Work (including but not limited to
damages for loss of goodwill, work stoppage, computer failure or malfunction, or
any and all other commercial damages or losses), even if such Contributor has
been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or
claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to
in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2009 The oauth2 Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above

copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Data model artifacts for Prometheus.
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Apache License
                        Version 2.0, January 2004
                     http://www.apache.org/licenses/

 TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

 1. Definitions.

    "License" shall mean the terms and conditions for use, reproduction,
    and distribution as defined by Sections 1 through 9 of this document.

    "Licensor" shall mean the copyright owner or entity authorized by
    the copyright owner that is granting the License.

    "Legal Entity" shall mean the union of the acting entity and all
    other entities that control, are controlled by, or are under common
    control with that entity. For the purposes of this definition,
    "control" means (i) the power, direct or indirect, to cause the
    direction or management of such entity, whether by contract or
    otherwise, or (ii) ownership of fifty percent (50%) or more of the
    outstanding shares, or (iii) beneficial ownership of such entity.

    "You"

(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,

or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright (c) 2014, OmniTI Computer Consulting, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
MIT

Copyright (C) 2016 Tnis Tiigi <tonistiigi@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
Copyright (c) 2013 Dario Casta. All rights reserved.
Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2014 Alan Shreve

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2011-2014 - Canonical Inc.

This software is licensed under the LGPLv3, included below.

As a special exception to the GNU Lesser General Public License version 3
("LGPL3"), the copyright holders of this Library give you permission to
convey to a third party a Combined Work that links statically or dynamically
to this Library without providing any Minimal Corresponding Source or
Minimal Application Code as set out in 4d or providing the installation
information set out in section 4e, provided that you comply with the other
provisions of LGPL3 and provided that you meet, for the Application the
terms and conditions of the license(s) which apply to the Application.

Except as stated in this special exception, the provisions of LGPL3 will
continue to comply in full to this Library. If you modify this Library, you
may apply this exception to your version of this Library, but you are not
obliged to do so. If you do not wish to do so, delete this exception
statement from your version.
This exception does not (and cannot) modify any
license terms which apply to the Application, with which you must still
comply.

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs

whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to

recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the
Library as you received it
specifies that a certain numbered version
of the GNU Lesser General Public License "or any later version"
applies to it, you have the option of following the terms and
conditions either of that published version or of any later version
published by the Free Software Foundation. If the Library as you
received it does not specify a version number of the GNU Lesser
General Public License, you may choose any version of the GNU Lesser
General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide
whether future versions of the GNU Lesser General Public License shall
apply, that proxy's public statement of acceptance of any version is
permanent authorization for you to choose that version for the
Library.
procfs provides functions to retrieve system, kernel and process
metrics from the pseudo-filesystem proc.

Copyright 2014-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
Copyright 2013 Suryandaru Triandana <syndtr@gmail.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. Contributor

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. Contributor Version

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributors Contribution.

1.3. Contribution

means Covered Software of a particular Contributor.

1.4. Covered Software

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. Incompatible With Secondary Licenses
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. Executable Form

means any form of the work other than Source Code Form.

1.7. Larger Work

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. License

means this document.

1.9. Licensable

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. Modifications

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. Patent Claims of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. Secondary License

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. Source Code Form

means the form of the work preferred for making modifications.

1.14. You (or Your)

means an individual or a legal entity exercising rights under this License. For legal entities, You includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3.
Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third partys modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent
Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or

alter the recipients
rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained
within the Source Code Form of the Covered
Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to
comply with any of the terms of this License
with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to

understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis,
if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an as is basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including

negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such partys negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a partys ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to
create a new license for such software, you may create and use a modified
version of this License if you rename the license and remove any
references to the name of the license steward (except to note that such
modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses
If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License,
the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the
terms of the Mozilla Public License, v.
2.0. If a copy of the MPL was not
distributed with this file, You can
obtain one at
http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then
You may include the notice in a location (such as a LICENSE file in a relevant
directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - Incompatible With Secondary Licenses Notice

This Source Code Form is Incompatible
With Secondary Licenses, as defined by
the Mozilla Public License, v. 2.0.
Copyright (c) 2013, Georg Reinke (<guelfey at gmail dot com>), Google
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS

"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Mozilla Public License, version 2.0

1. Definitions

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

b. that the Covered Software was made available under the terms of version 1.1 or earlier of the
License, but not also under the terms of
a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

b. any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

a. for any code that a Contributor has removed from Covered Software; or

b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements
in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications
that You create or to which You contribute, must be under
the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license
for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers
of warranty, or
limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any

jurisdiction.

4. Inability to Comply Due
to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly
and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License
shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis,

without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section

10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses If You choose to distribute Source Code Form that is Incompatible
With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible
With Secondary Licenses", as defined by
the Mozilla Public License, v. 2.0.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2014 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2015 Matthew Heon <mheon@redhat.com>
Copyright (c) 2015 Paul Moore <pmoore@redhat.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE

FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Common libraries shared by Prometheus Go components.
Copyright 2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).
ISC License

Copyright (c) 2012-2013 Dave Collins <dave@davec.name>

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
Copyright (c) 2015 Vincent Batts, Raleigh, NC, USA

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct

or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental,
or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required
by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the

outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Protocol Buffers for Go with Gadgets

Copyright (c) 2013, The GoGo Authors. All rights reserved.

http://github.com/gogo/protobuf

Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

   * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
   * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
   * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS
 AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2014 Simon Eskildsen

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2014 The AUTHORS

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Docker
Copyright 2012-2016 Docker, Inc.

This product includes software developed at Docker, Inc. (https://www.docker.com).

This product contains software (https://github.com/kr/pty) developed
by Keith Rarick, licensed under the MIT License.

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see https://www.bis.doc.gov

See also https://www.apache.org/dev/crypto.html and/or seek legal counsel.

DO WHAT THE FUCK YOU WANT TO PUBLIC LICENSE
Version 2, December 2004

Copyright (C) 2004 Sam Hocevar <sam@hocevar.net>

Everyone is permitted to copy and distribute verbatim or modified
copies of this license document, and changing it is allowed as long
as the name is changed.

DO WHAT THE FUCK YOU WANT TO PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. You just DO WHAT THE FUCK YOU WANT TO.
Copyright (C) 2013 Blake Mizerany

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
CoreOS Project
Copyright 2014 CoreOS, Inc

This product includes software developed at CoreOS, Inc.
(http://www.coreos.com/).
The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is

furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2013 Mitchell Hashimoto

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT
OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free

software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program
or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute
verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish,
that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such

interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can
be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program
(or a work based on it,
under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is

allowed only for noncommercial distribution and only if you received the program
in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled
to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based
on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit
royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute
software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies
a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED
BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),
EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version
2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
Copyright (c) 2012 Rodrigo Moraes. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2012 The Go Authors. All rights reserved.
Copyright (c) 2012 fsnotify Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
 ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 Rackspace. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Vishvananda Ishaya.
Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2014, Google Inc.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2013-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
Copyright 2012 SocialCode

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to

permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) 2013 Miek Gieben. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Miek Gieben nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2013 Ben Johnson

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in

the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Gocheck - A rich testing framework for Go

Copyright (c) 2010-2013 Gustavo Niemeyer <gustavo@niemeyer.net>

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
   list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice,
   this list of conditions and the following disclaimer in the documentation
   and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 The Linux Foundation.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2011 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR
 CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT

OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015, Docker Inc.
Copyright (c) 2014-2015 Prime Directive, Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Prime Directive, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2016 David Calavera

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE
OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
The MIT License (MIT)

Copyright (c) 2015 Microsoft

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted"

means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright 2013 Matt T. Proud

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2012-2015 Ugorji Nwoke.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all

other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants
to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work
or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial

revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2013 Joshua Tacoma

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of
the Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2012 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright

notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2013, Samuel Stauffer <samuel@descolada.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright
 notice, this list of conditions and the following disclaimer in the
 documentation and/or other materials provided with the distribution.
* Neither the name of the author nor the
 names of its contributors may be used to endorse or promote products
 derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT
 SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Open Source Initiative OSI - The MIT License (MIT):Licensing

The MIT License (MIT)
Copyright (c) 2013 Ralph Caraveo (deckarep@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in
the Software without restriction, including without limitation the rights to
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies
of the Software, and to permit persons to whom the Software is furnished to do
so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Copyright (c) 2014 CloudFlare Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,

SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses

granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2015-2016 Vincent Demeester

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

https://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

runc

Copyright 2012-2015 Docker, Inc.

This product includes software developed at Docker, Inc. (http://www.docker.com).

The following is courtesy of our legal counsel:

Use and transfer of Docker may be subject to certain restrictions by the
United States and other governments.
It is your responsibility to ensure that your use and/or transfer does not
violate applicable laws.

For more information, please see http://www.bis.doc.gov

See also http://www.apache.org/dev/crypto.html and/or seek legal counsel.

Copyright (c) 2013 Honza Pokorny
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES

(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2014 Philip Hofer
Portions Copyright (c) 2009 The Go Authors (license at http://golang.org) where indicated

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,

work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2014-2016 Docker, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

The MIT License (MIT)

Copyright (c) 2013 Armon Dadgar

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER

IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR
IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Go support for Protocol Buffers - Google's data interchange format

Copyright 2010 The Go Authors. All rights reserved.
https://github.com/golang/protobuf

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

  * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
  * Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright (c) 2014-2016 The Docker & Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2009,2014 Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the
distribution.
* Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Prometheus instrumentation library for Go applications
Copyright 2012-2015 The Prometheus Authors

This product includes software developed at
SoundCloud Ltd. (http://soundcloud.com/).

The following components are included in this product:

goautoneg
http://bitbucket.org/ww/goautoneg
Copyright 2011, Open Knowledge Foundation Ltd.
See README.txt for license details.

perks - a fork of https://github.com/bmizerany/perks
https://github.com/beorn7/perks
Copyright 2013-2015 Blake Mizerany, Bjrn Rabenstein
See https://github.com/beorn7/perks/blob/master/README.md for license details.

Go support for Protocol Buffers - Google's data interchange format
http://github.com/golang/protobuf/
Copyright 2010 The Go Authors
See source code for license details.

Support for streaming Protocol Buffer messages for the Go language (golang).
https://github.com/matttproud/golang_protobuf_extensions
Copyright 2013 Matt T. Proud
Licensed under the Apache License, Version 2.0

1.396 @tensorflow/tfjs 3.11.0

1.396.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

TensorFlow.js Layers is licensed under both the MIT and the Apache 2.0 licenses.

==========

COPYRIGHT

All contributions by Franois Chollet:
Copyright (c) 2015 - 2018, Franois Chollet.
All rights reserved.

All contributions by Google:
Copyright (c) 2015 - 2018, Google LLC.
All rights reserved.

All contributions by Microsoft:
Copyright (c) 2017 - 2018, Microsoft, LLC
All rights reserved.

All other contributions:
Copyright (c) 2015 - 2018, the respective contributors.
All rights reserved.

Each contributor holds copyright over their respective contributions.
The project versioning (Git) records all such contribution source information.

LICENSE

The MIT License (MIT)

Permission is hereby granted, free of charge, to any person obtaining a copy

of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify,
merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but

excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as
stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided
that You
meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a
NOTICE text file distributed
as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction,
and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the
Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or
inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END
OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed
on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.397 @tensorflow/tfjs-core 3.11.0

1.397.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source"
form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely
link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean
Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the
NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the
trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor
harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: HOW TO APPLY THE APACHE LICENSE TO YOUR WORK
To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless
required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.398 @tensorflow/tfjs-backend-wasm 3.11.0

1.398.1 Available under license :

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"FusedDepthwiseConv2D.js","sourceRoot":"","sources":["../../src/kernels/FusedDepthwiseConv2D.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,oBAAoB,EAA4F,MAAM,uBAAuB,CAAC;AAIpK,OAAO,EAAC,iBAAiB,EAAC,MAAM,SAAS,CAAC;AAE1C,IAAI,wBAAQ,CAAC;AAEb,SAAS,KAAK,CAAC,oBAAoB,CAAC,OAAO,EAAE,CAAC,CAAC,wBAAwB,CAAC,QAAQ,CAAC,oBAAoB,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,CAAC,oBAAoB,EAAE,IAAI,CAAC,CAAC,UAAU,EAAE,CAAC;YACxJ,QAAQ,CAAC,YAAY,CAAC,QAAQ,CAAC,YAAY,CAAC,QAAQ,CAAC,YAAY,CAAC

AAe,EAAE,wBAAwB,EAAE,cAAc,IAAI,CAAC,EAAE,KAAK,CAAC,CAAC;IAE3E,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM,CAAC,MAAM,0BAA0B,GAAiB;IACtD,UAAU,EAAE,oBAAoB;IAChC,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,KAAK;IAChB,UAAU,EAAE,oBAAwC;CACrD,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId:
 number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number',
 // outId\n]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n inputs: FusedDepthwiseConv2DInputs,\n backend: BackendWasm,\n attrs: FusedDepthwiseConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n
 const outputChannels = convInfo.outChannels;\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n throw new Error(\n `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n

const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n   throw new Error(\n   `wasm backend FusedDepthwiseConv2D does not support dataFormat:'` +\n   `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n   backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n   xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n   biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n   dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n   fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedDepthwiseConv2D.js.map
No license file was found, but licenses were detected in source scan.

// Copyright 2019 Google LLC. All Rights Reserved.
// Licensed under the Apache License, Version 2.0 (the "License");
// you may not use this file except in compliance with the License.
// You may obtain a copy of the License at
//   http://www.apache.org/licenses/LICENSE-2.0
// distributed under the License is distributed on an "AS IS" BASIS,

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/starter/parcel/index.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/starter/webpack/src/index.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"GatherNd.js","sourceRoot":"","sources":["../../src/kernels/GatherNd.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,WAAW,EAAE,QAAQ,EAAE,EAA2C,MAAM,uBAAuB,CAAC;AAItG,OAAO,EAAC,QAAQ,EAAE,MAAM,EAAC,MAAM,SAAS,CAAC;AAEjC,IAAI,YAAY,CAAC;AAET,SAAS,KAAK;AAoB;IACjC,YAAY,GAAG,YAAY,IAAI,EAAE,CAAC,KAAK,CAAC,KAAK,EAAE,CAAC;AAClD,CAAC;AAED,MAAM,UAAU,KAAK,CAAC,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa;IAC9G,KAAK,EAAE,CAAC;IACR,OAAO,YAAY,CAAC,KAAK,CAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,CAAC,CAAC;AACtE,CAAC;AAED,MAAM,UAAU,KAAK;IACnB,IAAI,YAAY,EAAE;QAChB,YAAY,CAAC,KAAK,EAAE,CAAC;QACrB,YAAY,GAAG,IAAI,CAAC;KACrB;AACH,CAAC;AAED,MAAM,UAAU,KAAK,CAAC,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa,EAAE,KAAa;IAC9G,KAAK,EAAE,CAAC;IACR,OAAO,YAAY,CAAC,KAAK,CAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,CAAC,CAAC;AACtE

Cb,CAAC;AAED,MAAM,CAAC,MAAM,cAAc,GAAiB;IAC1C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,KAAK;IAChB,UAAU,EAAE,QAAQ;CACrB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'number',\n // indicesId\n 'number', // numSlices\n 'number', // sliceRank\n 'number', // sliceSize\n 'array', // strides\n 'number' // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n xId,\n CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherNd.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"GreaterEqual.js","sourceRoot":"","sources":["../../src/kernels/GreaterEqual.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,YAAY,EAAE,MAAM,uBAAuB,CAAC;AAEjE,OAAO,EAAC,wBAAwB,EAAE,MAAM,iBAAiB,CAAC;AAEzD,OAAO,EAAC,MAAM,qBAAqB,CAAC;AAEpC,OAAO,EAAC,MAAM,CAAC,MAAM,kBAAkB,CAAC;AAExC,MAAM,kBAAkB,GAAG,KAAK,CAAC;AAEjC,MAAM,UAAU,YAAY,CAAC,IAAkB;IAC7C,wBAAwB,CAAC,IAAI,EAAE,kBAAkB,CAAC,CAAC;IACnD,MAAM,MAAM,GAAG,IAAI,CAAC,OAAO,CAAC,MAAM,CAAC;IACnC,MAAM,MAAM,GAAG,IAAI,CAAC,OAAO,CAAC,MAAM,CAAC;IACnC,MAAM,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,MAAM,EAAE,MAAM,EAAE,kBAAkB,CAAC,CAAC;IAClE,OAAO,CAAC,CAAC;AACX,CAAC;AAED,MAAM,CAAC,MAAM,kBAAkB,GAAiB;IAC9C,UAAU,EAAE,YAAY;IACxB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,YAAY;CACzB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific\n language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n

createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GreaterEqual.js.map
No license file was found, but licenses were detected in source scan.

/* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/clamp_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/non_max_suppression_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sub.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sigmoid_test.cc
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/_FusedMatMul.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedDepthwiseConv2D.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Exp.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/CropAndResize.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/leakyrelu_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/check_macros.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Mean.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/binary.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Softmax_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedConv2D.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Prelu.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/AddN.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/transpose_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/LogicalAnd.cc
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/MaxPool.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/MaxPool_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Prelu_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Multiply.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Reverse.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/transpose_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ClipByValue.h

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Tanh.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Min.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/conv2d_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Conv2D_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Pow.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Transpose.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/leakyrelu_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ScatterNd.cc
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Prelu.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/backend_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/AvgPool.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Cos.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sin.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/DepthwiseConv2dNative.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Conv2D.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Rsqrt.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sum.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ClipByValue.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Minimum.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/conv2d_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Square.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedConv2D_test.cc
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/interpolate_bilinear_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Gather.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Add.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Relu6.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ResizeBilinear.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ResizeBilinear_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedBatchNorm.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Conv2D.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Less.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sigmoid.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedDepthwiseConv2D.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Abs.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Max.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/NonMaxSuppressionV5.cc
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/interpolate_bilinear_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/unary.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/util.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/backend.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/sigmoid_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedDepthwiseConv2D_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/DepthwiseConv2dNative_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/GatherNd.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/util.cc

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/PadV2.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Greater.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/NonMaxSuppressionV3.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Cumsum.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/clamp_impl.h
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/util_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sigmoid.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Log.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/AvgPool_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/non_max_suppression_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FusedConv2D.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Tile.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/prelu_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/LeakyRelu.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ArgMax.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/LessEqual.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/prelu_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FloorDiv.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Relu.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/LeakyRelu.cc
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ResizeBilinear.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/binary.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/ClipByValue_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/sigmoid_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/backend.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/_FusedMatMul.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/AvgPool.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/MaxPool.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/RealDiv.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/GreaterEqual.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/DepthwiseConv2dNative.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Maximum.cc
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

```
* See the License for the specific language governing permissions and
* limitations under the License.
* ========================================================================
*/
/**
* @license
* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy
 of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ========================================================================
*/
/**
* @license
* Copyright 2020 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the
 License for the specific language governing permissions and
* limitations under the License.
* ========================================================================
*/
/**
* @license
* Copyright 2020 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
```

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==
*/
/*! ***
Copyright (c) Microsoft Corporation.

Permission
 to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.
*** */
/**
* @deprecated Use `setWasmPaths` instead.
* Sets the path to the `.wasm` file which will be fetched when the wasm
* backend is initialized. See
* https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers
* for more details.
* @param path wasm file path or url
* @param
 usePlatformFetch optional boolean to use platform fetch to download
*   the wasm file, default to false.
*
* @doc {heading: 'Environment', namespace: 'wasm'}
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.node.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/miniprogram/index.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Equal.js","sourceRoot":"","sources":["../../src/kernels/Equal.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,KAAK,EAAE,MAAM,EAAC,MAAM,uBAAuB,CAAC;AAE1D,OAAO,EAAC,wBAAwB,EAAE,MAAM,EAAC,MAAM,iBAAiB,CAAC;AAEzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,WAAW,GAAG,wBAAwB,CAAC,KAAK,EAAE,qBAAqB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"

BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n
createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Equal.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Sub.js","sourceRoot":"","sources":["../../src/kernels/Sub.ts"],"names":[],"mappings":"AAAA;;;;;
;;;;;;;;;;GAeG;AACH,OAAO,EAAe,GAAG,EAAC,MAAM,uBAAuB,CAAC;AACxD,OAAO,EAAC,wBAAwB,,E
AAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,IAAI,CAAC;AACnC,MAAM,CAAC,MAAM,SA
AAS,GAClB,wBAAwB,CAAC,GAAG,EAAE,qBAAqB,CAAC,CAAC","sourcesContent":["/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions
and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n
createBinaryKernelConfig(Sub, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sub.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"GatherV2.js","sourceRoot":"","sources":["../../src/kernels/GatherV2.ts"],"names":[],"mappings":
"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,QAAQ,,EAA2F,IAAI,EAAC,MAAM,uBAAuB,CA
AC;AAI5J,OAAO,EAAC,OAAO,EAAC,MAAM,WAAW,CAAC;AAClC,OAAO,EAAC,QAAQ,,EAAC,MAAM,SAAS,,CAAC;AAEjC,OAAO,EAAC,IAAI,,UAGsB,,CAAC,CAAC,OAAO;IACjC,UAAU,,GAAG,OAAO,,C
AAC,IAAI,,CAAC,KAAK,,CAAC,QAAQ,,EAAE,IAAI,,CAAC,QAAQ,,EAAE;QACvD,QAAQ;QACR,QAAQ;QAC
R,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ,,CAAG,QAAQ;KACpB,CAAC,CAAC;AACL,CAAC;AAED,SAAS,QAAQ,,CAAb,IAA0E;IAE5E,MAAM,EAAC,OAAO,,EAAE,EAAE,MAAM,,EAAE,OAAO,,EAAE,MAAM,,EAAE
,KAAK,EAAC,GAAG,,IAAI,,CAAC;IACtC,MAAM,EAAC,CAAC,EAAE,CAAC,EAAE,KAAK,EAAE,MAAM,,EAAC,GAAG,,OAAO,,C
AC5B,MAAM,EAAC,IAAI,,EAAE,SAAS,,EAAC,GAAG,,KAAK,,CAAC;IAEhC,8CAA8C;IAC9C,MAAM,,UAAU,,GAAG,OAAO,,C
AAC,cAAc,,CAAC,IAAI,,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;IACzD,MAAM,CAAC,MAAM,,EAAE,WAAW,,EAAE,GAAG,,OAAO,,CAAC,CAAC,CAAC,CAAC,CAAC;IACzD,MAAM,

AAE,UAAU,EAAE,SAAS,CAAC,CAAC;IAE3D,MAAM,QAAQ,GAAG,OAAO,CAAC;QACvB,MAAM,EAAE,EAAC,CAAC,EAAC;QACX,KAAK,EAAE;YACL,KAAK,EAAE;gBACL,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,OAAO;gBAC3D,SAAS,CAAC,SAAS;aACpB;SACF;QACD,OAAO;KACR,CAAC,CAAC;IACH,MAAM,WAAW,GAAG,IAAI,CAAC,aAAa,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC;IACtD,MAAM,YAAY,GAAG,OAAO,CAAC,CAAC,QAAQ,CAAC;QACrC,MAAM,EAAE,EAAC,CAAC,EAAE,EAAC;QACb,KAAK,EAAE;YACL,KAAK,EAAE;gBACL,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,OAAO,EAAE,EAAC;gBACpE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,OAAO,EAAE,EAAC;aACpF

shapeInfo.outerSize, shapeInfo.dimSize,\n shapeInfo.sliceSize\n]\n },\n backend\n });\n const indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n inputs: {x: indices},\n attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n backend\n });\n const flattenOutputShape = [\n shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape, x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n const stridesSize = flattenX.shape.length - 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n const outStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n shapeInfo.batchSize, outStridesBytes, outId);\n\n backend.disposeData(flattenX.dataId);\n backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherV2.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"StridedSlice.js","sourceRoot":"","sources":["../../src/kernels/StridedSlice.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,UAAU,EAAE,YAAY,EAAqD,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAGlJ,OAAO,EAAC,OAAO,EAAC,MAAM,WAAW,CAAC;AAClC,OAAO,EAAC,OAAO,EAAC,KAAK,EAAC,MAAM,SAAS,CAAC;AAE9B,IAAI,gBAAI8C,CAAC;AAEnD,SAAS,KAAK,EAAC,OAAO,EAAC,KAAK,EAAC,OAAO,EAAC,KAAK,EAAC,OAAO,EAAC

AAM,CAAC,CAAC,MAAM,CAAC,CAAC;QACjE,MAAM,QAAQ,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,IAAI,CAAC,CAAC,MAAM,CAAC,CAAC;QAC7D,MAAM,YAAY,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC;QAErE,MAAM,gBAAgB,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,CAAC;QAC5D,MAAM,eAAe,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,eAAe

Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n
  const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmStridedSlice(\n   xId, xStridesBytes,
x.shape.length, beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes,
finalShapeSparse.length, outId);\n\n result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n
backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n
kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as
KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/StridedSlice.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"binary_kernel.js","sourceRoot":"","sources":["../../src/kernels/binary_kernel.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAoD,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAI3G,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,MAAM,UAAU,wBAAwB,CAAC,UAAkB,EAAE,qBAA8B,EAAC,IAAI,QAAQ,EAAC,KAAK,QAAQ,EAAC,KAAK,QAAQ,EAAC,OAAO,QAAQ,EAAC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,UAAU,EAAE,IAAI,CAAC,UAAU,EAAE,YAAY,QAAQ,EAAC,QAAQ,EAAC,QAAQ,EAAC

* See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number',
// b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype === 'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/binary_kernel.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"setup_test.js","sourceRoot":"","sources":["../src/setup_test.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,wDAAwD;AACxD,OAAO,uBAAuB,CAAC;AAC/B,gDAAgD;AAChD,OAAO,wEAAwE,CAAC;AAChF,iDAAiD;AACjD,OAAO,mDAAmD,CAAC;AAE3D,iDAAiD;AACjD,OAAO,EAAC,WAAW,EAAE,gBAAgB,EAAE,aAAa,EAAE,MAAM,EAAE,yCAAyC,CAAC;AAElG,WAAW,CAAC,CAAC,EAAE,IAAI,EAAE,WAAW,EAAE

T,0BAA0B;SAE3B;KACF;IACD;QACE,OAAO,EAAE,kBAAkB;QAC3B,QAAQ,EAAE;YACR,kBAAkB;YAClB,UAAU;YACV,MAAM;SACP;KACF;IACD;QACE,OAAO,EAAE,SAAS;QAClB,QAAQ,EAAE;YACR,kBAAkB;YAClB,UAAU;YACV,gDAAgD;YACG,WAAW;YAC9D,MAAM;YACN,yDAAyD;YACzD,sBAAsB;YACtB,iEAAiE;YACjE,kEAAkE;SACnE;KACF;IACD,EAAC,OAAO,EAAE,kBAAkB,EAAE,QAAQ,EAAE,CAAC,UAAU,CAAC,EAAC;IACrD;QACE,OAAO,EAAE,QAAQ;QACjB,QAAQ,EAAE;YACR,UAAU;YACV,YAAY,CAAE,oBAAoB;SACnC;KACF;IACD;QACE,OAAO,EAAE,QAAQ;QACjB,QAAQ,EAAE;YACR,SAAS;YACT,sCAAsC,CAAE,4BAA4B;SACrE;KACF;IACD;QACE,OAAO,EAAE,QAAQ;QACjB,QAAQ,EAAE;YACR,UAAU,CAAE,4BAA4B;SACzC;KACF;IACD;QACE,OAAO,EAAE,UAAU;QACnB,QAAQ,EAAE;YACR,qBAAqB;YACrB,UAAU,CAAE,oBAAoB;SACjC;KACF;IACD,EAAC,OAAO,EAAE,QAAQ,EAAE,CAAC,UAAU,CAAC,EAAC;IACjC,EAAC,OAAO,EAAE,QAAQ,EAAE,eAAe,EAAC;IACpC,EAAC,OAAO,EAAE,SAAS,EAAC;IACpB,EAAC,OAAO,EAAE,kBAAkB,EAAC;IAC7B,EAAC,OAAO,EAAE,gBAAgB,EAAC;IAC3B,EAAC,OAAO,EAAE,SAAS,EAAC;IACpB,EAAC,OAAO,EAAE,mBAAmB,EAAC;IAC9B;QACE,UAAU,EAAE,MAAM;QAClB,QAAQ,EAAE;YACR,UAAU;YACV,YAAY;YACZ,eAAe;YACf,oDAAoD;YACpD,gBAAgB;YAChB,UAAU,CAAE,eAAe;YAC3B,gCAAgC;SACjC;KACF;IACD;QACE,UAAU,EAAE,MAAM;QAClB,QAAQ,EAAE;YACR,UAAU;YACV,YAAY;YACZ,UAAU,CAAE,eAAe;YAC3B,gCAAgC;SACjC;KACF;IACD;QACE,OAAO,EAAE,QAAQ;QACjB,QAAQ,EAAE;YACR,SAAS;YACT,sCAAsC,CAAE,4BAA4B;SACrE;KACF;IACD,EAAC,OAAO,EAAE,SAAS,EAAC;IACpB,EAAC,OAAO,EAAE,QAAQ,EAAE,WAAW,EAAC;IAChC,EAAC,OAAO,EAAE,QAAQ,EAAE,QAAQ,EAAC;IAC7B

Q,EAAE,CAAC,UAAU,CAAC,CAAE,gCAAgC;KACzD;IACD;QACE,UAAU,EAAE,OAAO;QACnB,QAAQ,EAAE,CAAC,UAAU,CAAC,CAAE,gCAAgC;KACzD;IACD;QACE,UAAU,EAAE,QAAQ;QACpB,QAAQ,EAAE;YACR,uCAAuC;YACvC,UAAU,CAAgC,gCAAgC;SAC3E;KACF;IACD;QACE,UAAU,EAAE,WAAW;QACvB,qCAAqC;QACrC,QAAQ,EAAE,EAAE,CAAC,SAAS,CAAC;KACtB;IACD;QACE,UAAU,EAAE,UAAU;QACtB,qCAAqC;QACrC,QAAQ,EAAE,EAAE,CAAC,SAAS,CAAC;KACtB;IACD,EAAC,OAAO,EAAE,MAAM,EAAC;IACjB,EAAC,OAAO,EAAE,OAAO,EAAC;IAClB,EAAC,OAAO,EAAE,MAAM,EAAC;IACjB,EAAC,OAAO,EAAE,OAAO,EAAC;IAClB,EAAC,OAAO,EAAE,OAAO,EAAC;IAClB;QACE,OAAO,EAAE,OAAO;QAChB,OAAO,EAAE;YACP,OAAO,EAAE,OAAO;YAChB,OAAO,EAAE,OAAO;YAChB,OAAO,EAAE,OAAO;YAChB,OAAO,EAAE,OAAO;SACjB;KACF;IACD

```
excludes: [\n      'valueAndGradients',
        // Gradients not defined yet\n      'gradient',                // Gradients not defined yet\n      'zero in its shape',
// Zero in shapes aren't supported yet\n      'matmul followed by mul',    // mul not supported yet\n      'upcasts',
      // Upcasting not supported yet.\n      'fused A x B with 2d bias',  // Fused matMul with 2D bias not yet\n
              // supported.\n    ]\n  },\n  {\n    include: 'depthwiseConv2D ',\n    excludes: [\n      'broadcasted bias',  //
Broadcasted bias not yet supported.\n      'gradient',          // Gradients not defined yet.\n      'NCHW',              // xnn
pack does not support channels first.\n    ]\n  },\n  {\n    include: 'conv2d ',\n    excludes: [\n      'broadcasted bias',  //
Broadcasted bias not yet supported.\n      'gradient',          // Gradients not defined yet.\n      'backProp input
x=[2,3,3,1] f=[2,2,1,1] s=1 p=0',  // Gradients not\n
                        // defined.\n      'NCHW',  // xnn pack does not support channels first.\n      // Issue:
https://github.com/tensorflow/tfjs/issues/3104.\n      // Actual != expected.\n      'relu bias stride 2 x=[1,8,8,16]
f=[3,3,16,1] s=[2,2] d=8 p=same',\n      'prelu bias stride 2 x=[1,8,8,16] f=[3,3,16,1] s=[2,2] d=8 p=same',\n    ]\n
},\n  {include: 'conv2dTranspose ', excludes: ['gradient']},\n  {\n    include: 'prelu ',\n    excludes: [\n      'gradient',  //
Gradient is missing.\n      'derivative'  // Missing gradient.\n    ]\n  },\n  {\n    include: ' cast ',\n    excludes: [\n
'complex',  // Complex numbers not yet implemented.\n      'shallow slice an input that was cast'  // Slice is not
implemented.\n    ]\n  },\n  {\n    include: 'gather',\n    excludes: [\n      'gradient'  // Not yet implemented.\n    ]\n  },\n
{\n    include: 'sigmoid ',\n    excludes: [\n      'sigmoidCrossEntropy',  // Not yet implemented.\n      'gradient'
// Not
 yet implemented.\n    ]\n  },\n  {include: 'scatterND '},\n  {\n    include: 'abs ',\n    excludes: [\n      'gradient',  // Not
yet implemented.\n      'complex'    // Complex numbers not supported yet.\n    ]\n  },\n  {\n    include: 'sub ',\n
excludes: [\n      'complex',   // Complex numbers not yet implemented.\n      'gradient',  // Not yet implemented.\n
'upcasts',   // Upcasting not supported yet.\n    ]\n  },\n  {\n    include: 'mul ',\n    excludes: [\n      'complex',   //
Complex numbers not yet supported.\n      'gradient',  // Gradient not defined yet.\n    ]\n  },\n  {\n    include: 'div ',\n
 excludes: [\n      'gradient',  // Gradient not defined yet.\n      'upcasts',   // Cast not supported yet.\n      'divNoNan'   //
divNoNan not yet implemented.\n    ]\n  },\n  {\n    include: 'batchNorm',\n    excludes: [\n      'gradient'  // Gradient
is missing.\n    ]\n  },\n  {include: 'slice '},\n  {include: 'stridedSlice '},\n  {include: 'rotate '},\n  {include:
'rotateWithOffset'},\n
  {include: 'flipLeftRight '},\n  {include: 'square '},\n  {include: 'squaredDifference'},\n  {\n    startsWith: 'min ',\n
excludes: [\n      '2D, axis=0',  // Permuted axes requires transpose, which is not yet\n                  // implemented.\n
  'index corresponds to start of a non-initial window',  // argMin not yet\n                                                  //
implemented.,\n      'gradient'  // Gradients not yet implemented\n    ]\n  },\n  {\n    startsWith: 'max ',\n    excludes:
[\n      'gradient'  // Gradients not yet implemented\n    ]\n  },\n  {\n    include: 'concat',\n    excludes: [\n      'complex',
// Complex numbers not supported yet\n      'gradient'  // Split is not yet implemented\n    ]\n  },\n  {include:
'transpose'},\n  {include: 'oneHot'},\n  {include: 'split'},\n  {include: 'pad ', excludes: ['complex', 'zerosLike']},\n  {\n
 include: 'clip',\n    excludes: [\n      'gradient',\n      'propagates NaNs'  // clip
 delegates to XNNPACK which does not make\n                  // guarantees about behavior of nans.\n    ]\n  },\n
{include: 'addN'},\n  {include: 'nonMaxSuppression'},\n  {include: 'argmax', excludes: ['gradient']},\n  {include: 'exp
'},\n  {\n    include: 'elu',\n    excludes: [\n      'derivative',  // Not yet implemented.\n      'gradient',   // Not yet
implemented.\n      'selu'         // Not yet implemented.\n    ]\n  },\n  {include: 'unstack'},\n  {\n    include:
'minimum',\n    excludes: [\n      'gradient',                  // Not yet implemented.\n      'broadcasts 2x1
Tensor2D and 2x2 Tensor2D'  // Broadcasting along inner\n                                                  // dims not supported
yet.\n    ]\n  },\n  {\n    include: 'maximum',\n    excludes: [\n      'gradient',                  // Not yet
implemented.\n      'broadcasts 2x1 Tensor2D and 2x2 Tensor2D'  // Broadcasting along inner\n

            // dims not supported yet.\n    ]\n  },\n  {\n    include: 'log ',\n  },\n  {\n    startsWith: 'equal ',\n    excludes:
[\n      'broadcasting Tensor2D shapes',  // Broadcasting along outer dims not\n                                  // supported
yet.\n      'broadcasting Tensor3D shapes',  // Same as above.\n      'broadcasting Tensor4D shapes',  // Same as
above.\n      'string'\n    ]\n  },\n  {\n    include: 'greater ',\n    excludes: [\n      'broadcasting Tensor2D shapes',  //
```

Broadcasting along outer dims not\n // supported yet.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n 'string'\n]\n },\n {\n include: 'greaterEqual',\n excludes: [\n 'gradient', // Not yet implemented.\n 'broadcasting Tensor2D shapes', // Broadcasting along outer dims not\n // supported yet.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n 'string'\n]\n },\n {\n include: 'less ',\n excludes: [\n 'broadcasting Tensor2D shapes', // Broadcasting along outer dims not\n // supported yet.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor3D float32', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n 'string'\n]\n },\n {\n include: 'lessEqual',\n excludes: [\n 'gradient', // Not yet implemented.\n 'broadcasting Tensor2D shapes', // Broadcasting along outer dims not\n // supported yet.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor3D float32', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n 'string'\n]\n },\n {\n include: 'notEqual',\n excludes: [\n 'broadcasting Tensor2D shapes', // Broadcasting along outer dims not\n // supported yet.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n 'string'\n]\n },\n {\n include: 'mean ',\n excludes: [\n 'axis=0', // Reduction not supported along inner dimensions.\n]\n },\n {startsWith: 'reverse'},\n {startsWith: 'sum '},\n {startsWith: 'cumsum'},\n {\n startsWith: 'logicalAnd ',\n excludes: [\n 'broadcasting Tensor2D shapes', // Broadcasting along outer dimensions\n // not yet supported.\n 'broadcasting Tensor3D shapes', // Same as above.\n 'broadcasting Tensor4D shapes', // Same as above.\n]\n },\n {\n startsWith: 'tile ',\n excludes: [\n 'gradient', // Gradient not yet implemented.\n 'string tensor' // String tensors not yet implemented.\n]\n },\n {startsWith: 'sin '},\n {\n startsWith: 'cos ',\n excludes: [\n 'gradient', // Gradient not yet implemented.\n]\n },\n {\n startsWith: 'cosh',\n excludes: [\n 'gradient' // Gradient not yet implemented.\n]\n },\n {\n startsWith: 'tan',\n excludes: ['gradient'] // Gradient not yet implemented.\n\n },\n {\n startsWith: 'tanh ',\n excludes: ['gradient'] // Gradient not yet implemented.\n },\n {\n startsWith: 'rsqrt ',\n excludes: ['gradient'] // Gradient not yet implemented.\n },\n {\n startsWith: 'sqrt ',\n excludes: ['gradient'] // Gradient not yet implemented.\n },\n {\n startsWith: 'where ',\n excludes: [\n '1D condition with higher rank a and b', // Fill not yet implemented.\n 'gradient' // Gradient not yet implemented.\n]\n },\n {\n startsWith: 'zerosLike',\n // Complex numbers not supported yet.\n excludes: ['complex'],\n },\n {\n startsWith: 'onesLike',\n // Complex numbers not supported yet.\n excludes: ['complex'],\n },\n {include: 'prod'},\n {include: 'floor'},\n {include: 'topk'},\n {include: 'expandDims'},\n {include: 'stack'},\n {\n include: 'round',\n // Pool is not supported yet.\n excludes: ['pool'],\n },\n {include: 'step kernel'},\n {include: 'ceil'},\n {include: 'mirrorPad'},\n {\n startsWith: 'all',\n excludes: [\n 'ignores NaNs' // Doesn't yet ignore NaN\n]\n },\n {\n startsWith: 'any',\n excludes: [\n 'ignores NaNs' // Doesn't yet ignore NaN\n]\n },\n {include: 'image.transform'},\n {include: 'batchToSpaceND'},\n {include: 'spaceToBatchND'},\n];\n\nconst customInclude = (testName: string) => {\n // Include all regular describe() tests.\n if (testName.indexOf('test-wasm') < 0) {\n return true;\n }\n\n // Include all of the wasm specific tests.\n if (testName.startsWith('wasm')) {\n return true;\n }\n\n return false;\n};\nsetupTestFilters(TEST_FILTERS, customInclude);\n\n// Import and run all the tests from core.\n// tslint:disable-next-line:no-imports-from-dist\n// tslint:disable-next-line:no-require-imports\nrequire('@tensorflow/tfjs-core/dist/tests');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/setup_test.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Unpack.js","sourceRoot":"","sources":["../../src/kernels/Unpack.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAuC,MAAM,EAA4B,MAAM,uBAAuB,CAAC;AAI9G,OAAO,EAAC,KAAK,EAAC,MAAM,SAAS,CAAC;AAE9B,SAAS,CAAC;AAE9B,SAAS,MAAM,CACX,CACX,IAAI,EAAE,IAAI,EAAE,IAAI,EAAE

OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,KAAK,EAAC,GAAG,MAAM,CAAC;IACvB,IAAI,EAAC,IAAI,EAAC,GAAG,KAAK,CAAC;IAEnB,IAAI,IAAI,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;KAC5B;IAED,MAAM,UAAU,GAAG,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC;IACrC,MAAM,IAAI,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;IAChC,MAAM,QAAQ,GAAG,IAAI,CAAC,MAAM,CAAC;IAC7B,MAAM,IAAI,GAAG,IAAI,KAAK,CAAC,QAAQ,CAAC,CAAC;IACjC,IAAI,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC;IAClB,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,QAAQ,EAAE,CAAC,EAAE,EAAE;QACjC,IAAI,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,GAAG,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC;KAChC;IACD,OAAO,IAAI,CAAC;AACd,CAAC;AAED,MAAM,UAAU,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;AACxC

,EAAC,GAAG,MAAM,CAAC;IACnB,MAAM,EAAC,UAAU,EAAE,KAAK,EAAC,GAAG,KAAK,CAAC;IAElC,MAAM,IAAI,GAAG,UAAU,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC;IAEhD,MAAM,QAAQ,GAAG,YAAY,CAAC,WAAW,CAAC,CAAC,CAAC,KAAK,EAAE,UAAU,EAAE,IAAI,CAAC,CAAC;IACrE,MAAM,QAAQ,GAAG,YAAY,CAAC,WAAW,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,MAAM,EAAE,UAAU,CAAC,CAAC,CAAC;IAC9E,MAAM,gBAAgB,GAAG,QAAQ,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM,CAAC;IAC3D,MAAM,gBAAgB,GAAG,QAAQ,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM,CAAC;IAC3D,MAAM,CAAC,GAAG,IAAI,YAAY,CAAC,gBAAgB,CAAC,CAAC;IAC7C,MAAM,CAAC,GAAG,IAAI,YAAY,CAAC,gBAAgB,CAAC,CAAC;IAC7C,IAAI,CAAC,GAAG,CAAC,CAAC;IACV,IAAI,CAAC,GAAG,CAAC,CAAC;IACV,IAAI,CAAC,GAAG,CAAC,CAAC;IACV

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchToSpaceND.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Mean.js","sourceRoot":"","sources":["../../src/kernels/Mean.ts"],"names":[],"mappings":"AAAA
;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,IAAI,EAAqC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAG
5H,OAAO,EAAC,IAAI,EAAC,MAAM,QAAQ,CAAC;AAE5B,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,
CAAC;AAEvD,IAAI,QAAkE,CAAC;AAEvE,SAAS,KAAK,CAAC,OAAoB;IACjC,QAAQ;QACJ,OAAO,CAAC,
IAAI,CAAC,KAAK,CAAC,IAAI,EAAE,IAAI,CAAC,QAAQ,EAAE,CAAC,wBAAwB,CAAC,CAAC,CAAC;AA
C1E,CAAC;AAED,MAAM,UAAU,IAAI,CAChB,IAAkE;IAEpE,MAM,EAAC,OAAO,EAAE,IAAI,EAAE,KAAK,EAAE,IAAI,EAAC,GAAG,IAAI,CAAC,QAAQ,EAAE,CAAC;IAC/D,MAAM,
CAAC,GAAG,CAAC,IAAI,EAAE,KAAK,CAAC,CAAC;IAC/C,MAAM,EAAC,KAAK,EAAE,MAAM,EAAC,GAAG,CAAC,CAAC,KAAK,CAAC;IAEhC,MAAM,QAAQ,GAAG,IAAI,CAAC,
IAAI,EAAE,IAAI,EAAE,YAAY,EAAE,kBAAkB,EAAC,GAAG,IAAI,CAAC,QAAQ,EAAE,CAAC;IAE3E,MAAM,
CAAC,GAAG,CAAC,IAAI,EAAE,aAAa,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;IAEhC,MAAM,QAAQ,GAAG,IAAI,CAAC,
IAAI,EAAE,kBAAkB,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC,QAAQ,EAAE,CAAC;IAE5

backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const
 {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype
 !== 'float32') {\n castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype: 'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Mean.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/
/**
* @deprecated Use `setWasmPaths` instead.
* Sets the path to the `.wasm` file which will be fetched when the wasm
* backend is initialized. See
* https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers

* for more details.
* @param path wasm file path or url
* @param usePlatformFetch optional boolean to use platform fetch to download
*   the wasm file, default to false.
*
* @doc {heading: 'Environment', namespace: 'wasm'}
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/backend_wasm.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/backend_wasm.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/backend_wasm.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"AddN.js","sourceRoot":"","sources":["../../src/kernels/AddN.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,IAAI,EAAEwC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIvF,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,IAAI,QAAQ,EAAC,SAAS,CAAC;AAEb,SAAS,CAAC,OAAO,oB;IACrC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,EAAE,IAAI,CAAC,UAAU,EAAE;QACnD,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC

AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AddN.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"index_test.js","sourceRoot":"","sources":["../src/index_test.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,KAAK,EAAE,MAAM,uBAAuB,CAAC;AAC5C,OAAO,EAAC,eAAe,EAAE,aAAa,EAAE,SAAS,EAAE,IAAI,EAAC,MAAM,uBAAuB,CAAC;AACtF,gDAAgD;AAChD,OAAO,EAAC,QAAQ,EAAE,YAAY,EAAE,iBAAiB,EAAC,MAAM,yCAAyC,CAAC;AAElG,OAAO,EAAC,IAAI,EAAE,aAAa,EAAC,MAAM,gBAAgB,CAAC;AACnD,OAAO,EAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAC,MAAM,qBAAqB,CAAC;AAEtE,OAAO,EAAC,IAAI,EAAE,KAAK,EAAC,MAAM,iBAAiB,CAAC;AAE5C

AAE,cAAc;YAC7C,sCAAsC,EAAE,cAAc;SACvD,CAAC,CAAC;QACH,IAAI,cAAsB,CAAC;QAC3B,MAAM,SAAS,GAAG,KAAK,CAAC;QACxB,KAAK,CAAC,IAAI,EAAE,OAAO,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,IAAY,EAAE,EAAE;YACjD,cAAc,GAAG,IAAI,CAAC;YACtB,OAAO,SAAS,CAAC,IAAI,CAAC;QACzB,CAAC,CAAC,CAAC;QACH,MAAM,CAAC,MAAM,EAAE,CAAC,UAAU,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC;QACrD,MAAM,CAAC,cAAc,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC;QAC9B

```
 Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport * as tf from '@tensorflow/tfjs-core';\nimport {registerBackend, removeBackend, test_util, util} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line:no-imports-from-dist\nimport {ALL_ENVS, BROWSER_ENVS, describeWithFlags} from '@tensorflow/tfjs-core/dist/jasmine_util';\n\nimport {init, resetWasmPath} from './backend_wasm';\nimport
 {BackendWasm, setWasmPath, setWasmPaths} from './index';\n\n/**\n * Tests specific to the wasm backend. The name of these tests must start with\n * 'wasm' so that they are always included in the test runner. See\n * `env.specFilter` in `setup_test.ts` for details.\n */\ndescribeWithFlags('wasm read/write', ALL_ENVS, () => {\n it('write and read values', async () => {\n  const x = tf.tensor1d([1, 2, 3]);\n  test_util.expectArraysClose([1, 2, 3], await x.data());\n });\n\n it('allocate repetitively and confirm reuse of heap space', () => {\n  const backend = tf.backend() as BackendWasm;\n  const size = 100;\n  // Allocate for the first time, record the memory offset and dispose.\n  const t1 = tf.zeros([size]);\n  const memOffset1 = backend.getMemoryOffset(t1.dataId);\n t1.dispose();\n\n  // Allocate again and make sure the offset is the same (memory was reused).\n  const t2 = tf.zeros([size]);\n  const memOffset2 = backend.getMemoryOffset(t2.dataId);\n
  // This should fail in case of a memory leak.\n  expect(memOffset1).toBe(memOffset2);\n });\n\n it('allocates buffers with byteOffsets', async () => {\n  const data = [-0.5, 0.5, 3.14];\n  const buffer = new ArrayBuffer(32);\n  const view = new Float32Array(buffer, 8, data.length);\n\n  // Write values to buffer.\n  for (let i = 0; i < data.length; ++i) {\n   view[i] = data[i];\n  }\n\n  const t = tf.tensor(view);\n  // Tensor values should match.\n test_util.expectArraysClose(await t.data(), view);\n });\n});\n\ndescribeWithFlags('wasm init', BROWSER_ENVS, () => {\n beforeEach(() => {\n  registerBackend('wasm-test', async () => {\n   const {wasm} = await init();\n return new BackendWasm(wasm);\n  }, 100);\n\n  // Silences backend registration warnings.\n  spyOn(console, 'warn');\n  spyOn(console, 'log');\n });\n\n afterEach(() => {\n  resetWasmPath();\n  removeBackend('wasm-test');\n });\n\n it('backend init fails when the
 path is invalid', async () => {\n  setWasmPath('invalid/path');\n  let wasmPath: string;\n  const realFetch = fetch;\n  spyOn(self, 'fetch').and.callFake((path: string) => {\n   wasmPath = path;\n   return realFetch(path);\n });\n  expect(await tf.setBackend('wasm-test')).toBe(false);\n  expect(wasmPath).toBe('invalid/path');\n });\n\n it('backend init fails when setWasmPaths is called with ' +\n  'an invalid prefix',\n  async () => {\n setWasmPaths('invalid/prefix/');\n  let wasmPath: string;\n  const realFetch = fetch;\n  spyOn(self, 'fetch').and.callFake((path: string) => {\n   wasmPath = path;\n   return realFetch(path);\n  });\n expect(await tf.setBackend('wasm-test')).toBe(false);\n  expect(wasmPath).toContain('invalid/prefix');\n  });\n\n it('backend init fails when setWasmPaths is called with ' +\n  'an invalid fileMap',\n  async () => {\n setWasmPaths({\n  'tfjs-backend-wasm.wasm':
 'invalid/path',\n  'tfjs-backend-wasm-simd.wasm': 'invalid/path',\n  'tfjs-backend-wasm-threaded-simd.wasm': 'invalid/path'\n  });\n  let wasmPathPrefix: string;\n  const realFetch = fetch;\n  spyOn(self, 'fetch').and.callFake((path: string) => {\n   wasmPathPrefix = path;\n   return realFetch(path);\n  });\n expect(await tf.setBackend('wasm-test')).toBe(false);\n  expect(wasmPathPrefix).toBe('invalid/path');\n  });\n\n it('setWasmPaths throws error when called without specifying a path for ' +\n  'each binary',\n  async () => {\n
  expect(() => {\n  setWasmPaths({\n  'tfjs-backend-wasm.wasm': '/base/wasm-out/tfjs-backend-wasm.wasm'\n  });\n  }).toThrow();\n  });\n\n it('backend init works when the path is valid and use platform fetch',\n  async () => {\n  const usePlatformFetch = true;\n  const validPrefix = '/base/wasm-out/';\n
  setWasmPaths(validPrefix,
```

usePlatformFetch);\n let wasmPath: string;\n const realFetch = util.fetch;\n spyOn(util, 'fetch').and.callFake((path: string) => {\n wasmPath = path;\n return realFetch(path);\n });\n expect(await tf.setBackend('wasm-test')).toBe(true);\n const validPaths = new Set([\n validPrefix + 'tfjs-backend-wasm.wasm',\n validPrefix + 'tfjs-backend-wasm-simd.wasm',\n validPrefix + 'tfjs-backend-wasm-threaded-simd.wasm',\n]);\n expect(validPaths).toContain(wasmPath);\n });\n\n it('backend init works when the wasm paths overrides map is valid and ' +\n 'using platform fetch',\n async () => {\n const usePlatformFetch = true;\n const validPrefix = '/base/wasm-out/';\n setWasmPaths(\n {\n 'tfjs-backend-wasm.wasm': '/base/wasm-out/tfjs-backend-wasm.wasm',\n 'tfjs-backend-wasm-simd.wasm':\n '/base/wasm-out/tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm':\n '/base/wasm-out/tfjs-backend-wasm-threaded-simd.wasm'\n },\n usePlatformFetch);\n let wasmPath: string;\n const realFetch = util.fetch;\n spyOn(util, 'fetch').and.callFake((path: string) => {\n wasmPath = path;\n return realFetch(path);\n });\n expect(await tf.setBackend('wasm-test')).toBe(true);\n const validPaths = new Set([\n validPrefix + 'tfjs-backend-wasm.wasm',\n validPrefix + 'tfjs-backend-wasm-simd.wasm',\n validPrefix + 'tfjs-backend-wasm-threaded-simd.wasm',\n]);\n expect(validPaths).toContain(wasmPath);\n });\n\n it('backend init works when the path is valid and use platform fetch',\n async () => {\n const usePlatformFetch = true;\n const validPath = '/base/wasm-out/tfjs-backend-wasm.wasm';\n setWasmPath(validPath, usePlatformFetch);\n let wasmPath:
string;\n const realFetch = util.fetch;\n spyOn(util, 'fetch').and.callFake((path: string) => {\n wasmPath = path;\n return realFetch(path);\n });\n expect(await tf.setBackend('wasm-test')).toBe(true);\n expect(wasmPath).toBe(validPath);\n });\n\n // Disabling this test because it intermittently times out on CI.\n // tslint:disable-next-line: ban\n xit('backend init fails when the path is invalid and use platform fetch',\n async () => {\n const usePlatformFetch = true;\n setWasmPath('invalid/path', usePlatformFetch);\n let wasmPath: string;\n const realFetch = util.fetch;\n spyOn(util, 'fetch').and.callFake((path: string) => {\n wasmPath = path;\n return realFetch(path);\n });\n expect(await tf.setBackend('wasm-test')).toBe(false);\n expect(wasmPath).toBe('invalid/path');\n });\n\n it('backend init succeeds with default path', async () => {\n expect(await
tf.setBackend('wasm-test')).toBe(true);\n });\n\n it('setWasmPath called too late', async () => {\n // Set an invalid path.\n setWasmPath('invalid/path');\n await tf.setBackend('wasm-test');\n\n // Setting the path too late.\n expect(() => setWasmPath('too/late'))\n .toThrowError(/The WASM backend was already initialized. Make sure/);\n });\n});\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index_test.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Fill.js","sourceRoot":"","sources":["../../src/kernels/Fill.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAGH,OAAO,EAAC,IAAI,EAAY,MAAM,uBAAuB,CAAC;AAItD,MAAM,UAAU,IAA8C;IACjE,MAAM,EAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IACrF,MAAM,EAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,OAAO,EAAC,GAAG,KAAK,CAAC;IAEpD,MAAM,EAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape, value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n"]}

Found
in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Fill.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Sum.js","sourceRoot":"","sources":["../../src/kernels/Sum.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,GAAG,EAAmC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIzH,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,OAAO,EAAC,QAAQ,EAAC,MAAM,qBAAqB,CAAC;AAE7C,OAAO,EAAC,SAAS,EAAC,MAAM,cAAc,CAAC;AAEvC,OAAO,EAAC,KAAK,EAAC,MAAM,UAAU,CAAC;AAE/B

copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n   'number', // input_id\n   'number', // reduce_size\n   'number', // dtype\n   'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x,\n   axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'sum', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sum.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"ArgMax.js","sourceRoot":"","sources":["../../src/kernels/ArgMax.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,MAAM,EAAuD,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIxG,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,OAAO,EAAC,QAAQ,EAAC,MAAM,QAAQ,CAAC;AAEjC,OAAO,EAAC,QAAQ,EAAC,MAAM,QAAQ,CAAC;AAEh

AAC;IAC1C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,OAAO,CAAC,CAAC;IAClD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,SAAS,GAAG,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC;IAChD,MAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC;IACvC,QAAQ,OAAO,EAAE,QAAQ,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,EAAE,SAAS,EAAE,SAAS,EAAE,KAAK,CAAC,CAAC;IAEtE,IAAI,kBAAkB,EAAE;QACtB,oCAAoC;QACpC,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;QACvC,KACE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,MAAM,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE,CAAC,EAAE,EAAE,CAAC,EAAE

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Elu.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"ExpandDims.js","sourceRoot":"","sources":["../../src/kernels/ExpandDims.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,UAAU,EAA+D,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAGpH,OAAO,EAAC,OAAO,EAAC,OAAO,EAAC,MAAM,WAAW,CAAC;AAElC,MAAM,UAAU,UAAU,CAAC,IAI1B;IACC,MAAM,EAAC,MAAM,EAAE,KAAK,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,KAAK,EAAC,GAAG,MAAM,CAAC;IACvB,MAAM,EAAC,GAAG,EAAC,GAAG,KAAK,CAAC;IAEpB,MAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IACrC,MAAM,OAAO,GAAG,KAAK,CAAC,KAAK,CAAC,KAAK,EAAE,CAAC;IACpC,IAAI,IAAI,GAAG,GAAG,CAAC;IACf,IAAI,GAAG,GAAG,CAAC,EAAE;QACX,wCAAwC;QACxC,IAAI,GAAG,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,IAAI,GAAG,SAAS,GAAG,CAAC,CAAC;KACpD;IACD,OAAO,CAAC,MAAM,CAAC,IAAI,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC;IAE/B,MAAM,CAAC,GAAG,OAAO,CAAC,KAAK,EAAE,CAAC,EAAE,OAAO,CAAC,CAAC;IACrC,OAAO,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,OAAO,EAAC,EAAC,CAAC,CAAC;AAC1E,CAAC;AAED,MAAM,CAAC,MAAM,gBAAgB,GAAiB,EAAC,UAAU,EAAE,YAAY,EAAE,UAAU,EAAE,QAAQ,EAAE,UAAU,EAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n   util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n            inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ExpandDims.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Exp.js","sourceRoot":"","sources":["../../src/kernels/Exp.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,GAAG,EAAE,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,OAAO,EAAC,MAAM,EAAE,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAE3D,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Exp.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==========
*/
/**
 * @license
 * Copyright 2019 Google LLC. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");
 * you may not use this file except in compliance with the License.
 * You may obtain
 a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

```
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * =============================================================================
 */
/**
 * @license
 * Copyright 2020 Google LLC. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");
 * you may not use this file except in compliance with the License.
 * You may obtain a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * =============================================================================
 */
/**
 * @license
 * Copyright 2020 Google Inc. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");
 * you may not use this file except in compliance with the License.
 * You may obtain a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * =============================================================================
 */
/**
 * @deprecated Use `setWasmPaths`
instead.
 * Sets the path to the `.wasm` file which will be fetched when the wasm
 * backend is initialized. See
 * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers
 * for more details.
 * @param path wasm file path or url
 * @param usePlatformFetch optional boolean to use platform fetch to download
 *     the wasm file, default to false.
 *
```

* @doc {heading: 'Environment', namespace: 'wasm'}
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.es2017.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Pow.js","sourceRoot":"","sources":["../../src/kernels/Pow.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,GAAG,EAAC,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,OAAO,EAAC,qBAAqB,EAAC,MAAM,cAAc,CAAC;AACnD,OAAO,EAAC,mBAAmB,EAAC,MAAM,YAAY,CAAC;AAC/C

ls/PadV2.ts","../../src/kernels/Pow.ts","../../src/kernels/Prelu.ts","../../src/kernels/Prod.ts","../../src/kernels/Range.ts","../../src/kernels/RealDiv.ts","../../src/kernels/Relu.ts","../../src/kernels/Relu6.ts","../../src/kernels/ResizeBilinear.ts","../../src/kernels/Reverse.ts","../../src/kernels/RotateWithOffset.ts","../../src/kernels/Round.ts","../../src/kernels/Rsqrt.ts","../../src/kernels/ScatterNd.ts","../../src/kernels/Select.ts","../../src/kernels/Sigmoid.ts","../../src/kernels/Sin.ts","../../src/kernels/Softmax.ts","../../src/kernels/SpaceToBatchND.ts","../../src/kernels/SplitV.ts","../../src/kernels/Sqrt.ts","../../src/kernels/Square.ts","../../src/kernels/SquaredDifference.ts","../../src/kernels/Step.ts","../../src/kernels/StridedSlice.ts","../../src/kernels/Sub.ts","../../src/kernels/Sum.ts","../../src/kernels/Tan.ts","../../src/kernels/Tanh.ts","../../src/kernels/Tile.ts","../../src/kernels/TopK.ts","../../src/kernels/Transform.ts","../../src/kernels/Unpack.ts","../../src/kernels/ZerosLike.ts","../../src/register_all_kernels.ts","../../src/flags_wasm.ts","../../wasm-out/tfjs-backend-wasm-threaded-simd.js","../../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../../wasm-out/tfjs-backend-wasm.js","../../src/backend_wasm.ts","../../src/version.ts","../../src/base.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n *
you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n   (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize:
 number, transposeA: boolean,\n   transposeB: boolean, activation: number, biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n   'number', // a_id\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number', // b_shape.length\n   'number', // transpose_a\n   'number', // transpose_b\n   'number', // activation\n   'number', // biasId\n   'number', // preluActivationWeightsId\n   'number', // leakyreluAlpha\n   'number'   // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n
    throw new Error(\n   `_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null) {\n   const biasData = backend.dataIdMap.get(bias.dataId);\n   if (biasData.shape.length !== 1) {\n   throw new Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n   `rank ${biasData.shape.length}.`);\n   }\n   biasId =

biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n   throw new Error(\n   `${activation} activation not yet supported for FusedConv2D ` +\n   `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n   aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n   transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n   leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
 not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n   kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc =
 backend.wasm.cwrap(kernelName, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n   'number', // out_id\n   ]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n   TensorInfo {\n   const {backend, inputs: {x}} = args;\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const out = backend.makeOutput(x.shape, outType || x.dtype);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n\n   // Short-circuit zero-sized tensors.\n   if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n   }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n   return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
 writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific

language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null / void
*/, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const
outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype === 'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n
* @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction

setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const {inputs, backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType} from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // dtype\n 'number', // outId\n 'array', // perm\n 'number', // perm.length\n]);\n}\n\nexport function transpose(\n args:\n {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n if (perm[i] !== i) {\n permIsNoOp = false;\n }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n dataId: inputs.x.dataId,\n shape: reducedShape,\n dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n const cloned = identity({inputs, backend});\n cloned.shape = outShape;\n return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId =

backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n   xId, xShapeBytes, x.shape.length,
 CppDType[x.dtype], outId, permBytes,\n   perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n   outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction removeOneSizeDims(\n   shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n   if (shape[i] !== 1) {\n   newShape.push(shape[i]);\n   }\n   if (shape[perm[i]] !== 1) {\n newPerm.push(perm[i]);\n   }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n   let minValIdx = -1;\n   for (let j = 0; j < newPerm.length; ++j) {\n   if (newPerm[j] >= i &&\n   (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n   minValIdx = j;\n   }\n   }\n   newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const
 transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport
 {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n   x: TensorInfo, axis: number|number[], backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n   const newShape: number[] = new Array(xRank);\n   for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = xShape[permutedAxes[i]];\n   }\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n
    xTransposed =\n   transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n   if (transposedId !== xId) {\n   inputWasTransposed = true;\n   }\n }\n\n return {transposed: xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
 under the License.\n *
==========\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport

{permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId
= backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc:
all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny:
(xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n

* Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, outerSize: number, innerSize: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // outer_size\n 'number', // inner_size\n 'number'\n // out_id\n]);\n}\n\nfunction argmax(\n args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations\n under the License.\n *\n ==========\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, strideHeight: number,\n strideWidth: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // channels\n 'number', // outId\n]);\n}\n\nfunction avgPool(\n args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n

const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n
    throw new Error(\n   `wasm backend does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n   throw new Error(\n   `was backend only supports average pooling with dilation = [1, 1], ` +\n   `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n   padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n   outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
 Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n   args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n
  const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n   xSize === util.sizeFromShape($shape),\n   () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n
  `shape must have the same number of elements.`);\n\n // Backend needs to track refCount for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
 the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n   aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n   bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n   transposeB: boolean, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null /* void */, [\n   'number', // a_id\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number',
    // b_shape.length\n   'number', // transpose_a\n   'number', // transpose_b\n   'number'   // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const {transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n`BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const

innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n   batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n   aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n   () => `Error in matMul: the input batch dimensions must either be the ` +\n   `same or at least one input batch dimension must be 1. Got input ` +\n   `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n   batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n   innerShapeA === innerShapeB,\n   () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n   `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n   `${b.shape} and transposeA=${transposeA}` +\n   ` and transposeB=${transposeB} must match.`);\n\n const
  a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n   [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n   [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation is designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n
  const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n   a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n   b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape = outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function concatImpl(inputs, outShape, dtype, simplyConcat) {\n const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n if (simplyConcat && dtype !== 'string') {\n   // Use built-in TypedArray.set() method for speed.\n   let offset = 0;\n   inputs.forEach(input => {\n   const size = util.sizeFromShape(input.shape);\n   outVals.set(input.vals, offset);\n   offset += size;\n   });\n }\n else {\n   let colOffset = 0;\n   inputs.forEach(input => {\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(input.vals) :\n   input.vals;\n   let tIdx = 0;\n   for (let row = 0; row < input.shape[0]; ++row) {\n   const resIdx = row * outShape[1] + colOffset;\n   for (let col = 0; col < input.shape[1]; ++col) {\n   outVals[resIdx + col] = decodedData[tIdx++];\n   }\n   }\n   colOffset += input.shape[1];\n   });\n }\n return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLC

Jzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZ
XJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7Oz
s7R0FlRztBQUVILE9BQU8sRUFBQyxXVDLElBQUksRUFBQyxNQUFNLHVCQUFDLFFBQUF1QixxDQU
FDO0FBRTlGLE1BQU0sVUFBVSxVQUFVLENBQ3RCLE1BQXFFLEVBQUUsUUFBa0IsSUFBZS
xFQUFFLFlBQXFCO0lBQ3hDLE1BQU0sT0FBTyxHQUFHLElBQUksQ0FBQyxpQkFBaUIsQ0FBQyxpLQUFLLL
EVBQUUsUFBSSxDQUFDLGFBQWEsQ0FBQyxRQUFRLENBQUMsQ0FBQyxxDQUFDO0lBRTVFLElBQUksUUFB
sWUFBWSxJQUFJLEtBQUssS0FBSyxyRQUFRLEVBQUU7UUFDdEO1FBQ2xELELElBQUksTUFB
TSxHQUFHLENBQUMsQ0FBQztRQUNmLE1BQU0sQ0FBQyxPQUFPLENBQUMsQ0FBQyxxLQUFLLDQUFDLEVBQU
U7WUFDckIsTUFBTSxJQUFJLEdBQUcsSUFBSSxDQUFDLGFBQWEsQ0FBQyxLQUFLLLENBQUMsS0FBSy
xDQUFDLENBQUM7YUFFNUMsT0FBQyxCLEVBQUUsQ0FBQyxHQUFHLENBQUMsS0FBSyxDQUFDLENBQUMsTCLEVB
QUUsTUFBTSxDQUFDLENBQUM7YUFDOUMsT0FBQyxJQUFJLEVBQUUsQ0FBQyxHQUFHLENBQUMsS0FBSyxDQUFDLENBQUMsTCxDQ
BQUMsQ0FBQztLQUNuRCxNQUFNLE9BQU8sQ1NBQU07UUFDdEIsTUFBTSxJQUFJLFlBQVMsR0FBRyxyxDQUFDLENBQUM7UUFDe

CAgICBiYWNrZW5kX3V0aWwuZnJvbVVpbnQ4VG9TdHJpbmdBcnJheShpbnB1dC52YWxzIGFzIFVpbnQ4QXJyYXlbXSkgOlxuICAgICAgICAg

Q0VOU0UtMi4wXG4gKlxuICogVW5sZXNzIHJlcXVpcmVkIGJ5IGFwcGxpY2FibGUgbGF3IG9yIGFncmVlZCB0byBpbiB3cml0aW5nLCBzb2Z0d2FyZVxuICogZGlzdHJpYnV0ZWQgdW5kZXIgdGhlIExpY2Vuc2UgaXMgZGlzdHJpYnV0ZWQgb24gYW4gXCJBUyBJUyIgQVNJUyBUVVTIE9SIENPTkRJVElPTlMgT0YgQU5ZIEtJTkQsIGVpdGhlciBleHByZXNzIG9yIGltcGxpZWQuXG4gKiBTZWUgdGhlIExpY2Vuc2UgZm9yIHRoZSBzcGVjaWZpYyBsYW5ndWFnZSBnb3verning gcvybWlzc2lvbnMgYW5kXG4gKiBsaW1pdGF0aW9ucyB1bmRlciB0aGUgTGljZW5zZS5cbiAqXG4gKiA9PT09PT09PT09

VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUU9sRUFBQyxxZQUFZLEVBQWlCLE1BQU0sRUFBc0MsMsS0FBSUFBc xFQUFDLE1BQU0sdUJBQXVCLENBQUM7QUFHeEsseUJBQXlCLEVBQUUsRUFBRTtBQUFBO0FBQUEsSUFBSSxPQUFPLEVBQUUsS0FBSyxFQUFFLEVBQUUsQ0FBQzt

EtJTkQsIGVpdGhlciBleHByZXNzIG9yIGltcGxpZWQuXG4gKiBTZWUgdGhlIExpY2Vuc2UgZm9yIHRoZSBzcGVjaWZpYyBsYW5ndWFnZSBnb3Zlcm5pbmcgcGVybWlzc2lvbnMgYW5kXG4gKiBsaW1pdGF0aW9ucyB1bmRlciB0aGUgTGljZW5zZS5cbiAqID09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09XG4gKi9cblxuaW1wb3J0IHtiYWNrZW5kX3V0aWwsIEJhY2tlbmRWYWx1ZXMsIGJ1ZmZlciwgRGF0YVR5cGUsIEtlcm5lbENvbmZpZywgS2VybmVsRnVuYywgU2xpY2UsIHNsaWNlX3V0aWwsIFNsaWNlQXR0cnMsIFNsaWNlSW5wdXRzLCBTbGljZUF0dHJzLCBTbGljZUlucHV0cywgVHlwZWRBcnJheSwgdXRpbH0gZnJvbSAnLi4vY29yZS9iYWNrZW5kX2NwdS9iYWNrZW5kX2NwdSc7XG5cbmltcG9ydCAqIGFzIGJhY2tlbmRfZmxhZ3MgZnJvbSAnLi4vY29yZS9iYWNrZW5kX2ZsYWdzJztcblxuY29uc3QgTUFUTUxfVU5BUllfS0VSTkVMUyA9IHtcbiAgQWJzOiBiYWNrZW5kX2NwdS5hYnMsXG4gIEFjb3M6IGJhY2tlbmRfY3B1LmFjb3MsXG4gIEFjb3NoOiBiYWNrZW5kX2NwdS5hY29zaCxcbiAgQXNpbjogYmFja2VuZF9jcHUuYXNpbixcbiAgQXNpbmg6IGJhY2tlbmRfY3B1LmFzaW5oLFxuICBBdGFuOiBiYWNrZW5kX2NwdS5hdGFuLFxuICBBdGFuaDogYmFja2VuZF9jcHUuYXRhbmgsXG4gIENlaWw6IGJhY2tlbmRfY3B1LmNlaWwsXG4gIENvczogYmFja2VuZF9jcHUuY29zLFxuICBDb3NoOiBiYWNrZW5kX2NwdS5jb3NoLFxuICBFcmY6IGJhY2tlbmRfY3B1LmVyZixcbiAgRXhwOiBiYWNrZW5kX2NwdS5leHAsXG4gIEV4cG0xOiBiYWNrZW5kX2NwdS5leHBtMSxcbiAgRmxvb3I6IGJhY2tlbmRfY3B1LmZsb29yLFxuICBMb2c6IGJhY2tlbmRfY3B1LmxvZyxcbiAgTG9nMTA6IGJhY2tlbmRfY3B1LmxvZzEwLFxuICBMb2cxcDogYmFja2VuZF9jcHUubG9nMXAsXG4gIE5lZzogYmFja2VuZF9jcHUubmVnLFxuICBSZWNpcHJvY2FsOiBiYWNrZW5kX2NwdS5yZWNpcHJvY2FsLFxuICBSb3VuZDogYmFja2VuZF9jcHUucm91bmQsXG4gIFJzcXJ0OiBiYWNrZW5kX2NwdS5yc3FydCxcbiAgU2lnbjogYmFja2VuZF9jcHUuc2lnbixcbiAgU2luOiBiYWNrZW5kX2NwdS5zaW4sXG4gIFNpbmg6IGJhY2tlbmRfY3B1LnNpbmgsXG4gIFNxcnQ6IGJhY2tlbmRfY3B1LnNxcnQsXG4gIFRhbjogYmFja2VuZF9jcHUudGFuLFxuICBUYW5oOiBiYWNrZW5kX2NwdS50YW5oLFxuICBUcnVuYzogYmFja2VuZF9jcHUudHJ1bmMsXG59O1xuXG5jb25zdCBCSU5BUllfS0VSTkVMUyA9IHtcbiAgQWRkOiBiYWNrZW5kX2NwdS5hZGQsXG4gIEF0YW4yOiBiYWNrZW5kX2NwdS5hdGFuMixcbiAgRGl2aWRlTm9OYW46IGJhY2tlbmRfY3B1LmRpdmlkZU5vTmFuLFxuICBEaXZpZGU6IGJhY2tlbmRfY3B1LmRpdmlkZSxcbiAgRXF1YWw6IGJhY2tlbmRfY3B1LmVxdWFsLFxuICBGbG9vckRpdmlkZTogYmFja2VuZF9jcHUuZmxvb3JEaXZpZGUsXG4gIEdyZWF0ZXI6IGJhY2tlbmRfY3B1LmdyZWF0ZXIsXG4gIEdyZWF0ZXJFcXVhbDogYmFja2VuZF9jcHUuZ3JlYXRlckVxdWFsLFxuICBMZXNzOiBiYWNrZW5kX2NwdS5sZXNzLFxuICBMZXNzRXF1YWw6IGJhY2tlbmRfY3B1Lmxlc3NFcXVhbCxcbiAgTG9nQWRkRXhwOiBiYWNrZW5kX2NwdS5sb2dBZGRFeHAsXG4gIE1heGltdW06IGJhY2tlbmRfY3B1Lm1heGltdW0sXG4gIE1pbmltdW06IGJhY2tlbmRfY3B1Lm1pbmltdW0sXG4gIE1vZDogYmFja2VuZF9jcHUubW9kLFxuICBNdWx0aXBseTogYmFja2VuZF9jcHUubXVsdGlwbHksXG4gIE5vdEVxdWFsOiBiYWNrZW5kX2NwdS5ub3RFcXVhbCxcbiAgUG93OiBiYWNrZW5kX2NwdS5wb3csXG4gIFNlZ21lbnRTdW06IGJhY2tlbmRfY3B1LnNlZ21lbnRTdW0sXG4gIFN1YnRyYWN0OiBiYWNrZW5kX2NwdS5zdWJ0cmFjdCxcbn07XG5cbmNvbnN0IFRFUk5BUllfS0VSTkVMUyA9IHtcbiAgQ2xpcEJ5VmFsdWU6IGJhY2tlbmRfY3B1LmNsaXBCeVZhbHVlLFxufTtcblxuY29uc3QgUkVEVUNUSU9OX0tFUk5FTFMgPSB7XG4gIEFsbDogYmFja2VuZF9jcHUuYWxsLFxuICBBbnk6IGJhY2tlbmRfY3B1LmFueSxcbiAgQXJnTWF4OiBiYWNrZW5kX2NwdS5hcmdNYXgsXG4gIEFyZ01pbjogYmFja2VuZF9jcHUuYXJnTWluLFxuICBNYXg6IGJhY2tlbmRfY3B1Lm1heCxcbiAgTWluOiBiYWNrZW5kX2NwdS5taW4sXG4gIFN1bTogYmFja2VuZF9jcHUuc3VtLFxufTtcblxuLy8gQWxsIHRyYW5zcG9zZSBrZXJuZWxzIGFyZSBzZXJpYWxpemVkIHNvIHRoYXQgYSBzaW5nbGUgZ3JhcGggY2FuXG4vLyBjb250YWluIG11bHRpcGxlIHRyYW5zcG9zZSBjb25maWd1cmF0aW9ucy4gVGhlIGFjdHVhbFxuLy8gcGVybXV0YXRpb24gaXMgcmVhZCBmcm9tIHRoZSBpbnB1dCB0ZW5zb3IgYXQgcnVudGltZS5cbmNvbnN0IHtUcmFuc3Bvc2VTaGFyZWRDb25maWd9ID0gYmFja2VuZF9jcHVfdXRpbHM7XG5cbmNvbnN0IHtcbiAgYXNzZXJ0LFxuICBhc3NlcnRBbmRHZXRSYW5rLFxuICBhc3NlcnRBbmRHZXRTaGFwZSxcbiAgYXNzZXJ0Tm9kZUhhc0F0TW9zdE9uZURhdGFzZXRGb3JFYWNoLFxuICBhc3NlcnRTaGFwZXNNYXRjaCxcbiAgYXNzZXJ0VHlwZSxcbiAgYXNzZXJ0VHlwZXNNYXRjaCxcbn0gPSBiYWNrZW5kX2NwdV91dGlsO1xuXG5jb25zdCB7XG4gIGJyb2FkY2FzdEFyZ3MsXG4gIGNvbXB1dGVEaWxhdGlvbjJEUmVzaXplQmlsaW5lYXJHcmFkLFxuICBjb21wdXRlRmxhdFRlbnNvckluZGljZXMsXG4gIGNvbXB1dGVQb29saW5nM0RHcmFkLFxuICBlbHVHcmFkLFxuICBmdXNlZEJhdGNoTm9ybWFsaXphdGlvbixcbiAgZnVzZWRDb252MkRCYWNrcHJvcEZpbHRlcixcbiAgZnVzZWREZXB0aHdpc2VDb252MkRCYWNrcHJvcEZpbHRlcixcbiAgZnVzZWRNYXRNdWwsXG4gIGdhdGhlck5kLFxuICBncm91cGVkQ29udm9sdXRpb25CYWNrcHJvcEZpbHRlcixcbiAgZ3JvdXBlZENvbnZvbHV0aW9uQmFja3Byb3BJbnB1dCxcbiAgaXNGaW5pdGUsXG4gIGlzSW5mLFxuICBpc05hbixcbiAgbGVha3lSZWx1R3JhZCxcbiAgbG9nU29mdG1heEdyYWQsXG4gIGxvZ1NvZnRtYXgsXG4gIGxvd2VyQm91bmQsXG4gIG1heFBvb2xHcmFkLFxuICBtYXhQb29sM0RHcmFkLFxuICBtYXhpbXVtR3JhZCxcbiAgbWluaW11bUdyYWQsXG4gIG1pcnJvclBhZEdyYWQsXG4gIG1vZEdyYWQsXG4gIG11bHRpbm9taWFsLFxuICBuZWdHcmFkLFxuICBvbmVzTGlrZSxcbiAgcGFkVjJHcmFkLFxuICBwcmVsdSxcbiAgcmVjaXByb2NhbEdyYWQsXG4gIHJlbHU2R3JhZCxcbiAgcmVzaGFwZUdyYWQsXG4gIHJlc2l6ZUJpbGluZWFyR3JhZCxcbiAgcmVzaXplTmVhcmVzdE5laWdoYm9yR3JhZCxcbiAgcmV2ZXJzZUdyYWQsXG4gIHJvdGF0ZVdpdGhPZmZzZXRHcmFkLFxuICBzZWxlY3RHcmFkLFxuICBzZXRkaWZmMkdyYWQsXG4gIHNpZ25HcmFkLFxuICBzaW5HcmFkLFxuICBzb2Z0bWF4R3JhZCxcbiAgc29mdHBsdXNHcmFkLFxuICBzcGFjZVRvQmF0Y2hHcmFkLFxuICBzcGFyc2VGaWxsRW1wdHlSb3dzR3JhZCxcbiAgc3BhcnNlUmVzaGFwZUdyYWQsXG4gIHNwYXJzZVNlZ21lbnRNZWFuR3JhZCxcbiAgc3BhcnNlU2VnbWVudFN1bUdyYWQsXG4gIHNwYXJzZVRvRGVuc2VHcmFkLFxuICBzcXJ0R3JhZCxcbiAgc3F1YXJlR3JhZCxcbiAgc3F1YXJlZERpZmZlcmVuY2UsXG4gIHN0ZXAsXG4gIHN1YkdyYWQsXG4gIHRhbkdyYWQsXG4gIHRhbmhHcmFkLFxuICB0aWxlR3JhZCxcbiAgdHJhbnNwb3NlR3JhZCxcbiAgdW5pcXVlLFxuICB1bnNvcnRlZFNlZ21lbnRTdW1HcmFkLFxuICB1bnN0YWNrR3JhZCxcbiAgdXBzYW1wbGUzZEdyYWQsXG59ID0gYmFja2VuZF9jcHVfZ3JhZHM7XG5cbmNvbnN0IHtcbiAgYWRkLFxuICBhZGRuLFxuICBhbGwsXG4gIGFueSxcbiAgYXJnTWF4LFxuICBhcmdNaW4sXG4gIGF0YW4yLFxuICBhdmdQb29sLFxuICBiYXRjaFRvU3BhY2UsXG4gIGJhdGNoVG9TcGFjZU5ELFxuICBiaW5kLFxuICBibG9ja0RpYWdQYXJ0LFxuICBicm9hZGNhc3RUbyxcbiAgYnVmZmVyLFxuICBjYWNoZWQsXG4gIGNhc3QsXG4gIGNlaWwsXG4gIGNsaXAsXG4gIGNsaXBCeVZhbHVlLFxuICBjbG9uZSxcbiAgY29tcGxleCxcbiAgY29uY2F0LFxuICBjb25jYXQzZCxcbiAgY29uc3RhbnQsXG4gIGNvbnYxZCxcbiAgY29udjJkLFxuICBjb252MmRCYWNrcHJvcEZpbHRlcixcbiAgY29udjJkVHJhbnNwb3NlLFxuICBjb3MsXG4gIGNvc2gsXG4gIGN1bXByb2QsXG4gIGN1bXN1bSxcbiAgZGVwdGhUb1NwYWNlLFxuICBkZXB0aHdpc2VDb252MmQsXG4gIGRlcHRod2lzZUNvbnYyZEJhY2twcm9wRmlsdGVyLFxuICBkZXB0aHdpc2VDb252MmREZXB0aHdpc2VGaWx0ZXIsXG4gIGRlcHRod2lzZUNvbnYyZE5hdGl2ZSxcbiAgZGVwdGh3aXNlQ29udjJkTmF0aXZlQmFja3Byb3BGaWx0ZXIsXG4gIGRlcHRod2lzZUNvbnYyZE5hdGl2ZUJhY2twcm9wSW5wdXQsXG4gIGRpdixcbiAgZGl2Tm9OYW4sXG4gIGRvdCxcbiAgZWx1LFxuICBlbHVCYWNrcHJvcCxcbiAgZW1iZWRkaW5nTG9va3VwLFxuICBlbWJlZGRpbmdMb29rdXBCYWNrd2FyZCxcbiAgZW1wdHksXG4gIGVtcHR5VGVuc29yTGlzdCxcbiAgZXF1YWwsXG4gIGVyZixcbiAgZXhwLFxuICBleHBhbmREaW1zLFxuICBleHBtMSxcbiAgZmlsbCxcbiAgZmxhdFRlbnNvckluZGljZXMsXG4gIGZsaXAsXG4gIGZsb29yLFxuICBmbG9vckRpdixcbiAgZnJvbVBpeGVscyxcbiAgZnJvbVBpeGVsc0FzeW5jLFxuICBmdXNlZEJhdGNoTm9ybWFsaXphdGlvbixcbiAgZnVzZWRDb252MkQsXG4gIGZ1c2VkRGVwdGh3aXNlQ29udjJELFxuICBmdXNlZE1hdE11bCxcbiAgZ2F0aGVyLFxuICBncmVhdGVyLFxuICBncmVhdGVyRXF1YWwsXG4gIGlkZW50aXR5LFxuICBpZnQsXG4gIGltYWcsXG4gIGluVG9wSyxcbiAgaXNGaW5pdGUsXG4gIGlzSW5mLFxuICBpc05hbixcbiAgbGVha3lSZWx1LFxuICBsZXNzLFxuICBsZXNzRXF1YWwsXG4gIGxpbnNwYWNlLFxuICBsb2csXG4gIGxvZ1NpZ21vaWQsXG4gIGxvZ1NvZnRtYXgsXG4gIGxvZ1N1bUV4cCxcbiAgbG93ZXJCb3VuZCxcbiAgbWF0TXVsLFxuICBtYXgsXG4gIG1heGltdW0sXG4gIG1heFBvb2wsXG4gIG1heFBvb2wzZCxcbiAgbWF4UG9vbDNkQmFja3Byb3AsXG4gIG1heFBvb2xCYWNrcHJvcCxcbiAgbWVhbixcbiAgbWluLFxuICBtaW5pbXVtLFxuICBtaXJyb3JQYWQsXG4gIG1vZCxcbiAgbW9kZSxcbiAgbW9tZW50cyxcbiAgbXVsdGlub21pYWwsXG4gIG5lZyxcbiAgbmV4dEFmdGVyLFxuICBub3RFcXVhbCxcbiAgb25lSG90LFxuICBvbmVzLFxuICBvbmVzTGlrZSxcbiAgb3B0aW1pemVUZW5zb3JzLFxuICBvdmVybG9hZE9wLFxuICBwYWQsXG4gIHBhZFRvUGF0Y2gsXG4gIHBhcnRpdGlvbixcbiAgcG93LFxuICBwcmVsdSxcbiAgcHJpbnQsXG4gIHByb2QsXG4gIHJhZ2dlZFRlbnNvcixcbiAgcmFuZEZvcmtlZCxcbiAgcmFuZEdhbW1hLFxuICByYW5kSW50LFxuICByYW5kTCxcbiAgcmFuZFVuaWZvcm0sXG4gIHJhbmRVbmlmb3JtSW50LFxuICByYW5nZSxcbiAgcmVhbCxcbiAgcmVhbGRpdixcbiAgcmVjaXByb2NhbCxcbiAgcmVsdSxcbiAgcmVsdTYsXG4gIHJlc2hhcGUsXG4gIHJlc2l6ZUJpbGluZWFyLFxuICByZXNpemVOZWFyZXN0TmVpZ2hib3IsXG4gIHJldmVyc2UsXG4gIHJvbGwsXG4gIHJvdGF0ZVdpdGhPZmZzZXQsXG4gIHJvdW5kLFxuICBycXJ0LFxuICBzY2F0dGVyTmQsXG4gIHNlYXJjaFNvcnRlZCxcbiAgc2VsZWN0LFxuICBzZWxmbixcbiAgc2V0ZGlmZjFkLFxuICBzZXRkaWZmLFxuICBzZXRkaWZmQXN5bmMsXG4gIHNpZ24sXG4gIHNpZ251bSxcbiAgc2luLFxuICBzaW5oLFxuICBzbGljZSxcbiAgc2xpY2UxZCxcbiAgc2xpY2UyZCxcbiAgc2xpY2UzZCxcbiAgc2xpY2U0ZCxcbiAgc2xpY2VVcGRhdGUsXG4gIHNvZnRtYXgsXG4gIHNvZnRwbHVzLFxuICBzb3J0LFxuICBzcGFjZVRvQmF0Y2gsXG4gIHNwYXJzZUZpbGxFbXB0eVJvd3MsXG4gIHNwYXJzZVJlc2hhcGUsXG4gIHNwYXJzZVNlZ21lbnRNZWFuLFxuICBzcGFyc2VTZWdtZW50U3VtLFxuICBzcGFyc2VUb0RlbnNlLFxuICBzcGxpdCxcbiAgc3FydCxcbiAgc3F1YXJlLFxuICBzcXVhcmVkRGlmZmVyZW5jZSxcbiAgc3RhY2ssXG4gIHN0ZXAsXG4gIHN0cmlkZWRTbGljZSxcbiAgc3RyaW5nTkdyYW1zLFxuICBzdWIsXG4gIHN1bSxcbiAgc3ltYm9saWNDb25zdGFudCxcbiAgdGFuLFxuICB0YW5oLFxuICB0ZW5zb3IsXG4gIHRlbnNvcjFkLFxuICB0ZW5zb3IyZCxcbiAgdGVuc29yM2QsXG4gIHRlbnNvcjRkLFxuICB0ZW5zb3I1ZCxcbiAgdGVuc29yNmQsXG4gIHRlbnNvckxpc3QsXG4gIHRpZSxcbiAgdGlsZSxcbiAgdGltZXIsXG4gIHRvcEssXG4gIHRyYWNlLFxuICB0cmFuc2ZlcixcbiAgdHJhbnNwb3NlLFxuICB0cnVlRGl2aWRlLFxuICB0cnVuYyxcbiAgdW5pcXVlLFxuICB1bnNhZmVTZWdtZW50SWQsXG4gIHVuc29ydGVkU2VnbWVudFN1bSxcbiAgdW5zdGFjayxcbiAgdXBzYW1wbGVCaWxpbmVhcjNkLFxuICB1cHBlckJvdW5kLFxuICB2YXJpYWJsZSxcbiAgemVyb3MsXG4gIHplcm9zTGlrZSxcbn0gPSBiYWNrZW5kX2NwdV9vcHM7XG5cbmNvbnN0IHtcbiAgQ2xpcEJ5VmFsdWVCYWNrcHJvcCxcbiAgRWx1QmFja3Byb3AsXG4gIEdhdGhlck5kQmFja3Byb3AsXG4gIExlYWt5UmVsdUJhY2twcm9wLFxuICBMb2dTb2Z0bWF4QmFja3Byb3AsXG4gIExvZ1NvZnRtYXgsXG4gIExvd2VyQm91bmQsXG4gIE1heFBvb2xCYWNrcHJvcCxcbiAgTWF4UG9vbjNkQmFja3Byb3AsXG4gIE1heGltdW1CYWNrcHJvcCxcbiAgTWluaW11bUJhY2twcm9wLFxuICBNaXJyb3JQYWRCYWNrcHJvcCxcbiAgTXVsdGlub21pYWwsXG4gIE5lZ0JhY2twcm9wLFxuICBPbmVzTGlrZSxcbiAgUGFkVjJCYWNrcHJvcCxcbiAgUHJlbHUsXG4gIFJlY2lwcm9jYWxCYWNrcHJvcCxcbiAgUmVsdTZCYWNrcHJvcCxcbiAgUmVzaGFwZUJhY2twcm9wLFxuICBSZXNpemVCaWxpbmVhckJhY2twcm9wLFxuICBSZXNpemVOZWFyZXN0TmVpZ2hib3JCYWNrcHJvcCxcbiAgUmV2ZXJzZUJhY2twcm9wLFxuICBSb3RhdGVXaXRoT2Zmc2V0QmFja3Byb3AsXG4gIFNlbGVjdEJhY2twcm9wLFxuICBTZXRkaWZmMkJhY2twcm9wLFxuICBTaWduQmFja3Byb3AsXG4gIFNpbkJhY2twcm9wLFxuICBTb2Z0bWF4QmFja3Byb3AsXG4gIFNvZnRwbHVzQmFja3Byb3AsXG4gIFNwYWNlVG9CYXRjaEJhY2twcm9wLFxuICBTcGFyc2VGaWxsRW1wdHlSb3dzQmFja3Byb3AsXG4gIFNwYXJzZVJlc2hhcGVCYWNrcHJvcCxcbiAgU3BhcnNlU2VnbWVudE1lYW5CYWNrcHJvcCxcbiAgU3BhcnNlU2VnbWVudFN1bUJhY2twcm9wLFxuICBTcGFyc2VUb0RlbnNlQmFja3Byb3AsXG4gIFNxcnRCYWNrcHJvcCxcbiAgU3F1YXJlQmFja3Byb3AsXG4gIFNxdWFyZWREaWZmZXJlbmNlLFxuICBTdGVwLFxuICBTdWJCYWNrcHJvcCxcbiAgVGFuQmFja3Byb3AsXG4gIFRhbmhCYWNrcHJvcCxcbiAgVGlsZUJhY2twcm9wLFxuICBUcmFuc3Bvc2VCYWNrcHJvcCxcbiAgVW5pcXVlLFxuICBVbnNvcnRlZFNlZ21lbnRTdW1CYWNrcHJvcCxcbiAgVW5zdGFja0JhY2twcm9wLFxuICBVcHNhbXBsZTNkQmFja3Byb3AsXG59ID0gYmFja2VuZF9jcHVfZ3JhZHM7XG5cbmNvbnN0IHtcbiAgQWRkLFxuICBBZGRuLFxuICBBbGwsXG4gIEFueSxcbiAgQXJnTWF4LFxuICBBcmdNaW4sXG4gIEF0YW4yLFxuICBBdmdQb29sLFxuICBCYXRjaFRvU3BhY2UsXG4gIEJhdGNoVG9TcGFjZU5ELFxuICBCaW5kLFxuICBCbG9ja0RpYWdQYXJ0LFxuICBCcm9hZGNhc3RUbyxcbiAgQnVmZmVyLFxuICBDYWNoZWQsXG4gIENhc3QsXG4gIENlaWwsXG4gIENsaXAsXG4gIENsaXBCeVZhbHVlLFxuICBDbG9uZSxcbiAgQ29tcGxleCxcbiAgQ29uY2F0LFxuICBDb25jYXQzZCxcbiAgQ29uc3RhbnQsXG4gIENvbnYxZCxcbiAgQ29udjJkLFxuICBDb252MmRCYWNrcHJvcEZpbHRlcixcbiAgQ29udjJkVHJhbnNwb3NlLFxuICBDb3MsXG4gIENvc2gsXG4gIEN1bXByb2QsXG4gIEN1bVN1bSxcbiAgRGVwdGhUb1NwYWNlLFxuICBEZXB0aHdpc2VDb252MmQsXG4gIERlcHRod2lzZUNvbnYyZEJhY2twcm9wRmlsdGVyLFxuICBEZXB0aHdpc2VDb252MmREZXB0aHdpc2VGaWx0ZXIsXG4gIERlcHRod2lzZUNvbnYyZE5hdGl2ZSxcbiAgRGVwdGh3aXNlQ29udjJkTmF0aXZlQmFja3Byb3BGaWx0ZXIsXG4gIERlcHRod2lzZUNvbnYyZE5hdGl2ZUJhY2twcm9wSW5wdXQsXG4gIERpdixcbiAgRGl2Tm9OYW4sXG4gIERvdCxcbiAgRWx1LFxuICBFbHVCYWNrcHJvcCxcbiAgRW1iZWRkaW5nTG9va3VwLFxuICBFbWJlZGRpbmdMb29rdXBCYWNrd2FyZCxcbiAgRW1wdHksXG4gIEVtcHR5VGVuc29yTGlzdCxcbiAgRXF1YWwsXG4gIEVyZixcbiAgRXhwLFxuICBFeHBhbmREaW1zLFxuICBFeHBtMSxcbiAgRmlsbCxcbiAgRmxhdFRlbnNvckluZGljZXMsXG4gIEZsaXAsXG4gIEZsb29yLFxuICBGbG9vckRpdixcbiAgRnJvbVBpeGVscyxcbiAgRnJvbVBpeGVsc0FzeW5jLFxuICBGdXNlZEJhdGNoTm9ybWFsaXphdGlvbixcbiAgRnVzZWRDb252MkQsXG4gIEZ1c2VkRGVwdGh3aXNlQ29udjJELFxuICBGdXNlZE1hdE11bCxcbiAgR2F0aGVyLFxuICBHcmVhdGVyLFxuICBHcmVhdGVyRXF1YWwsXG4gIElkZW50aXR5LFxuICBJZnQsXG4gIEltYWcsXG4gIEluVG9wSyxcbiAgSXNGaW5pdGUsXG4gIElzSW5mLFxuICBJc05hbixcbiAgTGVha3lSZWx1LFxuICBMZXNzLFxuICBMZXNzRXF1YWwsXG4gIExpbnNwYWNlLFxuICBMb2csXG4gIExvZ1NpZ21vaWQsXG4gIExvZ1NvZnRtYXgsXG4gIExvZ1N1bUV4cCxcbiAgTG93ZXJCb3VuZCxcbiAgTWF0TXVsLFxuICBNYXgsXG4gIE1heGltdW0sXG4gIE1heFBvb2wsXG4gIE1heFBvb2wzZCxcbiAgTWF4UG9vbDNkQmFja3Byb3AsXG4gIE1heFBvb2xCYWNrcHJvcCxcbiAgTWVhbixcbiAgTWluLFxuICBNaW5pbXVtLFxuICBNaXJyb3JQYWQsXG4gIE1vZCxcbiAgTW9kZSxcbiAgTW9tZW50cyxcbiAgTXVsdGlub21pYWwsXG4gIE5lZyxcbiAgTmV4dEFmdGVyLFxuICBOb3RFcXVhbCxcbiAgT25lSG90LFxuICBPbmVzLFxuICBPbmVzTGlrZSxcbiAgT3B0aW1pemVUZW5zb3JzLFxuICBPdmVybG9hZE9wLFxuICBQYWQsXG4gIFBhZFRvUGF0Y2gsXG4gIFBhcnRpdGlvbixcbiAgUG93LFxuICBQcmVsdSxcbiAgUHJpbnQsXG4gIFByb2QsXG4gIFJhZ2dlZFRlbnNvcixcbiAgUmFuZEZvcmtlZCxcbiAgUmFuZEdhbW1hLFxuICBSYW5kSW50LFxuICBSYW5kTCxcbiAgUmFuZFVuaWZvcm0sXG4gIFJhbmRVbmlmb3JtSW50LFxuICBSYW5nZSxcbiAgUmVhbCxcbiAgUmVhbGRpdixcbiAgUmVjaXByb2NhbCxcbiAgUmVsdSxcbiAgUmVsdTYsXG4gIFJlc2hhcGUsXG4gIFJlc2l6ZUJpbGluZWFyLFxuICBSZXNpemVOZWFyZXN0TmVpZ2hib3IsXG4gIFJldmVyc2UsXG4gIFJvbGwsXG4gIFJvdGF0ZVdpdGhPZmZzZXQsXG4gIFJvdW5kLFxuICBSc3FydCxcbiAgU2NhdHRlck5kLFxuICBTZWFyY2hTb3J0ZWQsXG4gIFNlbGVjdCxcbiAgU2VsZm4sXG4gIFNldGRpZmYxZCxcbiAgU2V0ZGlmZixcbiAgU2V0ZGlmZkFzeW5jLFxuICBTaWduLFxuICBTaWdudW0sXG4gIFNpbixcbiAgU2luaCxcbiAgU2xpY2UsXG4gIFNsaWNlMWQsXG4gIFNsaWNlMmQsXG4gIFNsaWNlM2QsXG4gIFNsaWNlNGQsXG4gIFNsaWNlVXBkYXRlLFxuICBTb2Z0bWF4LFxuICBTb2Z0cGx1cyxcbiAgU29ydCxcbiAgU3BhY2VUb0JhdGNoLFxuICBTcGFyc2VGaWxsRW1wdHlSb3dzLFxuICBTcGFyc2VSZXNoYXBlLFxuICBTcGFyc2VTZWdtZW50TWVhbixcbiAgU3BhcnNlU2VnbWVudFN1bSxcbiAgU3BhcnNlVG9EZW5zZSxcbiAgU3BsaXQsXG4gIFNxcnQsXG4gIFNxdWFyZSxcbiAgU3F1YXJlZERpZmZlcmVuY2UsXG4gIFN0YWNrLFxuICBTdGVwLFxuICBTdHJpZGVkU2xpY2UsXG4gIFN0cmluZ05HcmFtcyxcbiAgU3ViLFxuICBTdW0sXG4gIFN5bWJvbGljQ29uc3RhbnQsXG4gIFRhbixcbiAgVGFuaCxcbiAgVGVuc29yLFxuICBUZW5zb3IxZCxcbiAgVGVuc29yMmQsXG4gIFRlbnNvcjNkLFxuICBUZW5zb3I0ZCxcbiAgVGVuc29yNWQsXG4gIFRlbnNvcjZkLFxuICBUZW5zb3JMaXN0LFxuICBUaWUsXG4gIFRpbGUsXG4gIFRpbWVyLFxuICBUb3BLLFxuICBUcmFjZSxcbiAgVHJhbnNmZXIsXG4gIFRyYW5zcG9zZSxcbiAgVHJ1ZURpdmlkZSxcbiAgVHJ1bmMsXG4gIFVuaXF1ZSxcbiAgVW5zYWZlU2VnbWVudElkLFxuICBVbnNvcnRlZFNlZ21lbnRTdW0sXG4gIFVuc3RhY2ssXG4gIFVwc2FtcGxlQmlsaW5lYXIzZCxcbiAgVXBwZXJCb3VuZCxcbiAgVmFyaWFibGUsXG4gIFplcm9zLFxuICBaZXJvc0xpa2UsXG59O1xuXG5jb25zdCBrZXJuZWxzID0gbmV3IE1hcCgpO1xuXG5bXG4gIC4uLk9iamVjdC52YWx1ZXMoVU5BUllfS0VSTkVMUyksXG4gIC4uLk9iamVjdC52YWx1ZXMoQklOQVJZX0tFUk5FTFMpLFxuICAuLi5PYmplY3QudmFsdWVzKFRFUk5BUllfS0VSTkVMUyksXG4gIC4uLk9iamVjdC52YWx1ZXMoUkVEVUNUSU9OX0tFUk5FTFMpLFxuXS5mb3JFYWNoKChrZXJuZWxDb25maWcpID0+IHtcbiAgaWYgKGtlcm5lbHMuaGFzKGtlcm5lbENvbmZpZy5rZXJuZWxOYW1lKSkge1xuICAgIHRocm93IG5ldyBFcnJvcihcbiAgICAgICAgYEtlcm5lbCAnJHtrZXJuZWxDb25maWcua2VybmVsTmFtZX0nIGhhcyBhbHJlYWR5IGJlZW4gcmVnaXN0ZXJlZGApO1xuICB9XG4gIGtlcm5lbHMuc2V0KGtlcm5lbENvbmZpZy5rZXJuZWxOYW1lLCBrZXJuZWxDb25maWcpO1xufSk7XG5cbmNvbnN0IGdyYWRzID0gbmV3IE1hcCgpO1xuXG5bXG4gIC4uLk9iamVjdC52YWx1ZXMoVU5BUllfS0VSTkVMUyksXG4gIC4uLk9iamVjdC52YWx1ZXMoQklOQVJZX0tFUk5FTFMpLFxuICAuLi5PYmplY3QudmFsdWVzKFRFUk5BUllfS0VSTkVMUyksXG4gIC4uLk9iamVjdC52YWx1ZXMoUkVEVUNUSU9OX0tFUk5FTFMpLFxuXS5mb3JFYWNoKChrZXJuZWxDb25maWcpID0+IHtcbiAgaWYgKGtlcm5lbENvbmZpZy5nYWRkRnVuYyAhPSBudWxsKSB7XG4gICAgaWYgKGdyYWRzLmhhcyhrZXJuZWxDb25maWcua2VybmVsTmFtZSkpIHtcbiAgICAgIHRocm93IG5ldyBFcnJvcihcbiAgICAgICAgICBgR3JhZGllbnQgZm9yICcke2tlcm5lbENvbmZpZy5rZXJuZWxOYW1lfScgaGFzIGFscmVhZHkgYmVlbiBgICtcbiAgICAgICAgICBgcmVnaXN0ZXJlZGApO1xuICAgIH1cbiAgICBncmFkcy5zZXQoa2VybmVsQ29uZmlnLmtlcm5lbE5hbWUsIGtlcm5lbENvbmZpZy5nYWRkRnVuYyk7XG4gIH1cbn0pO1xuXG4vLyBSZWdpc3RlciBjdXN0b20gZ3JhZGllbnRzIGZvciBvcHMgdGhhdCBkb24ndCBoYXZlIGEgZGlyZWN0IEVhZ2VyIGtlcm5lbC5cbmZvciAoY29uc3QgW2tlcm5lbE5hbWUsIGdyYWRGdW5jXSBvZiBPYmplY3QuZW50cmllcyh7XG4gICAgICAgICBDbGlwQnlWYWx1ZUJhY2twcm9wLFxuICAgICAgICAgRWx1QmFja3Byb3AsXG4gICAgICAgICBHYXRoZXJOZEJhY2twcm9wLFxuICAgICAgICAgTGVha3lSZWx1QmFja3Byb3AsXG4gICAgICAgICBMb2dTb2Z0bWF4QmFja3Byb3AsXG4gICAgICAgICBMb3dlckJvdW5kLFxuICAgICAgICAgTWF4UG9vbEJhY2twcm9wLFxuICAgICAgICAgTWF4UG9vbjNkQmFja3Byb3AsXG4gICAgICAgICBNYXhpbXVtQmFja3Byb3AsXG4gICAgICAgICBNaW5pbXVtQmFja3Byb3AsXG4gICAgICAgICBNaXJyb3JQYWRCYWNrcHJvcCxcbiAgICAgICAgIE11bHRpbm9taWFsLFxuICAgICAgICAgTmVnQmFja3Byb3AsXG4gICAgICAgICBPbmVzTGlrZSxcbiAgICAgICAgIFBhZFYyQmFja3Byb3AsXG4gICAgICAgICBQcmVsdSxcbiAgICAgICAgIFJlY2lwcm9jYWxCYWNrcHJvcCxcbiAgICAgICAgIFJlbHU2QmFja3Byb3AsXG4gICAgICAgICBSZXNoYXBlQmFja3Byb3AsXG4gICAgICAgICBSZXNpemVCaWxpbmVhckJhY2twcm9wLFxuICAgICAgICAgUmVzaXplTmVhcmVzdE5laWdoYm9yQmFja3Byb3AsXG4gICAgICAgICBSZXZlcnNlQmFja3Byb3AsXG4gICAgICAgICBSb3RhdGVXaXRoT2Zmc2V0QmFja3Byb3AsXG4gICAgICAgICBTZWxlY3RCYWNrcHJvcCxcbiAgICAgICAgIFNldGRpZmYyQmFja3Byb3AsXG4gICAgICAgICBTaWduQmFja3Byb3AsXG4gICAgICAgICBTaW5CYWNrcHJvcCxcbiAgICAgICAgIFNvZnRtYXhCYWNrcHJvcCxcbiAgICAgICAgIFNvZnRwbHVzQmFja3Byb3AsXG4gICAgICAgICBTcGFjZVRvQmF0Y2hCYWNrcHJvcCxcbiAgICAgICAgIFNwYXJzZUZpbGxFbXB0eVJvd3NCYWNrcHJvcCxcbiAgICAgICAgIFNwYXJzZVJlc2hhcGVCYWNrcHJvcCxcbiAgICAgICAgIFNwYXJzZVNlZ21lbnRNZWFuQmFja3Byb3AsXG4gICAgICAgICBTcGFyc2VTZWdtZW50U3VtQmFja3Byb3AsXG4gICAgICAgICBTcGFyc2VUb0RlbnNlQmFja3Byb3AsXG4gICAgICAgICBTcXJ0QmFja3Byb3AsXG4gICAgICAgICBTcXVhcmVCYWNrcHJvcCxcbiAgICAgICAgIFNxdWFyZWREaWZmZXJlbmNlLFxuICAgICAgICAgU3RlcCxcbiAgICAgICAgIFN1YkJhY2twcm9wLFxuICAgICAgICAgVGFu

```
from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {sliceImplCPU} from '../kernel_utils/shared';\n\nexport function slice(\n    args: {inputs: SliceInputs, attrs: SliceAttrs, backend: BackendWasm}) {\n  const {inputs: {x}, attrs: {begin, size}, backend} = args;\n\n  const [begin_, size_] = slice_util.parseSliceParams(x, begin, size);\n\n  const isContinous = slice_util.isSliceContinous(x.shape, begin_, size_);\n  const xVals = backend.readSync(x.dataId);\n  const out = backend.makeOutput(size_, x.dtype);\n  const xStrides = util.computeStrides(x.shape);\n  const outData = backend.dataIdMap.get(out.dataId);\n\n  if (isContinous) {\n    const flatOffset = slice_util.computeFlatOffset(begin_, xStrides);\n\n    if (x.dtype === 'string') {\n      outData.stringBytes =\n          (xVals as Uint8Array[])\n              .slice(flatOffset, flatOffset + util.sizeFromShape(size_));\n    } else {\n      const outVals = backend.typedArrayFromHeap(out);\n      outVals.set(\n          (xVals as TypedArray)\n              .subarray(flatOffset, flatOffset + util.sizeFromShape(size_)));\n    }\n\n    return out;\n  }\n\n  const outVals = backend.typedArrayFromHeap(out);\n  const rank = x.shape.length;\n  if (rank === 2) {\n    slice2d(\n        xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n        size_ as [number, number]);\n  } else if (rank === 3) {\n    slice3d(\n        xVals as TypedArray, xStrides[0], xStrides[1], outVals,\n        begin_ as [number, number, number], size_ as [number, number, number]);\n  } else if (rank === 4) {\n    slice4d(\n        xVals as TypedArray, xStrides[0], xStrides[1], xStrides[2], outVals,\n        begin_ as [number, number, number, number],\n        size_ as [number, number, number, number]);\n  } else {\n    const res =\n        sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n    outVals.set(res);\n  }\n\n  return out;\n}\n\nfunction slice2d(\n    xVals: backend_util.TypedArray, xStride: number,\n    outVals: backend_util.TypedArray, begin: [number, number],\n    size: [number, number]):\n    void {\n  let outOffset = 0;\n  const beginI = begin[0];\n  const beginJ = begin[1];\n  const endI = beginI + size[0];\n  for (let i = beginI; i < endI; i++) {\n    const xOffset = i * xStride + beginJ;\n    outVals.set(xVals.subarray(xOffset, xOffset + size[1]), outOffset);\n    outOffset += size[1];\n  }\n}\n\nfunction slice3d(\n    xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n    outVals: backend_util.TypedArray, begin: [number, number, number],\n    size: [number, number, number]): void {\n  let outOffset = 0;\n  const beginI = begin[0];\n  const beginJ = begin[1];\n  const beginK = begin[2];\n  const endI = beginI + size[0];\n  const endJ = beginJ + size[1];\n  for (let i = beginI; i < endI; i++) {\n    for (let j = beginJ; j < endJ; j++) {\n      const xOffset = i * xStride1 + j * xStride2 + beginK;\n      outVals.set(xVals.subarray(xOffset, xOffset + size[2]), outOffset);\n      outOffset += size[2];\n    }\n  }\n}\n\nfunction slice4d(\n    xVals: backend_util.TypedArray,\n    xStride1: number, xStride2: number,\n    xStride3: number, outVals: backend_util.TypedArray,\n    begin: [number, number, number, number],\n    size: [number, number, number, number]): void {\n  let outOffset = 0;\n  const beginI = begin[0];\n  const beginJ = begin[1];\n  const beginK = begin[2];\n  const endI = beginI + size[0];\n  const endJ = beginJ + size[1];\n  const endK = beginK + size[2];\n  const beginL = begin[3];\n\n  for (let i = beginI; i < endI; i++) {\n    for (let j = beginJ; j < endJ; j++) {\n      for (let k = beginK; k < endK; k++) {\n        const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n        outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n        outOffset += size[3];\n      }\n    }\n  }\n}\n\nexport const sliceConfig: KernelConfig = {\n  kernelName: Slice,\n  backendName: 'wasm',\n  kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig,
```

KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n   transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n   {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result\n = slice({\n   inputs: {x: xTransposedReshaped},\n   backend,\n   attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
 the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function cast(\n   args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n   TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
 * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n

/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null / void */, [\n 'number', // x_id\n 'number', // min\n 'number', // max\n 'number' // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const
$inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1) {\n return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n return out;\n }\n\n const shapes = $inputs.map(t => t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n // Any concat of n-dimensional tensors across any axis can be reduced to\n // a concatenation of two-dimensional tensors across the axis 1 by first\n // partitioning the axes of the original tensors into those less than the\n // axis to be concatenated and the rest. Then reshape the tensors\n // into a two-dimensional tensor by collapsing these two sets of axes and\n // concatenate the resulting matrices across the axis 1, finally reshaping\n // the result to have the proper shape.\n const inputs2D = $inputs.map(t => {\n const
innerSize = util.sizeFromShape(t.shape.slice(axis));\n const shape = [-1, innerSize];\n return reshape({inputs: {x: t}, backend, attrs: {shape}});\n });\n\n const inputsValShapes = inputs2D.map(t => {\n return {vals: backend.readSync(t.dataId), shape: t.shape};\n });\n\n // Concats 2d tensors along axis=1.\n const outShape =\n backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n const simplyConcat = inputs2D[0].shape[0] === 1;\n const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n simplyConcat) as string[];\n\n const finalOutShape =\n backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n out.shape = finalOutShape;\n const outData = backend.dataIdMap.get(out.dataId);\n outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n return out;\n }\n\n const
batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n const innerDims = $inputs.map(input => {\n const innerDim = util.sizeFromShape(input.shape.slice(axis));\n sumInnerDims += innerDim;\n return innerDim;\n });\n const inVals = $inputs.map(input =>

backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n   let outOffset = b * sumInnerDims;\n   for (let i = 0; i < inVals.length; i++) {\n   const innerDim = innerDims[i];\n   const inOffset = b * innerDim;\n   const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n   outVals.set(vals, outOffset);\n   outOffset += innerDim;\n   }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number,
padBottom: number, padLeft: number, isSamePad: number,\n   dilationHeight: number, dilationWidth: number, strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n   'number', // outId\n]);\n}\n\nfunction conv2d(\n   args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n   pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend Conv2D does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n

*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number,
inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number, xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n 'number', // batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n 'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast ? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast
? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize,
filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight,
strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride,
yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest = 1\n}\n\nlet wasmCropAndResize: (\n   imagesId: number, boxesId: number, boxIndId: number, numBoxes: number,\n   imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n   method: number, extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n   'number', // imagesId\n   'number', // boxesId\n   'number', // boxIndId\n   'number', // numBoxes\n   'array',   // images shape\n   'number', // cropHeight\n   'number', // cropWidth\n   'number', // method\n   'number', // extrapolation value\n   'number'   // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData = backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n   castedData = cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n   imagesData = backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n   imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n   cropWidth,\n   InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n   extrapolationValue, outId);\n\n if (castedData != null) {\n   backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig:

KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n
 * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive:
 number, reverse: number,\n   finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n   'number', // x_id\n   'number', // exclusive\n   'number', // reverse\n   'number', // final_dim\n   'number', // out_id\n   'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n   () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n   permutedX = transpose({inputs: {x}, attrs: {perm:
 permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n   permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n   const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n   out = transpose(\n   {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n   backend.disposeData(permutedX.dataId);\n   backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig
 = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
 from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n   xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n   xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n   outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n   'number', // xId\n   'number', // blockSize\n   'number', // channelsLast\n   'array',   // xStrides\n   'number', // xStridesLength\n   'array',   // outputShape\n   'array',   // outputStrides\n   'number', // outSize\n   'number', // outId\n]);\n}\n\nexport function

depthToSpace(args: {\n backend: BackendWasm,\n inputs: DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n const {blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n   [batchSize, outputHeight, outputWidth, outputDepth] :\n   [batchSize, outputDepth, outputHeight, outputWidth];\n\n const out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const xId = xData.id;\n const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n wasmDepthToSpace(\n   xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n   outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n   dilationHeight: number, dilationWidth: number, strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n   backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n   'number', // outId\n   ]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n   ($dilations as number | [number, number]), pad, dimRoundingMode,\n   true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight =

convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n   util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n        inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape, value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n   xId: number, batch: number, imageHeight: number, imageWidth: number,\n   numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n   args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n   imageId, batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in

compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n *
distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n xId: number, meanId: number, varianceId: number, offsetId: number,\n scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmBatchNorm = backend.wasm.cwrap(\n FusedBatchNorm, null /* void */,\n ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n */\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number', // outId\n]);\n}\n\nfunction fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n backend: BackendWasm,\n attrs: FusedConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode);\n\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n throw new Error(\n `FusedConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw new Error(\n `wasm backend FusedConv2D does not support dataFormat:'` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return

```
out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n  kernelName: FusedConv2D,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n    (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number, padTop: number, padRight: number, padBottom: number,\n     padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n     inputChannels: number, outputChannels: number, activation: number,\n     preluActivationWeightsId:
 number, leakyreluAlpha: number, outId: number) =>\n        void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedDepthwiseConv2d =\n      backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n 'number',  // xId\n        'number',  // batchSize\n        'number',  // inputHeight\n        'number',  // inputWidth\n 'number',  // filterId\n        'number',  // filterHeight\n        'number',  // filterWidth\n        'number',  // biasId\n 'number',  // padTop\n        'number',  // padRight\n        'number',  // padBottom\n        'number',  // padLeft\n 'number',  // isSamePad\n        'number',  // dilationHeight\n        'number',  // dilationWidth\n        'number',  // strideHeight\n        'number',  // strideWidth\n        'number',  // inputChannels\n        'number',  // outputChannels\n
 'number',  // activation\n        'number',  // preluActivationWeightsId\n        'number',  // leakyreluAlpha\n 'number',
 // outId\n      ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n  inputs: FusedDepthwiseConv2DInputs,\n backend: BackendWasm,\n  attrs: FusedDepthwiseConv2DAttrs\n}) {\n  const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n    strides,\n    pad,\n    dilations,\n dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation as {} as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n
  const outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData = backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth = convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n
  const strideWidth = convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight =
```

convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n   throw new Error(\n   `wasm backend FusedDepthwiseConv2D does not support dataFormat:'` +\n   `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n   backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n   xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n   biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n   dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n   fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n   xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n   sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n   'number', // xId\n   'number', // dtype\n   'number', // indicesId\n   'number', // numSlices\n   'number', // sliceRank\n   'number', // sliceSize\n   'array',   // strides\n   'number'   // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n   TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n   gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n   return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n   xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n   stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
 not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n   xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n   indicesId: number, batchSize: number, outStrides:

Uint8Array,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'array', // xStrides\n 'number', // stridesSize\n 'number', // indicesId\n 'number', // batchSize\n 'array', // outStrides\n 'number' // outId\n]);\n}\n\nfunction gatherV2(\n args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x, indices} = inputs;\n const {axis, batchDims} = attrs;\n\n // Throw error when any index is out of bound.\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n const axisDim = x.shape[parsedAxis];\n for (let i = 0; i < indicesVals.length; ++i) {\n const index = indicesVals[i];\n util.assert(\n index <= axisDim - 1 && index >= 0,\n () =>\n `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n }\n\n const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n const flattenX = reshape({\n inputs: {x},\n attrs: {\n shape: [\n shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n shapeInfo.sliceSize\n]\n },\n backend\n });\n const indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n inputs: {x: indices},\n attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n backend\n });\n const flattenOutputShape = [\n shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape, x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n const stridesSize = flattenX.shape.length - 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n const outStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n shapeInfo.batchSize, outStridesBytes, outId);\n\n backend.disposeData(flattenX.dataId);\n backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n

createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction
setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // leakyrelu_alpha\n 'number', // out_id\n]);\n}\n\nexport function leakyRelu(\n args:\n {inputs: LeakyReluInputs, attrs: LeakyReluAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright
2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

==========\n*/\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n ]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `'${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
 may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
```

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean,
null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'mean', reductionAxes, input.shape.length);\n
const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype: 'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport
const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMin = backend.wasm.cwrap(Min, null /*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId)

{\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n }\n }\n\n const inputRank = input.shape.length;\n\n backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMin(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig = createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'array', // pre-paddings\n 'array', // post-paddings\n 'number', // mode\n 'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes,

MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
 \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
 \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in `non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n   backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer,
 resOffset, 4);\n const pSelectedIndices = result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n

boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV3,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number,\n padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV4,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'bool', // padToMaxOutputSize\n]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"

BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n (boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n //
Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the
License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth: number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmOneHot = backend.wasm.cwrap(OneHot, null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n 'number', // onValue\n 'number', // offValue\n 'number' // out_id\n]);\n}\n\nfunction

oneHot(\n   args: {inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices}
 = inputs;\n const {depth, onValue, offValue} = attrs;\n\n const out = backend.makeOutput([...indices.shape, depth], 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n wasmOneHot(indicesId, depth, onValue, offValue, outId);\n\n return out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n kernelName: OneHot,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with
 the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n   args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n   return expandDims(\n
        {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n   util.assertShapesMatch(\n   shape, t.shape,\n   'All tensors passed to stack must have matching shapes');\n   util.assert(\n   dtype === t.dtype,\n   () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n   const expandedT =\n   expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n   intermediateTensorInfos.push(expandedT);\n   return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
=============================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType}
from './types';\n\nlet wasmPadV2: (\n    xId: number, xShapeBytes:
 Uint8Array, xShapeLength: number, xDtype: number,\n    prePaddingsBytes: Uint8Array, postPaddingsBytes:
Uint8Array,\n    constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n
wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n    'number',  // xId\n    'array',   // x.shape\n
'number',  // x.shape.length\n    'number',  // x.dtype\n    'array',   // pre-paddings\n    'array',   // post-paddings\n
'number',  // constantValue\n    'number',  // outId\n  ]);\n}\n\nfunction pad(\n    args: {inputs: PadV2Inputs, backend:
BackendWasm, attrs: PadV2Attrs}) {\n  const {inputs: {x}, backend, attrs: {paddings, constantValue}} = args;\n\n
const outShape = paddings.map(\n      (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n  if
(util.sizeFromShape(x.shape) === 0) {\n    // Short-circuit the computation, since x doesn't have value, only\n    //
the shape is used to compute output shape to pad.\n    return fill({\n
   backend,\n      attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n    });\n  }\n\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const out = backend.makeOutput(outShape, x.dtype);\n  const
outTensorData = backend.dataIdMap.get(out.dataId);\n  const outId = outTensorData.id;\n\n  const xShapeBytes =
new Uint8Array(new Int32Array(x.shape).buffer);\n\n  const prePaddingsFlat = paddings.map(padTuple =>
padTuple[0]);\n  const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n  const prePaddingsBytes =\n
   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n  const postPaddingsBytes =\n      new
Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n  wasmPadV2(\n      xId, xShapeBytes, x.shape.length,
CppDType[x.dtype], prePaddingsBytes,\n      postPaddingsBytes, constantValue, outId);\n  return out;\n}\n\nexport
const padV2Config: KernelConfig = {\n  kernelName: PadV2,\n  backendName: 'wasm',\n  kernelFunc: pad as {} as
KernelFunc,\n  setupFunc: setup\n};\n","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n
createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n *
 @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number,
weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n
  wasmPrelu = backend.wasm.cwrap(Prelu, null /* void */, [\n    'number',  // x_id\n    'number',  // weights_id\n
'number'   // out_id\n  ]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n  const
{inputs, backend} = args;\n  const {x, alpha} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const
weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n  let inputId = xId;\n  const input = x;\n  let castedInput =
input;\n  if (input.dtype !== 'float32') {\n    castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n
```

inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n   backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n   xId: number, reduceSize: number,\n   dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n   'number',\n   'number',\n   'number',\n   'number'\n]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs: ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmProd(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n   (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n   const {backend, attrs} = args;\n   const {start, stop, step, dtype} = attrs;\n   const values = rangeImplCPU(start, stop, step, dtype);\n\n   const out = backend.makeOutput([values.length],

dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(values);\n return out;\n};\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
 WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License
 for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n xId: number, batch: number, oldHeight: number, oldWidth: number,\n numChannels: number, newHeight: number, newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n 'number', // numChannels\n 'number', // newHeight\n 'number', //

newWidth\n 'number', // alignCorners\n 'number',
  // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n   castedData =\n   cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n   xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n   return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n   xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n   alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n   backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n   xId: number, axes: Uint8Array, axesLength: number, outShape: Uint8Array,\n   outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n   'number', // x_id\n   'array',   // axes\n   'number', // axes_length\n   'array',   // out_shape\n   'number', // out_shape_length\n   'number'
  // out_id\n]);\n}\n\nexport function reverse(\n   args: {inputs: ReverseInputs, backend: BackendWasm, attrs: ReverseAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const
 {x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length === 0) {\n   return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n   xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n const reshaped =\n   reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
 Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport

{BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // radians\n 'number', // centerX\n 'number', // centerY\n 'array', // fillBytes\n 'number', // fillLength\n 'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from

'./types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n 'number', // indicesId\n 'number',
  // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs: ScatterNdInputs, attrs: ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const
  outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
  under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number, eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
  const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n 1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
  the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /

void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig:
 KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const
 sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number,
 channels: number, batch: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n   'number', // xId\n   'number', // outId\n   'number', // channels\n   'number'   // batch\n]);\n}\n\nfunction softmax(\n   args: {backend: BackendWasm, inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n   TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc:
 setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport

{BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation
 = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n
  backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\n\nimport {KernelConfig, KernelFunc, SplitV,
 SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n   args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs, attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n   const xSliceSize = [...size];\n   xSliceSize[$axis] = s;\n   const xSlice =\n   slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n   begin[$axis] += s;\n   return xSlice;\n });\n}\n\nexport const splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n

*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n 'number', // x_id\n 'number', // alpha\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction step(\n args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n xId: number, xStridesBytes: Uint8Array, xRank: number,\n beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm):
void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n 'number', // xId\n 'array', // xStrides\n 'number', // xRank\n 'array', // beginBytes\n 'array', // endBytes\n 'array', // stridesBytes\n 'array', // outShapeBytes\n 'array', // outStridesBytes\n 'number', // outShapeLength\n 'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n begin,\n end,\n strides,\n beginMask,\n endMask,\n ellipsisMask,\n newAxisMask,\n shrinkAxisMask\n } = attrs;\n\n const {\n finalShapeSparse,\n finalShape,\n isIdentity,\n sliceDim0,\n isSimpleSlice,\n begin: $begin,\n end: $end,\n strides: $strides\n } =\n slice_util.sliceInfo(\n x.shape, begin, end, strides, beginMask, endMask,
ellipsisMask,\n newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n // Optimization #1, slice is a no-op plus reshape\n result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n // Optimization #2, slice is memory contiguous (only occurs in dim 0)\n util.assert(\n x.shape.length >= 1,\n () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n const size = slice_util.computeOutShape($begin, $end, $strides);\n // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n result =\n reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n backend.disposeData(sliced.dataId);\n } else {\n const out = backend.makeOutput(finalShapeSparse, 'float32');\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const xStridesBytes =\n new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n const endBytes = new Uint8Array(new Int32Array($end).buffer);\n const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n const outputShapeBytes =\n new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n const outStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmStridedSlice(\n xId, xStridesBytes, x.shape.length, beginBytes, endBytes, stridesBytes,\n outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc:
setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n createBinaryKernelConfig(Sub,
supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n 'number', // input_id\n 'number', // reduce_size\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'sum', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n

```
* Copyright
 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n *
you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n    xId:
number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n    newShapeSize: number,
 dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmTile =
backend.wasm.cwrap(Tile, null /* void */, [\n    'number',  // x_id\n    'array',   // x_shape\n    'number',  //
x_shape.length\n    'array',   // new_shape\n    'number',  // new_shape.length\n    'number'   // out_id\n
]);\n}\n\nfunction tile(\n    args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n  const {inputs,
backend, attrs} = args;\n  const {x} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const {reps} =
attrs;\n\n  const newShape: number[] = new Array(x.shape.length);\n  for (let i = 0; i < newShape.length; i++) {\n
newShape[i] = x.shape[i] * reps[i];\n  }\n  const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n
const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n  const out =
backend.makeOutput(newShape, x.dtype);\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  wasmTile(\n
xId, xShapeBytes,
 x.shape.length, newShapeBytes, newShape.length,\n      CppDType[out.dtype], outId);\n  return out;\n}\n\nexport
const tileConfig: KernelConfig = {\n  kernelName: Tile,\n  backendName: 'wasm',\n  setupFunc: setup,\n
kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport
 {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n    xId:
number, xShapeBytes: Uint8Array, xShapeLength: number,\n    xDtype: CppDType, k: number, sorted: boolean,
outValuesId: number,\n    outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n
wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n    'number',  // xId\n    'array',   // x.shape\n    'number',
// x.shape.length\n    'number',  // x.dtype\n    'number',  // k\n    'bool',    // sorted\n    'number',  // outValuesId\n
'number',  // outIndicesId\n  ]);\n}\n\nexport const topk:\n    (args: {inputs: TopKInputs, backend: BackendWasm,
attrs: TopKAttrs}) =>\n        TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n          const {x} = inputs;\n
        const {k, sorted} = attrs;\n\n          const xId = backend.dataIdMap.get(x.dataId).id;\n
          const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n          const outputShape =
x.shape.slice();\n          outputShape[outputShape.length - 1] = k;\n          const outValues =
backend.makeOutput(outputShape, x.dtype);\n          const outValuesId =
backend.dataIdMap.get(outValues.dataId).id;\n          const outIndices = backend.makeOutput(outputShape,
'int32');\n          const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n          wasmTopK(\n
xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n              outValuesId, outIndicesId);\n\n
return [outValues, outIndices];\n        };\n\nexport const topKConfig: KernelConfig = {\n  kernelName: TopK,\n
```

backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use
this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength:
number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n 'number', // imageId\n 'number', // transformsId\n 'bool', // isBatchTransform\n 'number', // batch\n 'number', // outHeight\n 'number', // outWidth\n 'number', // numChannels\n 'number', // imageWidth\n 'number', // imageHeight\n 'array', // strides\n 'number', // stridesLength\n 'number', // interpolationModeId\n 'number', // fillModeId\n 'number', // fillValue\n 'number' // outId\n]);\n}\n\nfunction transform(\n args:\n {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth,
numChannels] = image.shape;\n const [outHeight, outWidth] =\n outputShape != null ? outputShape :
[imageHeight, imageWidth];\n const outShape =\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n case 'constant':\n fillModeId = 1;\n break;\n case 'reflect':\n fillModeId = 2;\n break;\n case 'wrap':\n fillModeId = 3;\n break;\n case 'nearest':\n fillModeId = 4;\n
  break;\n default:\n fillModeId = 1;\n break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from

'./Slice';\n\nfunction unpack(\n args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank = value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank; i++) {\n if (i !== axis) {\n outShape[outIndex++] = value.shape[i];\n }\n }\n const outs: TensorInfo[] = new Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n for (let i = 0; i < outs.length; i++) {\n begin[axis] = i;\n outs[i] = slice({inputs: {x: value}, attrs: {begin, size}, backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype, shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the library. A modular build would replace\n// the contents of this file and import only the kernels that are needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig} from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from './kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport {anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig} from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport {batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from './kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from './kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from './kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from './kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from

'./kernels/FloorDiv';\nimport {fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from './kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport {gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport {logicalAndConfig}
from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from './kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from './kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from './kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport
{prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport
{squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from './kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from './kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from './kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from './kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n ceilConfig,\n clipByValueConfig,\n concatConfig,\n
conv2DConfig,\n conv2DBackpropInputConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n

padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n var _scriptDir = typeof document !== 'undefined'
&& document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in

Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return

xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else

if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDepend

encies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=nul
l}if(dependenciesFulfilled){var
callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module
[\"preloadedAudios\"]={};function
abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.err
or(\"Pthread
aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\").
Build with -s ASSERTIONS=1 for more info.\";var e=new
WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return
String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var
dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return
hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return
hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-
simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function
getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new
Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the
wasm failed\"}}catch(err){abort(err)}}function
getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof
fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-
origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at
\"+wasmBinaryFile+\"\"\"}return response[\"arrayBuffer\"]()}).catch(function(){return
getBinary(wasmBinaryFile)})}else{if(readAsync){return new
Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new
Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return
getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function
receiveInstance(instance,module){var
exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!E
NVIRONMENT_IS_PTHREAD){var
numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.load
WasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-
instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function
receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function
instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return
WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare
wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof
WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFil
e)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-
origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return
result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling
back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return
instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var
exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm
callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var
ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscript
en_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function
callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof
callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof
func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)

}}else{func(callback.arg===undefined?null:callback.arg)}}}var
ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,E
BADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EB
USY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,EN
OTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERAN
GE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNA
TCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOA
NO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:
117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM
:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:1
28,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,
ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,
EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFU
SED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOS
TDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,E
PROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,EN
OTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:14
8,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:13
5};function
_emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)retu
rn-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var
mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var
mainThreadWoken=0;if(mainThreadWaitAddress==addr){var
loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainTh
readWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return
1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return
ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value
\"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function
killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be
called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in
killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var
pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runni
ngWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}functio
n cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only
ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in
cancelThread!\";var
pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function
cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only
ever be called from main
application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var
pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var
worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var
PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var pthreadPoolSize=8;for(var
i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var
tb=_malloc(228);for(var
i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var
headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var
i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100

>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRONMENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},threadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.length>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.store(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscripten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthread_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in PThread.pthreads){var pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThread.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeThreadData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(function(){delete PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=undefined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,onFinishedLoading){worker.onmessage=function(e){var d=e[\"data\"];var cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{console.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that thread no longer exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThreadWork\"){_emscripten_main_thread_process_queued_calls()}else if(cmd===\"spawnThread\"){spawnThread(e.data)}else if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else if(cmd===\"killThread\"){killThread(d[\"thread\"])}else if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else

if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\": \"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var t=performance.now()+msecs;while(performance.now()<t){}}};function establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function getNoExitRuntime(){return noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function ___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var _emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(1,1,func,arg)}function __emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessage({\"cmd\":\"processQueuedMainThreadWork\"})}else if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueue\"})}else{var pthread=PThread.pthreads[targetThreadId];var worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}return 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function _emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function _emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-28;if(!ENVIRONMENT_IS_WEB){var ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return 0;throw\"Atomics.wait returned an unexpected value \"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-

73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var i=JSEvents.eventHandlers.length-1;i>=0;--i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListeners:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListeners);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,argsList)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList});JSEvents.deferredCalls.sort(function(x,y){return x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.deferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!J

SEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,eventTypeString){for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||eventTypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--)}}},_removeHandler:function(i){var h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);JSEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var jsEventHandler=function jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDeferredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventHandler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.eventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.eventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData){var
 stackTop=stackSave();var varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThread,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:function(targetThread){switch(targetThread){case 1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";if(target==screen)return\"#screen\";return target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return
 cString}function _emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var stackTop=stackSave();var varargs=stackAlloc(12);var targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32()[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[varargs+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestore(stackTop)}function _emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=targetCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height)}function maybeCStringToJsString(cString){return cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function findEventTarget(target){target=maybeCStringToJsString(target);var
 domElement=specialHTMLTargets[target]||(typeof document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function findCanvasEventTarget(target){return findEventTarget(target)}function _emscripten_set_canvas_element_size_calling_thread(target,width,height){var canvas=findCanvasEventTarget(target);if(!canvas)return-4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA

P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prevViewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else if(canvas.canvasSharedPtr){var targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_on_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function _emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(2,1,target,width,height);return _emscripten_set_canvas_element_size_calling_thread(target,width,height)}function _emscripten_set_canvas_element_size(target,width,height){var canvas=findCanvasEventTarget(target);if(canvas){return _emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return _emscripten_set_canvas_element_size_main_thread(target,width,height)}}function _emscripten_set_current_thread_status(newStatus){}function _emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ext[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcount){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};return 1}}function __webgl_enable_OES_vertex_array_object(ctx){var ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao){return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffersWEBGL\"](n,bufs)};return 1}}function __webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_draw\"))}var GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],contexts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:function recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return source},createContext:function(canvas,webGLContextAttributes){var ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var handle=GL.registerContext(ctx,webGLContextAttributes);return handle},registerContext:function(ctx,webGLContextAttributes){var handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensions

ByDefault){GL.initExtensions(context)}return
handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx
=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(c
ontextHandle){return
GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[context
Handle])GL.currentContext=null;if(typeof
JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.co
ntexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GL
ctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:f
unction(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtension
sDone=true;var
GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_obj
ect(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"
EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var
exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.inde
xOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var
p=GL.programs[program];var
ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-
1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var
numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var
u=GLctx.getActiveUniform(p,i);var
name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-
1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var
id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var j=1;j<u.size;++j){var
n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}
}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function
_emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var
powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var
contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4
>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"p
remultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_
I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerf
ormanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],
minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(
40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_
HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var
canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return
0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function
_emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var
SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var
buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));
buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var
ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var
ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function
_fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return
0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function
_fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return

```
_emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function
 spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var
 global_libc=_emscripten_get_global_libc();var global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthread=pthread;var msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":threadParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthread=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded){worker.runPthread();delete worker.runPthread}}function _pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current
 environment does not support SharedArrayBuffer, pthreads are not available!\");return 6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return _emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_ptr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var
 headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_PTHREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(threadParams)}return 0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var tb=_pthread_self();if(!tb)return;var
```

cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function _emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKER)return;warnOnce(\"Blocking on the main thread is very dangerous, see https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function __emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread pointer!\");return ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread \"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return ERRNO_CODES.ESRCH}var detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread \"+thread+\", which was already detached!\");return ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[status>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PTHREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return 0}if(!block){return ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thread_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1)}}function _pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function _sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_ca

nvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var
asm=createWasm();var
___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var

_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var

_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var

_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var

___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromis

eResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){retur
n}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain(
);readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun(
)}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Mo
dule[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PT
HREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRunti
me();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run
();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif
 (typeof exports === 'object' && typeof module === 'object')\n module.exports =
WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([],
function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n
exports[\"WasmBackendModuleThreadedSimd\"] = WasmBackendModuleThreadedSimd;\n","export const
wasmWorkerContents = 'var Module={};function threadPrintErr(){var
text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function threadAlert(){var
text=Array.prototype.slice.call(arguments).join(\"
\");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var
err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var
instance=new
WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);r
eturn instance.exports};function
moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wa
smModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;
Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof
 e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var
objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}
WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else
if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else
if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-
e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var
top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"](
);Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self
\"](),1);try{var
result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\
\"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else
if(ex!=\"unwind\"){if(ex instanceof
Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}el
se{Module[\"PThread\"].threadExit(-2);throw ex}}}}else
if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else
if(e.data.target===\"setimmediate\"){}else
if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_
process_queued_calls\"]()}}else{err(\"worker.js received unknown command
\"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception:

\"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n WasmBackendModule = WasmBackendModule || {};\n\n\nvar Module=typeof WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof

document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]

=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-

origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at \"+wasmBinaryFile+\"\"\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function _emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function _emscripten_get_heap_size(){return HEAPU8.length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function

setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function
_sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return
maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case
17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case
154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case
52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case
181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case
50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case
81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case
129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case
42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return
99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return
32767;case
75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case
180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof
navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}var
asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_f
d_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var
___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm
_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var
_init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};
var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Mod
ule[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads
_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=M
odule[\"asm\"][\"o\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"
asm\"][\"p\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(n
ull,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments
)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,argument
s)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,ar
guments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};
var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).app
ly(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"z\"]).apply(null,arguments)};var

_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var

_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var

_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var

__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var _malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var _free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var ___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}run();\n\n\n
  return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY
  KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors,
  storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object; // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n   super();\n

this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs
= util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values:
backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id =
this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n
this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n
return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size *
util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n
this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values
as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n
memoryOffset);\n
}\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return
this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset,
dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n
}\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset +
util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n
}\n\n /**\n * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n * is released, false
otherwise.\n * @param dataId\n * @oaram force Optional, remove the data regardless of refCount\n */\n
disposeData(dataId: DataId, force = false): boolean {\n if (this.dataIdMap.has(dataId)) {\n const data =
this.dataIdMap.get(dataId);\n data.refCount--;\n if (!force && data.refCount > 0) {\n return false;\n
}\n\n this.wasm._free(data.memoryOffset);\n this.wasm.tfjs.disposeData(data.id);\n
this.dataIdMap.delete(dataId);\n }\n return true;\n }\n\n /** Return refCount of a `TensorData`. */\n
refCount(dataId: DataId): number {\n if (this.dataIdMap.has(dataId)) {\n const tensorData =
this.dataIdMap.get(dataId);\n return tensorData.refCount;\n }\n return 0;\n }\n\n incRef(dataId: DataId) {\n
const data = this.dataIdMap.get(dataId);\n if (data != null) {\n data.refCount++;\n }\n }\n\n floatPrecision():
32 {\n return 32;\n }\n\n // Returns the memory offset of a tensor. Useful for debugging and unit\n // testing.\n
getMemoryOffset(dataId: DataId): number {\n return this.dataIdMap.get(dataId).memoryOffset;\n }\n\n
dispose() {\n this.wasm.tfjs.dispose();\n if ('PThread' in this.wasm) {\n
this.wasm.PThread.terminateAllThreads();\n }\n this.wasm = null;\n }\n\n memory() {\n return {unreliable:
false};\n
}\n\n /**\n * Make a tensor info for the output of an op. If `memoryOffset` is not\n * present, this method
allocates memory on the WASM heap. If `memoryOffset`\n * is present, the memory was allocated elsewhere (in
c++) and we just record\n * the pointer where that memory lives.\n */\n makeOutput(shape: number[], dtype:
DataType, memoryOffset?: number):\n TensorInfo {\n let dataId: {};\n if (memoryOffset == null) {\n
dataId = this.write(null /* values */, shape, dtype);\n } else {\n const id = this.dataIdNextNumber++;\n
dataId = {id};\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount: 1});\n const size =
util.sizeFromShape(shape);\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n }\n return {dataId,
shape, dtype};\n }\n\n typedArrayFromHeap({shape, dtype, dataId}: TensorInfo):\n backend_util.TypedArray
{\n const buffer = this.wasm.HEAPU8.buffer;\n const {memoryOffset} = this.dataIdMap.get(dataId);\n
const size = util.sizeFromShape(shape);\n switch (dtype) {\n case 'float32':\n return new
Float32Array(buffer, memoryOffset, size);\n case 'int32':\n return new Int32Array(buffer, memoryOffset,
size);\n case 'bool':\n return new Uint8Array(buffer, memoryOffset, size);\n default:\n throw new
Error(`Unknown dtype ${dtype}`);\n }\n }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n // this

```
will be replace by rollup plugin patchWechatWebAssembly in\n  // minprogram's output.\n  // tslint:disable-next-line:no-any\n  return (imports: any, callback: any) => {\n    util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n      if (!response['ok']) {\n        imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n      response.arrayBuffer().then(binary => {\n        WebAssembly.instantiate(binary, imports).then(output => {\n          callback(output.instance, output.module);\n
      });\n    });\n  });\n  return {};\n };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n  simdSupported: boolean, threadsSupported: boolean,\n    wasmModuleFolder: string) {\n  if (wasmPath != null) {\n    // If wasmPath is defined, the user has supplied a full path to\n    // the vanilla .wasm binary.\n    return wasmPath;\n  }\n\n  let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n  if (simdSupported && threadsSupported) {\n    path = 'tfjs-backend-wasm-threaded-simd.wasm';\n  } else if (simdSupported) {\n    path = 'tfjs-backend-wasm-simd.wasm';\n  }\n\n  if (wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n      return wasmFileMap[path];\n    }\n  }\n\n  return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n  const [simdSupported, threadsSupported] = await Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n    env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) => {\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function overrides the Emscripten module locateFile utility.\n     * @param path The relative path to the file that needs to be loaded.\n     * @param prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile = (path, prefix) => {\n      if (path.endsWith('.worker.js')) {\n        const response = wasmWorkerContents;\n        const blob = new Blob([response], {type: 'application/javascript'});\n
      return URL.createObjectURL(blob);\n      }\n\n      if (path.endsWith('.wasm')) {\n        return getPathToWasmBinary(\n            simdSupported as boolean, threadsSupported as boolean,\n            wasmPathPrefix != null ? wasmPathPrefix : prefix);\n      }\n      return prefix + path;\n    };\n\n    // Use the instantiateWasm override when system fetch is not available.\n    // Reference:\n    // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n    if (customFetch) {\n      factoryConfig.instantiateWasm =\n          createInstantiateWasmFunc(getPathToWasmBinary(\n              simdSupported as boolean, threadsSupported as boolean,\n              wasmPathPrefix != null ? wasmPathPrefix : ''));\n    }\n\n    let initialized = false;\n    factoryConfig.onAbort = () => {\n      if (initialized) {\n        // Emscripten already called console.warn so no need to double log.\n
      return;\n      }\n      if (initAborted) {\n        // Emscripten calls `onAbort` twice, resulting in double error\n        // messages.\n        return;\n      }\n      initAborted = true;\n      const rejectMsg =\n          'Make sure the server can serve the `.wasm` file relative to the ' +\n          'bundled js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n      reject({message: rejectMsg});\n    };\n\n    let wasm: Promise<BackendWasmModule>;\n    // If `wasmPath` has been defined we must initialize the vanilla module.\n    if (threadsSupported && simdSupported && wasmPath == null) {\n      factoryConfig.mainScriptUrlOrBlob = new Blob(\n          [`var WasmBackendModuleThreadedSimd = ` +\n          wasmFactoryThreadedSimd.toString()],\n          {type: 'text/javascript'});\n      wasm = wasmFactoryThreadedSimd(factoryConfig);\n    } else {\n      // The wasmFactory works for both vanilla and SIMD binaries.\n      wasm = wasmFactory(factoryConfig);\n    }\n\n    // The WASM module has been successfully created by the factory.\n    // Any error will be caught by the onAbort callback defined above.\n    wasm.then((module) => {\n      initialized = true;\n      initAborted = false;\n\n      const voidReturnType: string = null;\n      // Using the tfjs namespace to avoid conflict with emscripten's API.\n      module.tfjs = {\n        init: module.cwrap('init', null, []),\n        initWithThreadsCount:\n            module.cwrap('init_with_threads_count', null,
```

['number']),\n getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n registerTensor: module.cwrap(\n 'register_tensor', null,\n [\n 'number', // id\n 'number', // size\n 'number', // memoryOffset\n]),\n disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n };\n\n resolve({wasm: module});\n });\n });\n}\n\nfunction typedArrayFromBuffer(\n buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer);\n case 'int32':\n return new Int32Array(buffer);\n case 'bool':\n return new Uint8Array(buffer);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n\nconst wasmBinaryNames = [\n 'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string, usePlatformFetch = false): void {\n deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n ' will be removed in a future release.');\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n }\n wasmPath = path;\n customFetch = usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n * 'tfjs-backend-wasm.wasm': 'renamed.wasm',\n * 'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n * 'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n * - (string) The path to the directory where the WASM binaries are located.\n * Note that this prefix will be used to load each binary (vanilla,\n * SIMD-enabled, threading-enabled, etc.).\n * - (object) Mapping from names of WASM binaries to custom\n * full paths specifying the locations of those binaries. This is useful if\n * your WASM binaries are not all located in the same directory, or if your\n * WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n usePlatformFetch = false): void {\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n wasmPathPrefix = prefixOrFileMap;\n } else {\n wasmFileMap = prefixOrFileMap;\n const missingPaths =\n wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n if (missingPaths.length > 0) {\n throw new Error(\n `There were no entries found for the following binaries: ` +\n `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n *

Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n}, WASM_PRIORITY);\n"],"names":["_FusedMatMul","util","Abs","backend_util","Add","AddN","Identity","setup","Transpose","All","Any","wasmFunc","ArgMax","AvgPool","Reshape","BatchMatMul","slice_util","buffer","sliceImplCPU","Slice","BatchToSpaceND","Cast","Ceil","ClipByValue","concatImplCPU","Concat","Conv2D","Conv2DBackpropInput","Cos","Cosh","CropAndResize","Cumsum","DepthToSpace","DepthwiseConv2dNative","Elu","supportsFullBroadcast","Equal","Exp","ExpandDims","Fill","FlipLeftRight","Floor","FloorDiv","FusedBatchNorm","FusedConv2D","FusedDepthwiseConv2D","GatherNd","GatherV2","Greater","GreaterEqual","setupFunc","LeakyRelu","Less","LessEqual","Log","LogicalAnd","Max","Maximum","MaxPool","Mean","Min","Minimum","MirrorPad","Multiply","Neg","NonMaxSuppressionV3","NonMaxSuppressionV4","NonMaxSuppressionV5","kernelFunc","NotEqual","OneHot","OnesLike","Pack","PadV2","Pow","Prelu","Prod","rangeImplCPU","Range","RealDiv","Relu","Relu6","ResizeBilinear","Reverse","RotateWithOffset","Round","Rsqrt","ScatterNd","Select","Sigmoid","Sin","Softmax","SpaceToBatchND","SplitV","Sqrt","Square","SquaredDifference","Step","StridedSlice","Sub","Sum","Tan","Tanh","Tile","TopK","Transform","Unpack","ZerosLike","registerKernel","env","tslib_1.__extends","DataStorage","engine","KernelBackend","tslib_1.__awaiter","registerBackend"],"mappings":";;;;;;;;;;;;;;;;;;;;;;;;AAAA;;;;;;;;;;;;;;;;AAiBA;AACA,IAAY,QAAMX;AAAN,WAAWA,QAAAA,QAAAA,QAAA

AAK,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;IACrD,IAAM,QAAQ,GA
AG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAA
C,CAAC;IACtD,IAAM,QAAQ,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;IAE5B,IAAM,GAAG,
GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,QAAQ,EAAE,OAAO,EAAE,QAAQ,CAAC,EAAE,CAAC,CAAC,K
AAK,CAAC,CAAC;IACvE,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC;IAEnD,IAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,
CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC;IACnE,IAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,U
AAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC;IAEnE,eAAe,CACX,GAAG,EAAE,WA
AW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CA
AC,MAAM,EAClE,UAAU,EAAE,UAAU,EAAE,eAAe,EAAE,MAAM,EAAE,wBAAwB,EACzE,cAAc,IAAI,CA
AC,EAAE,KAAK,CAAC,CAAC;IAEhC,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,qBAAqB,GAAG,IA
C7C,UAAU,EAAEA,qBAAY;IACxB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,KAAK;IAChB,UAAU,EAAE
,gBAAoC;CACjD;;AC7GD;;;;;;;;;;;;;;;;SAuBgB,uBAAuB,CACnC,UAAkB,EAAE,OAAkB;IACxC,IAAI,QA6D,
CAAC;IAElE,SAAS,SAAS,CAAC,OAAoB;QACrC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,EAAE,U
AAU,EAAE,IAAI,aAAa;YACzD,QAAQ;YACR,QAAQ;YACR,QAAQ;SACT,CAAC,CAAC;KACJ;IAED,SAAS,
UAAU,CAAC,IAAiD;QAE5D,sBAAO,EAAW,uBAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,
SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,
CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

AiB,CAAC,CAAC,KAAK,SAAI,UAAU,MAAG,CAAA,CAAC,CAAC;SAChD;KACF;IAED,OAAO,EAAC,UAAU,YAAA,EAAE,WAAW,EAAE,MAAM,EAAE,SAAS,WAAA,EAAE,UAAU,YAAA,EAAC,CAAC;AAClE;;ACxFA;;;;;;;;;;;;;;;AAqBA,IAAM,qBAAqB,GAAG,IAAI,CAAC;AE5B,IAAM,SAAS,GAAClB,wBAAwB,CAACC,CAAC,YAAY,GAAG,EAAE,qBAAqB,CAAC,CAAC,CAAC

,CAAC,CAAC;SACzB;QACD,IAAI,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE;YA
CxB,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC;SACvB;KACF;IACD,KAAK,IAAI,C
AAC,GAAG,CAAC,EAAE,CAAC,GAAG,OAAO,CAAC,MAAM,EAAE,EAAE,CAAC,EAAE;QACvC,IAAI,SA
AS,GAAG,CAAC,CAAC,CAAC;QACnB,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,OAAO,CAA
C,MAAM,EAAE,EAAE,CAAC,EAAE;YACvC,IAAI,OAAO,CAAC,CAAC,CAAC,IAAI,CAAC;iBACd,SAAS,K
AAK,CAAC,CAAC,IAAI,OAAO,CAAC,SAAS,CAAC,GAAG,OAAO,CAAC,CAAC,CAAC,CAAC,EAAE;gBAC
zD,SAAS,GAAG,CAAC,CAAC;aACf;SACF;QACD,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC;KCxB;
IACD,OAAO,CAAC,QAAQ,EAAE,OAAO,CAAC,CAAC;AAC7B,CAAC;AAEM,IAAM,eAAe,GAAG;IAC3C,U
AAU,EAAEA,kBAAS;IACrB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,SA6B;IACzC,SAAS,EAAED,OAA
K;CACjB;;ACtHD;;;;;;;;;;;;;;;;AAqBA;;;;;;;;SAQgB,uBAAuB,CACnC,CAAa,EAAE,IAAqB,EAAE,OAAoB;IAM5D,IAAM,MAAM,GAAG,CAAC,CAAC;IACvB,IAAK,KAAK,GAAG,CAAC,EAAE,KAAK,GAAG,CAAC,EAAE,KAAK,EAAE,EAAE;QAClC,IAAM,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC;QACnB,IAAM,CAAC,GAAG,CAAC,CAAC,KAAK,GAAG,CAAC,CAAC;QACt

CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAI,OAAO,GAAG,GAAG,CAAC;IAClB,IAAI,KAA
K,GAAG,CAAC,CAAC;IAER,IAAA,8CACuC,EADtC,0BAAU,,EAAE,cAAI,,EAAE,8BAAY,,EAAE,0CACM,CA
AC;IAE9C,IAAI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UA
AU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,KAAK,GAAG,UAAU,CAAC;QACnB,OAAO,GAAG,Y
AAY,CAAC;KACxB;IAED,IAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IACrCP,qBAAY,,
CAAC,0BAA0B,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;IAC1D,IAAA,uEACuD,,EADtD,gBAA
Q,EAAE,mBAC4C,CAAC;IAC9D,IAAM,UAAU,GAAGF,aAAI,,CAAC,aAAa,CAAC,WAAW,CAAC,CAAC;IAE
nD,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IACl
D,IAAIA,aAAI,,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACzC,IAAM,KAAK,
GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;QACnD,
OAAO,CAAC,OAAO,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;KCrC;IAED,IAAI,kBAAkB,EAAE;;QAEtB,
OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KCxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,I
AAM,QAAQ,GAAGE,qBAAY,,CAAC,oBAAoB,CAAC,GAAG,CAAC,KAAK,EAAE,YAAY,,CAAC,CAAC;QAC
5E,GAAG,CAAC,KAAK,GAAG,QAAQ,CAAC;KCtB;IAED,OAAO,GAAG,CAAC;AACb,IAAM,SAAS,GAAG,CAAC;AAEM,IAAA
M,SAAS,GAAAiB;IACrC,UAAU,EAAEO,YAAG;IACf,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEH,OAAK;IA
ChB,UAAU,EAAE,GAAAuB;CACpC;;AC9ED;;;;;;;;;;;;;;;;AAwBA,IAAII,UAEsB,CAAC;AAE3B,SAASJ,OAAK,
CAAC,OAAoB;IACjCI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CACC,eAAM,,EAAE,IAAI,aAAa;QA
CrD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AA
ED,SAAS,MAAM,CACX,IAAsE;IACjE,IAAA,sBAAO,,EAAE,oBAAM,,EAAE,kBAAK,,CAAS,EAAE,iBA
AI,CAA+B;IACnC,IAAA,YAAC,,CAAiC;IACzC,IAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;QACjD,
C,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAI,OAAO,GAAG,GAAG,CAAC;IAClB,IAAI,KAAK,
AAK,GAAG,CAAC,CAAC;IAER,IAAA,8CACuC,,EADtC,0BAAU,,EAAE,cAAI,,EAAE,8BAAY,,EAAE,0CAAoB,,CAAC;IAE9C,IAAI,
IAAI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,M
AAM,CAAC,CAAC,EAAE,CAAC;QACjE,KAAK,GAAG,UAAU,CAAC;QACnB,OAAO,GAAG,YAAY,,CAAC,CAAC;KCjD;IAED,IAAI,kBAAkB,EAAE;QACtB,
YAAY,,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KCpD;IAED,IAAI,QAAQ,EAAE;QACZ,IAAM,QAAQ,
GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;QACnD,
OAAO,CAAC,OAAO,EAAE,UAAU,EAAE,QAAQ,CAAC,CAAC;KCvD;IAED,OAAO,GAAG,CAAC;AACb,IAAM,SAAS,GAAG,CAAC;AAEnB,SAAS,MAAM,CACX,IAAsE;IACjE,IAAA,sBAAO,,EAAE,oBAAM,,EAAE,kBAAK,,CAAS,EAAE,iBAAI,

I,KAAK,CACX,4CAA4C;aACzC,QAAQ,CAAC,UAAU,kCAA+B,CAAA,CAAC,CAAC;KAC5D;IAED,IAAI,QAAQ,CAAC,aAAa,KAAK,CAAC,IAAI,QAAQ,CAAC,cAAc,KAAK,CAAC,EAAE;QACjE,MAAM,IAAI,KAAK,CACX,oEAAoE;aACpE,UAAQ,QAAQ,CAAC,cAAc,UAAK,QAAQ,CAAC,aAAa,OAAI,CAAA,CAAC,CAAC;KACrE;IAED,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IAC7D,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IAEnD,WAAW,CAAP,EAAE,CAAC,KAAK,CAAC,QAAQ,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,YAAY,EAAE,WAAW,EAAE,CAAC,IAAI,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,YAAY,EAAE,WAAW,EAAE,QAAQ,EAAE,CAAC,IAAI,KAAK,CAAC,CAAC,CAAC;IACX,OAAO,GAAG,CAAC,CAAC;AACb,CAAC,CAAC;AAEM,MAAM,EAAE,QAAQ,EAAE,QAAQ,EAAE,QAAQ,EAAE,SAAS,EAAE,SAAS,EAAE,SAAS

E,IAAM,GAAG,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,SAAA,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,QAAQ,EAAC,EAAC,CAAC,CAAC;IACzE,IAAM,GAAG,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,SAAA,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,QAAQ,EAAC,EAAC,CAAC,CAAC;IAEzE,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC;IACnD,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC;IACnD,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC;IAEnD

AC5C,QAAQ,MAAM,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,GAAG,CAAC,CAAC,GAAG,IAAI,C
AAC;AACzC,KAAK;AACL,IAAI,OAAO,MAAM,CAAC;AAClB;;ACrCA;AACA;AACA;AACA;AACA;AACA;
AACA;AACA;AACA;AACA;AACA;AACA;AACA;AACA;AACA;AACA;AAGO,SAAS,SAAS,CAAC,IAAI,EA
AE,KAAK,EAAE,IAAI,EAAE,KAAK,EAAE,KAAK,EAAE;AAC3D,IAAI,MAAM,WAAW,GAAGe,mBAAU,C
AAC,gBAAgB,CAAC,KAAK,EAAE,KAAK,EAAE,IAAI,CAAC,CAAC;AACxE,IAAI,MAAM,MAAM,GAAGf,aAAI,CAAC,aAAa,CAAC,cAAc,CAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,IAAI,CAAC,CAAC;AAC5D,IAAI,IAAI,WAAW,EAAE;AACrB,QAAQ,MAAM,UAAU,GAAGe,mBAAU,CAAC,iBAAiB,CAAC,KAAK,EAAE,KAAK,EAAE,QAAQ,CAAC,CAAC;AACzE,QAAQ,IAAI,MAAM,WAAW,GAAGf,aAAI,CAAC,aAAa,CAAC,cAAc,CAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,QAAQ,EAAE,EAAE;AACnG,YAAY,MAAM,CAAC,YAAY,CAAC,OAAO,EAAE,IAAI,EAAE,CAAC,CAAC,EAAE,KAAK,EAAE,UAAU,EAAE,KAAK,EAAE,UAAU,EAAE,KAAK,EAAE,MAAM,EAAE,CAAC,EAAE,CAAC,EAAE;AAC/G

KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;QAClC,IAAM,OAAO,GAAG,CAAC,GAAG,OAAO,GAAG,MAAM,CAAC;QACrC,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,QAAQ,CAAC,OAAO,EAAE,OAAO,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC,EAAE,SAAS,CAAC,CAAC;QACnE,SAAS,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC;KCtB;AACH,CAAC;AAED,SAAS,OAAO,CACZ,KAA8B,EAAE,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC

AU,CAAC,CAAC,CAAC,KAAK,EAAE,KAAK,CAAC,CAAC;IAC/C,IAAM,MAAM,GAAG,OAAO,CAAC,kBA
AkB,CAAC,CAAC,CAAC,CAAC;IAC7C,IAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,C
AAC;IAChD,OAAO,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC;IACpB,OAAO,GAAG,CAAC;AACb,CAAC;A
AEM,IAAM,UAAU,GAAiB;IACtC,UAAU,EAAEC,aAAI;IAChB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,I
AAwB;CACrC;;ACrCD;;;;;;;;;;;;;;;;AAoBO,IAAM,UAAU,GAAiB,uBAAuB,CAACC,aAAI,CAAC;;ACpBrE;;;;;;;;
;;;;;;;;AAqBA,IAAI,QAAwE,CAAC;AAE7E,SASf,OAAK,CAAC,OAAoB;IACjC,QAAQ,GAAG,OAAO,CAAC,
IAAI,CAAC,KAAK,CAACgB,oBAAW,EAAE,IAAI,aAAa;QAC1D,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,
QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,IAAI,CAAC,IAAIb;IACQ,oBAAM,EAAE,sBAA
O,EAAE,kBAAK,CAAS;IAC/B,IAAA,YAAC,CAAW;IACZ,IAAA,iCAAY,,EAAE,iCAAY,,CAAU;IAC3C,IAAM,
GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;I
AC/C,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,C
AAC,CAAC;IACjD,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CA
AC,CAAC,EAAE,CAAC;IACnD,QAAQ,CAAC,EAAE,YAAY,EAAE,YAAY,EAAE,KAAK,CAAC,CAA
C;IACjD,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,iBAAiB,GAAiB;IAC7C,UAAU,EAAEC,aAAI;IAChB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,IAAIb;QACvB,WAAW,EAAE,MAAM;QACnB,UAAU,EAAE,IAAIa,aAAI;KACrB;CACrC;;ACpDD;;;;
;;;;;;;;;;;SAwBgB,MAAM,CAClB,IAAsE;IACjE,QAAQ,GAAG,oBAAM,EAAE,sBAAO,,CAAS;IAAE,IAAI,GAAG
GN,aAAI,,CAAC,cAAc,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,EAAE,MAAM,CAAC,CAAC,CAAC,CAAC,KA
AK,CAAC,CAAC,CAAC,CAAC,CAAC;IAEtE,IAAI,QAAQ,GAAGE,GE,qBAAY,,EAAE,eAAe,CAAC,MAAM,CAA
C,GAAG,CAAC,UAAA,CAAC,IAAI,OAAA,CAAC,CAAC,KAAK,GAAA,CAAC,CAAC,CAAC;;IAG5E,IAAM,OAAO,GAAG,MAAM,CAAC,UAAA,CAAC,IAAI,OAAAF,CAAF,CAAE,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK

B,CAAC,CAAC;IACH,IAAM,MAAM,GAAG,OAAO,CAAC,GAAG,CAAC,UAAA,KAAK,IAAI,OAAA,OAAO,
CAAC,kBAAkB,CAAC,KAAK,CAAC,GAAA,CAAC,CAAC;IACvE,IAAM,OAAO,GAAG,OAAO,CAAC,kBAA
kB,CAAC,GAAG,CAAC,CAAC;IAChD,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,QAAQ,EAAE,
CAAC,EAAE,EAAE;QACjC,IAAI,SAAS,GAAG,CAAC,GAAG,YAAY,CAAC;QACjC,KAAK,IAAI,CAAC,GA
AG,CAAC,EAAE,CAAC,GAAG,MAAM,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;YACtC,IAAM,QAAQ,GA
AG,SAAS,CAAC,CAAC,CAAC;YAC9B,IAAM,QAAQ,GAAG,CAAC,GAAG,QAAQ,CAAC;YAC9B,IA
AM,IAAI,GAAG,MAAM,CAAC,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,QAAQ,GAAG,QAAQ,CAA
C,CAAC;YAC/D,OAAO,CAAC,GAAG,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;YAC7B,SAAS,GAAG

C,UAAU,EAAE,MAAM,CAAC,KAAyC,EAAE,OAAO,EACrE,SAAS,EAAE,GAAG,EAAE,eAAe,EAAE,KAAK,kBAAkB,WAAW,CAAC,CAAC;IAEvE,IAAA,8BAAS,,EACT,oCAAY,,EACZ,kCAAW,,EACX,gCAAU,,EACV,4BAAQ,,EACR,0BAAO,,EACP,kCAAW,,EACX,8BAAS,,EACT,4BAAQ,,EACR,oCAAY,,EACZ,kCAAW,,CACA;IAEb,IAAM,,MAAM,,GAAG,,YAAY,,GAAG,,CAAC,,GAAG,,QAAQ,,CAAC,,OAAO,,CAAC,,GAAG,,CAAC;IACvD,IAAM,,OAAO,,GAAG,,WAAW,,GAAG,,CAAC,,GAAG,,QAAQ,,CAAC,,OAAO,,CAAC,,IAAI,,CAAC;IAExD,IAAM,,cAAc,,GAAG,,QAAQ,,CAAC,,UAAU,,KAAK,,cAAc,,CAAC,,IAAC9D,IAAM,,SAAS,,GAAGF,aAAI,,CAAC,,cAAc,,CAAC,,QAAQ,,CAAC,,OAAO,,CAAC,,CAAC;IACxD,IAAM,,SAAS,,GAAGA,aAAI,,CAAC,,cAAc,,CAAC,,EAAE,,CAAC,,KAAK,,CAAC,,CAAC;IAC1C,IAAA,+CAAA,yDAAA,aAAA,EAAA,aAAA,EAAA,aAAA,0CAAA,IAAA,gBAAA,EAAA,MAAA,EAAA,YAAA,EAAA,GAAA,EAAA,SAAA,EAAA,CAAA,EAAA,CAAA,EAAA,CAAA,EAAA,CAAA,IAAA,gBAAA,EAAA,MAAA,EAAA,K

AAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACxC;IAED,OAAO,GAAG,CAAC;AACb,
CAAC;AAEM,IAAM,mBAAmB,GAAiB;IAC/C,UAAU,EAAEA,sBAAa;IACzB,WAAW,EAAE,MAAM;IACnB,
SAAS,EAAEvB,OAAK;IAChB,UAAU,EAAE,aAAiC;CAC9C;;ACjGD;;;;;;;;;;;;;;;AAyBA,IAAI,UAAsE,CAAC;A
AE3E,SAASA,OAAK,CAAC,OAAoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,wB,eAA
M,EAAE,IAAI,aAAa;QACvD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;
KACT,CAAC,CAAC;AACL,CAAC;SAEe,MAAM,CACpB,IAAsE,E/BAM,EAAE,sBAAO,EAAE,
kBAAK,CAAS;IAC/B,UAAU,EAAE,IAAA,YAAC,CAAW;IACZ,iBAAI,EAAE,2BAAS,EAAE,uBAAO,CAAU;IACzC,I
AAM,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC;IAE7B9B,aAAI,CAAC,MAAM,CAAC,CAAC
,CAAC,KAAK,KAAK,SAAS,IAAI,CAAC,CAAC,KAAK,KAAK,OAAO,EACtD,cAAM,OAAA,6BA2B,CAAC,
CAAC,KAAK,iCA8B,GAAA,CAAC,CAAC;;IAE1E,IAAM,WAAW,GAAG,qBAAY,,kBAAK,CAAS,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,CAAC;IACnE,IAAI,EAAE,IAAA,YAAC,CAAW;IAClB,IAAI,WAAW;QAAE,EAAE,GAAG,
KAAK,IAAI,EAAE;QAAE,EAAE,GAAG,KAAK,CAAC;IAE7C,IAAM,MAAM,GAAG,IAAI,CAAC,MAAM,CAAC,
CAAC,IAAI,EAAE,IAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,
CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

AAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,IAAM,YAAY,GAAG,UAAU,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;IACnD,gBAAgB,CACZ,GAAG,EAAE,SAAS,EAAE,YAAY,EAAE,aAAa,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,GAAG,CAAC,EAC/D,gBAAgB,EAAE,eAAe,EAAE,WAAW,CAAC,MAAM,EAAE,KAAK,CAAC,CAAC;IAElE,OAAO,GAAG,CAAC;AACb,CAAC;AAED,IAAM,kBAAkB,GAAG,UAAU;IAAE,qBAAW;SAAX,UAAW,EAAX,qBAAW,EAAX,IAAW;QAAX,oCAAW;;IAAK,OAAA,WAAW,CAAC,MAAM,OAAlB,WAAW,EAAW,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC

B,EAApB,gBAAK,EAAE,gBAAK,EAAE,gBAAK,EAAG,sBAAO,CAAS;IACrD,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,KAAK,CAAC,CAAC;IAC7C,IAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC;IAChD,OAAO,CAAC,IAAI,CAAC,KAAe,CAAC,CAAC,CAAC;IAC9B,OAAO,GAAG,OAAO,CAAC;AACb;AACA,UAAU,GAAG,UAAU,EAAE,EAAE,CAAC,CAAC,CAAC

,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEzD,IAAM,cAAc,GAAG,QAAQ,CAAC,WAAW,CAAC;IAE5C,IAAI,MAAM,GAAG,CAAC,CAAC;IACf,IAAI,IAAI,IAAI,IAAI,EAAE;QAChB,IAAM,QAAQ,GAAG,CAAC,CAAC,CAAC;QACpD,IAAI,QAAQ,CAAC,KAAK,CAAC,MAAM,CAAC;QAC1B,IAAI,CAAC,KAAK,CAAC,MAAM,CAAC;QAClB,EAAE;YAC/B,IAAM,MAAM,GAAG,CAAC,CAAC,CAAC

,GAAG,CAAC;IACpC,IAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;IACxC,IAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;IAC1C,IAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC;IACtC,IAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,IAAM,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC;IAC7C,IAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,IAAM,WAAW,GAAG,QAAQ,CAAC,UAAU,CAAC;IAC1C,IAAM,SAAS,GAAG,QAAQ,CAAC,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK

AAE;YACL,KAAK,EAAE;gBACL,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,OAAO
;gBAC3D,SAAS,CAAC,SAAS;aACpB;SACF;QACD,OAAO,SAAA;KACR,CAAC,CAAC;IACH,IAAM,WAAW,
GAAGF,aAAI,CAAC,aAAa,CAAC,OAAO,CAAC,KAAK,CAAC,CAAC;IACtD,IAAM,YAAY,GAAG,OAAO,C
AAC;QAC3B,MAAM,EAAE,EAAC,CAAC,EAAE,OAAO,EAAC;QACpB,KAAK,EAAE,EAAC,KAAK,EAAE,C
AAC,SAAS,CAAC,SAAS,EAAE,WAAW,GAAG,SAAS,CAAC,SAAS,CAAC,EAAC;QACxE,OAAO,SAAA;KA
CR,CAAC,CAAC;IACH,IAAM,kBAAkB,GAAG;QACzB,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAA
E,WAAW,GAAG,SAAS,CAAC,SAAS;QAC3E,SAAS,CAAC,SAAS;KACpB,CAAC;IAEF,IAAM,GAAG,GAAG,
OAAO,CAAC,UAAU,CAAC,kBAAkB,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAC5D,IAAIA,aAAI,CAAC,a
AAa,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACrC,OAAO,GAAG,CAAC,KACZ;IACD,IAA
M,WAAW,GAAG,QAAQ,CAAC,KAAK,CAAC,MAAM,GAAG,CAAC,CAAC;IAE9C,IAAM,KAAK,GAAG,OA
AO,CAAC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC;IACrD,IAAM,GAAG,GAAG,KA
AK,CAAC,EAAE,CAAC;IAErB,IAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAA
C,MAAM,CAAC,CAAC;IAC/D,IAAM,SAAS,GAAG,WAAW,CAAC,EAAE,CAAC;IAEjC,IAAM,KAAK,GAAG
,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,IAAM,aAAa,GAAG,GAAG,IAAI,UAAU,CAChC,aAAI,CAAC,cAAc,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC

AI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC;QACjE,KAAK,GAAG,UAAU,CAAC;QACnB,OAAO,GAAG,YAAY,CAAC;K
ACxB;IAED,IAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IACrCrD,qBAAY,CAAC,0BAA
0B,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;IAC1D,IAAA,uEACuD,EADtD,gBAAQ,EAAE,mBA
C4C,CAAC;IAC9D,IAAM,UAAU,GAAGF,aAAI,CAAC,aAAa,CAAC,WAAW,CAAC,CAAC;IAEnD,IAAM,GA
AG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAClD,IAAIA,aAAI
,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACzC,IAAM,KAAK,GAAG,OAAO,C
AAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACnD,OAAO,CAAC,O
AAO,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;KACxD;IA
ED,IAAI,kBAAkB,EAAE;;QAEtB,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACxC;
IAED,IAAI,QAAQ,EAAE;;QAEZ,IAAM,QAAQ,GAAGE,oBAAoB,CAAC,GAAG,CAAC,KAAK
,EAAE,YAAY,CAAC,CAAC;QAC5E,GAAG,CAAC,KAAK,GAAG,QAAQ;KACtB;IAED,OAAO,GAAG,
CAAC;AACb,CAAC;AAEM,IAAM,SAAS,GAAiB,UAAU,EAAE,MAAM
;IACnB,SAAS,EAAEjD,OAAK;IAChB,UAAU,EAAE,GAAuB;CACpC;;ACrFD;;;;;;;;;;;;;;;AAmBA,IAAM4B,uB
AAqB,GAAG,KAAK,CAAC;AAC7B,IAAM,aAAa,GAAC
tB,wBAAwB,CAACsB,gBAAO,EAAEtB,uBAAqB,CAA
C;;ACrB5D;;;;;;;;;;;;;;;AAqBA,IAAI,WAAkE,CAAC;AAE1E,SAAS5B,OAAK,CAAC,GAAG,EAAE,GAAG,
AAO,CAAC,IAAI,CAAC,KAAK,CAACmD,gBAAO,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,CAAC;IAC
tD,IAAM,KAAK,GAAG,IAAI,KAAK,CAAC,GAAG,CAAC,CAAC;IAC7B,KAAK,CAAC,IAAI,GAAG,eAAe,CAAC;IAC7B,MAAM,KAAK,CAAC;AACd,CAAC;AAED,SAAS,QAAQ,CAAC,GAAG,EAAE,GAAG,
AAO,CAAC,IAAI,CAAC,KAAK,CAACA

ACzB,IAAI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,C
AAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,KAAK,GAAG,EAAE;;;YAGxB,KAAK,GAAG,
UAAU,CAAC;YACnB,OAAO,GAAG,YAAY,CAAC;YACvB,aAAa,GAAGxD,qBAAY,CAAC,gBAAgB,CACzC,
aAAa,CAAC,MAAM,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;SAC/C;KACF;IAEDA,qBAAY
,CAAC,0BAA0B,CACnC,MAAM,EAAE,aAAa,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;IACz
C,IAAA,gFACgE,EAD/D,gBAAQ,EAAE,mBACqD,CAAC;IACvE,IAAM,UAAU,GAAGF,aAAI,CAAC,aAAa,C
AAC,WAAW,CAAC,CAAC;IACnD,IAAI,WAAW,GAAG,KAAK,CAAC;IACxB,IAAI,KAAK,CAAC,KAAK,KA
AK,SAAS,EAAE;QAC7B,WAAW;YACP,IAAI,CAAC,EAAC,OAAO,SAAA,EAAE,MAAM,EAAE,CAAC,CAAC,EAAE,KAAK,EAAC,EAAC,CAAC,EAAE,KAAK,EAAC,EAAE,KAAK,EAAC,EAAC,CAAC,EAAE,KAAK,EAAC,EAAE,SAAS,EAAC,EAAC,CAAC,EAAE,CAAC;QACnE,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;
KACxD;IAED,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IACpD,I
AAIA,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACzC,IAAM,KAAK,GA
AG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACnD,QA
AQ,CAAC,OAAO,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;KACtC;IAED,IAAI,kBAAkB,EAAE;;QAEtB,OA
AO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,IAA
M,QAAQ,GAAG,qBAAY,CAAC,oBAAoB,CAAC,GAAG,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC;QAC5E,
GAAG,CAAC,KAAK,GAAG,QAAQ,CAAC;KACtB;IAED,IAAI,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;QA
C7B,OAAO,CAAC,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC;KACzC;IAED,OAAO,GAAG,CAAC;
AACb,CAAC;AAEM,IAAM,UAAU,GAAiB;IACtC,UAAU,EAAEwD,aAAI;IAChB,WAAW,EAAE,MAAM;IAC
nB,SAAS,EAAEpD,OAAK;IAChB,UAAU,EAAE,IAAwB;CACrC;;AClGD;;;;;;;;;;;;;;;;AAwBA,IAAI,OACI,CAAA
C;AAET,SASA,OAAK,CAAC,OAAoB;IACjC,OAAO,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACqD,YA
AG,EAAE,IAAI,WAAW;QAC/C,WAAW,CAAC,QAAQ,CAAC,QAAQ,CAAC,QAAQ,CAAC,QAAQ,CAAC,QAAQ,CAAC,QAAQ;KACjE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;AAC
CL,CAAC;AAED,SAAS,GAAG,CAAC,IAAgE;IAEpE,IAAA,sBAAO,EAAE,oBAAM,EAAE,kBAAK,EAAE,sB
AS;IAC/B,IAAA,iBAAI,EAAE,yBAAQ,EAAE,uBAAO,EAAE,uBAAO;IAChC,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IACpD,I
AAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/B,IAAM,KAAK,GA
AG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C

B,UAAC,CAAC,EAAE,CAAC,IAAK,OAAA,CAAC,CAAC,CAAC,CAAC,mBAAmB,CAAC,CAAC,KAAK,CA
AC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,GAAA,gBAAgB,CAAC;IACvE,IAAM,GAAG,GAAG,O
AAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAM,GA
AG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAClD,IAAM,KAA
K,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACn
D,IAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,
CAAC,CAAC;IAEnE,IAAM,eAAe,GAAG,QAAQ,CAAC,GAAG,CAAC,UAAA,QAAQ,IAAI,OAAA,QAAQ,CA
AC,CAAC,CAAC,GAAA,CAAC,CAAC;IAC9D,IAAM,gBAAgB,GAAG,QAAQ,CAAC,GAAG,CAAC,UAAA,Q
AAQ,IAAI,OAAA,QAAQ,CAAC,CAAC,CAAC,GAAA,CAAC,CAAC;IAC/D,IAAM,gBAAgB,GAAG,CAClB,IAAI,UA
AU,CAAC,IAAI,UAAU,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,CAAC;IAC3D,IAAM,iBAAiB,GACnB,IAAI
,UAAU,CAAC,IAAI,UAAU,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,CAAC;IAE5D,aAAa,CACT,GAAG,
EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,
EAAE,gBAAgB,EACrE,iBAAiB,EAAE,iBAAiB,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,CAAC;IACvD,OAA
O,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,eAAe,GAAiB;IAC3C,UAAU,EAAEA,kBAAS;IACrB,WAAW,EA
AE,MAAM;IACnB,UAAU,EAAE,SA6B;IACzC,SAAS,EAAEvD,OAAK;CACjB;;AC/ED;;;;;;;;;;;;;;;AAqBA,IA
AM4B,uBAAqB,GAAG,IAAI,CAAC;AAC5B,IAAM,cAAc,GACvB,wBAAwB,CAAC4B,iBAAQ,CA
AqB,CAAC;;ACvB7D;;;;;;;;;;;;;;;AAmBO,IAAM,SAAS,GAAiB,uBAAuB,CAAC6B,YAAG,CAAC;;ACnBnE;;;;;
;;;;;;;;;;AA0BA;;;;SAIgB,iBAAiB,CAC7B,OAAoB,EAAE,SAAiB;IACzC,IAAM,MAAM,GAAG,IAAI,UAAU,CA
AC,OAAO,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,EAAE,SAAS,EAAE,CAAC,CAAC;IACxE,IAAM
,gBAAgB,GAAG,IAAI,CAAC,YAAY,CAAC,CAAC,CAAC,CAAC,CAAC;IAC/C,IAAM,YAAY,GAAG,IAAI,CAAC,
GAAG,CAAC,gBAAgB,EAAE,CAAC,CAAC,CAAC;IAChD,IAAM,aAAa,GAAG,IAAI,CAAC,GAAG,CAAC,gBAAgB,
EAAE,CAAC,CAAC,CAAC;IACjD,IAAM,cAAc,GAAG,IAAI,CAAC,GAAG,CAAC,gBAAgB,EAAE,CAAC,CAAC,CA
AC;IAC/C,IAAM,eAAe,GAAG,IAAI,CAAC,GAAG,CAAC,gBAAgB,EAAE,CAAC,CAAC,CAAC;IAEtD,IAAM,MAAM
,GAAG,IAAI,UAAU,CAAC,CAAC,GAAG,YAAY,GAAG,aAAa,GAAG,cAAc,GAAG,eAAe,CAAC,CAAC;IAC
pF,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,
CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAE7C,IAAM,MAAM,GAAG,IAAI,
UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,
CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAE7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC7C,IAAM,MAAM,GAAG,IAAI,UAAU,
CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;IAC

Aa,CAAC,CAAC;IAE1E,OAAO,CAAC,qBAAqB,EAAE,kBAAkB,CAAC,CAAC;AACrD,CAAC;AAEM,IAAM,yBAAyB,GAAiB;IACrD,UAAU,EAAEuD,4BAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE3D,OAAK;IAChB,UAAU,EAAE,mBAAuC;CACpD;;AC9ED;;;;;;;;;;;;;;;AAuBA,IAAII,UAGU,CAAC;AAEf,SASJ,OAAK,CAAC,OAAoB;IACjCI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC

O,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,GAAA,CAAC,CAAC;IAEpE,OAAO,MAAM,CAAC;AA
ChB,CAAC;AAEM,IAAM,UAAU,GAAiB;IACtC,UAAU,EAAEuE,aAAI;IAChB,WAAW,EAAE,MAAM;IACnB,
UAAU,EAAE,IAAwB;CACrC;;ACjED;;;;;;;;;;;;;;;;AAyBA,IAAI,SAG6C,CAAC;AAElD,SAASjE,OAAK,CAAC,
OAAoB;IACjC,SAAS,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACkE,cAAK,EAAE,IAAI,aAAa;QACrD,Q
AAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,OAAO;QACP,QAAQ;QACR,QAAQ;K
ACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,GAAG,CACR,IAAoE;IACtD,IAAA,iBAAC,,EAAG,sBAAO,,EA
AE,eAAgC,,EAAxB,sBAAQ,,EAAE,gCAAc,,EAAS;IAEtE,IAAM,QAAQ,GAAG,QAAQ,CAAC,GAAG,CAACzB,CACzB,UAAC,CAAC,EAAE,CAAC,IAAK,OAAA,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,mBAAmB,CAAC,CAAC,KAAK,CAAC,CAAC,
CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,GAAA,gBAAgB,CAAC;IAEvE,IAAM,IAAI,GAAG,IAAI,CAAC,IAAI,CAAC,QAAQ,CAAC,MAAM,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

C;IAER,IAAA,8CACuC,EADtC,0BAAU,EAAE,cAAI,EAAE,8BAAY,EAAE,0CACM,CAAC;IAE9C,IAAI,aAAa,GAAG,IAAI,CAAC;IACzB,IAAI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,KAAK,GAAG,UAAU,CAAC;YACnB,OAAO,GAAG,UAAU,CAAC,SAAS,CAAC,CAAC,EAAE,YAAY,CAAC,CAAC,gBAAgB,CACzC,CAAC,gBAAgB,CAAC,CAAC,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,CAAC

EAAE;QAC9C,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;SAEe,OAAO,CACnB,IAAwE;IAEnE,IAAA,oBAAM,,EAAE,sBAAO,,EAAE,kBAAK,,CAAS;IAC/B,IAAA,YAAC,,CAAW;IACZ,IAAA,iBAAI,,CAAU;IAErB,IAAM,IAAI,GAAGlF,aAAI,,CAAC,cAAc,CAAC,IAAI,,EAAE,CAAC,CAAC,KAAK,,CAAC,CAAC;IAEhD,IAAI,,CAAC,CAAC,KAAK,,CAAC,CAAC;IACjD,IAAM,GAAG,GAAG,OAAO,,CAAC,SAAS,,CAAC,GAAG,,CAAC,MAAM,,CAAC,CAAC;IAEnD,IAAM,IAAI,GAAG,OAAO,,CAAC,SAAS,,CAAC,IAAI,,CAAC,MAAM,,CAAC,CAAC;IAEp

CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,aAAa,CACT,SAAS,EAAE,SAAS,EAAE,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC,EAAE,SAAS,EAAE,UAAU,EACpE,SAAS,EAAE,YAAY,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;IAEhD,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,eAAAA,sBAAqB,WAAW,EAAE,MAAM;IACnD,WAAW,EAAE,SAAS,EAAE,SAAS,EAAE,UAAU,EAAE,KAAK;IAChD,UAAU,EAAE,SAAS,EAAE,SAAS,EAAE,UAAU,EAAE,KAAK;IACn

AAE,EAAE,CAAC,EAAE;QAC3D,gBAAgB,CAAC,IAAI,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;KAC/B;IAED,IAAM,OAAO,GAAG,WAAW,CAAC,UAAU,CAAC;QACrC,MAAM,EAAE,EAAE,CAAC,CAAC,GAAA,A,EAAE,CAAC;QACX,OAAO,SAAA;QACP,KAAK,EAAE,EAAE,CAAC,QAAQ,EAAE,gBAAgB,EAAE,aAAa,EAAE,CAAC,EAAE,CAAC;KACtD,CAAe,CAAC;IAEjB,IAAM,mBAAmB,GAAG,CAAC,WAAW,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,KAAK,EAAE,EAAE,UAAU,EAAE,IAAI,EAAE,EAAE,KAAK,CAAC,CAAC;IAErG,IAAM,iBAAiB,GAAG,CAAC,WAAW,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,KAAK,EAAE,EAAE,UAAU,EAAE,IAAI,EAAE,EAAE,KAAK,CAAC,CAAC;IAEnG,IAAM,gBAAgB,GAAG,CAAC,WAAW,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,KAAK,EAAE,EAAE,UAAU,EAAE,IAAI,EAAE,EAAE,KAAK,CAAC,CAAC;IAEj

mBAAK,EACL,eAAG,EACH,uBAAO,EACP,2BAAS,EACT,uBAAO,EACP,iCAAY,EACZ,+BAAW,EACX,qCAAc,CACN;IAEJ,IAAA,+HAY8B,EAXlC,sCAAgB,EAChB,0BAAU,EACV,0BAAU,EACV,wBAAS,EACT,gCAAa,EACb,iBAAa,EACb,aAAS,EACT,qBAIkC,CAAC;IAErC,IAAI,MAAM,CAAC;IAEX,IAAI,UAAU,EAAE;;QAEd,MAAM,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,GAAA,A,EAAC,EAAE,OAAO,SAAA,A,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,UAAU,EAAC,EAAC,CAAC,CAAC;KACtE;SAAM,IAAI,SAAS,IAAI,aAAa,EAAE;;QAErCjG,aAAI,CAAC,MAAM,CAAC,CAAC,CAAC,KAAK,CAAC,MAAM,IAAI,CAAC,EAAC,CAAC,EACnB,cAAM,OAAA,A,2CAAyC,CAAC,CAAC,KAAK,CAAC,MAAQ,GAAA,CAAC,CAAC;QAErE,IAAM,IAAI,GAAGe,mBAAU,CAAC,eAAA,e,EAAC,CAAC,CAAC;;QAEhE,IAAM,IAAI,CAAC,eAAe,IAAI,GAAG,KAAK,CAAC,MAAM,IAAI,CAAC,EAAC,CAAC,EAAE,OAAO,SAAA,A,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,UAAU,EAAC,EAAC,CAAC,CAAC;KAAC,MAAM,IAAI,SAAS,IAAI,aAAa,EAAE;;QAAC,MAAM,IAAI,CAAC,eAAe,IAAI,GAAG,KAAK,CAAC,MAAM,IAAI,CAAC,EAAC,CAAC,EAAE,OAAO,SAAA,A,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,UAAU,EAAC,EAAC,CAAC,CAAC;KAAC;S

EAAE;;QAEtB,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,IAAM,QAAQ,GAAGE,qBAAY,CAAC,oBAAoB,CAAC,GAAG,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC;QAC5E,GAAG,CAAC,KAAK,GAAG,QAAQ,CAAC;KACtB;IAED,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,SAAS,GAAGE,iBAAQ,CAAC,UAAU,EAAE,GAAA,CAAC,CAAC;AAEhD,IAAM,OAAO,GAAG,CAAC,CAAC;AAClB

G,aAAI,CAAC,cAAc,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAE5E,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,KAAK,CAAC,KAAK,CAAC,CAAC;IACtD,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,IAAM,SAAS,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;IACtD,IAAM,OAAO,GAAG,SAAS,CAAC,EAAE,CAAC;IAE7B,IAAM,cAAc,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,UAAU,CAAC,CAAC;IAChE,IAAM,mBAAmB,GAAG,GAAG,CAAC,aAAa,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC;IACvD,IAAM,QAAQ,GAAG,QAAQ,CAAC,UAAU,CAAC,QAAQ,CAAC,CAAC;IAC/C,IAAM,QAAQ,GAAG,QAAQ,CAAC,UAAU,CAAC,QAAQ,CAAC,CAAC;IAC/C,IAAM,SAAS,GAAG,QAAQ,CAAC,UAAU,CAAC,SAAS,CAAC,CAAC;IACjD

;IACpB,YAAY;IACZ,UAAU;IACV,YAAY;IACZ,uBAAuB;IACvB,UAAU;IACV,kBAAkB;IAClB,SAAS;IACT,SAAS;IACT,SAAS;IACT,UAAU;IACV,UAAU;IACV,UAAU;IACV,eAAe;IACf,eAAe;IACf,YAAY;IACZ,eAAe;CAChB,CAAC;AAEF,KAA2B,UAAa,+BAAa,2BAAa,IAAa,EAAE;IAArC,YAAY,sBAAA;IACrB,uBAAc,CAAC,YAAY,CAAC,CAAC;;;

C,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,GAA
G,CAAC,QAAQ,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAA
W,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAAC,CAAC,QAAQ,CAAC,MAAM,CAA
C,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,CAAC,IAAI,G
AAG,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CA
AC,GAAG,CAAC,IAAI,UAAU,CAAC,GAAG,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAA
C,OAAO,GAAG,CAAC,CAAC,GAAG,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,CAA
C,WAAW,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,GA
AG,EAAC,CAAC,UAAU,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,OA
AO,CAAC,IAAI,CAAC,CAAC,mBAAmB,CAAC,SAAS,EAAE,CAAC,CAAC,GAAG,EAAE,EAAE,YAAY,UA
AU,CAAC,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,oBAA
oB,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,CA
AC,MAAM,EAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,4BAA4B,CAAC,C
AAC,IAAI,iBAAiB,CAAC,GAAG,CAAC,iBAAiB,CAAC,6NAAmN,oCAAoC,oBAAoB,CAAC,SAAS,8BAA6B,
WAAW,CAAC,qBAAqB,UAAU,oCAAoC,WAAW,UAAU,eAAe,CAAC,sBAAsB,qBAAqB,sBAAsB,qCAAoC,2
BAA2B,kCAAiC,CAAC,UAAU,yBAAyB,eAAe,MAAM,WAAS,mBAAmB,aAAa,oBAAoB,WAAW,6BAA6B,C
AAC,oBAAoB,CAAC,aAAa,QAAQ,wBAAwB,aAAY,qBAAqB,uBAAuB,0BAA0B,sBAAsB,CAAC,8BAA6B,W
AAW,qBAAqB,+DAA8D,iBAAiB,mGAAkG,CAAC,gBAAgB,+DAA8D,qBAAoB,CAAC,4BAA2B,0BAA0B,oB
AAoB,CAAC,qBAAqB,MAAM,CAAC,qBAAqB,8CAA8C,CAAC,SAAS,8BAA8B,sBAAsB,CAAC,QAAQ,CAA
C,WAAW,SAAS,WAAW,UAAU,4BAA4B,CAAC,cAAc,CAAC,IAAI,CAAC,IAAI,WAAW,MAAK,mBAAmB,a
AAY,qBAAoB,KAAK,OAAO,4CAA4C,CAAC,IAAI,CAAC,KAAK,IAAI,CAAC,WAAW,kBAAkB,qBAAqB,sB
AAsB,YAAY,4CAA4C,CAAC,IAAI,CAAC,+DA+D,0BAAyB,CAAC,SAAS,WAAW,aAAa,QAAQ,uCAAuC,C
AAC,IAAI,gDAAgD,IAAI,iBAAiB,IAAI,eAAe,iBAAiB,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,eA
Ac,gBAAgB,CAAC,IAAI,SAAS,KAAuD,yBA+B,qBAAqB,GAAG,kFAAyE,EAAE,WAAW,CAAC,KAAK,qC
AAqC,QAAQ,SAAS,CAAC,OAAO,aAAa,iBAAiB,qCAAqC,CAAC,iCAAiC,EAAC,iBAAiB,CAAC,eAAe,uBAA
uB,QAAQ,qCAAqC,CAAC,WAAW,CAAC,yBAAyB,aAAa,OAAO,cAAc,CAAC,UAAU,QAAQ,KAAK,CAAC,a
AAa,CAAC,uBAAuB,CAAC,IAAI,SAAS,MAAM,eAAe,CAAC,MAAM,gBAAgB,kBAAmI,uBAAuB,CAAC,kB
AAkB,mBAAmB,aAAa,OAAO,iEAAiE,qCAAoC,kCAAkC,MAAM,eAA8B,MAAM,UAAU,UAAU,CAAC,SAA
S,OAAO,8BA6B,6BA6B,IAAI,CAAC,WAAW,cAAc,oCAAoC,oCAAoC,CAAC,2CA2C,cAAc,KAAK,CAA
C,KAAK,0BA0B,MAAM,IAAI,KAAK,kBAAkB,SAAS,KAAK,IAAI,MAAM,IAAI,KAAK,YAAY,KAAK,UAA
U,IAAI,CAAC,aAAa,IAAI,IAAI,iBAAgB,wBAAwB,sBAAsB,SAAS,uBAAuB,IAAI,CAAC,OAAO,uCAAuC,GA
AG,8CA8C,8DA8D,mBAAmB,CAAC,CAAC,UAAU,kBAAkB,MAAM,WAAW,CAAC,EAAE,KAAK,MAA
M,CAAC,CAAC,GAAG,KAAK,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,mBAAmB,UAAU,CAAC,iB
AAiB,GAAG,UAAU,KAAK,CAAC,WAAS,QAAQ,CAAC,kBAAiB,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,
GAAG,CAAC,mBAAmB,KAAK,QAAQ,GAAG,CAAC,mBAAmB,aAAa,gCAAgC,aAAa,WAAW,YAAY,gCAAg
C,SAAS,oBAAoB,oCAAoC,WAAW,IAAI,UAAU,sBAAsB,gBAAgB,cAAc,6BA6B,+BAA8B,CAAC,UAAU,0B
AA0B,CAAC,0BA0B,CAAC,IAAI,mBAAmB,MAAM,OAAO,uBAAuB,IAAI,WAAW,GAAG,QAAQ,GAAG,I
AAI,EAAE,MAAM,GAAG,GAAG,QAAQ,cAAc,EAAE,EAAE,+BAA+B,GAAG,CAAC,SAAS,KAAK,GAAG,Q
AAQ,aAAa,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,GAAG,SAAS,YAAY,CAAC,GAAG,GAAG,GAAG,CA
AC,GAAG,CAAC,SAAS,KAAK,EAAE,CAAC,IAAI,OAAO,CAAC,EAAE,IAAI,IAAG,KAAI,GAAG,IAAI,CAA
C,IAAI,EAAE,CAAC,EAAE,KAAK,KAAK,CAAC,IAAI,IAAI,GAAG,CAAC,IAAG,KAAK,OAAO,aAAa,iBAA
gB,CAAC,MAAK,OAAO,oBAAoB,aAAa,MAAM,KAAK,YAAY,eAAc,aAAa,aAAa,GAAG,gEAAgE,uDAAuD,I
AAI,CAAC,2BA2B,sDA6D,+BA8B,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,IA
AI,UAAU,GAAG,CAAC,MAAM,KAAK,KAAK,KAAK,CAAC,WAAW,CAAC,aAAa,EAAE,CAAC,EAAE,KAA
K,EAAE,OAAO,GAAG,YAAW,CAAC,GAAG,CAAC,EAAE,QAAQ,cAAc,OAAO,IAAI,CAAC,MAAM,IAAI,iC
AAgC,MAAM,WAAW,SAAS,MAAM,CAAC,GAAG,MAAM,mBAAkB,SAAS,GAAG,KAAK,CAAC,UAAU,IA
AI,aAAa,aAAa,MAAM,CAAC,SAAS,CAAC,MAAM,IAAI,OAAO,EAAE,EAAE,KAAK,SAAS,CAAC,MAAM,I
AAG,CAAC,KAAI,CAAC,GAAG,QAAQ,SAAS,MAAM,IAAI,CAAC,QAAQ,MAAM,CAAC,SAAS,CAAC,MA

AM,IAAI,OAAO,EAAE,CAAC,QAAQ,QAAQ,MAAM,GAAG,CAAC,GAAG,CAAC,KAAK,QAAQ,CAAC,MA
AM,IAAG,CAAC,KAAK,OAAO,IAAI,OAAO,OAAO,kBAAkB,iBAAiB,+BAA+B,0EAA0E,yBAAyB,8BAA8B,
CAAC,KAAK,IAAI,CAAC,CAAC,IAAI,UAAU,GAAG,CAAC,MAAM,KAAK,KAAK,KAAK,CAAC,UAAU,CA
AC,CAAC,eAAe,UAAU,CAAC,KAAK,IAAI,CAAC,IAAI,KAAK,CAAC,KAAK,UAAU,MAAM,IAAI,IAAI,SA
AS,aAAa,EAAE,KAAK,GAAG,EAAE,EAAC,CAAC,WAAW,SAAS,uDAAuD,MAAM,OAAO,EAAC,kBAAkB,
CAAC,SAAS,CAAC,MAAM,WAAW,wBAAuB,CAAC,SAAS,IAAI,YAAY,CAAC,6BAA6B,OAAO,oDAAoD,C
AAC,mDAAmD,CAAC,qBAAqB,CAAC,yBAAyB,CAAC,QAAQ,QAAQ,CAAC,0BAA0B,CAAC,QAAQ,QAAQ
,CAAC,0BAA0B,CAAC,QAAQ,SAAS,cAAc,YAAY,WAAW,CAAC,uBAAuB,YAAY,WAAW,CAAC,uBAAuB,
YAAY,CAAC,WAAW,YAAY,YAAY,YAAY,CAAC,UAAS,cAAc,oCAAoC,yBAAyB,EAAE,8CAA8C,QAAQ,4
CAA0C,CAAC,2BAAyB,WAAW,mBAAmB,MAAM,CAAC,UAAU,CAAC,eAAe,iCAAiC,gBAAgB,kCAAkC,w
RAAwR,CAAC,GAAG,sJAAqJ,YAAY,iBAAiB,uBAAsB,kBAAkB,kEAAkE,CAAC,mCAAmC,IAAsB,kBAAkB,
6BAAkF,iCAAiC,sBAAqB,CAAC,8EAA8E,sDAAsD,8BAA8B,CAAC,QAAQ,QAAQ,CAAC,CAAC,4DAA2D,C
AAC,gEAAuF,wCAAuC,oBAAoB,kEAAiE,8EAAyJ,OAAO,mBAAmB,6BAA6B,CAAC,mBAAmB,YAAY,CAA
C,iBAAiB,CAAC,CAAC,YAAY,CAAC,iBAAiB,CAAC,+BAA8B,CAAC,4HAAyH,eAAe,CAAC,EAAgC,0BAA0
B,KAAK,0BAA0B,kCAAkC,CAAC,4GAA4G,iCAAiC,CAAC,iDAAgD,EAAE,CAAC,4BAA4B,CAAC,yBAAyB
,iCAAiC,CAAC,oEAAiK,yGAAwG,4BAA4B,CAAC,SAAS,sBAAsB,UAAU,oDAAmD,CAAC,oEAAoE,CAAC,
KAAK,OAAO,kBAA+B,CAAC,IAAI,CAAC,mFAAmF,CAAC,KAAK,6BAA6B,CAAC,CAAC,kBAAkB,CAAC,
GAAG,OAAO,CAAC,sEAAsE,WAAW,MAAM,aAAa,CAAC,qEAAqE,qEAAqE,mBAAmB,UAAU,gIAAgI,CAA
C,wEAAuE,CAAC,yBAAyB,YAAY,qCAAqC,8BAA8B,WAAU,CAAC,4GAA0G,CAAC,yFAAyF,EAAE,UAAU,
kBAAkB,YAAY,CAAC,cAAc,CAAC,CAAC,4BAA4B,cAAc,aAAa,CAAC,gBAAgB,6FAA4F,CAAC,6BAA6B,u
DAAsD,IAAI,QAAQ,SAAS,wGAAsG,mBAAmB,CAAC,SAAS,CAAC,IAAI,CAAC,wEAAwE,IAAI,mBAAmB,
EAAE,SAAS,6CAA6C,SAAS,OAAO,CAAC,YAAY,CAAC,QAAQ,CAAC,sBAAsB,OAAO,UAAU,CAAC,MAA
M,CAAC,wDAAwD,CAAC,qBAAqB,QAAQ,cAAc,OAAO,CAAC,0CAA0C,uEAAsF,sBAAsB,CAAC,CAAC,6B
AA8C,wDAAwD,+BAA8B,CAAC,wEAAwE,yBAAyB,yCAAyC,aAAa,kHAAiH,EAAE,CAAC,mFAAmF,eAAe,
4BAA4B,4BAA4B,uDAAuD,CAAC,yBAAyB,CAAC,wBAAwB,CAAC,sDAAsD,mSAAkS,MAAM,CAAC,kBA
AkB,CAAC,iBAAiB,MAAM,CAAC,iBAAiB,OAAO,eAAe,CAAC,CAAC,mGAAmG,mBAAmB,0BAAyB,CAAC
,MAAM,kBAAiB,kBAAkB,CAAC,gBAAgB,sBAAsB,yEAAuE,UAAU,eAAc,UAAU,sDAAsD,CAAC,CAAC,MA
AM,SAAS,SAAS,CAAC,KAAK,oFAAoF,UAAU,iBAAiB,WAAW,gBAAgB,YAAY,GAAG,UAAS,gBAAgB,QAAA
Q,CAAC,eAAc,CAAC,WAAU,SAAS,IAAI,YAAY,eAAe,wBAAuB,CAAC,KAAK,CAAC,kBAAkB,SAAS,OAA
O,GAAG,MAAM,GAAG,MAAM,EAAE,CAAC,OAAO,SAAS,mBAAmB,cAAc,CAAC,EAAE,OAAO,EAAE,CA
AC,8BAA8B,CAAC,QAAQ,CAAC,UAAU,KAAK,wBAAwB,CAAC,SAAS,CAAC,UAAU,UAAU,UAAU,UAAU
,UAAU,CAAC,SAAS,oBAAoB,wBAAwB,QAAQ,CAAC,SAAS,CAAC,SAAS,IAAI,oBAAoB,SAAS,GAAG,CA
AC,MAAM,CAAC,GAAG,CAAC,8BAA8B,IAAI,OAAO,IAAI,mBAAmB,YAAY,WAAW,UAAU,UAAU,oBAA
oB,IAAI,OAAO,CAAC,GAAG,CAAC,YAAY,OAAO,CAAC,GAAG,CAAC,UAAU,SAAS,IAAI,mBAAmB,CAA
C,UAAU,oBAAoB,IAAI,OAAO,CAAC,GAAG,QAAQ,CAAC,WAAW,SAAS,UAAU,CAAC,SAAS,CAAC,GAA
G,OAAO,CAAC,GAAG,SAAS,CAAC,UAAU,IAAI,UAAU,CAAC,QAAQ,IAAI,OAAO,CAAC,GAAG,CAAC,O
AAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,QAAQ,IAAI,OAAO,CA
AC,GAAG,SAAS,CAAC,GAAG,qBAAqB,GAAG,YAAY,GAAG,CAAC,yCAAyC,aAAa,CAAC,wBAAwB,CAA
C,cAAc,CAAC,YAAY,yEAAyE,CAAC,YAAY,GAAG,WAAW,2CAA2C,CAAC,cAAc,CAAC,WAAW,2CA2C,
qCAAqC,EAAE,CAAC,SAAS,GAAG,YAAY,WAAW,CAAC,aAAa,UAAU,CAAC,WAAW,UAAU,WAAW,GA
AG,CAAC,SAAS,CAAC,GAAG,UAAU,6CAA6C,cAAc,+CAA+C,IAAI,CAAC,gBAAgB,GAAG,wBAAwB,aAA
Y,CAAC,GAAG,QAAQ,CAAC,QAAQ,CAAC,GAAG,wBAAwB,mEAAmE,uDAAuD,EAAE,CAAC,wBAAwB,8
BAA8B,CAAC,eAAe,CAAC,4EAA4E,CAAC,CAAC,sCAAsC,wBAAwB,CAAC,EAAE,qBAAqB,CAAC,sBAAs
B,CAAC,iBAAiB,OAAO,iBAAiB,EAAE,CAAC,QAAQ,4GAA2G,wBAAwB,CAAC,iCAAiC,sOAAoO,mBAAm
B,CAAC,QAAQ,sCAAsC,0BAA0B,QAAQ,CAAC,sBAAsB,CAAC,8BAA8B,QAAQ,eAAe,CAAC,yBAAyB,CA
AC,UAAU,kCAAkC,+NAA6N,kFAAiF,CAAC,4OAA0O,wBAAwB,CAAC,0CAA0C,mBAAmB,eAAe,iGAAgG,i
EAAiE,CAAC,CAAC,CAAC,gCAA+B,CAAC,uBAAuB,CAAC,wBAAwB,IAAI,EAAE,CAAC,OAAO,CAAC,G
AAG,CAAC,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,uBAAuB,EAAE,CAAC,EAAE,CAAC,qBAAqB

,GAAG,IAAI,CAAC,iBAAiB,EAAE,CAAC,wBAAwB,SAAS,CAAC,uBAAuB,CAAC,OAAO,IAAI,mBAAmB,CAAC,wBAAwB,wBAAwB,MAAM,kBAAkB,aAAa,kBAAkB,MAAM,kCAAkC,2BAA2B,CAAC,CAAC,wEAAuE,EAAE,CAAC,WAAW,sBAAsB,sEAAsE,8DAA8D,+BAA8B,wCAAwC,uEAAsE,CAAC,iBAAiB,MAAM,uBAAuB,iBAAiB,MAAM,gCAAgC,kCAAkC,MAAM,CAAC,sBAAsB,KAAK,CAAC,iBAAiB,MAAM,CAAC,6BAA6B,CAAC,yCAAyC,8BAA6B,cAAc,kBAAkB,CAAC,KAAK,EAAE,+EAA+E,4CAA2C,WAAW,CAAC,8EAA8E,iBAAgB,oBAAoB,wBAAwB,8CAA8C,OAAO,SAAS,QAAQ,OAAO,SAAS,4CAA2C,iBAAiB,OAAO,CAAC,SAAS,cAAc,CAAC,SAAS,CAAC,aAAa,OAAO,CAAC,eAAe,CAAC,OAAO,CAAC,kCAAiC,GAAG,sBAAsB,eAAe,CAAC,SAAS,cAAc,OAAO,CAAC,eAAe,CAAC,qCAAqC,eAAe,QAAQ,CAAC,2CAA0C,6BAA4B,+BAA8B,wBAAwB,4DAA4D,OAAO,CAAC,oBAAoB,yBAAyB,OAAO,CAAC,oBAAoB,KAAK,CAAC,OAAO,iBAAiB,2BAA0B,yDAAyD,OAAO,CAAC,SAAS,wBAAwB,QAAQ,8BAA8B,yBAAyB,yBAAyB,mEAAmE,CAAC,OAAO,OAAO,CAAC,gBAAgB,wBAAwB,mCAAmC,CAAC,8BAA8B,QAAQ,iCAAiC,CAAC,uBAAuB,OAAO,CAAC,UAAU,+IAA6I,+FAA8F,CAAC,wCAAwC,iCAAiC,sDAAsD,CAAC,OAAO,CAAC,kBAAkB,4EAA4E,wBAAwB,CAAC,sCAAsC,wBAAwB,cAAc,CAAC,UAAU,CAAC,cAAc,oCAAoC,CAAC,EAAE,CAAC,KAAK,CAAC,mFAAmF,CAAC,4HAA2H,+GAA8G,kDAAkD,0BAA0B,eAAe,2BAA0B,YAAY,EAAE,CAAC,WAAW,kBAAkB,wBAAwB,CAAC,cAAc,WAAW,CAAC,CAAC,cAAc,QAAQ,0CAA0C,wBAAwB,6CAA4C,OAAO,MAAM,WAAW,CAAC,eAAe,YAAY,CAAC,yBAAwB,MAAM,UAAU,KAAK,wBAAwB,CAAC,yBAAwB,MAAM,OAAO,OAAO,CAAC,CAAC,MAAM,SAAS,cAAc,CAAC,yBAAwB,MAAM,OAAO,CAAC,aAAa,uBAAuB,CAAC,wBAAwB,gCAAgC,OAAO,CAAC,qBAAqB,2CAA2C,0BAA0B,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,2BAA0B,aAAa,WAAW,2BAA2B,6DAA4D,+GAA8G,CAAC,sBAAsB,SAAS,cAAc,CAAC,kCAAkC,6HAA4H,MAAM,CAAC,iBAAiB,cAAc,CAAC,cAAc,EAAE,CAAC,CAAC,sBAAsB,CAAC,CAAC,iCAAiC,CAAC,mBAAmB,IAAI,CAAC,QAAQ,CAAC,UAAU,CAAC,qBAAqB,EAAE,uBAAuB,CAAC,OAAO,SAAS,cAAc,EAAE,EAAE,OAAO,aAAa,CAAC,wBAAwB,gCAAgC,wBAAwB,UAAU,CAAC,YAAY,CAAC,UAAU,CAAC,wBAAwB,CAAC,uBAAuB,CAAC,uCAAuC,oEAAoE,SAAS,oBAAoB,KAAK,uBAAuB,CAAC,wBAAwB,UAAU,CAAC,gCAAgC,+BAA+B,2BAA0B,UAAU,cAAc,CAAC,qCAAqC,sBAAsB,wBAAwB,MAAM,CAAC,KAAK,CAAC,iBAAiB,CAAC,KAAK,CAAC,MAAM,8GAA8G,UAAU,CAAC,8BAA8B,qEAAqE,6EAA6E,0BAA0B,OAAO,mEAAmE,CAAC,SAAS,cAAc,CAAC,wDAAwD,CAAC,gCAAgC,UAAU,uBAAuB,CAAC,kBAAkB,KAAK,CAAC,yBAAyB,wBAAwB,CAAC,WAAW,wDAAwD,CAAC,uBAAuB,CAAC,4CAA4C,UAAU,cAAc,CAAC,QAAQ,CAAC,GAAG,QAAQ,GAAG,wBAAwB,uDAAuD,OAAO,0DAA0D,qEAAqE,oCAAoC,mBAAmB,MAAM,CAAC,kBAAkB,wBAAwB,EAAE,CAAC,mBAAmB,uHAAuH,mLAAmL,yEAAwE,yBAAyB,SAAS,eAAe,CAAC,6BAA6B,MAAM,CAAC,qEAAqE,wBAAwB,QAAQ,+DAA8D,IAAI,CAAC,uBAAuB,CAAC,8BAA8B,CAAC,CAAC,iBAAiB,mBAAmB,+DAA8D,uBAAuB,GAAG,yBAAyB,QAAQ,mBAAmB,CAAC,IAAI,oCAAoC,KAAK,iBAAiB,GAAG,MAAM,mBAAmB,kBAAkB,GAAG,qBAAqB,CAAC,OAAO,MAAM,GAAG,GAAG,WAAW,OAAO,CAAC,CAAC,4EAA4E,oBAAoB,KAAK,kBAAkB,EAAE,CAAC,IAAI,IAAI,aAAa,GAAG,wBAAwB,yGAAyG,iBAAiB,CAAC,uBAAuB,QAAQ,sFAAsF,+FAA8F,kBAAkB,EAAE,CAAC,QAAQ,yJAAyJ,CAAC,uBAAuB,CAAC,sEAAsE,mDAAmD,CAAC,uBAAuB,gGAAgG,iBAAiB,CAAC,iFAAiF,CAAC,uBAAuB,CAAC,CAAC,IAAI,qBAAqB,GAAG,WAAW,CAAC,EAAE,CAAC,mBAAmB,CAAC,CAAC,CAAC,2GAA2G,CAAC,KAAK,+EAA+E,wBAAwB,CAAC,MAAM,EAAE,iBAAiB,GAAG,QAAQ,GAAG,wBAAwB,EAAE,IAAI,CAAC,sBAAsB,GAAG,GAAG,qBAAqB,8BAA8B,MAAM,wBAAwB,EAAE,IAAI,CAAC,4GAA4G,wBAAwB,CAAC,OAAO,WAAW,CAAC,IAAI,uFAAuF,CAAC,CAAC,CAAC,CAAC,EAAE,mBAAmB,KAAK,OAAO,6DAA6D,qCAAqC,kFAAkF,wBAAwB,CAAC,6BAA6B,CAAC,CAAC,6CAA6C,0BAA0B,CAAC,4GAA4G,aAAa,wFAAwF,UAAU,WAAW,CAAC,CAAC,qBAAqB,CAAC,uBAAuB,sBAAsB,CAAC,6CAA6C,aAAa,4BAA4B,CAAC,IAAI,mBAAmB,wBAAwB,kBAAkB,CAAC,iBAAiB,QAAQ,CAAC,IAAI,2CAA2C,0BAA0B,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC

BAAwB,iFAAgF,sBAAsB,CAAC,aAAa,CAAC,SAAS,CAAC,aAAa,CAAC,eAAe,QAAQ,oEAAoE,EAAE,2CAA2C,CAAC,SAAQ,eAAe,SAAS,+BAA+B,CAAC,CAAC,4FAA4F,aAAa,CAAC,SAAS,CAAC,2BAA0B,CAAC,uBAAuB,4BAA4B,cAAc,CAAC,SAAS,wBAAwB,QAAQ,CAAC,qFAAqF,+DAA8D,iHAAiH,CAAC,mEAAmE,CAAC,uBAAuB,CAAC,4BAA4B,6DAA2D,aAAa,CAAC,SAAS,CAAC,aAAa,CAAC,eAAe,QAAQ,cAAc,CAAC,8BAA8B,EAAE,wEAAwE,CAAC,SAAQ,CAAC,0GAA0G,SAAS,SAAS,EAAE,YAAY,CAAC,WAAW,uBAAuB,CAAC,uBAAuB,CAAC,2CAA2C,CAAC,2CAA2C,oDAAoD,CAAC,2DAA0D,CAAC,CAAC,uDAAuD,2CAA2C,QAAQ,QAAQ,uFAAuF,yCAAyC,sBAAqB,SAAS,0BAAyB,SAAS,QAAQ,wBAAwB,MAAM,SAAS,qGAAqG,CAAC,0BAA0B,SAAS,qCAAqC,eAAe,CAAC,QAAQ,QAAQ,sBAAsB,cAAc,CAAC,QAAQ,QAAQ,SAAS,uHAAuH,EAAE,YAAY,CAAC,WAAW,uBAAuB,CAAC,EAAE,yKAAyK,wBAAwB,oDAAoD,CAAC,CAAC,wBAAwB,CAAC,wBAAwB,uBAAuB,CAAC,0QAAyQ,8CAA8C,CAAC,uBAAuB,CAAC,+BAA+B,CAAC,yCAAyC,eAAe,wBAAwB,yBAAyB,SAAS,8BAA8B,uBAAuB,oEAAoE,cAAc,kGAAkG,CAAC,QAAQ,2FAA2F,uDAAsD,wBAAwB,4CAA4C,0BAA0B,0BAA0B,CAAC,uBAAsB,iBAAiB,OAAO,+DAA+D,uBAAuB,uBAAuB,KAAK,wBAAwB,wBAAwB,MAAM,YAAY,CAAC,MAAM,CAAC,iBAAiB,kBAAkB,CAAC,mBAAmB,qCAAqC,GAAG,GAAG,eAAe,GAAG,MAAM,gCAAgC,eAAe,CAAC,oCAAoC,oBAAoB,wBAAwB,mBAAmB,gBAAe,GAAG,MAAM,CAAC,iBAAiB,4DAA4D,CAAC,sGAAsG,eAAe,CAAC,QAAQ,CAAC,iFAAiF,yFAAyF,CAAC,CAAC,wFAAwF,mEAAmE,qNAAoN,mLAAmL,yBAAyB,qCAAqC,sBAAsB,CAAC,CAAC,4EAA4E,qCAAqC,6DAA4D,CAAC,2BAA2B,CAAC,yBAAyB,SAAS,UAAU,CAAC,IAAI,qDAAqD,CAAC,WAAW,CAAC,wFAAwF,2DAA2D,CAAC,uBAAuB,uBAAuB,2BAA2B,CAAC,0CAA0C,CAAC,4BAA4B,CAAC,CAAC,sCAAsC,8BAA6B,wBAAwB,qBAAqB,GAAG,CAAC,oFAAoF,kDAAkD,SAAS,8BAA8B,CAAC,CAAC,kGAAkG,+DAA8D,YAAY,CAAC,YAAY,yCAAyC,CAAC,EAAE,CAAC,QAAQ,GAAG,oBAAoB,oBAAoB,CAAC,yFAAyF,qDAAqD,CAAC,UAAU,SAAS,CAAC,wBAAwB,CAAC,QAAQ,CAAC,uBAAuB,aAAa,CAAC,IAAI,IAAI,CAAC,CAAC,KAAK,CAAC,QAAQ,CAAC,UAAU,qBAAqB,kDAAkD,CAAC,CAAC,IAAI,MAAM,GAAG,CAAC,QAAQ,CAAC,wBAAwB,2BAA2B,cAAc,CAAC,yCAAyC,SAAS,CAAC,GAAG,GAAG,EAAE,OAAO,+BAA+B,8BAA8B,CAAC,yDAAyD,CAAC,2BAA2B,CAAC,GAAG,oBAAoB,uBAAuB,CAAC,+BAA+B,oBAAoB,kBAAkB,wBAAwB,+BAA+B,sBAAsB,oBAAoB,kBAAkB,wBAAwB,+BAA+B,uBAAuB,CAAC,aAAa,KAAK,MAAM,aAAa,WAAW,wBAAwB,iGAAiG,uDAAsD,CAAC,cAAc,CAAC,0CAA0C,CAAC,4CAA4C,CAAC,kCAAkC,0BAA0B,wBAAwB,CAAC,MAAM,EAAE,kCAAkC,CAAC,SAAS,wBAAwB,CAAC,wBAAwB,cAAc,CAAC,uBAAuB,0BAA0B,sBAAsB,GAAG,eAAe,yEAAyE,CAAC,6BAA6B,cAAc,4BAA4B,CAAC,wBAAwB,eAAe,CAAC,wBAAwB,2CAA2C,CAAC,QAAQ,0BAA0B,CAAC,+BAA+B,+BAA+B,KAAK,CAAC,6RAA6R,8DAA8D,CAAC,OAAO,eAAe,CAAC,CAAC,CAAC,mFAAmF,CAAC,kBAAkB,KAAK,CAAC,6BAA6B,mBAAmB,CAAC,uBAAuB,CAAC,mCAAmC,oBAAoB,CAAC,EAAE,oDAAoD,CAAC,wEAAwE,cAAc,CAAC,sBAAsB,oBAAoB,CAAC,CAAC,CAAC,0BAA0B,gBAAgB,kBAAkB,CAAC,gCAAgC,CAAC,gCAAgC,uBAAuB,CAAC,KAAK,CAAC,QAAQ,CAAC,eAAe,CAAC,CAAC,eAAe,CAAC,CAAC,KAAK,CAAC,gBAAgB,CAAC,gCAAgC,CAAC,gCAAgC,CAAC,uBAAuB

B,0BAAyB,SAAS,CAAC,uBAAuB,aAAa,UAAU,4BAA4B,yBAAyB,0BAA0B,CAAC,aAAa,UAAU,uBAAuB,UAAU,0FAA0F,kCAAkC,mCAAmC,MAAM,qBAAqB,SAAS,CAAC,CAAC,aAAa,CAAC,iBAAiB,MAAM,oBAAoB,CAAC,QAAQ,KAAK,kBAAkB,MAAM,iCAAiC,iCAAiC,MAAM,qBAAqB,UAAU,CAAC,CAAC,aAAa,kBAAkB,MAAM,kBAAkB,EAAE,QAAQ,KAAK,kBAAkB,MAAM,gCAAgC,CAAC,CAAC,aAAa,kBAAkB,MAAM,qBAAqB,SAAS,CAAC,KAAK,kBAAkB,MAAM,0BA0B,QAAQ,CAAC,CAAC,uFAAuF,uBAAuB,MAAM,wBAAwB,OAAO,CAAC,eAAe,CAAC,OAAO,CAAC,OAAO,uEAAuE,mBAAmB,wBAAwB,YAAY,CAAC,YAAY,WAAW,wBAAwB,WAAW,CAAC,qDAAqD,GAAG,MAAM,YAAY,KAAK,sCAAqC,eAAe,uCAAsC,0BA0B,oCAAoC,CAAC,2BAA2B,mIAAmI,6FA6F,+JA+J,CAAuB,4CA4C,UAAU,EAAE,IAAI,wCAAwC,wDAAwD,wCAAwC,mBAAiB,UAAU,QAAQ,CAAC,uDAAuD,EAAE,sBAAsB,CAAC,WAAU,CAAC,oDAAkD,gBAAgB,CAAC,OAAO,gBAAgB,CAAC,QAAQ,IAAI,CAAC,oBAAoB,CAAC,uBAAuB,CAAC,CAAC,mBAAmB,EAAE,CAAC,0EA0E,EAAE,CAAC,gBAAgB,CAAC,IAAI,wBAAwB,wBAAwB,CAAC,wBAAwB,YAAY,YAAY,mJAAmJ,uDAAuD,uDAAuD,8CAA4C,YAAW,8DA8D,qCAAqC,0DA0D,IAAI,wBAAwB,qDAAqD,IAAI,CAAC,mBAAmB,CAAC,uFAAsF,+BA+B,4NA2N,OAAO,MAAM,4EA4E,4BA4B,wBAAwB,eAAe,QAAQ,iGAAiG,4IA4I,wBAAwB,sBAAsB,GAAG,MAAM,CAAC,IAAI,CAAC,2IA2I,8CA8C,+BA+B,CAAC,sKAAqK,QAAQ,yBAAyB,+BA+B,CAAC,CAAC,uBAAuB,8CA8C,sCAAsC,OAAO,CAAC,gBAAgB,QAAQ,sDAAsD,wBAAwB,8BA8B,sEAAsE,6CA6C,+BA+B,CAAC,wFAAwF,CAAC,IAAI,CAAC,4FA4F,KAAK,wBAAwB,eAAe,CAAC,mCAAmC,kBAAkB,CAAC,KAAK,0BA0B,mBAAmB,QAAQ,QAAQ,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,QAAQ,QAAQ,SAAS,eAAe,CAAC,QAAQ,CAAC,KAAK,GAAG,QAAQ,eAAe,UAAU,QAAQ,CAAC,KAAK,GAAG,QAAQ,QAAQ,QAAQ,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,MAAM,QAAQ,UAAU,cAAc,SAAS,UAAU,SAAS,eAAe,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,UAAU,SAAS,eAAe,SAAS,SAAS,SAAS,SAAS,UAAU,QAAQ,CAAC,KAAK,GAAG,QAAQ,QAAQ,QAAQ,CAAC,KAAK,EAAE,CAAC,QAAO,CAAC,eAAe,SAAS,CAAC,QAAQ,SAAS,UAAU,SAAS,eAAe,SAAS,UAAU,QAAQ,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,iBAAiB,kBAAkB,CAAC,OAAO,QAAQ,QAAQ,QAAQ,EAAE,CAAC,OAAO,gBAAgB,QAAQ,sCAAsC,QAAQ,QAAQ,UAAU,kCAAkC,0CA0C,qBAAqB,qBAAqB,UAAU,MAAM,mBAAmB,mBAAmB,mBAAmB,kBAAkB,mBAAmB,kBAAkB,CAAC,QAAQ,SAAS,CAAC,OAAO,OAAO,EAAE,CAAC,OAAO,OAAO,EAAE,KAAK,mBAAmB,kDAAkD,qBAAqB,GAAG,CAAC,SAAQ,CAAC,2BA2B,gEA4E,0GA4G,kBAAkB,CAAC,kBAAkB,CAAC,4KA4K,2BA2B,uBAAuB,CAAC,GAAG,CAAC,uBAAuB,uGAAuG,CAAC,kLAAkL,cAAc,uBAAuB,mBAAmB,iBAAiB,qBAAqB,IAAI,8CA8C,CAAC,wEAAwE,8HA6H,CAAC,UAAU,CAAC,yBAAyB,0BAA0B,CAAC,uBAAuB,OAAO,gBAAgB,CAAC,UAAU,CAAC,6BA6B,+EA4E,kBAAkB,CAAC,UAAU,CAAC,uBAAuB,CAAC,8HA6H,CAAC,UAAU,CAAC,sBAAsB,OAAO,uDAAuD,CAAC,MAAM,CAAC,kDAAkD,CAAC,UAAU,CAAC,yBAAyB,iBAAiB,CAAC,wDAAwD,CAAC,MAAM,CAAC,uBAAuB,CAAC,UAAU,CAAC,aAAa,+BA+B,wBAAwB,kBAAkB,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,uBAAuB,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,yBAAyB,0BAA0B,CAAC,uBAAuB,OAAO,gBAAgB,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,YAAY,CAAC,gBAAgB,6CA8C,QAAQ,MAAM,CAAC,iBAAiB,CAAC,UAAU,CAAC,aAAa,+BA+B,kBAAkB,CAAC,UAAU,CAAC,wBAAwB,CAAC,gBAAgB,uBAAsB,CAAC,OAAO,uBAAuB,CAAC,UAAU,CAAC,yBAAyB,0BAA0B,CAAC,uBAAuB,OAAO,gBAAgB,CAAC,UAAU,CAAC,wBAAwB,CAAC,gBAAgB,uBAAsB,CAAC,OAAO,uBAAuB,CAAC,UAAU,CAAC,YAAY,CAAC,gBAAgB,6CA8C,QAAQ,MAAM,CAAC,iBAAiB,CAAC,UAAU,CAAC,yBAAyB,iBAAiB,CAAC,+BA+B,sBAAsB,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,yBAAyB,0BAA0B,CAAC,uBAAuB,OAAO,gBAAgB,CAAC,UAAU,CAAC,uBAAuB,CAAC,2CA2C,CAAC,0BA0B,CAAC,OAAO,wBAAwB,CAAC,UAAU,CAAC,YAAY,CAAC,gBAAgB,6CA8C,QAAQ,MAAM,CAAC,iBAAiB,CAAC,UAAU,CAAC,yBAAyB,iBAAiB,CAAC,wBAAwB,CAAC,MAAM,CAAC,uBAAuB,CAAC,UAAU,CAAC,2CA2C,gCA+B,CAAC,UAAU,CAAC,uBAAuB,CAAC,UAAU,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,6CA6C,CAAC,UAAU,CAAC,YAAY,iBAAiB,yBAAyB,iBAAiB,CAAC,MAAM,CAAC,MA

AM,CAAC,iBAAiB,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,2CAA2C,CAAC,0DAAyD,CAAC,OAAO,yBAAyB,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,6CAA6C,qCAAoC,OAAO,iBAAiB,iCAAiC,WAAW,CAAC,wBAAwB,CAAC,gBAAgB,uDAAsD,OAAO,wBAAwB,WAAW,CAAC,yDAAyD,CAAC,wEAAuE,CAAC,gCAAgC,WAAW,CAAC,YAAY,CAAC,gBAAgB,6CAA4C,QAAQ,MAAM,CAAC,kBAAkB,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,yBAAyB,iBAAiB,CAAC,wDAAuD,CAAC,MAAM,CAAC,wBAAwB,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,uBAAuB,CAAC,mGAAkG,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,yBAAyB,+BAA+B,CAAC,sEAAqE,CAAC,+BAA+B,WAAW,CAAC,yBAAyB,+BAA+B,CAAC,sEAAqE,CAAC,+BAA+B,WAAW,CAAC,yBAAyB,+BAA+B,CAAC,sEAAqE,CAAC,+BAA+B,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,YAAY,CAAC,gBAAgB,6CAA4C,QAAQ,MAAM,CAAC,kBAAkB,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,6CAA6C,qCAAoC,OAAO,iBAAiB,iCAAiC,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,sBAAsB,CAAC,MAAM,0DAAyD,OAAO,qDAAoD,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,YAAY,iBAAiB,yBAAwB,iBAAiB,CAAC,MAAM,CAAC,MAAM,CAAC,iBAAiB,WAAW,CAAC,sBAAsB,CAAC,wBAAuB,0BAAyB,8CAA8C,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,YAAY,CAAC,gBAAgB,6CAA4C,QAAQ,MAAM,CAAC,kBAAkB,WAAW,CAAC,uBAAuB,CAAC,+HAA8H,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,yBAAyB,iBAAiB,CAAC,wDAAuD,CAAC,MAAM,CAAC,wBAAwB,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,uBAAuB,CAAC,CAAC,uBAAsB,CAAC,8CAA8C,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,yBAAyB,iBAAiB,CAAC,wDAAuD,CAAC,MAAM,CAAC,wBAAwB,WAAW,CAAC,YAAY,CAAC,gBAAgB,6CAA4C,QAAQ,MAAM,CAAC,kBAAkB,WAAW,CAAC,yBAAyB,0BAAyB,CAAC,uBAAuB,OAAO,iBAAiB,WAAW,CAAC,sBAAsB,CAAC,MAAM,0DAAyD,OAAO,qDAAoD,WAAW,CAAC,2CAA2C,WAAW,CAAC,yBAAyB,iBAAiB,CAAC,wDAAuD,CAAC,MAAM,CAAC,wBAAwB,WAAW,CAAC,6CAA6C,qCAAoC,OAAO,iBAAiB,iCAAiC,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,aAAa,+BAA+B,wBAAuB,wBAAwB,mBAAmB,WAAW,CAAC,sBAAsB,CAAC,wBAAwB,0BAAyB,8CAA8C,WAAW,CAAC,+BAA+B,WAAW,CAAC,sBAAsB,uBAAuB,CAAC,wBAAuB,CAAC,4CAA4C,WAAW,CAAC,iBAAiB,sBAAsB,CAAC,CAAC,wBAA

wB,yCAAyC,gCAAgC,cAAc,UAAU,wBAAwB,iBAAiB,CAAC,KAAK,+DAA+D,QAAO,8CAA8C,oBAAoB,CAAC,wDAAuD,CAAC,MAA4B,wDAAwD,8EAA8E,CAAC,MAAM,wBAAwB,sBAAsB,EAAE,CAAC,qDAAqD,CAAC,KAAK,4BAA4B,aAAa,6DAA6D,CAAC,8BAA8B,wBAAuB,WAAW,EAAE,CAAC,4CAA4C,YAAY,8CAA6C,CAAC,uBAAoB,MAAM,GAAE,QAAQ,CAAC,OAAO,iBAAiB,OAAO,wBAAwB,wBAAwB,aAAa,WAAW,GAAG,wBAAwB,4EAA4E,yBAA+B,CAAC,MAAM,CAAC,iCAAiE,MAAM,CAAC,iBAAiB,gBAAgB,CAAC,MAAM,CAAC,WAAU,OAAO,CAAC,wBAAuB,CAAC,qBAAqB,CAAC,2BAA2B,aAAa,kDAAkD,UAAU,CAAC,CAAC,MAAM,yBAAyB,EAAE,QAAO,wBAAwB,sCAAsC,OAAM;AACx3mE;AACA;AACA,EAAE,OAAO,6BAA6B,CAAC,KAAK;AAC5C,CAAC;AACD,EAAE;AACF,CAAC,GAAG,CAAC;AAEH,GAAG,6BAA6B;;;AChBzC,MAAM,kBAAkB,GAAG,8iGA8iG;;;ACChlG,IAAI,iBAAiB,GAAG,CAAC,WAAW;AACpC,EAAE,IAAI,UAAU,GAAG,OAAO,QAAQ,KAAK,WAAW,IAAI,QAAQ,CAAC,aAAa,GAAG,QAAQ,CAAC,aAAa,C
AAC,GAAG,GAAG,SAAS,CAAC;AACtH,EAAE,IAAI,OAAO,UAAU,KAAK,WAAW,EAAE,UAAU,GAAG,UAAU,IAAI,UAAU,CAAC;AAC/E,EAAE;AACF,SAAS,iBAAiB,EAAE;AAC5B,EAAE,iBAAiB,GAAG,iBAAiB,IAAI,EAAE,CAAC;AAC9C,IAAI,MAAM,CAAC,OAAO,iBAAiB,GAAG,WAAW,CAAC,iBAAiB,CAAC,EAAE,CAAC,IAAI,mBAAmB,CAAC,kBAAkB,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,mBAAmB,CAAC,OAAO,CAAC,kBAAkB,CAAC,OAAM,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,EAAE,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,cAAc,CAAC,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI

,UAAU,CAAC,UAAS,CAAC,GAAG,OAAO,IAAI,GAAG,UAAU,CAAC,CAAC,KAAK,CAAC,SAAS,MAAM,C
AAC,CAAC,IAAI,CAAC,MAAM,EAAC,EAAC,CAAC,GAAG,OAAO,KAAK,GAAG,WAAW,CAAC,CAAC,G
AAG,OAAO,OAAO,GAAG,WAAW,CAAC,OAAO,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,KAAK,C
AAC,OAAO,CAAC,IAAI,CAAC,OAAO,CAAC,KAAK,CAAC,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,CA
AC,MAAK,CAAC,CAAC,KAAK,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAA
C,eAAe,CAAC,IAAI,CAAC,QAAQ,CAAC,KAAI,CAAC,KAAK,GAAG,OAAO,QAAQ,GAAG,WAAW,EAAE,Q
AAQ,CAAC,aAAa,CAAC,CAAC,eAAe,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,CAAC,GAAG,UAAU,CAAC,
CAAC,eAAe,CAAC,WAAU,CAAC,GAAG,eAAe,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CA
AC,eAAe,CAAC,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,eAAe,CAAC,WAAW,CAAC,GAAG,CAAC,CAAC
,CAAC,EAAC,CAAC,KAAI,CAAC,eAAe,CAAC,GAAE,CAAC,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,CA
AC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,YAAY,CAAC,CAAC,GAAG,q
BAAqB,CAAC,CAAC,UAAU,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAA
G,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,C
AAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,
EAAC,CAAC,SAAS,CAAC,SAAS,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,IA
AI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,Y
AAY,CAAC,aAAa,CAAC,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAG,CAAC,MAAM,EAAE,G
AAG,EAAE,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,G
AAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,O
AAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,IAAI,GAAG,CAAC,MAAM,CAAC
,OAAO,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,MA
AM,CAAC,UAAU,CAAC,EAAE,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,IA
AI,eAAe,CAAC,CAAC,GAAG,eAAe,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,
CAAC,CAAC,eAAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAAG,MAAM,CAAC,WA
AW,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,GAAG,MAAM,CAAC,aAAa,CAAC,C
AAC,WAAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,KAAK,
CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,
UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,EAAE,IAA
I,CAAC,GAAG,OAAO,wBAAwB,yCAAyC,gEAA8E,eAAe,iCAAiC,EAAC,yBAAyB,2BAA2B,gFAAgF,gEAAg
E,SAAS,uBAAuB,SAAS,CAAC,eAAe,iBAAiB,QAAQ,CAAC,SAAS,YAAY,GAAG,EAAE,oBAAoB,0BAA0B,a
AAY,sBAAsB,+BAA+B,4BAA4B,YAAY,CAAC,iCAAiC,kDAAkD,8CAA8C,oCAAoC,YAAY,YAAY,CAAC,S
AAS,UAAU,CAAC,CAAC,CAAC,CAAC,aAAa,EAAE,EAAE,4BAA4B,CAAC,CAAC,CAAC,cAAc,aAAa,iBAA
iB,QAAQ,CAAC,CAAC,gBAAgB,CAAC,CAAC,CAAC,cAAY,CAAC,CAAC,MAAM,CAAC,CAAC,EAAC,CA
AC,+BAA+B,4BAA4B,aAAa,oBAAoB,0DAA0D,mBAAmB,EAAE,+CAA+C,wBAAwB,CAAC,oDAAoD,aAAa,
OAAO,uBAAuB,oEAAyE,CAAC,yEAAyE,8DAA8D,iEAAiE,EAAE,QAAQ,QAAQ,EAAE,uBAAuB,EAAE,eAA
e,aAAa,oDAAoD,CAAC,gBAAe,mBAAmB,MAAM,WAAW,EAAE,KAAK,EAAE,MAAM,CAAC,KAAK,sBAA
sB,EAAE,eAAe,WAAW,EAAE,EAAE,OAAO,YAAY,KAAK,qBAAqB,EAAE,GAAG,KAAK,EAAE,EAAE,eAA
e,WAAW,EAAE,EAAE,OAAO,YAAY,EAAE,EAAE,EAAE,GAAG,KAAK,GAAG,EAAE,EAAE,EAAE,UAAQ,
EAAE,EAAE,EAAE,KAAK,GAAG,EAAE,EAAE,GAAG,EAAE,EAAE,UAAU,EAAE,EAAE,OAAM,QAAQ,KA
AK,sBAAsB,EAAE,aAAW,GAAG,YAAY,4BA4B,EAAE,EAAE,SAAS,OAAO,EAAC,CAAC,qDAAqD,wDAA
wD,EAAE,6DA6D,KAAK,iBAAiB,CAAC,CAAC,SAAS,uDAAuD,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,
aAAa,EAAE,CAAC,MAAM,gBAAgB,CAAC,CAAC,MAAM,OAAO,GAAG,OAAO,MAAM,kBAAkB,EAAE,CA
AC,CAAC,CAAC,OAAO,EAAE,CAAC,SAAS,EAAE,EAAE,aAAY,KAAK,WAAW,0BA0B,EAAE,CAAC,CA
AC,YAAW,MAAM,WAAW,EAAE,0BA0B,EAAE,KAAK,EAAE,EAAE,aAAa,EAAE,KAAK,CAAC,EAAE,aA
AY,OAAO,WAAW,EAAE,0BA0B,EAAE,KAAK,EAAE,EAAE,cAAc,EAAE,KAAK,EAAE,EAAE,EAAE,cAA
c,EAAE,KAAK,CAAC,EAAE,mBAAiB,EAAE,0BA0B,EAAE,KAAK,EAAE,EAAE,cAAc,EAAE,KAAK,EAA
E,EAAE,GAAG,cAAc,EAAE,KAAK,EAAE,EAAE,EAAE,cAAc,EAAE,KAAK,CAAC,EAAE,GAAE,aAAa,CAA

C,CAAC,yEAAyE,4DAA4D,0CAA0C,wBAAwB,mBAAkB,CAAC,UAAU,KAAK,UAAU,CAAC,CAAC,CAAC,
EAAE,UAAU,CAAC,mBAAkB,+GAA+G,2BAA2B,yBAAyB,iBAAiB,2BAA2B,iBAAiB,2BAA2B,iBAAiB,2BA
A2B,kBAAkB,6BAA6B,kBAAkB,6BAA6B,kBAAkB,8BAA8B,kBAAkB,8BAA8B,8CAA6C,0CAA0C,kBAAkB,
kBAAkB,qBAAqB,kBAA+C,oCAAoC,GAAE,CAAC,CAAC,iBAAiB,qBAAqB,CAAC,4BAA4B,4BAA4B,CAAC
,iBAAiB,CAAC,uBAAuB,QAAQ,6BAA6B,OAAO,EAAE,EAAC,mCAAmC,uBAAsB,kCAA0D,mBAAkB,kCAA
kC,mBAAkB,sBAAsB,CAAC,6BAA6B,6BAA6B,CAAC,kBAAkB,CAAC,wBAAwB,QAAQ,+BAA+B,OAAO,E
AAE,EAAC,oCAAoC,wBAAuB,EAAE,uBAAuB,EAAE,yBAAwB,EAAE,wBAAwB,EAAE,sBAAqB,CAAC,2D
AAyF,EAAE,iBAAiB,qCAAqC,CAAC,iCAAiC,iBAAiB,EAAC,+BAA+B,EAAE,iBAAiB,qCAAqC,CAAC,iCAA
iC,iBAAiB,qBAAoB,EAAE,CAAC,0BAAwH,wEAAwE,GAAE,CAAC,0BAA0B,EAAE,2BAA2B,EAAE,sBAAs
B,qBAAqB,CAAC,kBAAkB,MAAM,OAAM,EAAE,WAAW,mFAAgG,iCAAiC,wBAAwB,8BAA8B,CAAC,8CA
A8C,CAAC,sBAAsB,CAAC,kBAAkB,CAAC,KAAK,gIAAgI,kGAAkG,2CAA2C,CAAC,6FAA4F,KAAK,CAAC,
GAAG,IAAI,yCAAyC,0BAA0B,kCAAkC,MAAM,qEAAmE,UAAU,CAAC,kCAAiC,CAAC,4DAA4D,oHAAoH,
uBAAuB,CAAC,aAAa,kEAAiE,CAAC,iCAAiC,CAAC,qDAAqD,IAAI,KAAI,sBAAsB,yFAAyF,uBAAuB,WAA
U,EAAC,CAAC,6BAA6B,+CAA+C,0BAA0B,IAAI,KAAK,CAAC,6DAA6D,2EAA2E,CAAC,0EAA0E,CAAC,m
MAAqO,uDAAuD,MAAM,CAAC,MAAM,CAAC,wBAAwB,MAAM,gDAAgD,OAAO,CAAC,MAAM,oCAAmC
,0IAA0I,mBAAmB,uDAAuD,iBAAiB,uDAAuD,4DAA4D,wKAAwK,CAAC,oEAAmE,CAAC,4BAA4B,gFAAgF
,oEAAoE,4DAA4D,CAAC,UAAS,8BAA8B,CAAC,iBAAiB,SAAS,CAAC,sBAAsB,CAAC,kBAAkB,UAAU,UA
AU,UAAU,CAAC,gBAAgB,CAAC,SAAS,SAAS,eAAe,iBAAiB,4BAA4B,UAAU,CAAC,SAAS,mBAAiB,CAAC
,SAAS,CAAC,QAAQ,CAAC,UAAU,MAAK,CAAC,UAAS,gBAAgB,cAAc,iBAAgB,gBAAgB,WAAU,gCAAgC,
KAAK,iBAAiB,UAAU,SAAS,UAAS,mCAAmC,uBAAuB,mCAAmC,CAAC,UAAU,UAAU,CAAC,iBAAiB,WA
AW,uCAAuC,iBAAiB,CAAC,QAAQ,EAAE,UAAU,yGAAyG,gDAAgD,cAAc,OAAO,EAAE,CAAC,UAAU,CA
AC,iCAAiC,CAAC,WAAW,EAAE,2BAA2B,yCAAyC,CAAC,sBAAsB,6BAA6B,yCAAyC,mDAAmD,8CAA8C,
UAAU,QAAQ,CAAC,UAAU,EAAE,QAAQ,EAAE,WAAW,CAAC,SAAS,iBAAiB,MAAM,UAAU,0BAA0B,GA
AG,IAAI,GAAG,GAAG,WAAW,CAAC,UAAU,2BAA2B,CAAC,OAAO,CAAC,SAAS,uBAAqB,CAAC,WAAU,
CAAC,SAAS,CAAC,cAAc,UAAU,SAAS,CAAC,SAAS,MAAM,UAAU,SAAS,YAAY,GAAG,kBAAkB,aAAa,4B
AA4B,OAAO,UAAU,UAAU,UAAU,YAAY,UAAU,YAAY,CAAC,SAAS,sBAAsB,6BAA6B,CAAC,qBAAqB,aA
Aa,WAAW,IAAI,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,IAAI,MAAM,CAAC,CAAC,EAAE,MAAM,IAAI,MA
AM,IAAI,MAAM,CAAC,MAAM,GAAG,CAAC,MAAM,IAAI,MAAM,CAAC,GAAG,EAAE,CAAC,IAAI,IAAI,
CAAC,CAAC,IAAI,IAAI,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,SAAS,CAAC,SAAS,CAAC,GAAG,UAAU
,GAAG,EAAC,MAAM,WAAU,aAAa,SAAS,yBAAyB,EAAE,SAAS,uBAAuB,EAAE,CAAC,SAAS,oDAAoD,uB
AAuB,oCAAoC,OAAO,wCAAwC,mCAAmC,SAAS,iBAAiB,SAAS,iBAAiB,eAAe,QAAQ,QAAQ,QAAQ,UAAU
,eAAe,UAAU,SAAS,MAAM,SAAS,OAAO,UAAU,SAAS,eAAe,QAAQ,UAAU,eAAe,QAAQ,UAAU,eAAe,QAA
Q,QAAQ,QAAQ,QAAQ,QAAQ,QAAQ,QAAQ,wBAAwB,SAAS,SAAS,eAAe,UAAU,SAAS,SAAS,SAAS,SAAS
,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,eAAe,UAAU,SAAS,SAAS,SAAS,SAAS,SAAS,eAAe,QA
AQ,UAAU,eAAe,QAAQ,QAAQ,QAAQ,EAAE,SAAQ,CAAC,SAAS,MAAM,SAAS,CAAC,MAAM,SAAS,CAA
C,SAAS,SAAS,eAAe,UAAU,SAAS,SAAS,eAAe,QAAQ,EAAE,QAAQ,OAAO,QAAQ,QAAQ,QAAQ,iBAAiB,U
AAU,QAAQ,QAAQ,EAAE,CAAC,OAAO,QAAQ,QAAQ,QAAQ,UAAU,gBAAgB,4BAA4B,QAAQ,EAAE,CAA
C,OAAO,QAAQ,QAAQ,UAAU,oDAAoD,qBAAqB,qBAAqB,qBAAqB,GAAG,gBAAgB,GAAG,gBAAgB,GAA
G,gBAAgB,GAAG,OAAO,WAAW,UAAU,SAAS,CAAC,OAAO,QAAQ,EAAE,CAAC,OAAO,SAAS,CAAC,OA
AO,QAAQ,CAAC,QAAQ,OAAO,EAAE,QAAQ,CAAC,UAAU,sCAAsC,kCAAkC,CAAC,CAAC,QAAQ,CAAC,
UAAU,EAAE,CAAC,8BAA6B,IAAI,iEAAiE,CAAC,aAAa,aAAa,CAAC,mDAAmD,CAAC,QAAQ,UAAU,iEAAi
E,0EAAyE,aAAa,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,iBAAiB,aAAa,UAAU,CAAC,4EAA4
E,sFAAqF,aAAa,UAAU,CAAC,gEAAgE,0EAAyE,aAAa,UAAU,CAAC,4DAA4D,sEAAqE,aAAa,UAAU,CAAC,
sDAAsD,gEA+D,aAAa,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,mBAAmB,aAAa,UAAU,CAAC,UA
AU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,WA
AW,CAAC,gBAAgB,UAAU,+BAA8B,iBAAiB,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UA
AU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,8BAA6B,CAAC,WAAW,iCAAgC,CAAC,kB
AAkB,aAAa,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,mBAAmB,aAAa,UAAU,CAAC,oDAAoD,8DAA

6D,aAAa,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,iBAAiB,aAAa,UAAU,CAAC,oDAAoD,8DA
A6D,aAAa,UAAU,CAAC,8BAA8B,CAAC,WAAW,iCAAgC,CAAC,kBAAkB,aAAa,UAAU,CAAC,oEAAoE,8E
AA6E,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,WAAW,CAAC,gBAAgB,UA
AU,+BAA8B,iBAAiB,aAAa,UAAU,CAAC,wDAAwD,kEAAiE,aAAa,UAAU,CAAC,8BAA8B,CAAC,WAAW,iC
AAgC,CAAC,kBAAkB,aAAa,UAAU,CAAC,sDAAsD,gEAA+D,aAAa,UAAU,CAAC,wEAAwE,kFAAiF,aAAa,U
AAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,YAAY,iBAAiB,CAAC,UAAU,gCAA+B,CA
AC,iBAAiB,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,wDAAwD,kEAAiE,aA
Aa,UAAU,CAAC,YAAY,iBAAiB,CAAC,UAAU,gCAA+B,CAAC,iBAAiB,aAAa,UAAU,CAAC,gBAAgB,8BAA
8B,kBAAiB,CAAC,qCAAqC,aAAa,UAAU,CAAC,0DAA0D,oEAAmE,aAAa,UAAU,CAAC,oDAAoD,8DAA6D,
aAAa,UAAU,CAAC,sEAAsE,gFAA+E,aAAa,UAAU,CAAC,8BAA8B,CAAC,WAAW,iCAAgC,CAAC,kBAAkB,
aAAa,UAAU,CAAC,gBAAgB,8BAA8B,kBAAiB,CAAC,qCAAqC,aAAa,UAAU,CAAC,gCAAgC,YAAY,kBAAi
B,iBAAiB,mBAAmB,aAAa,UAAU,CAAC,sDAAsD,gEAA+D,aAAa,UAAU,CAAC,gBAAgB,gCAAgC,mBAAkB
,uCAAuC,aAAa,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,iBAAiB,aAAa,UAAU,CAAC,gBAAg
B,gCAAgC,mBAAkB,uCAAuC,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,8CAA6C,aAAa,UAAU,CAAC,kD
AAkD,4DAA2D,aAAa,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,gCAAgC,YAAY,kBAAi
B,iBAAiB,iCAAiC,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,iCAAiC,UAAU,CAAC,WAAW,CAAC,gB
AAgB,UAAU,+BAA8B,+BAA+B,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,gCAAgC,YA
AY,kBAAiB,iBAAiB,iCAAiC,UAAU,CAAC,gBAAgB,gCAAgC,mBAAkB,qDAAqD,UAAU,CAAC,gBAAgB,8B
AA8B,kBAAiB,CAAC,mDAAmD,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,oEAAoE,4FA
A2F,UAAU,CAAC,oEAAoE,4FAA2F,UAAU,CAAC,oEAAoE,4FAA2F,UAAU,CAAC,gBAAgB,8BAA8B,kBAA
iB,CAAC,mDAAmD,UAAU,CAAC,8BAA8B,CAAC,WAAW,iCAAgC,CAAC,gCAAgC,UAAU,CAAC,YAAY,i
BAAiB,CAAC,UAAU,gCAA+B,CAAC,+BAA+B,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAA
C,YAAY,iBAAiB,CAAC,UAAU,gCAA+B,CAAC,+BAA+B,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+B
AA8B,+BAA+B,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,iCAAiC,UAAU,CAAC,WAAW,CAAC,gBAA
gB,UAAU,+BAA8B,+BAA+B,UAAU,CAAC,YAAY,iBAAiB,CAAC,UAAU,gCAA+B,CAAC,+BAA+B,UAAU,
CAAC,0DAA0D,kFAAiF,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,iCAAiC,UAAU,CAAC,8DAA8D,sF
AAqF,UAAU,CAAC,YAAY,iBAAiB,CAAC,UAAU,gCAA+B,CAAC,+BAA+B,UAAU,CAAC,YAAY,iBAAiB,C
AAC,UAAU,gCAA+B,CAAC,+BAA+B,UAAU,CAAC,gBAAgB,gCAAgC,mBAAkB,qDAAqD,UAAU,CAAC,gB
AAgB,8BAA8B,kBAAiB,CAAC,mDAAmD,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,iCAAiC,UAAU,C
AAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,gCAAgC,YAAY,kBAAiB,iBAAiB,iCAAiC,UAAU,CAA
C,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,+BAA+B,UAAU,CAAC,8BAA8B,CAAC,WAAW,iCAAgC,CAAC,
gCAAgC,UAAU,CAAC,gEAAgE,wFAAuF,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,+BAA+B,
UAAU,CAAC,sDAAsD,8EAA6E,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,UAAU,CAAC
,yBAAyB,4DAA2D,UAAU,CAAC,UAAU,CAAC,yBAAyB,4DAA2D,UAAU,CAAC,WAAW,CAAC,gBAAgB,U
AAU,+BAA8B,+BAA+B,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,+BAA+B,UAAU,CAAC,WA
AW,CAAC,gBAAgB,UAAU,+BAA8B,+BAA+B,UAAU,CAAC,gBAAgB,gCAAgC,mBAAkB,qDAAqD,UAAU,
CAAC,gBAAgB,gCAAgC,mBAAkB,qDAAqD,UAAU,CAAC,sDAAsD,8EAA6E,UAAU,CAAC,8BAA8B,CAAC,
WAAW,iCAAgC,CAAC,gCAAgC,UAAU,CAAC,WAAW,CAAC,gBAAgB,UAAU,+BAA8B,+BAA+B,UAAU,C
AAC,8DAA8D,sFAAqF,UAAU,CAAC,gBAAgB,8BAA8B,kBAAiB,CAAC,mDAAmD,UAAU,CAAC,oDAAoD,4
EAA2E,UAAU,CAAC,gBAAgB,gCAAgC,mBAAkB,qDAAqD,UAAU,CAAC,SAAS,SAAS,UAAU,UAAU,SAAS
,UAAU,kBAAkB,CAAC,oEAAoE,MAAM,8CAA6C,yBAAyB,CAAC,SAAS,CAAC,SAAS,CAAC,+BAA+B,CA
AC,WAAU,UAAU,IAAI,KAAK,mBAAyC,CAAC,SAAS,4BAA4B,CAAC,SAAS,qBAAqB,iBAAiB,iCAAiC,MA
AM,4BAA4B,EAAE,CAAC,qCAAqC,CAAC,gEAAgE,EAAE,CAAC,UAAS,CAAC,qBAAqB,qCAAqC,WAAW,
WAAW,WAAW,6BAA6B,MAAK,EAAE,CAAC,CAAC,CAAC,QAAO,MAAK,KAAI,MAAM,YAAW,UAAU,C
AAC,SAAS,CAAC,YAAY,gBAAgB,CAAC,YAAY,iBAAiB,CAAC,SAAS,SAAS,CAAC,wBAAwB,CAAC,SAA
S,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,SAAS,CAAC,MAAM;AAC334B;AACA;AACA,EAAE,OAAO,iB
AAiB,CAAC,KAAK;AAChC,CAAC;AACD,EAAE;AACF,CAAC,GAAG,CAAC;AAEH,cAAc,GAAG,iBAAiB;;;;
ICuBHC,+BAAa;IAK5C,qBAAmB,IAAqD;QAAxE,YACE,iBAAO,SAIR;QALkB,UAAI,GAAJ,IAAI,CAAiD;;Q

AHhE,sBAAgB,GAAG,CAAC,CAAC;QAK3B,KAAI,CAAC,IAAI,CAAC,IAAI,CAAC,oBAAoB,CAAC,YAAY,CAAC,CAAC;QAClD,kBAAkB,GAAG,KAAI,CAAC,IAAI,CAAC,IAAI,CAAC,eAAe,EAAE,CAAC;QACtD,KAAI,CAAC,SAAS,GAAG,IAAIC,oBAAW,CAAC,KAAI,CAAC,EAAEC,CAAC,EAAE,CAAC,CAAC;;KAClD;IAED,2BAAK,GAAL,UAAM,MAAkB,EAAE,KAAe,EAAE,KAAe;QAExD,IAAM,EAAE,GAAG,IAAI,CAAC,EAAE,CAAC,gBAAgB,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC;QAC3C,IAAI,CAAC,gBAAgB,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC;QAC7C,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,MAAM,EAAE,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,CAAC,CAAC,CAAC,CAAC;QAC3C,IAAM,EAAE,GAAG,IAAI,CAAC,EAAE,CAAC,OAAO,EAAE,MAAM,EAAE,CAAC,CAAC;KACf;IAED,gCAAU,GAAV,UAAW,MAAkB,EAAE,KAAe,EAAE,KAAe;QAE7D,IAAM,EAAE,GAAG,IAAI,CAAC,EAAE,CAAC,OAAO,EAAE,IAAI,EAAE,CAAC,CAAC,CAAC,CAAC;QAC9C,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC

AAC,CAAC;YAC1E,IAAM,IAAI,GAAGA,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC;YACvC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,cAAc,CAAC,EAAE,EAAE,IAAI,EAAE,YAAY,CAAC,CAAC;SACvD;QACD,OAAO,EAAC,MAAM,QAAA,A,EAAE,KAAK,OAAA,A,EAAE,KAAK,OAAA,A,EAAC,CAAC;KAC/B;IAED,wCAAkB,GAAlB,UAAA,mB,EAAkC;YAAjC,gBAAK,EAAE,gBAAK,EAAE,gBAAK,EAAE,gBAAK,EAAE,gBAAK;QAEtC,IAAM,MAAM,GAAG,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC

AC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IAE3D,IAAI,QAAQ,CAAC,UAAU,KAAK,cAAc,EAAE;QAC1C,MAAM,IAAI,KAAK,CACX,mDAAmD;YACnD,GAAG,QAAQ,CAAC,UAAU,+BAA+B,CAAC,CAAC;KAC5D;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC;IACpD,MAAM,CAAC,GAAG,OAAO,CAAC,UAAU,CAAC,GAAG,EAAE,GAAG,EAAE,KAAK,CAAC,CAAC;IAC9C

filterHeight,\n filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2D.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Transpose.js","sourceRoot":"","sources":["../../src/kernels/Transpose.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAuC,SAAS,EAAkC,MAAM,uBAAuB,CAAC;AAIvH,OAAO,EAAC,QAAQ,EAAC,MAAM,YAAY,CAAC;AACpC,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,OAAO,EAAC,IAAI,EAAE,4D,CAAC;AAEjE,SAAS,KAAK,EAAE,oB;IACjC,aAAa,GAAG,OAAO,CAAC,aAAa,EAAE,IAAI,EAAE,CAAC,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK

,SAAS;IACrB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,SAA6B;IACzC,SAAS,EAAE,KAAK;CACjB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType} from './types';\n\nlet wasmTranspose: (\n   xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n   outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // dtype\n   'number', // outId\n   'array',   // perm\n   'number', // perm.length\n]);\n}\n\nexport function transpose(\n   args:\n   {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n   if (perm[i] !== i) {\n   permIsNoOp = false;\n   }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n   dataId: inputs.x.dataId,\n   shape: reducedShape,\n   dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n   const cloned = identity({inputs, backend});\n   cloned.shape = outShape;\n   return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n   perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n   outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction removeOneSizeDims(\n   shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n   if (shape[i] !== 1) {\n   newShape.push(shape[i]);\n   }\n   if (shape[perm[i]] !== 1) {\n   newPerm.push(perm[i]);\n   }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n   let minValIdx = -1;\n   for (let j = 0; j < newPerm.length; ++j) {\n   if (newPerm[j] >= i &&\n   (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n   minValIdx = j;\n   }\n   }\n   newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transpose.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Identity.js","sourceRoot":"","sources":["../../src/kernels/Identity.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,QAAQ,EAAE,EAA2C,MAAM,uBAAuB,CAAC;AAEzF,MAAM,UAAU,QAAQ,CAAC,IAAkB;IACzC,OAAO,QAAQ,CAAC,IAAI,CAAC,CAAC;AACxB,CAAC;AAED,MAAM,CAAC,MAAM,cAAc,GAAiB;IAC1C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,QAAQ,IAAgB;CACrC,CAAC

AC,KAAK,CAAC,CAAC;IACjD,MAAM,MAAM,GAAG,OAAO,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC;IAC7C,MAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC;IAChD,OAAO,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC;IACpB,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM,CAAC,MAAM,cAAc,GAAG,iBAAiB;IAC1C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,QAAQ4B;CACzC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return
out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n kernelFunc: identity as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Identity.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"NonMaxSuppressionV3.js","sourceRoot":"","sources":["../../src/kernels/NonMaxSuppressionV3.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,mBAAmB,EAAkE,MAAM,uBAAuB,CAAC;AAIrJ,OAAO,EAAC,iBAAiB,EAAC,MAAM,0BAA0B,CAAC;AAE3D,IAAI,QAAuD,CAAC;AAE5D,SAAS,KAAK,CAAC,OAAoB,EAAE,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC

* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs,
NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n
boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number)
=> number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n
NonMaxSuppressionV3,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n
'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n
]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n
inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend,
inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} =
inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId =
backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n wasmFunc(boxesId, scoresId, maxOutputSize,
iouThreshold, scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n
parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the
heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const
selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return
selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName:
NonMaxSuppressionV3,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV3.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"NonMaxSuppressionV5.js","sourceRoot":"","sources":["../../src/kernels/NonMaxSuppressionV5
.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,mBAAmB,EAAkE,MAAM,uBAAuB
,CAAC;AAIrJ,OAAO,EAAC,iBAAiB,EAAC,MAAM,0BA0B,CAAC;AAE3D,IAAI,QAGU,CAAC;AAEf,SAAS
,KAAK,CAAC,OAAoB;IACjC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CACzB,mBAAmB,EAAC,nB,QAAQ,
EAAG,UAAU;IACrB;QACE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QA
AQ;KACT,CAAC,CAAC;AACT,CAAC;AAED,SAAS,UAAU,CAAC,IAInB;IACC,MAAM,EAAC,OAAO,EAAE,
MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,YAAY,EAAE,aAAa,EAAE,cAAc,EAA
E,YAAY,EAAC,GAAG,KAAK,CAAC;IAC1E,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,KAAK,EAAE,MAAM,EAAC,GAAG,MAAM,CA
AC;IAE/B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,KAAK,EAAE,MAAM,CAAC,CAAC,CA
AC,EAAE,CAAC;IACvD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,KAAK,EAAE,MAAM,EAAC,GAAG,MAAM,CAAC,M
AAM,CAAC,CAAC,EAAE,CAAC;IAEzD,MAAM,SAAS,GAAG,QAAQ,CAAC,CACtB,OAAO,EAAE,EAAE,QAAQ,EAAE,aA
Aa,EAAE,YAAY,EAAE,cAAc,EAC9D,YAAY,CAAC,CAAC;IAElB,MAAM,EAAC,gBAAgB,EAAE,YAAY,,EA
AE,eAAe,EAAE,aAAa,EAAC,GAClE,iBAAiB,CAAC,OAAO,EAAE,SAAS,CAAC,CAAC;IAE1C,4EAA4E;IAC5
E,QAAQ;IACR,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,aAAa,CAAC,CAAC;IAElC,MAAM,qBAAqB,GACvB
,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,YAAY,CAAC,EAAE,gBAAgB,CAAC,CAAC;IAClE,MAA
M,oBAAoB,GACtB,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,YAAY,CAAC,EAAE,SAAS,EAAE,eAAe,CAAC,CAA
C;IAEnE,OAAO,CAAC,qBAAqB,EAAE,oBAAoB,CAAC;AACvD,CAAC;AAED,MAAM,yBAAyB
,yBAAyB;IAC5D,UAAU,EAAE,mBAAmB,EAAE,MAAM;IACvC,UAAU,EAAE,UAAU;IACtB;QACE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR

law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs,
NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n
(boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number,
softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc =
backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n
'number', // scoresId\n 'number', // maxOutputSize\n 'number',
// iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction
kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs:
NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold,
maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const
resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n
softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n
parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from
the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n
backend.makeOutput([selectedSize], 'int32',
pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32',
pSelectedScores);\n\n return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const
nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName:
'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV5.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Conv2DBackpropInput.js","sourceRoot":"","sources":["../../src/kernels/Conv2DBackpropInput.t
s"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,mBAAmB,EAA6F,IAAI,
EAAC,MAAM,uBAAuB,CAAC;AAIzK,IAAI,uBAAQ8C,CAAC;AAEnD,SAAS,KAAK,CAAC,OAAOoB;IACjC,uB
AAuB,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,mBAAmB,EAAE,IAAI,EAAE;QACtE,QAAQ;QACR,Q
AAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;Q
ACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,Q
AAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;Q
ACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,mBAAmB,CAAC,I
AI5B;IACC,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EA
AC,EAAE,EAAE,MAAM,EAAC,OAAO,EAAE,GAAG,EAAE,UAAU,EAAE,eAAe,EAAE,UAAU,EAAC,GAAG,
,MAAM,WAAW,GAAG,YAAY,CAAC,uBAAuB,CAAC,UAAU,CAAC,CAAC;IACrE,MAAM,QAAQ,GAAG,
YAAY,CAAC,iBAAiB,CAC3C,UAAU,EAAE,MAAM,CAAC,KAAK,yC,EAAE,OAAO,EACrE,SAAS,EAAE,GAAG,
EAAE,eAAe,EAAE,KAAK,CAAC,eAAe,EAAE,eAAe,EAAE,WAAW,CAAC,CAAC;IACzE,MAAM,EACJ,YAAY,EAAE,MAAM,EAAE,YAAY,EAAE,MAAM,EAAE,YAAY,EAAE,MAAM,EAAE,YAAY,EAAE,
YAAY,EAAC,WAAW,EAAE,UAAU,EAAE,SAAS,EAAE,YAAY,EAAE,MAAM,EAAE,YAAY,EAAE,
YAAY,EAAC,WAAW,EAAE,SAAS,EAAE,GAAG,EAAE,QAAQ,CAAC,IAAI,EAAE,YAAY,EAAE,
YAAY,EAAC,WAAW,EAAE,SAAS,EAAE,GAAG,EAAE,QAAQ,CAAC,IAAI,EAAE,YAAY,EAAE,
QAAQ,CAAC,OAAO,EAAE,CAAC,IAAI,EAAE,YAAY,EAAE,GAAG,EAAE,QAAQ,CAAC,IAAI,EAAE,YAAY,EAAE,QA

Q,CAAC,OAAO,CAAC,IAAI,CAAC;IAExD,MAAM,cAAc,GAAG,QAAQ,CAAC,UAAU,KAAK,cAAc,CAAC;IAC9D,MAAM,SAAS,GAAG,IAAI,CAAC,cAAc,CAAC,QAAQ,CAAC,OAAO,CAAC,CAAC;IACxD,MAAM,SAAS,GAAG,IAAI,CAAC,cAAc,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC;IAChD,MAAM,CAAC,KAAK,CAAC,EAAE,KAAK,EAAE,KAAK,CAAC,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,CAAC;IAChE,MAAM,YAAY,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC;IAClC,MAAM,UAAU,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC;IAClC,MAAM,CAAC,KAAK,CAAC,EAAE,KAAK,EAAE,KAAK,CAAC,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,UAAU,CAAC,KAAK,CAAC,CAAC,CAAC;IAChE

const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n   inputShape, filter.shape as [number, number, number, number], strides,\n   dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n   batchSize,\n   filterHeight,\n   filterWidth,\n   inChannels,\n   inHeight,\n   inWidth,\n   outChannels,\n   outHeight,\n   outWidth,\n   strideHeight,\n   strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast ? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n   dyId, filterId, batchSize, filterHeight, filterWidth, inHeight, inWidth,\n   inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n   topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n   xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n   yChannelStride, outId);\n return out;\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2DBackpropInput.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FloorDiv.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/setup_test.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherNd.d.ts

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/RotateWithOffset.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/types.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/LogicalAnd.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ArgMax.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Cast.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Log.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/RealDiv.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sum.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Minimum.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Multiply.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Max.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/_FusedMatMul.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Exp.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prelu.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedConv2D.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Rsqrt.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GreaterEqual.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Sub.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ExpandDims.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/RealDiv.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ArgMax.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AvgPool.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Min.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FloorDiv.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LeakyRelu.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/binary_kernel.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV5.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Greater.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Add.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Rsqrt.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tanh.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Concat.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/binary_kernel.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherV2.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ScatterNd.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Sigmoid.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/GatherNd.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchMatMul.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/NonMaxSuppressionV3.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Exp.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/FusedDepthwiseConv2D.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Multiply.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/NonMaxSuppressionV5.ts
*

/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prelu.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Cos.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/AddN.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Minimum.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FlipLeftRight.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Log.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tile.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/FusedConv2D.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/RealDiv.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/LeakyRelu.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthToSpace.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Tanh.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/unary_kernel.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/index.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/GreaterEqual.ts
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sub.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ResizeBilinear.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Maximum.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/SquaredDifference.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tanh.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index_test.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedConv2D.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Concat.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Greater.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchMatMul.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Log.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/FusedBatchNorm.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Unpack.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transpose.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AvgPool.d.ts
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Add.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Less.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reshape.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ResizeBilinear.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index_test.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Pow.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Abs.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV3.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Conv2D.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/LessEqual.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/binary_kernel.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherNd.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/CropAndResize.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Tile.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sum.d.ts
*

/tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Relu6.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Square.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Max.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Square.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/types.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/unary_kernel.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LeakyRelu.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SquaredDifference.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LessEqual.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Unpack.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ClipByValue.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/RotateWithOffset.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/FloorDiv.ts
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LogicalAnd.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Less.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Slice.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cast.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu6.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ClipByValue.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Prelu.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedDepthwiseConv2D.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ScatterNd.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FlipLeftRight.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/BatchMatMul.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MaxPool.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/CropAndResize.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Sum.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index.js
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GatherV2.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/FlipLeftRight.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Minimum.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthToSpace.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2D.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/DepthwiseConv2dNative.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedBatchNorm.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/RotateWithOffset.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/_FusedMatMul.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/DepthToSpace.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AddN.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ClipByValue.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sin.d.ts
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Min.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cos.d.ts

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/_FusedMatMul.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MaxPool.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV3.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tile.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Pow.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2D.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/GatherV2.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sigmoid.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/NonMaxSuppression_util.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ResizeBilinear.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Greater.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Max.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reshape.d.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cast.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV5.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Multiply.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Slice.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/PadV2.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Reshape.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/PadV2.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ArgMax.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LogicalAnd.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthwiseConv2dNative.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Unpack.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Transpose.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/wasm-out/tfjs-backend-wasm.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/types.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Concat.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transpose.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AddN.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ExpandDims.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/CropAndResize.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Maximum.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/MaxPool.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Min.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Rsqrt.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ExpandDims.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sin.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/GreaterEqual.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Add.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/unary_kernel.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Less.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Abs.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/setup_test.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedDepthwiseConv2D.d.ts

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Slice.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedBatchNorm.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Sin.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Abs.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/AvgPool.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthwiseConv2dNative.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cos.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Relu.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu6.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Pow.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SquaredDifference.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Exp.ts
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppression_util.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppression_util.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Square.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ScatterNd.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/PadV2.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sigmoid.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/LessEqual.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Maximum.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sub.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Tan.js","sourceRoot":"","sources":["../../src/kernels/Tan.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,GAAG,EAAC,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,SAAS,GAAG,uBAAuB,CAAC,GAAG,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tan.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"tf-backend-wasm.node.js","sources":["../src/kernels/types.ts","../src/kernels/_FusedMatMul.ts","../src/kernels/unary_kernel.ts","../src/kernels/Abs.ts","../src/kernels/binary_kernel.ts","../src/kernels/Add.ts","../src/kernels/AddN.ts","../src/kernels/Identity.ts","../src/kernels/Transpose.ts","../src/kernels/kernel_utils.ts","../src/kernels/All.ts","../src/kernels/Any.ts","../src/kernels/ArgMax.ts","../src/kernels/AvgPool.ts","../src/kernels/Reshape.ts","../src/kernels/BatchMatMul.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Concat_impl.js","../node_modules/@tensorflow/tfjs-

backend-cpu/dist/kernels/Range_impl.js","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Slice.js","../src/kernels/Slice.ts","../src/kernels/BatchToSpaceND.ts","../src/kernels/Cast.ts","../src/kernels/Ceil.ts","../src/kernels/ClipByValue.ts","../src/kernels/Concat.ts","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/Max.ts","../src/kernels/Maximum.ts","../src/kernels/MaxPool.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/Minimum.ts","../src/kernels/MirrorPad.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/NotEqual.ts","../src/kernels/OneHot.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Pow.ts","../src/kernels/Prelu.ts","../src/kernels/Prod.ts","../src/kernels/Range.ts","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/ScatterNd.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Sin.ts","../src/kernels/Softmax.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/Step.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sub.ts","../src/kernels/Sum.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/Tile.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/Unpack.ts","../src/kernels/ZerosLike.ts","../src/register_all_kernels.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../src/version.ts","../src/base.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==*/\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==*/\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n   (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n   transposeB: boolean, activation: number,

biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n 'number',
// a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number', // activation\n 'number', // biasId\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number' // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, outType || x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==========\n
*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null / void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype === 'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n

createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const {inputs, backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType} from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n 'number', // xId\n

'array', // x.shape\n 'number', // x.shape.length\n 'number', // dtype\n 'number', // outId\n 'array', // perm\n 'number', // perm.length\n]);\n}\n\nexport function transpose(\n args:\n {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n if (perm[i] !== i) {\n permIsNoOp = false;\n }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n dataId: inputs.x.dataId,\n shape: reducedShape,\n dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n const cloned = identity({inputs, backend});\n cloned.shape = outShape;\n return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction removeOneSizeDims(\n shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n if (shape[i] !== 1) {\n newShape.push(shape[i]);\n }\n if (shape[perm[i]] !== 1) {\n newPerm.push(perm[i]);\n }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n let minValIdx = -1;\n for (let j = 0; j < newPerm.length; ++j) {\n if (newPerm[j] >= i &&\n (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n minValIdx = j;\n }\n }\n newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n x: TensorInfo, axis: number|number[],
backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n const newShape: number[] = new Array(xRank);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = xShape[permutedAxes[i]];\n }\n\n axes = backend_util.getInnerMostAxes(axes.length, xRank);\n xTransposed =\n transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n if (transposedId !== xId) {\n inputWasTransposed = true;\n }\n }\n\n return {transposed: xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this

file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend, inputs,\n attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n

wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n
  }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n   xId: number, dtype: number, outerSize: number, innerSize: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n 'number', // outer_size\n   'number', // inner_size\n   'number'   // out_id\n]);\n}\n\nfunction argmax(\n   args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId
 = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n
  kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 * ==\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n   xId:
 number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n   padBottom: number, padLeft: number, strideHeight: number,\n stride Width: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n 'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterHeight\n   'number', // filterWidth\n 'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', //

strideHeight\n 'number', // strideWidth\n 'number', // channels\n 'number', // outId\n]);\n}\n\nfunction avgPool(\n args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n throw new Error(\n `was backend only supports average pooling with dilation = [1, 1], ` +\n `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n `shape must have the same number of elements.`);\n\n // Backend needs to track refCount for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, outId: number) =>

void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null /* void */, [\n   'number', // a_id\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number', // b_shape.length\n   'number', // transpose_a\n   'number', // transpose_b\n   'number'   // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const
 {transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n`BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n   batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n   aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n   () => `Error in matMul: the input batch dimensions
 must either be the ` +\n          `same or at least one input batch dimension must be 1. Got input ` +\n          `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n   batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape =
 outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n   innerShapeA === innerShapeB,\n   () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n   `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n   `${b.shape} and transposeA=${transposeA}` +\n   ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n[batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n   [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation is
 designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId =
backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n   a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n   b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape =
 outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function

concatImpl(inputs, outShape, dtype, simplyConcat) {\n const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n if (simplyConcat && dtype !== 'string') {\n // Use built-in TypedArray.set() method for speed.\n let offset = 0;\n inputs.forEach(input => {\n const size = util.sizeFromShape(input.shape);\n outVals.set(input.vals, offset);\n offset += size;\n });\n }\n else {\n let colOffset = 0;\n inputs.forEach(input => {\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(input.vals) :\n input.vals;\n let tIdx = 0;\n for (let row = 0; row < input.shape[0]; ++row) {\n const resIdx = row * outShape[1] + colOffset;\n for (let col = 0; col < input.shape[1]; ++col) {\n outVals[resIdx + col] = decodedData[tIdx++];\n }\n }\n colOffset += input.shape[1];\n });\n }\n return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUVIRztBQUVBQyxBQUFBQyxBQUFBQyxBQUF

cnQgZnVuY3Rpb24gY29uY2F0SW1wbChcbiAgICBpbnB1dHM6IEFycmF5PHt2YWxzOiBCYWNrZW5kVmFsdWVzLCBzaGFwZTogbnVtYmVyW119Piwgb3V0U2hhcGU6IG51bWJlcltdLFxuICAgIGR0eXBlOiBEYXRhVHlwZSwgc2ltcGx5Q29uY2F0OiBib29sZWFuKTogVHlwZWRBcnJheXxzdHJpbmdbXSB7XG4gIHZhbHMgPSB1dGlsLmdldEFycmF5RnJvbURUeXBlKGR0eXBlLCB1dGlsLnNpemVGcm9tU2hhcGUob3V0U2hhcGUpKTtcblxuICBpZiAoc2ltcGx5Q29uY2F0ICYmIGR0eXBlICE9PSAnc3RyaW5nJykge1xuICAgIGNvbnN0IHZhbHNBcnIgPSB2YWxzIGFzIEV4Y2x1ZGVkQXJyYXkgPHN0cmluZz5bXTtcbiAgICBmb3IgKGxldCBpID0gMDsgaSA8IHZhbHNBcnIubGVuZ3RoOyArK2kpIHtcbiAgICAgIHZhbHNBcnJbaV0gPSBlbmNvZGVTdHJpbmcodmFsc0FycltpXSBhcyBzdHJpbmcpO1xuICAgIH1cbiAgICBvdXQudmFscyA9IHZhbHNBcnIgYXMgc3RyaW5nW107XG4gIH0gZWxzZSB7XG4gICAgb3V0LnZhbHMgPSB2YWxzIGFzIFR5cGVkQXJyYXk7XG4gIH1cbiAgcmV0dXJuIG91dDtcbn1cbmV4cG9ydCBmdW5jdGlvbiBkZWNvZGVTdHJpbmcoYnl0ZXMsIGVuY29kaW5nID0gJ3V0Zi04Jyk6IHN0cmluZyB7XG4gIHJldHVybiBuZXcgVGV4dERlY29kZXIoZW5jb2RpbmcpLmRlY29kZShieXRlcyk7XG59XG5leHBvcnQgZnVuY3Rpb24gZW5jb2RlU3RyaW5nKHN0cmluZykge1xuICBjb25zdCBidWYgPSBuZXcgVGV4dEVuY29kZXIoKS5lbmNvZGUoc3RyaW5nKTtcbiAgcmV0dXJuIGJ1Zi5idWZmZXIuc2xpY2UoYnVmLmJ5dGVPZmZzZXQsIGJ1Zi5ieXRlT2Zmc2V0ICsgYnVmLmJ5dGVMZW5ndGgpO1xufVxuXG4vLyBDb3VudCB0aGUgbnVtYmVyIG9mIGJ5dGVzIGluIGEgVVRGLTggc3RyaW5nLiBBc3N1bWVzIHRoZSBzdHJpbmcgaXMgdmFsaWQgVVRGLTguXG5leHBvcnQgZnVuY3Rpb24gY291bnRVdGY4Qnl0ZXMoc3RyaW5nKSB7XG4gIGxldCBjb3VudCA9IDA7XG4gIGZvciAobGV0IGkgPSAwOyBpIDwgc3RyaW5nLmxlbmd0aDsgKytpKSB7XG4gICAgY29uc3QgY29kZSA9IHN0cmluZy5jaGFyQ29kZUF0KGkpO1xuICAgIGlmIChjb2RlIDwgMHg4MCkge1xuICAgICAgY291bnQgKz0gMTtcbiAgICB9IGVsc2UgaWYgKGNvZGUgPCAweDgwMCkge1xuICAgICAgY291bnQgKz0gMjtcbiAgICB9IGVsc2UgaWYgKGNvZGUgPj0gMHhkODAwICYmIGNvZGUgPD0gMHhkYmZmKSB7XG4gICAgICAvLyBTdXJyb2dhdGUgcGFpciBjb3VudHMgYXMgMiBVVEYtOCBieXRlcyAoMiBVVEYtMTYgY29kZSB1bml0cylcbiAgICAgIGNvdW50ICs9IDI7XG4gICAgICArK2k7XG4gICAgfSBlbHNlIHtcbiAgICAgIGNvdW50ICs9IDM7XG4gICAgfVxuICB9XG4gIHJldHVybiBjb3VudDtcbn1cblxuLy8gV3JpdGUgdGhlIFVURi04IGJ5dGVzIG9mIGEgc3RyaW5nIGludG8gYW4gZXhpc3RpbmcgYnVmZmVyIGF0IGEgZ2l2ZW4gb2Zmc2V0LlxuLy8gQXNzdW1lcyBidWYgaGFzIGVub3VnaCBzcGFjZSBhbmQgc3RyIGlzIHZhbGlkIFVURi0xNi5cbmV4cG9ydCBmdW5jdGlvbiB3cml0ZVVURjhCeXRlcyhidWYsIHN0ciwgb2Zmc2V0KSB7XG4gIGxldCBwb3MgPSBvZmZzZXQ7XG4gIGZvciAobGV0IGkgPSAwOyBpIDwgc3RyLmxlbmd0aDsgKytpKSB7XG4gICAgY29uc3QgY29kZSA9IHN0ci5jaGFyQ29kZUF0KGkpO1xuICAgIGlmIChjb2RlIDwgMHg4MCkge1xuICAgICAgYnVmW3BvcysrXSA9IGNvZGU7XG4gICAgfSBlbHNlIGlmIChjb2RlIDwgMHg4MDApIHtcbiAgICAgIGJ1Zltwb3MrK10gPSAweEMwIHwgKGNvZGUgPj4gNik7XG4gICAgICBidWZbcG9zKytdID0gMHg4MCB8IChjb2RlICYgMHgzRik7XG4gICAgfSBlbHNlIGlmIChjb2RlID49IDB4ZDgwMCAmJiBjb2RlIDw9IDB4ZGJmZikge1xuICAgICAgLy8gU3Vycm9nYXRlIHBhaXIgZW5jb2RlcyBhcyA0IFVURi04IGJ5dGVzIChjb3ZlcnMgMiBVVEYtMTYgY29kZSB1bml0cylcbiAgICAgIGNvbnN0IGNvZGUyID0gc3RyLmNoYXJDb2RlQXQoKytpKTtcbiAgICAgIGNvbnN0IGZ1bGwgPSAweDEwMDAwICsgKChjb2RlICYgMHgzRkYpIDw8IDEwKSB8IChjb2RlMiAmIDB4M0ZGKTtcbiAgICAgIGJ1Zltwb3MrK10gPSAweEYwIHwgKGZ1bGwgPj4gMTgpO1xuICAgICAgYnVmW3BvcysrXSA9IDB4ODAgfCAoKGZ1bGwgPj4gMTIpICYgMHgzRik7XG4gICAgICBidWZbcG9zKytdID0gMHg4MCB8ICgoZnVsbCA+PiA2KSAmIDB4M0YpO1xuICAgICAgYnVmW3BvcysrXSA9IDB4ODAgfCAoZnVsbCAmIDB4M0YpO1xuICAgIH0gZWxzZSB7XG4gICAgICBidWZbcG9zKytdID0gMHhFMCB8IChjb2RlID4+IDEyKTtcbiAgICAgIGJ1Zltwb3MrK10gPSAweDgwIHwgKChjb2RlID4+IDYpICYgMHgzRik7XG4gICAgICBidWZbcG9zKytdID0gMHg4MCB8IChjb2RlICYgMHgzRik7XG4gICAgfVxuICB9XG59XG5cbi8vIFJlYWQgVVRGLTggYnl0ZXMgZnJvbSBhIGdpdmVuIG9mZnNldCBpbiBhIGJ1ZmZlciBpbnRvIGEgc3RyaW5nLlxuLy8gQXNzdW1lcyBidWYgaGFzIGVub3VnaCBzcGFjZSBhbmQgc3RyIGlzIHZhbGlkIFVURi0xNi5cbmV4cG9ydCBmdW5jdGlvbiByZWFkVVRGOEJ5dGVzKGJ1Ziwgb2Zmc2V0LCBsZW5ndGgpIHtcbiAgbGV0IHN0ciA9ICcnO1xuICBmb3IgKGxldCBpID0gb2Zmc2V0OyBpIDwgb2Zmc2V0ICsgbGVuZ3RoOyArK2kpIHtcbiAgICBjb25zdCBjb2RlID0gYnVmW2ldO1xuICAgIGlmIChjb2RlIDwgMHg4MCkge1xuICAgICAgc3RyICs9IFN0cmluZy5mcm9tQ2hhckNvZGUoY29kZSk7XG4gICAgfSBlbHNlIGlmIChjb2RlIDwgMHhFMCkge1xuICAgICAgY29uc3QgY29kZTIgPSBidWZbKytpXTtcbiAgICAgIHN0ciArPSBTdHJpbmcuZnJvbUNoYXJDb2RlKCgoY29kZSAmIDB4MUYpIDw8IDYpIHwgKGNvZGUyICYgMHgzRikpO1xuICAgIH0gZWxzZSBpZiAoY29kZSA8IDB4RjApIHtcbiAgICAgIGNvbnN0IGNvZGUyID0gYnVmWysraV07XG4gICAgICBjb25zdCBjb2RlMyA9IGJ1ZlsrK2ldO1xuICAgICAgc3RyICs9IFN0cmluZy5mcm9tQ2hhckNvZGUoKChjb2RlICYgMHgwRikgPDwgMTIpIHwgKChjb2RlMiAmIDB4M0YpIDw8IDYpIHwgKGNvZGUzICYgMHgzRikpO1xuICAgIH0gZWxzZSB7XG4gICAgICBjb25zdCBjb2RlMiA9IGJ1ZlsrK2ldO1xuICAgICAgY29uc3QgY29kZTMgPSBidWZbKytpXTtcbiAgICAgIGNvbnN0IGNvZGU0ID0gYnVmWysraV07XG4gICAgICBjb25zdCBmdWxsID0gKChjb2RlICYgMHgwNykgPDwgMTgpIHwgKChjb2RlMiAmIDB4M0YpIDw8IDEyKSB8ICgoY29kZTMgJiAweDNGKSA8PCA2KSB8IChjb2RlNCAmIDB4M0YpO1xuICAgICAgY29uc3QgYWRqID0gZnVsbCAtIDB4MTAwMDA7XG4gICAgICBzdHIgKz0gU3RyaW5nLmZyb21DaGFyQ29kZSgoYWRqID4+IDEwKSArIDB4RDgwMCwgKGFkaiAmIDB4M0ZGKSArIDB4REMwMCk7XG4gICAgfVxuICB9XG4gIHJldHVybiBzdHI7XG59XG5cbi8vIFRoZSBzdGF0ZSBvZiBhIGluY3JlbWVudGFsIFVURi04IGRlY29kZXIgYWNyb3NzIGNodW5rcy5cbmV4cG9ydCBjbGFzcyBVdGY4U3RhdGUge1xuICBjb25zdHJ1Y3RvcigpIHtcbiAgICAvLyBCeXRlcyBvZiBhIHBhcnRpYWwgbXVsdGktYnl0ZSBzZXF1ZW5jZSBjYXJyaWVkIGZyb20gdGhlIHByZXZpb3VzIGNodW5rLlxuICAgIHRoaXMucGVuZGluZyA9IG5ldyBVaW50OEFycmF5KDQpO1xuICAgIHRoaXMucGVuZGluZ0xlbiA9IDA7XG4gIH1cbn1cblxuLy8gRGVjb2RlIGEgY2h1bmsgb2YgVVRGLTggYnl0ZXMsIGNhcnJ5aW5nIGFueSBpbmNvbXBsZXRlIHRyYWlsaW5nXG4vLyBzZXF1ZW5jZSBpbnRvIHRoZSBuZXh0IGNhbGwuIFBhc3MgYSBmcmVzaCBzdGF0ZSBmb3IgdGhlIGZpcnN0IGNodW5rLlxuZXhwb3J0IGZ1bmN0aW9uIGRlY29kZVV0ZjhDaHVuayhieXRlcywgc3RhdGUpIHtcbiAgY29uc3QgcGVuZGluZyA9IHN0YXRlLnBlbmRpbmdMZW47XG4gIGNvbnN0IGJ1ZiA9IHBlbmRpbmcgPiAwXG4gICAgPyBuZXcgVWludDhBcnJheShwZW5kaW5nICsgYnl0ZXMubGVuZ3RoKVxuICAgIDogYnl0ZXM7XG4gIGlmIChwZW5kaW5nID4gMCkge1xuICAgIGJ1Zi5zZXQoc3RhdGUucGVuZGluZy5zdWJhcnJheSgwLCBwZW5kaW5nKSwgMCk7XG4gICAgYnVmLnNldChieXRlcywgcGVuZGluZyk7XG4gIH1cbiAgLy8gQmFjayB1cCBmcm9tIGEgdHJhaWxpbmcgY29udGludWF0aW9uIGJ5dGUgdG8gdGhlIGxlYWQgYnl0ZSB0aGF0XG4gIC8vIHN0YXJ0ZWQgdGhlIHNlcXVlbmNlLCBpZiBvbmUgaXMgd2l0aGluIHRoZSBsYXN0IDMgYnl0ZXMuXG4gIGxldCBjdXQgPSBidWYubGVuZ3RoO1xuICBmb3IgKGxldCBpID0gYnVmLmxlbmd0aCAtIDE7IGkgPj0gTWF0aC5tYXgoMCwgYnVmLmxlbmd0aCAtIDMpOyAtLWkpIHtcbiAgICBpZiAoKGJ1ZltpXSAmIDB4QzApICE9PSAweDgwKSB7XG4gICAgICBjb25zdCBsZWFkID0gYnVmW2ldO1xuICAgICAgY29uc3QgbmVlZGVkID0gbGVhZCA+PSAweEYwID8gNCA6IGxlYWQgPj0gMHhFMCA/IDMgOiBsZWFkID49IDB4QzAgPyAyIDogMTtcbiAgICAgIGlmIChuZWVkZWQgPiBidWYubGVuZ3RoIC0gaSkge1xuICAgICAgICBjdXQgPSBpO1xuICAgICAgfVxuICAgICAgYnJlYWs7XG4gICAgfVxuICB9XG4gIHN0YXRlLnBlbmRpbmdMZW4gPSBidWYubGVuZ3RoIC0gY3V0O1xuICBpZiAoc3RhdGUucGVuZGluZ0xlbiA+IDApIHtcbiAgICBzdGF0ZS5wZW5kaW5nLnNldChidWYuc3ViYXJyYXkoY3V0KSwgMCk7XG4gIH1cbiAgcmV0dXJuIGJ1Zi5zdWJhcnJheSgwLCBjdXQpO1xufVxuXG4vLyBGaW5hbGl6ZSBhbnkgcmVtYWluaW5nIHBhcnRpYWwgc2VxdWVuY2UgYXMgVVRGLTguXG5leHBvcnQgZnVuY3Rpb24gZmx1c2hVdGY4KHN0YXRlKSB7XG4gIGlmIChzdGF0ZS5wZW5kaW5nTGVuID09PSAwKSB7XG4gICAgcmV0dXJuICcnO1xuICB9XG4gIGNvbnN0IHN0ciA9IHJlYWRVVEY4Qnl0ZXMoc3RhdGUucGVuZGluZywgMCwgc3RhdGUucGVuZGluZ0xlbik7XG4gIHN0YXRlLnBlbmRpbmdMZW4gPSAwO1xuICByZXR1cm4gc3RyO1xufVxuXG4vLyBDb3VudCB0aGUgbnVtYmVyIG9mIGJ5dGVzIGluIGEgVVRGLTggc3RyaW5nLiBBc3N1bWVzIHRoZSBzdHJpbmcgaXMgdmFsaWQgVVRGLTE2IGNvZGUgdW5pdHMuXG5leHBvcnQgZnVuY3Rpb24gY291bnRVdGY4Qnl0ZXMoc3RyaW5nKSB7XG4gIGxldCBjb3VudCA9IDA7XG4gIGZvciAobGV0IGkgPSAwOyBpIDwgc3RyaW5nLmxlbmd0aDsgKytpKSB7\n */\nimport { util } from '@tensorflow/tfjs-core';\nexport function rangeImpl(start, stop, step, dtype) {\n   const sameStartStop = start === stop;\n   const increasingRangeNegativeStep = start < stop && step < 0;\n   const decreasingRangePositiveStep = stop < start && step > 1;\n   if (sameStartStop || increasingRangeNegativeStep ||\n   decreasingRangePositiveStep) {\n   return util.makeZerosTypedArray(0, dtype);\n   }\n   const numElements = Math.abs(Math.ceil((stop - start) / step));\n   const values = util.makeZerosTypedArray(numElements, dtype);\n   if (stop < start && step === 1) {\n   // Auto adjust the step's sign if it hasn't been set\n   // (or was set to 1)\n   step = -1;\n   }\n   values[0] = start;\n   for (let i = 1; i < values.length; i++) {\n   values[i] = values[i - 1] + step;\n   }\n   return values;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiUmFuZ2VfaW1wbC5qcyIsInNvdXJjZVJvb3QiOiIiLCJzb3VyY2VzIjpbIi4uLy4uLy4uLy4uLy4uLy4uL3RmanMtYmFja2VuZC1jcHUvc3JjL2tlcm5lbHMvUmFuZ2VfaW1wbC50cyJdLCJuYW1lcyI6W10sIm1hcHBpbmdzIjoiQUFBQTs7Ozs7Ozs7Oz

UFBSSxJQUFJLEdBQUcsS0FBSyxJQUFJLElBQUksS0FBSyxDQUFDLEVBQUU7UUFDOUIsb0RBQW9EO1FBQ3BEL

= dtype === 'string' ?\n backend_util.fromUint8ToStringArray(vals) :\n vals;\n const inBuf = buffer(shape, dtype, decodedData);\n const outBuf = buffer(size, dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n const outLoc = outBuf.indexToLoc(i);\n const inLoc = outLoc.map((idx, j) => idx + begin[j]);\n outBuf.set(inBuf.get(...inLoc), ...outLoc);\n }\n if (dtype === 'string') {\n return backend_util.fromStringArrayToUint8(outBuf.values);\n }\n return outBuf.values;\n}\nexport function slice(args) {\n const { inputs, backend, attrs } = args;\n const { x } = inputs;\n const { begin, size } = attrs;\n assertNotComplex(x, 'slice');\n const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n const vals = backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n kernelName: Slice,\n backendName: 'cpu',\n kernelFunc: slice\n};\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQU8sRUFBQyxDQUFDLEVBQUUsQ0FBQyxFQUFFLENBQUMsRUFBRSxDQUFDLEVBQUUsQ

xDQUFDLEtBQUssQ0FBQyxDQUFDO0lBQ2pFLE9BQU8sT0FBTyxDQUFDLGNBQWMsQ0FBQyxLQUFLLE
VBQUUsQ0FBQyxDQUFDLEtBQUssRUFBRSxPQUFPLENBMsQ0FBQztBQUN6RCxDQUFDO0lBRUFBTSxDQUFDLE1BQU0sV0FBVyxHQUFDLFVFVLEVBQUUsS0FBSztJQUNqQixXQUFLLEVBQUUsS0FBSztJQUNsQixXQUFLLEVBQUUsS0FBSztJQUNsQixXQUFLLEVBQUUsS0FBSztJQUNs

VUZW5zb3JJbmZvKCRzaXplLCB4LmR0eXBlLCBvdXRWYWxzKTtcbn1cblxuZXhwb3J0IGNvbnN0IHNsaWNlQ29uZmlnOiBLZXJuZWxDb25maWcgPSB7XG4gIGtlcm5lbE5hbWU6IFNsaWNlLFxuICBiYWNrZW5kTmFtZTogJ3dhc20nLFxuICBrZXJuZWxGdW5jOiBzbGljZSxcbn07XG5leHBvcnQgZnVuY3Rpb24gc2xpY2UoXG4gIGFyZ3M6IHtpbnB1dHM6IFNsaWNlSW5wdXRzLCBhdHRyczogU2xpY2VBdHRycywgYmFja2VuZDogQmFja2VuZFdhc219KSB7XG4gIGNvbnN0IHtpbnB1dHM6IHt4fSwgYXR0cnM6IHtiZWdpbiwgc2l6ZX0sIGJhY2tlbmR9ID0gYXJnczsiLCJmaWxlIjoiIiwiLyoqXG4gKiBAbGljZW5zZVxuICogQ29weXJpZ2h0IDIwMTkgR29vZ2xlIExMQy4gQWxsIFJpZ2h0cyBSZXNlcnZlZC5cbiAqIExpY2Vuc2VkIHVuZGVyIHRoZSBBcGFjaGUgTGljZW5zZSwgVmVyc2lvbiAyLjAgKHRoZSBcIkxpY2Vuc2VcIik7XG4gKiB5b3UgbWF5IG5vdCB1c2UgdGhpcyBmaWxlIGV4Y2VwdCBpbiBjb21wbGlhbmNlIHdpdGggdGhlIExpY2Vuc2UuXG4gKiBZb3UgbWF5IG9idGFpbiBhIGNvcHkgb2YgdGhlIExpY2Vuc2UgYXRcbiAqXG4gKiBodHRwOi8vd3d3LmFwYWNoZS5vcmcvbGljZW5zZXMvTElDRU5TRS0yLjBcbiAqXG4gKiBVbmxlc3MgcmVxdWlyZWQgYnkgYXBwbGljYWJsZSBsYXcgb3IgYWdyZWVkIHRvIGluIHdyaXRpbmcsIHNvZnR3YXJlXG4gKiBkaXN0cmlidXRlZCB1bmRlciB0aGUgTGljZW5zZSBpcyBkaXN0cmlidXRlZCBvbiBhbiBcIkFTIElTXCIgQkFTSVMsXG4gKiBXSVRIT1VUIFdBUlJBTlRJRVMgT1IgQ09ORElUSU9OUyBPRiBBTlkgS0lORCwgZWl0aGVyIGV4cHJlc3Mgb3IgaW1wbGllZC5cbiAqIFNlZSB0aGUgTGljZW5zZSBmb3IgdGhlIHNwZWNpZmljIGxhbmd1YWdlIGdvdmVybmluZyBwZXJtaXNzaW9ucyBhbmRcbiAqIGxpbWl0YXRpb25zIHVuZGVyIHRoZSBMaWNlbnNlLlxuICpcbiA9PT09PT09PT09

outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const
permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n inputs: {x: xTransposedReshaped},\n backend,\n attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig
= {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nexport function cast(\n args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed

on an \"AS IS\" BASIS,\n
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null / void */, [\n   'number', // x_id\n   'number', // min\n   'number', // max\n   'number'   // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n
  wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
 {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n   args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1) {\n   return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n   return out;\n }\n\n const shapes = $inputs.map(t
 => t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n   // Any concat of n-dimensional tensors across any axis can be reduced to\n   // a concatenation of two-dimensional tensors across the axis 1 by first\n   // partitioning the axes of the original tensors into those less than the\n   // axis to be concatenated and the rest. Then reshape the tensors\n   // into a two-dimensional tensor by collapsing these two sets of axes and\n   // concatenate the resulting matrices across the axis 1, finally reshaping\n   // the result to have the proper shape.\n   const inputs2D = $inputs.map(t => {\n   const innerSize =

util.sizeFromShape(t.shape.slice(axis));\n const shape = [-1, innerSize];\n return reshape({inputs: {x: t}, backend, attrs: {shape}});\n });\n\n const inputsValShapes = inputs2D.map(t => {\n return {vals: backend.readSync(t.dataId), shape: t.shape};\n });\n\n // Concats 2d tensors along axis=1.\n outShape =\n backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n const simplyConcat = inputs2D[0].shape[0] === 1;\n const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n simplyConcat) as string[];\n\n const finalOutShape =\n backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n out.shape = finalOutShape;\n const outData = backend.dataIdMap.get(out.dataId);\n outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n return out;\n }\n\n const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n const innerDims = $inputs.map(input => {\n const innerDim = util.sizeFromShape(input.shape.slice(axis));\n sumInnerDims += innerDim;\n return innerDim;\n });\n const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n let outOffset = b * sumInnerDims;\n for (let i = 0; i < inVals.length; i++) {\n const innerDim = innerDims[i];\n const inOffset = b * innerDim;\n const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n outVals.set(vals, outOffset);\n outOffset += innerDim;\n }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n strideWidth: number, inputChannels: number, outputChannels: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction conv2d(\n args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth =

convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend Conv2D does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\n\nimport {backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n   dyId: number, filterId: number, batchSize: number, filterHeight: number,\n   filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n   outHeight: number, outWidth: number, outChannels: number,\n   strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n   fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n   xRowStride: number, xColStride: number,\n   xChannelStride: number,\n   yBatchStride: number, yRowStride: number, yColStride: number,\n   yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n   'number', // dyId\n   'number', // filterId\n   'number', // batchSize\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // inHeight\n   'number', // inWidth\n   'number', // inChannels\n   'number', // outHeight\n   'number', // outWidth\n   'number', // outChannels\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // topPad\n   'number', // leftPad\n   'number', // fltS0\n   'number', // fltS1\n   'number', // fltS2\n   'number', // xBatchStride\n   'number', // xRowStride\n   'number', // xColStride\n   'number', // xChannelStride\n   'number', // yBatchStride\n   'number', // yRowStride\n   'number', // yColStride\n   'number', // yChannelStride\n   'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n   inputShape, filter.shape as [number, number, number, number], strides,\n   dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n   batchSize,\n   filterHeight,\n   filterWidth,\n   inChannels,\n   inHeight,\n   inWidth,\n   outChannels,\n   outHeight,\n   outWidth,\n   strideHeight,\n   strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride =

isChannelsLast ? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n   dyId, filterId, batchSize,
 filterHeight, filterWidth, inHeight, inWidth,\n   inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n   topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n   xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n   yChannelStride, outId);\n return out;\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
 specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
*/\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest = 1\n}\n\nlet wasmCropAndResize: (\n   imagesId: number, boxesId: number, boxIndId: number, numBoxes: number,\n   imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n   method: number, extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n   'number', // imagesId\n   'number', // boxesId\n   'number', // boxIndId\n   'number', // numBoxes\n   'array',   // images shape\n   'number', // cropHeight\n   'number', // cropWidth\n   'number', // method\n

'number', // extrapolation value\n 'number' // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData = backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData = cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData = backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n
const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n cropWidth,\n InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n extrapolationValue, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n 'number', // x_id\n 'number', // exclusive\n 'number', // reverse\n 'number', // final_dim\n
'number', // out_id\n 'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId
= backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n out = transpose(\n {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as

KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n 'number', // xId\n 'number', // blockSize\n 'number', // channelsLast\n 'array', // xStrides\n 'number', // xStridesLength\n 'array', // outputShape\n 'array', // outputStrides\n 'number', // outSize\n 'number', // outId\n]);\n}\n\nexport function depthToSpace(args: {\n backend: BackendWasm,\n inputs: DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n const {blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n [batchSize, outputHeight, outputWidth, outputDepth] :\n [batchSize, outputDepth, outputHeight, outputWidth];\n\n const out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const xId = xData.id;\n const xStridesBytes =\n new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n new Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n wasmDepthToSpace(\n xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n strideWidth: number, inputChannels: number, outputChannels: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n

backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n ($dilations as number | [number, number]), pad, dimRoundingMode,\n true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs,
KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n   util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n  inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape,
value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n   xId: number, batch:

number, imageHeight: number, imageWidth: number,\n   numChannels: number, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight,
null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', //
imageWidth\n   'number', // numChannels\n   'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n
args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n
const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId =
backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
  const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n   imageId,
batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig:
KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as
KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the
 License.\n *
==\n
*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n
createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc,
TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet
wasmBatchNorm: (\n   xId: number, meanId: number, varianceId: number, offsetId: number,\n   scaleId: number,
varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n
wasmBatchNorm = backend.wasm.cwrap(\n   FusedBatchNorm, null /* void */,\n   ['number', 'number',
'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend:
BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const
{backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} =
inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId =
backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n

const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n   return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n   xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n   (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number,\n   biasId: number, padTop: number, padRight: number, padBottom: number,\n   padLeft: number, isSamePad: number, dilationHeight: number,\n   dilationWidth:
 number, strideHeight: number, strideWidth: number,\n   inputChannels: number, outputChannels: number, activation: number,\n   preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // biasId\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n   'number', // activation\n   'number', // preluActivationWeightsId\n   'number', // leakyreluAlpha\n
    'number', // outId\n]);\n}\n\nfunction fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n backend: BackendWasm,\n attrs: FusedConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n   strides,\n   pad,\n   dilations,\n   dataFormat,\n   dimRoundingMode,\n   activation,\n   leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n   pad, dimRoundingMode);\n\n const fusedActivation =\n   FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n   throw new Error(\n   `${activation} activation not yet supported for FusedConv2D ` +\n   `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n
  let biasId = 0;\n if (bias != null) {\n   const biasData = backend.dataIdMap.get(bias.dataId);\n   if (biasData.shape.length !== 1) {\n   throw new Error(\n   `FusedConv2D only supports rank-1 bias but got ` +\n   `rank ${biasData.shape.length}.`);\n   }\n   if (biasData.shape[0] !== outputChannels) {\n   throw new Error(\n   `FusedConv2D bias shape (${biasData.shape}) does not ` +\n   `match the number of output channels (${outputChannels})`);\n   }\n   biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth =

```
convInfo.strideWidth;\n
  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n
const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const inWidth =
convInfo.inWidth;\n\n  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend FusedConv2D
does not support dataFormat:` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out =
backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const
preluActivationWeightsId = preluActivationWeights == null ?\n      0 :\n
backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n  wasmFusedConv2d(\n      xId, batchSize, inHeight,
inWidth, filterId, filterHeight, filterWidth,\n      biasId, padTop, padRight, padBottom, padLeft, isSamePad,
dilationHeight,\n      dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n      fusedActivation,
preluActivationWeightsId, leakyreluAlpha ||
 0, outId);\n\n  return out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n  kernelName:
FusedConv2D,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: fusedConv2d as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========================================================================\n
*/\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs,
 FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet
wasmFusedDepthwiseConv2d:\n    (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n
filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number, padTop: number, padRight:
number, padBottom: number,\n     padLeft: number, isSamePad: number, dilationHeight: number,\n
dilationWidth: number, strideHeight: number, strideWidth: number,\n     inputChannels: number, outputChannels:
number, activation: number,\n     preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n
    void;\n\nfunction setup(backend: BackendWasm) {\n  wasmFusedDepthwiseConv2d =\n
backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n        'number',  // xId\n        'number',  //
batchSize\n        'number',  // inputHeight\n
  'number',  // inputWidth\n        'number',  // filterId\n        'number',  // filterHeight\n        'number',  // filterWidth\n
   'number',  // biasId\n        'number',  // padTop\n        'number',  // padRight\n        'number',  // padBottom\n
'number',  // padLeft\n        'number',  // isSamePad\n        'number',  // dilationHeight\n        'number',  //
dilationWidth\n        'number',  // strideHeight\n        'number',  // strideWidth\n        'number',  // inputChannels\n
'number',  // outputChannels\n        'number',  // activation\n        'number',  // preluActivationWeightsId\n
'number',  // leakyreluAlpha\n        'number',  // outId\n      ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n
inputs: FusedDepthwiseConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedDepthwiseConv2DAttrs\n}) {\n
const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n
strides,\n    pad,\n    dilations,\n
   dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo =
backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n
pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation as {}
as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation}
activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const
outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData =
```

backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n   throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n   `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n   throw new Error(\n   `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n   `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw\n new Error(\n `wasm backend FusedDepthwiseConv2D does not support dataFormat:` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'number', // indicesId\n 'number', // numSlices\n 'number', // sliceRank\n 'number', // sliceSize\n 'array', // strides\n 'number' // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the

License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n indicesId: number, batchSize: number, outStrides: Uint8Array,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'array', // xStrides\n 'number', // stridesSize\n 'number', // indicesId\n 'number', // batchSize\n
'array', // outStrides\n 'number' // outId\n]);\n}\n\nfunction gatherV2(\n args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x, indices} = inputs;\n const {axis, batchDims} = attrs;\n\n // Throw error when any index is out of bound.\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n const axisDim = x.shape[parsedAxis];\n for (let i = 0; i < indicesVals.length; ++i) {\n const index = indicesVals[i];\n util.assert(\n index <= axisDim - 1 && index >= 0,\n () =>\n `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n }\n\n const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n const flattenX = reshape({\n inputs: {x},\n attrs: {\n shape: [\n shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n shapeInfo.sliceSize\n]\n },\n backend\n });\n const indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n inputs: {x: indices},\n attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n backend\n });\n const flattenOutputShape = [\n shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape, x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n const stridesSize = flattenX.shape.length - 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n
const outStridesBytes = new Uint8Array(\n new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n shapeInfo.batchSize, outStridesBytes, outId);\n\n backend.disposeData(flattenX.dataId);\n backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n

createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
 writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu, null / void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // leakyrelu_alpha\n 'number', // out_id\n]);\n}\n\nexport function leakyRelu(\n args:\n {inputs: LeakyReluInputs, attrs: LeakyReluAttrs,
 backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
 or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
 on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {KernelConfig, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
 is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n   'number', // x_id\n   'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n   TensorInfo {\n const
 {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   input = transposed;\n   inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
 util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed)

{\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input
is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm

backend does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out =
backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype:
'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n    void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmMin = backend.wasm.cwrap(Min,\n  null /*void*/, [\n    'number',  // x_id\n    'number',  // dtype\n    'number',  // reduce_size\n    'number',  // out_id\n  ]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {axis, keepDims} = attrs;\n  const {x} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  let inputId = xId;\n  let input = x;\n\n  const {transposed, axes, originalAxes, inputWasTransposed} =\n      permuteAxesAndTranspose(x, axis, backend);\n\n  if (inputWasTransposed) {\n    const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n    if (transposedId !== xId) {\n      // transpose was not a no-op. We will need to dispose of this\n      // once we are done.\n      input = transposed;\n      inputId = transposedId;\n    }\n  }\n\n  const inputRank = input.shape.length;\n\n  backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n  const [outShape, reduceShape] =\n      backend_util.computeOutAndReduceShapes(input.shape, axes);\n  const reduceSize = util.sizeFromShape(reduceShape);\n\n  const out = backend.makeOutput(outShape, input.dtype);\n  if (util.sizeFromShape(input.shape) !== 0) {\n    const outId = backend.dataIdMap.get(out.dataId).id;\n    wasmMin(inputId, CppDType[x.dtype], reduceSize, outId);\n  }\n\n  if (inputWasTransposed) {\n    // dispose of the transposed tensor.\n    backend.disposeData(transposed.dataId);\n  }\n\n  if (keepDims) {\n    // reshape\n    const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n    out.shape = newShape;\n  }\n\n  return out;\n}\n\nexport const minConfig: KernelConfig = {\n  kernelName: Min,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n  reflect = 0,\n  symmetric = 1\n}\n\nlet wasmMirrorPad: (\n    xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n    prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n
 outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null /* void */, [\n    'number',  // xId\n    'array',   // x.shape\n    'number',  // x.shape.length\n    'number',  // x.dtype\n    'array',   // pre-paddings\n    'array',   // post-paddings\n    'number',  //
```

mode\n   'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple
 => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes, MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
 BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
 BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in `non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n   backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices = result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize,

pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV3,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold,\n scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number,\n padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV4,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'bool', // padToMaxOutputSize\n]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const

resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n
const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n (boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction
kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n
return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport
{KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020

Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
{KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth: number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmOneHot = backend.wasm.cwrap(OneHot, null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n 'number', // onValue\n 'number', // offValue\n 'number' // out_id\n]);\n}\n\nfunction oneHot(\n args: {inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices} = inputs;\n const {depth, onValue, offValue} = attrs;\n\n const out = backend.makeOutput([...indices.shape, depth], 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n wasmOneHot(indicesId, depth,
onValue, offValue, outId);\n\n return out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n kernelName: OneHot,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n return expandDims(\n {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n util.assertShapesMatch(\n shape, t.shape,\n 'All tensors passed to stack must have matching shapes');\n

util.assert(\n
dtype === t.dtype,\n () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n const expandedT =\n expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n intermediateTensorInfos.push(expandedT);\n return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType} from './types';\n\nlet wasmPadV2: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'array', // pre-paddings\n 'array', // post-paddings\n 'number', // constantValue\n 'number', // outId\n]);\n}\n\nfunction pad(\n args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend, attrs: {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n // Short-circuit the computation, since x doesn't have value, only\n // the shape is used to compute output shape to pad.\n return fill({\n backend,\n attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes =\n new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmPadV2(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All

Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu = backend.wasm.cwrap(Prelu, null / void */, [\n 'number', // x_id\n 'number', // weights_id\n 'number' // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n
*\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n xId: number, reduceSize: number,\n dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n 'number',\n 'number',\n 'number',\n 'number'\n
]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs: ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape]
=\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmProd(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of

the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const
range =\n (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} =
args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step, dtype);\n\n
const
out = backend.makeOutput([values.length], dtype);\n const outVals = backend.typedArrayFromHeap(out);\n
outVals.set(values);\n return out;\n };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n
backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n
createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC.
All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport

{createUnaryKernelConfig} from './unary_kernel';\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n xId: number, batch: number, oldHeight: number, oldWidth: number,\n numChannels: number, newHeight: number, newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n 'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number', // alignCorners\n 'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes: Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n 'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', // out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs, backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length === 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n

const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n   xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n const reshaped =\n   reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n   xId: number, batch: number, imageHeight: number, imageWidth: number,\n   numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // radians\n   'number', // centerX\n   'number', // centerY\n   'array',   // fillBytes\n   'number', // fillLength\n   'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n   [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n   [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n   imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n   centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable

law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n 'number', // indicesId\n 'number', // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs: ScatterNdInputs, attrs:
ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number, eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId =

backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n   1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig:
KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n   TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number, channels: number, batch: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n   'number', // xId\n   'number', // outId\n 'number', // channels\n   'number'   // batch\n]);\n}\n\nfunction softmax(\n   args: {backend: BackendWasm,

inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend,\n attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under\n the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-

core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs,
 attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n   const xSliceSize = [...size];\n   xSliceSize[$axis] = s;\n   const xSlice =\n   slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n   begin[$axis] += s;\n   return xSlice;\n });\n}\n\nexport const splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
 WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n   createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS
 IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-

core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n 'number', // x_id\n 'number', // alpha\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction step(\n args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n xId: number, xStridesBytes: Uint8Array, xRank: number,\n beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n 'number', // xId\n 'array', // xStrides\n 'number', // xRank\n 'array', // beginBytes\n 'array', // endBytes\n 'array', // stridesBytes\n 'array', // outShapeBytes\n 'array', // outStridesBytes\n 'number', // outShapeLength\n 'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n   begin,\n   end,\n   strides,\n   beginMask,\n   endMask,\n   ellipsisMask,\n   newAxisMask,\n   shrinkAxisMask\n } = attrs;\n\n const {\n   finalShapeSparse,\n   finalShape,\n   isIdentity,\n   sliceDim0,\n   isSimpleSlice,\n   begin: $begin,\n   end: $end,\n   strides: $strides\n } =\n   slice_util.sliceInfo(\n   x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n   newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n   // Optimization #1, slice is a no-op plus reshape\n   result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n   // Optimization #2, slice is memory contiguous (only occurs in dim 0)\n   util.assert(\n   x.shape.length >= 1,\n   () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n   const size = slice_util.computeOutShape($begin, $end, $strides);\n   // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n   const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n   result =\n   reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n   backend.disposeData(sliced.dataId);\n } else {\n   const out = backend.makeOutput(finalShapeSparse, 'float32');\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n   const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n   const endBytes = new Uint8Array(new Int32Array($end).buffer);\n   const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n   const outputShapeBytes =\n   new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n   const outStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n\n   wasmStridedSlice(\n   xId, xStridesBytes, x.shape.length, beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n

result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License

 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n

 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n   'number', // input_id\n 'number', // reduce_size\n   'number', // dtype\n

    'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId =
backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'sum', reductionAxes, input.shape.length);\n const [outShape, reduceShape]

 =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except

in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n   xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n   newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null /* void */, [\n   'number', // x_id\n   'array',   // x_shape\n   'number', // x_shape.length\n   'array',   // new_shape\n   'number', // new_shape.length\n   'number'   // out_id\n]);\n}\n\nfunction tile(\n   args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n   xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n   CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-

core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n xDtype: CppDType, k: number, sorted: boolean, outValuesId:
 number,\n outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'number', // k\n   'bool',   // sorted\n   'number', // outValuesId\n   'number', // outIndicesId\n]);\n}\n\nexport const topk:\n (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n   TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n   const {x} = inputs;\n   const {k, sorted} = attrs;\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n   const outputShape = x.shape.slice();\n   outputShape[outputShape.length - 1] = k;\n   const outValues = backend.makeOutput(outputShape, x.dtype);\n   const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n
        const outIndices = backend.makeOutput(outputShape, 'int32');\n   const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n   wasmTopK(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n   outValuesId, outIndicesId);\n\n   return [outValues, outIndices];\n   };\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength: number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n   'number', // imageId\n   'number', // transformsId\n   'bool',   // isBatchTransform\n   'number', // batch\n   'number', // outHeight\n   'number', // outWidth\n   'number', // numChannels\n   'number', // imageWidth\n   'number', // imageHeight\n   'array',   // strides\n   'number', // stridesLength\n   'number', // interpolationModeId\n   'number', // fillModeId\n   'number', // fillValue\n   'number'   // outId\n]);\n}\n\nfunction transform(\n   args:\n   {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n const [outHeight, outWidth] =\n   outputShape != null ? outputShape : [imageHeight, imageWidth];\n const outShape =\n   [batch, outHeight, outWidth,\n   numChannels] as [number, number, number, number];\n const strides =\n   new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n
  const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n   case 'constant':\n   fillModeId = 1;\n   break;\n   case 'reflect':\n   fillModeId = 2;\n   break;\n   case 'wrap':\n   fillModeId = 3;\n   break;\n   case 'nearest':\n   fillModeId =

4;\n break;\n default:\n fillModeId = 1;\n break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n outId);\n\n
return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs}
from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nfunction unpack(\n args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank = value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank; i++) {\n if (i !== axis) {\n outShape[outIndex++] = value.shape[i];\n }\n }\n const outs: TensorInfo[] = new Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n for (let i = 0; i < outs.length; i++) {\n begin[axis] = i;\n outs[i] = slice({inputs: {x: value}, attrs: {begin, size}, backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype,
shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n// We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the library. A modular build would replace\n// the contents of this file and import only the kernels that are needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig}

from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from './kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport {anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig} from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport {batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from './kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from './kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from './kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from './kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from './kernels/FloorDiv';\nimport {fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from './kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport {gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport {logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from './kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from './kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from './kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from

'./kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from './kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from './kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from './kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return

(\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof

quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return

function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){a

ddOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return

WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}var ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,EBADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EBUSY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,ENOTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERANGE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNATCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOANO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:128,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFUSED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOSTDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,EPROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,ENOTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:148,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:135};function _emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)return-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var mainThreadWoken=0;if(mainThreadWaitAddress==addr){var loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainThreadWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return 1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value \"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}functio

n cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cancelThread!\";var pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var pthreadPoolSize=8;for(var i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var tb=_malloc(228);for(var i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRONMENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},threadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.length>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.store(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscripten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthread_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in PThread.pthreads){var pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThread.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeThreadData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(function(){delete PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=undefined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,onFinishedLoading){worker.onmessage=function(e){var d=e[\"data\"];var cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var

thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{console.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that thread no longer
exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThreadWork\"){_emscripten_main_thread_process_queued_calls()}else
if(cmd===\"spawnThread\"){spawnThread(e.data)}else
if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else
if(cmd===\"killThread\"){killThread(d[\"thread\"])}else
if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else
if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete
worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else
if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var
detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else
if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else
if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else
if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else
if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\":
\"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var
pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var
t=performance.now()+msecs;while(performance.now()<t){}}};function
establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function getNoExitRuntime(){return
noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function
___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var
_emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var
t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else
if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof
dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(1,1,func,arg)}function
__emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessage({\"cmd\":\"processQueuedMainThreadWork\"})}else

```
if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueue\"})}else{var pthread=PThread.pthreads[targetThreadId];var worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}return 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function _emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function _emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-28;if(!ENVIRONMENT_IS_WEB){var ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return 0;throw\"Atomics.wait returned an unexpected value \"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var
```

```
newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var
replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var
JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var
 i=JSEvents.eventHandlers.length-1;i>=0;--
i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListen
ers:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListene
rs);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence
,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in
arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var
call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,args
List)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList
});JSEvents.deferredCalls.sort(function(x,y){return
x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var
i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.d
eferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return
JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!J
SEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var
call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--
i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,event
TypeString){for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||event
TypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--
)}}},_removeHandler:function(i){var
h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);J
SEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var
 jsEventHandler=function
jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDef
erredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--
JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventH
andler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.e
ventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.e
ventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--
)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData)
{var stackTop=stackSave();var
varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs
+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThr
ead,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:f
unction(targetThread){switch(targetThread){case
 1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return
targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";
if(target==screen)return\"#screen\";return
target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return
document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var
length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return
cString}function
_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var
stackTop=stackSave();var varargs=stackAlloc(12);var
```

targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32(
)[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[var
args+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestor
e(stackTop)}function
_emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=tar
getCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThr
ead,targetCanvas,width,height)}function maybeCStringToJsString(cString){return
cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof
document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function
findEventTarget(target){target=maybeCStringToJsString(target);var
domElement=specialHTMLTargets[target]||(typeof
document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function
findCanvasEventTarget(target){return findEventTarget(target)}function
_emscripten_set_canvas_element_size_calling_thread(target,width,height){var
canvas=findCanvasEventTarget(target);if(!canvas)return-
4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA
P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if
(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var
autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var
prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prev
Viewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;
canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else
if(canvas.canvasSharedPtr){var
targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_o
n_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function
_emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)retur
n
_emscripten_proxy_to_main_thread_js(2,1,target,width,height);return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}function
_emscripten_set_canvas_element_size(target,width,height){var
canvas=findCanvasEventTarget(target);if(canvas){return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return
_emscripten_set_canvas_element_size_main_thread(target,width,height)}}function
_emscripten_set_current_thread_status(newStatus){}function
_emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var
ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ex
t[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcou
nt){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(
mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};
return
1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var
ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers
WEBGL\"](n,bufs)};return 1}}function
__webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_dra

w\"))}var
GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],cont
exts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:
function
recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var
ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return
ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var
len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-
1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return
source},createContext:function(canvas,webGLContextAttributes){var
ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var
handle=GL.registerContext(ctx,webGLContextAttributes);return
handle},registerContext:function(ctx,webGLContextAttributes){var
handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var
context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:
ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof
webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensions
ByDefault){GL.initExtensions(context)}return
handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx
=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(c
ontextHandle){return
GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[context
Handle])GL.currentContext=null;if(typeof
JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.co
ntexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GL
ctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:f
unction(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtension
sDone=true;var
GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_obj
ect(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"
EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var
exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.inde
xOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var
p=GL.programs[program];var
ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-
1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var
numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var
u=GLctx.getActiveUniform(p,i);var
name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-
1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var
id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var
j=1;j<u.size;++j){var
n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}
}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function
_emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var
powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var
contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4
>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"p

remultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerformanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return 0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function _emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function _fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var global_libc=_emscripten_get_global_libc();var global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthread=pthread;var msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":threadParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthread=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded){worker.runPthread();delete worker.runPthread}}function _pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current

environment does not support SharedArrayBuffer, pthreads are not available!\");return 6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return _emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_ptr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_PTHREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(threadParams)}return 0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var tb=_pthread_self();if(!tb)return;var cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function _emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKER)return;warnOnce(\"Blocking on the main thread is very dangerous, see https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function __emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread pointer!\");return ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread \"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return ERRNO_CODES.ESRCH}var detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread \"+thread+\", which was already detached!\");return ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[status>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PTHREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return 0}if(!block){return ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thread_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1)}}function _pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function _sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case

159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_canvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var _Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var _AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var _All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var _Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var _ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).ap

ply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(

null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var

_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var

_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).a

pply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var
calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromiseResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw
new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRuntime();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"]
= WasmBackendModuleThreadedSimd;\n","export const wasmWorkerContents = 'var Module={};function
threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function
threadAlert(){var text=Array.prototype.slice.call(arguments).join(\"
\");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var
err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var
instance=new
WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function
moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof
e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var

```
objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}
WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else
 if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else
if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-
e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var
top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"](
);Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self
\"](),1);try{var
result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\
"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else
if(ex!=\"unwind\"){if(ex instanceof
Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}el
se{Module[\"PThread\"].threadExit(-2);throw
 ex}}}}else
if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else
if(e.data.target===\"setimmediate\"){}else
if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_
process_queued_calls\"]()}}else{err(\"worker.js received unknown command
\"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception:
\"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof
process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var
onmessage=this.onmessage;var
nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var
parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var
nodeFS=require(\"fs\");var nodeRead=function(filename){return
 nodeFS.readFileSync(filename,\"utf8\")};function
globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEva
l(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof
performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","\nvar
WasmBackendModule = (function() {\n  var _scriptDir = typeof document !== 'undefined' &&
document.currentScript ? document.currentScript.src : undefined;\n  if (typeof __filename !== 'undefined')
_scriptDir = _scriptDir || __filename;\n  return (\nfunction(WasmBackendModule) {\n  WasmBackendModule =
WasmBackendModule || {};\n\nvar Module=typeof
WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var
readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new
Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var
moduleOverrides={};var key;for(key in
Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var
 arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var
ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var
ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof
window===\"object\";ENVIRONMENT_IS_WORKER=typeof
importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof
process.versions===\"object\"&&typeof
process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONM
ENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function
locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return
scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var
```

nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i

]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDep

endencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--
;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var
callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function
abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new
WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return
String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var
dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return
hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return
hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-
wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function
getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new
Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function
getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof
fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at
\"+wasmBinaryFile+\"\"\"}return response[\"arrayBuffer\"]()}).catch(function(){return
getBinary(wasmBinaryFile)})}else{if(readAsync){return new
Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new
Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return
getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function
receiveInstance(instance,module){var
exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function
receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function
instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return
WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof
WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return
result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer
instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return
instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var
exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function
callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof
callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof
func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function
_emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function
_emscripten_get_heap_size(){return HEAPU8.length}function

emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"o\"]).apply(null,arguments)};var

_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"p\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(null,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,arguments)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,arguments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,arguments)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).apply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var

_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var

_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var

_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}}run();\n\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports ===
'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define ===
'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports ===
'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you

may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors, storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object; // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n super();\n this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs = util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values: backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id = this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size * util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n memoryOffset);\n }\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset, dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n }\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset + util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n }\n\n /**\n * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n * is released, false otherwise.\n * @param dataId\n * @oaram force Optional, remove the data regardless of refCount\n */\n disposeData(dataId: DataId, force = false): boolean {\n if (this.dataIdMap.has(dataId)) {\n const data = this.dataIdMap.get(dataId);\n data.refCount--;\n if (!force && data.refCount > 0) {\n return false;\n }\n\n this.wasm._free(data.memoryOffset);\n this.wasm.tfjs.disposeData(data.id);\n this.dataIdMap.delete(dataId);\n }\n return true;\n }\n\n /** Return refCount of a `TensorData`. */\n refCount(dataId: DataId): number {\n if (this.dataIdMap.has(dataId)) {\n const tensorData = this.dataIdMap.get(dataId);\n return tensorData.refCount;\n }\n return 0;\n }\n\n incRef(dataId: DataId) {\n const data = this.dataIdMap.get(dataId);\n if (data != null) {\n data.refCount++;\n }\n }\n\n floatPrecision(): 32 {\n

```
return 32;\n  }\n\n  // Returns the memory offset of a tensor. Useful for debugging and unit\n  // testing.\n
getMemoryOffset(dataId: DataId): number {\n    return this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n
dispose() {\n    this.wasm.tfjs.dispose();\n    if ('PThread' in this.wasm) {\n
this.wasm.PThread.terminateAllThreads();\n    }\n    this.wasm = null;\n  }\n\n  memory() {\n    return {unreliable:
false};\n  }\n\n  /**\n   * Make a tensor info for the output of an op. If `memoryOffset` is not\n   * present, this
method allocates memory on the WASM heap. If `memoryOffset`\n   * is present, the memory was allocated
elsewhere (in c++) and we just record\n   * the pointer where that memory lives.\n   */\n  makeOutput(shape:
 number[], dtype: DataType, memoryOffset?: number):\n      TensorInfo {\n    let dataId: {};\n    if (memoryOffset
== null) {\n      dataId = this.write(null /* values */, shape, dtype);\n    } else {\n      const id =
this.dataIdNextNumber++;\n      dataId = {id};\n      this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype,
refCount: 1});\n      const size = util.sizeFromShape(shape);\n      this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n    }\n    return {dataId, shape, dtype};\n  }\n\n  typedArrayFromHeap({shape, dtype, dataId}:
TensorInfo):\n      backend_util.TypedArray {\n    const buffer = this.wasm.HEAPU8.buffer;\n    const
{memoryOffset} = this.dataIdMap.get(dataId);\n    const size = util.sizeFromShape(shape);\n    switch (dtype) {\n
case 'float32':\n        return new Float32Array(buffer, memoryOffset, size);\n      case 'int32':\n        return new
Int32Array(buffer, memoryOffset, size);\n      case 'bool':\n        return new Uint8Array(buffer, memoryOffset,
 size);\n      default:\n        throw new Error(`Unknown dtype ${dtype}`);\n    }\n  }\n}\n\nfunction
createInstantiateWasmFunc(path: string) {\n  // this will be replace by rollup plugin patchWechatWebAssembly in\n
// minprogram's output.\n  // tslint:disable-next-line:no-any\n  return (imports: any, callback: any) => {\n
util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n      if (!response['ok']) {\n
imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n      response.arrayBuffer().then(binary => {\n
   WebAssembly.instantiate(binary, imports).then(output => {\n          callback(output.instance, output.module);\n
});\n      });\n    });\n    return {};\n  };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param
simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n *
@param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n
   simdSupported: boolean, threadsSupported: boolean,\n    wasmModuleFolder: string) {\n  if (wasmPath != null)
{\n    // If wasmPath is defined, the user has supplied a full path to\n    // the vanilla .wasm binary.\n    return
wasmPath;\n  }\n\n  let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n  if (simdSupported &&
threadsSupported) {\n    path = 'tfjs-backend-wasm-threaded-simd.wasm';\n  } else if (simdSupported) {\n    path =
'tfjs-backend-wasm-simd.wasm';\n  }\n\n  if (wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n
return wasmFileMap[path];\n    }\n  }\n\n  return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm
module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property
'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in
Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n  const
[simdSupported,
 threadsSupported] = await Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n
env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) =>
{\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function overrides the Emscripten
module locateFile utility.\n     * @param path The relative path to the file that needs to be loaded.\n     * @param
prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile = (path, prefix) => {\n
if (path.endsWith('.worker.js')) {\n        const response = wasmWorkerContents;\n        const blob = new
Blob([response], {type: 'application/javascript'});\n        return URL.createObjectURL(blob);\n      }\n\n      if
(path.endsWith('.wasm')) {\n        return getPathToWasmBinary(\n            simdSupported as boolean,
threadsSupported as boolean,\n            wasmPathPrefix != null ? wasmPathPrefix : prefix);\n      }\n      return prefix
+ path;\n
    };\n\n    // Use the instantiateWasm override when system fetch is not available.\n    // Reference:\n    //
https://github.com/emscripten-
core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n
```

if (customFetch) {\n factoryConfig.instantiateWasm =\n createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : ''));\n }\n\n let initialized = false;\n factoryConfig.onAbort = () => {\n if (initialized) {\n // Emscripten already called console.warn so no need to double log.\n return;\n }\n if (initAborted) {\n // Emscripten calls `onAbort` twice, resulting in double error\n // messages.\n return;\n }\n initAborted = true;\n const rejectMsg =\n 'Make sure the server can serve the `.wasm` file relative to the ' +\n 'bundled
 js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n reject({message: rejectMsg});\n };\n\n let wasm: Promise<BackendWasmModule>;\n // If `wasmPath` has been defined we must initialize the vanilla module.\n if (threadsSupported && simdSupported && wasmPath == null) {\n factoryConfig.mainScriptUrlOrBlob = new Blob(\n [`var WasmBackendModuleThreadedSimd = ` +\n wasmFactoryThreadedSimd.toString()],\n {type: 'text/javascript'});\n wasm = wasmFactoryThreadedSimd(factoryConfig);\n } else {\n // The wasmFactory works for both vanilla and SIMD binaries.\n wasm = wasmFactory(factoryConfig);\n }\n\n // The WASM module has been successfully created by the factory.\n // Any error will be caught by the onAbort callback defined above.\n wasm.then((module) => {\n initialized = true;\n initAborted = false;\n\n const voidReturnType: string
 = null;\n // Using the tfjs namespace to avoid conflict with emscripten's API.\n module.tfjs = {\n init: module.cwrap('init', null, []),\n initWithThreadsCount:\n module.cwrap('init_with_threads_count', null, ['number']),\n getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n registerTensor: module.cwrap(\n 'register_tensor', null,\n [\n 'number', // id\n 'number', // size\n
 'number', // memoryOffset\n]),\n disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n };\n\n resolve({wasm: module});\n
 });\n });\n}\n\nfunction typedArrayFromBuffer(\n buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer);\n case 'int32':\n return new Int32Array(buffer);\n
 case 'bool':\n return new Uint8Array(buffer);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n\nconst wasmBinaryNames = [\n 'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport
 function setWasmPath(path: string, usePlatformFetch = false): void {\n deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n ' will be removed in a future release.');\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n }\n wasmPath = path;\n customFetch = usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n * 'tfjs-backend-wasm.wasm': 'renamed.wasm',\n * 'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n * 'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n * - (string) The path to the directory where the WASM binaries are located.\n * Note that this prefix will be used to load each binary
 (vanilla,\n * SIMD-enabled, threading-enabled, etc.).\n * - (object) Mapping from names of WASM binaries to custom\n * full paths specifying the locations of those binaries. This is useful if\n * your WASM binaries are not all located in the same directory, or if your\n * WASM binaries have been renamed.\n * @param

usePlatformFetch optional boolean to use platform fetch to download\n *   the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n   prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n   usePlatformFetch = false): void {\n if (initAborted) {\n   throw new Error(\n   'The WASM backend was already initialized. Make sure you call ' +\n   '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n   '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n   wasmPathPrefix = prefixOrFileMap;\n } else {\n   wasmFileMap = prefixOrFileMap;\n   const missingPaths =\n   wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n   if (missingPaths.length > 0) {\n   throw new Error(\n   `There were no entries found for the following binaries: ` +\n   `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n   `map providing a path for each binary, or with a string indicating ` +\n   `the directory where all the binaries can be found.`);\n   }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n   throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n}, WASM_PRIORITY);\n"],"names":["_FusedMatMul","util","Abs","backend_util","Add","AddN","Identity","setup","Transpose","All","Any","wasmFunc","ArgMax","AvgPool","Reshape","BatchMatMul","slice_util","buffer","sliceImplCPU","Slice","BatchToSpaceND","Cast","Ceil","ClipByValue","concatImplCPU","Concat","Conv2D","Conv2DBackpropInput","Cos","Cosh","CropAndResize","Cumsum","DepthToSpace","DepthwiseConv2dNative","Elu","supportsFullBroadcast","Equal","Exp","ExpandDims","Fill","FlipLeftRight","Floor","FloorDiv","FusedBatchNorm","FusedConv2D","FusedDepthwiseConv2D","GatherNd","GatherV2","Greater","GreaterEqual","setupFunc","LeakyRelu","Less","LessEqual","Log","LogicalAnd","Max","Maximum","MaxPool","Mean","Min","Minimum","MirrorPad","Multiply","Neg","NonMaxSuppressionV3","NonMaxSuppressionV4","NonMaxSuppressionV5","kernelFunc","NotEqual","OneHot","OnesLike","Pack","PadV2","Pow","Prelu","Prod","rangeImplCPU","Range","RealDiv","Relu","Relu6","ResizeBilinear","Reverse","RotateWithOffset","Round","Rsqrt","ScatterNd","Select","Sigmoid","Sin","Softmax","SpaceToBatchND","SplitV","Sqrt","Square","SquaredDifference","Step","StridedSlice","Sub","Sum","Tan","Tanh","Tile","TopK","Transform","Unpack","ZerosLike","registerKernel","env","require$$0","require$$1","require$$2","global","require$$3","require$$4","tslib_1.__extends","DataStorage","engine","KernelBackend","wasmFactoryThreadedSimd","wasmFactory","deprecationWarn","registerBackend"],"mappings":";;;;

AAA;IACT,uCAAQ,CAAA;IACR,2CAAU,CAAA;IACV,iDAAa,CAAA;AACf,CAAC,EANW,QAAQ,KAAR,QAAQ,QAMnB;AAED;AACA,IAAY,iBAQX;AARD,WAAY,iBAAiB;IAC3B,6DAAU,CAAA;IACV,yDAAQ,CAAA;IACR,2DAAS,CAAA;IACT,2DAAS,CAAA;IACT,mEAAa,CAAA;IACb,+DAAW,CAAA;IACX,uDAAO,CAAA;AACT,CAAC,EARW,iBAAiB,KAAjB,iBAAiB;;AC3B7B;;;;;;;;;;;;;;;;AAuBA,IAAI,eAKQ,CAAC;AAEb,SAAS,KAAK,CAAC,OAAoB;IACjC,eAAe,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,qBAAY,EAAE,IAAI,aAAa;QAClE,IAAI,EAAE,QAAQ;QACd,IAAI,EAAE,OAAO;QACb,IAAI,EAAE,QAAQ;QACd,IAAI,EAAE,QAAQ;QACd,IAAI,EAAE,OAAO;QACb,IAAI,EAAE,QAAQ;QACd,IAAI,EAAE,QAAQ;QACd,IAAI,EAAE,QAAQ;QACd

AAC;KACJ;IAED,SAAS,UAAU,CAAC,IAAkD;QAE7D,IAAA,sBAAO,EAAE,oBAAM,CAAS;QACxB,IAAA,YAAC,EAAE,YAAC,CAAW;QACtB,IAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAC/C,IAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAE/C,IAAM,UAAU,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,CAAC;QACzC

M,EAAE,CAAC,EAAE,EAAE;QACpC,IAAI,IAAI,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE;YACjB,UAAU,GAAG,KAAK,CAAC;SACpB;KACF;IACD,IAAM,QAAQ,GAAG,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,KAAK,EAAE,KAAK,CAAC,IAAI,CAAC,CAAC;IAC7D,IAAM,CAAC,GAAG;QACR,MAAM,EAAE,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM;QACzB,CAAC,EAAE,KAAK;QACR,CAAC,EAAE,KAAK;KACT,CAAC;IACF,IAAM,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

AAS;IAC/B,IAAA,iBAAI,EAAE,yBAAQ,CAAU;IACxB,IAAA,YAAC,CAAW;IACnB,IAAM,GAAG,GAAG,OA
AO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAI,OAAO,
GAAG,GAAG,CAAC;IAClB,IAAI,KAAK,GAAG,CAAC,CAAC;IAER,IAAA,8CACuC,EADtC,0BAAU,EAAE,c
AAI,EAAE,8BAAY,EAAE,0CACM,CAAC;IAE9C,IAAI,kBAAkB,EAAE;QACtB,IAAM,YAAY,GAAG,OAAO,
CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,KAAK,GAAG,
UAAU,CAAC;QACnB,OAAO,GAAG,YAAY,CAAC;KCxB;IAED,IAAM,SAAS,GAAG,KAAK,CAAC,KAAK,
CAAC,MAAM,CAAC;IACrC,IAAI,qBAAY,CAAC,0BAA0B,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,,CAAC,CA
C;IAC1D,IAAA,uEACuD,EADtD,gBAAQ,EAAE,mBAC4C,,CAAC;IAC9D,IAAM,UAAU,GAAGF,aAAI,CAAC,
aAAa,CAAC,WAAW,CAAC,CAAC;IAEnD,IAAM,QAAQ,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,C
AAC,CAAC,KAAK,CAAC,CAAC;IAClD,IAAA,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAA
K,CAAC,EAAE;QACzC,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAA
M,CAAC,CAAC,EAAE,CAAC;QACnD,OAAO,CAAC,OAAO,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;KCr
C;IAED,IAAI,kBAAkB,EAAE;;QAEtB,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KA
CxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,IAAM,QAAQ,GAAGE,oBAAoB,CAAC,GAAG,K
AAK,EAAE,YAAY,CAAC,CAAC;QAC5E,GAAG,CAAC,KAAK,GAAG,QAAQ,CAAC;KCtB;IAED,OAAO,G
AAG,CAAC;AACb,CAAC;AAEM,IAAM,SAAS,GAAGiB,IACrC,UAAU,EAAE,IACf,YAAY,CAAC,CAAC,CAAC

G,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,IAAM,SAAS,GAAGX,aAAI,CAAC,aAAa,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC;IAChD,IAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IACvCU,UAAQ,CAAC,OAAO,EAAE,QAAQ,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE,SAAS,EAAE,SAAS,EAAE,KAAK,CAAC,CAAC,CAAC;IAEtE,IAAI,kBAAkB,EAAE;;QAEtB,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,CAAC;KACxC;IAED,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,YAAY,GAAiB;IACxC,UAAU,EAAE,EAAE,CAAC,WAAW,CAAC,EAAE,CAAC,UAAU,CAAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS

,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;IACzE,IAAM,
WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,
KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;IAEzE,IAAM,WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,
KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,
CAAC;IACzE,IAAM,WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,
GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;IAEzE,IAAM,UAAU,GAAG,CAAC,CAAC,
AAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;IACxC,IAAM,UAAU,GAAG,CA
AC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;IAExC,IAAM,SAAS,GAAG
d,aAAI,CAAC,aAAa,CAAC,UAAU,CAAC,CAAC;IACjD,IAAM,SAAS,GAAGA,aAAI,CAAC,aAAa,CAAC,UA
AU,CAAC,CAAC;IAEjD,IAAM,mBAAmB,GACrB,SAAS,KAAK,SAAS,IAAI,SAAS,KAAK,CAAC,CAAI,SAAS
,KAAK,CAAC,CAAC;IAElEA,aAAI,CAAC,MAAM,CACP,KAAK,IAAI,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,
mBAAmB,EAC/C,cAAM,OAAA,iEAAiE;QACnE,kEAAkE;SAClE,0BAAwB,UAAU,eAAU,UAAU,OAAI,CAA
A,GAAA,CAAC,CAAC;IAEpE,IAAM,iBAAiB,GACnB,SAAS,GAAG,SAAS,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,CAAC,
C,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,
EAAE,CAAC,CAAC,CAAC,CAAC;IACxE,IAAM,QAAQ,GAAG,iBAAiB,CAAC,MAAM,CAAC,CAAC,WA
W,EAAE,WAAW,CAAC,CAAC,CAAC;IAEtE,IAAM,MAAM,GAAG,WAAW,KAAK,WAAW,EAC3C,c
AM,OAAA,oCAAkC,WAAW,YAAS;SACrD,WAAW,iCAA4B,CAAC,CAAC,KAAK,UAAO,CAAA;SACrD,C
AAC,CAAC,KAAK,wBAAmB,UAAY,CAAA;SACzC,qBAAmB,UAAU,iBAAc,CAAA,GAAA,CAAC,CAAC;IA
ErD,IAAM,QAAQ,GAAG,UAAU,GAAG,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW,CAAC;QACrC,CAAC,S
AAS,EAAE,WAAW,EAAE,WAAW,CAAC,CAAC;IACpE,IAAM,QAAQ,GAAG,UAAU,GAAG,CAAC,SAAS,E
AAE,WAAW,EAAE,WAAW,CAAC;QACrC,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW,CAAC,CAAC;;IAGpE,IAAM,GAAG,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAE,OAAO,
SAAA,EAAE,KAAK,EAAE,EAAC,CAAC,KAAK,EAAE,QAAQ,EAAC,CAAC,CAAC;IACzE,IAAM,GAAG,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAE,OAAO,SAAA,EAAE,KAAK,EAAE,EAAC,CAAC,KAAK,EAAE,QAAQ,EAAC,CAAC,CAAC;IAEzE,IAAM,KAAK,GAAG,CAAC,KAAK,EAAE,KAAK,EAAE,OAAO,CAAC,CAAC,SAAS,CAAC,CAAC,CAAC,
SAAS,CAAC,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IACnD,IAAM,KAAK,GAAG,CAAC,KAAK,EAAE,KAAK,EAAE,OAAO,CAAC,CAAC,SAAS,CAAC,CAAC,CAAC,
SAAS,CAAC,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IAEnD

,CAAC;AACX,KAAK;AACL,SAAS;AACT,QAAQ,IAAI,SAAS,GAAG,CAAC,CAAC;AAC1B,QAAQ,MAAM,CAAC,OAAO,CAAC,KAAK,IAAI;AAChC,YAAY,MAAM,WAAW,GAAG,KAAK,KAAK,QAAQ;AAClD,gBAAgBE,qBAAY,CAAC,sBAAsB,CAAC,KAAK,CAAC,IAAI,CAAC;AAC/D,gBAAgB,KAAK,CAAC,IAAI,CAAC;AAC3B,YAAY,IAAI,IAAI,GAAG,CAAC,CAAC;AACzB,YAAY,KAAK,IAAI,GAAG,GAAG,CAAC,EAAE,GAAG,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,EAAE,GAAG,EAAE;AAC3D,gBAAgB,MAAM,MAAM,GAAG,GAAG,GAAG,QAAQ,CAAC,CAAC,GAAG,SAAS,CAAC;AAC7D,gBAAgB,KAAK,IAAI,GAAG,GAAG,CAAC,EAAE,GAAG,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,EAAE,GAAG,EAAE;AAC/D,gBAAgB,oBAAoB,OAAO,CAAC,MAAM,GAAG,GAAG,CAAC,GAAG,WAAW,CAAC,IAAI,EAAE,CAAC,CAAC;AAChF,iBAAiB;AACjB,aAAa;AACb,YAAY,SAAS,IAAI,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC;AAC5C,YAAY,SAAS,SAAS,CAAC,CAAC,CAAC,KAAK;AACtC,YAAY,SAAS,IAAI,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC;AAC5C

GAAGe,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC;QAElE,IAAI,CAAC,CAAC,KAAK,KAAK,QAAQ,EAAE;YACxB,OAAO,CAAC,WAAW;gBACd,KAAsB;qBAClB,KAAK,CAAC,UAAU,EAAE,UAAU,GAAGf,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC,CAAC;SACpE;aAAM;YACL,IAAM,SAAO,CAAC,GAAG,CAAC,CAAC,CAAC;YACpB,IAAM,SAAO,GAAG,IAAI,GAAG,EAAE,CAAC;YAC1B

AAC,IAIvB;IACQ,IAAA,oBAAM,EAAE,sBAAO,EAAE,kBAAK,CAAS;IAC/B,IAAA,YAAC,CAAW;IACZ,IAAA,6BAAU,EAAE,mBAAK,CAAU;IAElC,IAAM,IAAI,GAAG,UAAU,CAAC,MAAM,CAAC,UAAC,CAAC,EAAE,CAAC,IAAK,OAAA,CAAC,GAAG,CAAC,GAAG,CAAC,GAAA,CAAC,CAAC;IAEhD,IAAM,QAAQ,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,EAAE,UAAU,EAAE,IAAI,CAAC,CAAC;IAEpD,IAAM,QAAQ,GAAG,CAAC,GAAG,CAAC,WAAW,CAAC,QAAQ,CAAC,GAAG,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,EAAE,UAAU,CAAC,MAAM,CAAC,CAAC;IAE9E,IAAM,gBAAgB,GAAG,CAAC,GAAG,CAAC,WAAW,CAAC,QAAQ,CAAC,GAAG,CAAC,mBAAmB,CAAC,CAAC,CAAC,CAAC,KAAK,EAAE,UAAU,EAAE,IAAI,CAAC,CAAC;IAEpG,IAAM,gBAAgB,GAAG,CAAC,GAAG,CAAC,WAAW,CAAC,QAAQ,CAAC,GAAG,CAAC,mBAAmB,CAAC,KAAK,EAAE,UAAU,CAAC,MAAM,CAAC,CAAC;IAEpG,IAAM,QAAQ,GAAG,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,gBAAgB,EAAE,KAAK,EAAE,UAAU,EAAE,IAAI,CAAC,CAAC;IAEhG,IAAM,QAAQ,GAAG,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,gBAAgB,EAAE,KAAK,EAAE,UAAU,CAAC,MAAM

CAAC,CAAC,KAAK,KAAK,QAAQ,EAAE;;;;;;;;QAQjC,IAAM,QAAQ,GAAG,OAAO,CAAC,GAAG,CAAC,UA
AA,CAAC;YAC5B,IAAM,SAAS,GAAGF,aAAI,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAA
C,IAAI,CAAC,CAAC,CAAC;YAC1D,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,EAAE,SAAS,CAAC,CAAC;Y
AC9B,OAAO,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,SAAA,EA
AE,KAAK,EAAE,EAAC,KAAK,OAAA,A,EAAC,EAAC,CAAC,CAAC;SAC3D,CAAC,CAAC;QAEH,IAAM,eAAe
,GAAG,QAAQ,CAAC,GAAG,CAAC,UAAA,A;YACpC,OAAO,EAAC,IAAI,EAAE,OAAO,,CAAC,QAAQ,,C
AAC,CAAC,CAAC,MAAM,CAAC,EAAE,KAAK,EAAE,CAAC,CAAC,KAAK,EAAC,CAAC;SAC3D,CAAC,C
AAC;;QAGH,QAAQ;YACJE,qBAAY,CAAC,eAAe,CAAC,QAAQ,CAAC,GAAG,CAAC,UAAA,A,IAAI,O
AAA,CAAC,CAAC,KAAK,GAAA,A,EAAC,CAAC,YAAY,CAAC;QAC3E,IAAM,YAAY,GAAG,QAAQ,,C
AAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC;QAChD,IAAM,SAAO,,GAAGqB,
UAAa,CACT,eAAe,EAAE,QAAQ,,CAAC,CAAC,CAAC,KAAK,EAAC,EAC1C1C,YAAY,,CAAa,C
AAC;QAE9C,IAAM,aAAa,GACfrB,rB,qBAAY,CAAC,eAAe,CAAC,OAAO,CAAC,GAAG,CAAC,UAAA,A,I
AAI,OAAA,A,CAAC,CAAC,KAAK,GAAA,A,EAAC,CAAC,YAAY,CAAC;QAElE,GAAG,CAAC,QAAQ,,C
AAC,CAAC,CAAC,MAAM,CAAC,EAAE,KAAK,EAAE,CAAC,CAAC,KAAK,EAAC,CAAC;QAC1B,IAAM,OAAO,,GAAG,CAAC,CAAC,CAAC,SAAS,,CAAC,CAAC,CAAC,KAAK,EAAC,CAAC;QAC
7D,IAAM,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,,CAAC,CAAC,CAAC,KAAK,EAAC,CAAC;QAC
zB,OAAO,QAAQ,,CAAC,CAAC,CAAC,KAAK,EAAC,CAAC;KACjB,CAAC,CAAC;IACH,IAAM,MAAM,GAAG,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK

AAC,WAAW,CAAC;IACzC,IAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;IAC1C,IAAM,cAAc,GAAG,QAAQ,CAAC,WAAW,CAAC;IAC5C,IAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;IAE3D,IAAI,QAAQ,CAAC,UAAU,KAAK,cAAc,EAAE;QAC1C,MAAM,IAAI,KAAK,CACX,mDAAmD;aAChD,QAAQ,CAAC,UAAU,kCAA+B,CAAA,CAAC,CAAC,CAAC;KAC5D;IAED,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IAC7D,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IACnD,UAAU,CACN,CAAC,UAAU,CACP,CAAC,KAAK,CAAC,CAAC,CAAC

,CAAA;AACb,CAAC,EAHI,mBAAmB,KAAnB,mBAAmB,QAGvB;AAED,IAAI,iBAGkE,CAAC;AAEvE,SAASt
B,OAAK,CAAC,OAAoB;IACjC,iBAAiB,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACuB,sBAAa,EAAE,IA
AI,WAAW;QACnE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,Q
AAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,aAAa,CAA
C,IAItB;IACQ,IAAA,sBAAO,EAAE,oBAAM,EAAE,kBAAK,CAAS;IAC/B,IAAA,qBAAM,EAAE,6CAAkB,EA
AE,yBAAQ,CAAU;IAC9C,IAAA,oBAAK,EAAE,oBAAK,EAAE,sBAAM,CAAW;IAEtC,IAAM,QAAQ,GAAG,
KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;IAE1B,IAAA,aAAsD,,EAArD,kBAAU,,EAAE,iBAAyC,,CAA
C;IAC7D,IAAM,QAAQ,GAAG,CAAC,QAAQ,EAAE,UAAU,EAAE,SAAS,EAAE,KAAK,CAAC,KAAK,CAAC,
CAAC,CAAC,CAAC,CAAC;IAEnE,IAAI,UAAU,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CA
AC,MAAM,CAAC,CAAC;IACrD,IAAI,UAAU,CAAC;IACf,IAAI,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,EAAE;QAC7B,UAAU,GAAG,IAAI,
CAAC,QAAQ,EAAE,SAAS,CAAC,MAAM,EAAE,EAAC,CAAC,EAAE,KAAK,EA
AC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,SAAS,EAAC,CAAC,CAAC;QAC5E,UAAU,GAAG,OAA
O,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACvD;IAED,IAAM,QAAQ,GAA
G,UAAU,CAAC,EAAE,CAAC;IAC/B,IAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACvD,IAAI,QAAQ,GAAG,CAAC,CAAC;IACjB,IAAI,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,EAAE;QAC7B,QAAQ,GAAG,IAAI,
CAAC,QAAQ,EAAE,SAAS,CAAC,MAAM,EAAE,EAAC,CAAC,EAAE,KAAK,EA
AC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,SAAS,EAAC,CAAC,CAAC;KAC/E;IAED,IAAM,QAAQ,GAAG,
CAAC,QAAQ,EAAE,SAAS,CAAC,MAAM,EAAE,EAAC,CAAC,EAAE,KAAK,EA
AC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,SAAS,EAAC,CAAC,CAAC;IAE1E,IAAM,QAAQ,GAAG,

IACnB,SAAS,EAAExB,OAAK;IAChB,UAAU,EAAE,MAA0B;CACvC;;ACIFD;;;;;;;;;;;;;;;;AAqBA,IAAI,gBAGuC,CAAC;AAE5C,SAASA,OAAK,CAAC,OAAoB;IACjC,gBAAgB,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACyB,qBAAY,EAAE,IAAI,WAAW;QACjE,QAAQ,QAAQR,QAAQ,QAAQR,QAAQ,QAAQR,QAAQ,OAAO;QACP,QAAQR,QAAQ,OAAO;QACP,OAAO;QACP,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;SAEe,YAAY,CAAC,IAAI5B;IACQ,IAAI,gBAAgB,GAAG,OAAO,EAAE,gBAAgB,GAAG,OAAO,EAAE,kBAAkB,GAAG,OAAO,CAAC,SAAS;IAC/G,IAAI,CAAC,gBAAgB,GAAG,IAAI,CAAC,OAAO,EAAE,IAAI,CAAC,OAAO,EAAE,IAAI,CAAC,OAAO,EAAE

QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IAC7D,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,G
AAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,mBAAmB,CACf,GAAG,EAAE,CAAC,
CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,K
AAK,CAAC,CAAC,CAAC,EAAE,QAAQ,EAAE,YAAY,EAC/D,WAAW,EAAE,MAAM,EAAE,QAAQ,EAAE,S
AAS,EAAE,OAAO,EAAE,SAAS,EAC5D,cAAc,EAAE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EACvE
,cAAc,EAAE,KAAK,CAAC,CAAC;IAC3B,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,2BAA2B,GAAG
;IACvD,UAAU,EAAE8B,8BAAqB;IACjC,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE1B,OAAK;IAChB,UAA
U,EAAE,eAAmC;CAChD;;AC7GD;;;;;;;;;;;;;;;AAoBO,IAAM,SAAS,GAAiB,uBAAuB,CAAC2B,YAAG,CAAC;;
ACpBnE;;;;;;;;;;;;;;;AAoBA,IAAMC,uBAAqB,GAAG,CAAC;AAC7B,IAAM,WAAW,GACpB,wBAAwB,
CAACC,cAAK,EAAED,uBAAqB,EAAE,MAAM,CAAC;;ACtBlE;;;;;;;;;;;;;;;AAoBO,IAAM,SAAS,GAAiB,uBA
AuB,CAACE,YAAG,CAAC;;ACpB9E;;;;;;;;;;;;;;;SAsBgB,UAAU,CAAC,IAI1B;IACQ,IAAA,oBA
AM,EAAE,kBAAK,EAAE,sBAAO,CAAS;IAC/B,IAAA,oBAAK,CAAW;IAChB,IAAA,eAAG,CAAU;IAEpB,IA
AM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IACrC,IAAM,QAAQ,GAAG,KAAK,CAAC,KA
AK,CAAC,KAAK,EAAE,CAAC;IACrC,IAAI,IAAI,GAAG,GAAG,CAAC;IACf,IAAI,GAAG,GAAG,CAAC;;QAEXpC,aAAI,,CAAC,MAAM,,CACP,EAAE,SAAS,,GAAG,CAAC,CAAC,IAAI,,GAAG,,EACvB,cAAM,,CAAC,MAAM,,CAAC,CAAC,UACpD,SAAS,,MAAG,,GAAG,CAAC,CAAC,CAAC;QACtB,IAAI,G
AAG,SAAS,,GAAG,CAAC,CAAC,CAAC;IAAA,CAAC,CAAC;IAAA,CAAC,CAAC;IAAA

CAAC;IAC9E,IAAM,OAAO,GAAG,KAAK,IAAI,IAAI,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC;IAE3E,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC;;IAEjD,IAAI1C,aAAI,,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,EAAE;QACrC,OAAO,GAAG,CAAC;KACZ;IAED,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IAEnD,aAAa,CACT,GAAG,EAAE,MAAM,EAAE,UAAU,EAAE,QAAQ,EAAE,OAAO,EAAE,eAAe,EAAE,KAAK,CAAC,CAAC,CAAC;IAExE,OAAO,GAAG,CAAC;AACb,CAAC;AAED,SAAS,WAAW,CAAC,IAAI,EAAE,KAAK,EAAE,OAAO,EAAE,eAAe,EAAE,kBAAkB,EAAE,eAAe,EAAE,sBAAsB,EAAE,cAAc,EAAE,IAAI,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC

;IACjC,wBAAwB;QACpB,OAAO,CAAC,IAAI,CAAC,KAAK,CAACsC,6BAAoB,EAAE,IAAI,aAAa;YACxD,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR

KAAK,CAAC,EAAE,CAAC;IACrB,IAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,OAAO,C
AAC,MAAM,CAAC,CAAC;IAC1D,IAAM,SAAS,GAAG,WAAW,CAAC,EAAE,CAAC;IAEjC,IAAM,YAAY,G
AAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,CAAC;IAEpE,IAAM,KAA
K,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACn
D,YAAY,CACR,GAAG,EAAE,QAAQ,CAAC,MAAM,CAAC,KAAK,CAAC,EAAE,SAAS,EAAE,SAAS,EAAE,
SAAS,EAAE,SAAS,EACvE,YAAY,EAAE,KAAK,CAAC,CAAC;IAEzB,OAAO,GAAG,CAAC;AACb,CAAC;A
AEM,IAAM,cAAc,GAAiB;IAC1C,UAAU,EAAEA,iBAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE
vC,OAAK;IAChB,UAAU,EAAE,QAAQ;CACrB;;AC7ED;;;;;;;;;;;;;;;;AAwBA,IAAI,UAGsB,CAAC;AAE3B,SAA
SA,OAAK,CAAC,OAAOoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,QAAQ,EAAE,IAAI,
WAAW;QACvD,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAA
O;QACP,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,QAAQ,CACb,IAA0E;IAErE,sBAAO,
EAAE,oBAAM,EAAE,kBAAK,CAAS;IAC/B,EAAE,wBAAO,CAAW;IACrB,iBAAI,EAAE,
2BAAS,CAAU;;IAGhC,IAAM,UAAU,GAAGN,aAAI,CAAC,cAAc,CAAC,IAAI,EAAE,CAAC,KAAK,C
AAC,CAAC,CAAC,CAAC,CAAC;IACzD,IAAM,WAAW,GAAG,OAAO,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,
AAM,CAAe,CAAC;IACnE,IAAM,OAAO,GAAG,CAAC,CAAC,UAAU,CAAC,CAAC;4BAC3B,
CAAC;QACR,IAAM,KAAK,GAAG,WAAW,CAAC,CAAC,CAAC,CAAC,CAAC;QAC7BA,aAI,CAAC,MAAM,CAC
P,KAAK,IAAI,OAAO,GAAG,CAAC,IAAI,KAAK,IAAI,CAAC,EAClC;YACI,OAAA,+BAA6B,KAAK,wBAAkB
,OAAO,GAAG,CAAC,OAAG;SAAA,CAAC,CAAC;IAL9C,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;IAMlB,IAAM,
AAC,CAAC,CAAC,CAAC,CAAC;gBAAC,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;gBAAC,IAAM,KAAK,GAAG,
AAG,WAAW,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC;gBAAC,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;gBAAC,
AY,CAAC,YAAY,CAAC,wBAAwB,CAAC,hE,CAAW,EAAE,OAAiB,EAAE,UAAU,EAAE,SAAS,CAAC,CAAC;IA
E3D,IAAM,QAAQ,GAAG,OAAO,CAAC;QACvB,MAAM,EAAE,EAAC,CAAC,CAAC,GAAA,EAAC,CAAC,GAAA,EAAC,CAAC,GAAA,EAAC;QACvB,KAAK,EAAE;YACL,EAAE;gBACA,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;gBAAC,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;gBAAC,IAAM,KAAK,GAAG,
;gBAC3D,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;aAAC,IAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC;aAAC,IAAM,KAAK,GAAG,
GAAGF,aAAI,CAAC,cAAc,CAAC,IAAI,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC

QACxD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;SAEe,SAAS,CACrB,IAC0E;IAE5D,IAAA,iBAAC,EAAW,wBAAK,EAAG,sBAAO,CAAS;IAEpD,IAAM,GAAG,GAAG,OAAO,,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;;;IAG/C,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,SAAS,CAAC,CAAC;IAEnD,IAAIlD,aAAAI,CAAC,aAAa,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACrC,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAEnDU,UAAAQ,CAAC,aAAa,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC;QAAA,CAAC;KAAC,CAAC;IAED,OAAO,GAAG,CAAC;AAAC,CAAC;AAEb,CAAC;AAEwC,CAAC;AAAC,CAAC;AAAC,CAAC;AAA

OAAO,CAAC,GAAG,CAAC;IACpC,IAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;IACxC,IAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;IAC1C,IAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC;IACtC,IAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,IAAM,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC;IAC7C,IAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,IAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,IAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;IAC1C,IAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,IAAM,eAAe,GAAG,QAAQ,CAAC,eAAe,CAAC;IACjD

AAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,KAAK,GAAG,EAAE;;;YAGxB,KAAK,GAAG,UAAU,CAAC;YACnB,OAAO,GAAG,YAAY,CAAC;SACxB;KACF;IAED,IAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IAErCzD,qBAAY,CAAC,0BAA0B,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,GAAG,KAAK,EAAE,SAAS,CAAC;IAC1D,IAAA,uEACuD,EADtD,gBAAQ,EAAE,mBAAC4C,CAAC;IAC9D,IAAM,UAAU,GAAGF,aAAI,CAAC,aAAa,CAAC,WAAW,CAAC,CAAC;IAEnD,IAAM,GAAG,GAAG,GAAG,CAAC,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC;IACtD

E,qCAAc,CAAU;IACrD,IAAA,oBAAK,EAAE,sBAAM,CAAW;IAE/B,IAAM,OAAO,GAAG,OAAO,CAAC,SAA
S,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACvD,IAAM,QAAQ,GAAG,OAA
O,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEzD,IAAM,SAAS
,GACXtD,UAAQ,CAAC,OAAO,EAAE,QAAQ,EAAE,aAAa,EAAE,YAAY,EAAE,cAAc,CAAC,CAAC;IAEvE,I
AAA,0CACmC,EADlC,sCAAgB,EAAE,8BAAY,EAAE,oCAAe,EAAE,gCACf,CAAC;;IAG1C,OAAO,CAAC,IA
AI,CAAC,KAAK,CAAC,eAAe,CAAC,CAAC;IACpC,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,aAAa,CAAC,C
AAC;IAElC,IAAM,qBAAqB,GACvB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EAAE,OAAO,EAAE,g
BAAgB,CAAC,CAAC;IAElE,OAAO,qBAAqB,CAAC;AAC/B,CAAC;AAEM,IAAM,yBAAyB,GAAiB;IACrD,UU
AU,EAAEsD,4BAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,WAAW,EAAE,MAAM;IACnB,WAAW,EAAE1D,
UAA8B;CAC3C;;ACzED;;;;;;;;;;;;;;;;AAuBA,IAAII,UAGsC,CAAC;AAE3C,SASJ,OAAK,CAAC,OAAoB;IACj
CI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACzBuD,4BAAmB,EACnB,QAAQ;IACR;QACE,QAAQ;
QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,MAAM;KACP,CAAC,CAAC;AACT,CAAC;
AAED,SAAS,mBAAmB,CAAC,IAI5B;IACQ,IAAA,sBAAO,EAAE,oBAAM,EAAE,kBAAK,CAAS;IAC/B,IAAA
,iCAAY,EAAE,mCAAa,EAAE,qCAAc,EAAE,6CAAkB,CAAC5D;IACH,IAAA,oBAAK,EAAE,sBAAM,CAAW;I
AE/B,IAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,E
AAE,CAAC;IACvD,IAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,EAAE,CAAC;IAEzD,IAAM,SAAS,GAAGvD,UAAQ,CAACtB,OAAO,EAAE,QAAQ,EAAE,aAAa,E
AAE,YAAY,EAAE,cAAc,EAC9D,kBAAkB,CAAC,CAAC;IAElB,IAAA,0CACmC,EADlC,sCAAgB,EAAE,8BA
AY,EAAE,oCAAe,EAAE,gCACf,CAAC;;IAG1C,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,eAAe,CAAC,CAAC
;IAEpC,IAAM,qBAAqB,GACvB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EAAE,OAAO,EAAE,gBA
AgB,CAAC,CAAC;IAElE,IAAM,kBAAkB,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,EAAE,EAAE,OAAO,EAAE,aA
Aa,CAAC,CAAC;IAE1E,OAAO,CAAC,qBAAqB,EAAE,kBAAkB,CAAC,CAAC;AACrD,CAAC;AAEM,IAAM,
yBAAyB,GAAiB;IACrD,UAAU,EAAEuD,4BAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,WAAW,EAAE1D,
UAA8B;CAC3C;;AC9ED;;;;;;;;;;;;;;;;AAuBA,IAAII,UAGU,CAAC;AAEf,SASJ,OAAK,CAAC,OAAoB;IACjCI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACzBwD,4BAAmB,EACnB,QAAQ;IACR;QACE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACT,CAAC;AAED,SAASC,YAAU,CAAC,IAInB;IACQ,IAAA,sBAAO,EAAE,oBAAM,EAAE,kBAAK,CAAS;IAC/B,IAAA,iCAAY,EAAE,mCAAa,EAAE,iCAAY,EAAE,CAAU;IACvD,IAAA,oCAAe,EAAE,sCAAgB,EAAE,8BAAY,EAAE,oCAAe,EAAE,gCACf,CAAC;;IAG1C,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,eAAe,CAAC,CAAC;IAEpC,IAAM,qBAAqB,GACvB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EAAE,OAAO,EAAE,gBAAgB,CAAC,CAAC;IAElE,IAAM,kBAAkB,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,EAAE,EAAE,OAAO,EAAE,aAAa,CAAC,CAAC;IAE3E,OAAO,CAAC,qBAAqB,EAAE,kBAAkB,CAAC,CAAC;AACrD,CAAC;AAEM,IAAM,yBAAyB,GAAiB;IACrD,UAAU,EAAEuD,4BAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,WAAW,EAAE1D,

EAAE,KAAK,CAAC,CAAC;IAEvD,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,YAAY,GAAiB;IACxC,UAAU,EAAEA,eAAM;IAClB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE/D,OAAK;IAChB,UAAU,EAAE,MA A0B;CACvC;;ACzDD;;;;;;;;;;;;;;;AAqBA,SAAS,QAAQ,CAAC,IAAoD,IAAA,iBAAC,,EAAG,sBAAO,,CA AS;IACpC,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,CAAC,CAAC,KA K,CAAC,CAAC;IACjD,IAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,EAAE,CAAC,GAAG,CAAC,CAAC;IAChD,OA AO,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC;IAChB,OAAO,GAAG,OAAO,CAAC,GAAG,CAAC,UAAA,CAAC,IAAI,OAAA,CAAC,CAAC,CAAC,EAAH,CAAG,CAAC;AACxC,CAAC;AAED,SAAS,cAAc,CAAC,IAAoD,IAAA,iBAAC,,EAAG,sBAAO,,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK

AO,CAAC,IAAI,CAAC,KAAK,CAACoE,cAAK,EAAE,IAAI,aAAa;QACrD,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,KAAK,CAAC,IAAiD;IACvD,IAAA,oBAAM,,EAAE,sBAAO,,CAAS;IACxB,IAAA,YAAC,,EAAE,oBAAK,,CAAW;IAC1B,IAAM,GAAG,GAAG,OAAO,,CAAC,,SAAS,,CAAC,GAAG,,CAAC,CAAC,,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;IAC/C,SAAS,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,GAAG,,CAAC,KAAK,,CAAC,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;IAEzD,IAAI,OAAO,,GAAG,,CAAC,,CAAC;IAChB,IAAM,KAAK,,GAAG,,CAAC,,CAAC;IACvB,IAAM,KAAK,,KAAK,,SAAS,,EAAE;QAC7B,WAAW,,GAAG,,IAAI,,CAAC,,EAAC,,OAAO,,SAAA,,EAAE,EAAE,,MAAM,,EAAE,,EAAC,,CAAC,,GAAA,,A,E,C,AAAC,,CAAC;QACtE,OAAO,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,,GAAG,,CAAC,,WAAW,,CAAC,,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;KACxD;IAED,IAAM,GAAG,GAAG,OAAO,,CAAC,,UAAU,,CAAC,,CAAC,,CAAC,,KAAK,,EAAE,,SAAS,,CAAC,,CAAC,,CAAC;IACnD,IAAM,KAAK,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,,GAAG,,CAAC,,GAAG,,CAAC,,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;IACnD,IAAM,KAAK,,KAAK,,SAAS,,EAAE,,SAAS,,EAAE,,KAAK,,CAAC,,CAAC,,CAAC;IAErD,IAAM,GAAG,GAAG,OAAO,,CAAC,,WAAW,,CAAC,,WAAW,,CAAC,,MAAM,,CAAC,,CAAC,,CAAC;KACzD,CAAC;IACF,IAAM,OAAO,,GAAG,,CAAC,,CAAC;IAClB,IAAM,KAAK,,GAAG,,CAAC,,CAAC;IAE

AAC,IAAI,CAAC,KAAK,CAAC2E,uBAAc,EAAE,IAAI,WAAW;QACrE,QAAQ;QACR,QAAQ;QACR,QAAQ;Q
ACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,C
AAC,CAAC;AACL,CAAC;AAED,SAAS,cAAc,CAAC,IAIvB;IACQ,IAAA,sBAAO,,EAAE,oBAAM,,EAAE,kBA
AK,CAAS;IAE/B,IAAA,sBAAM,,CAAW;IACjB,IAAA,iCAAY,,EAAE,yCAAgB,,EAAE,iBAAI,,CAAU;IAC9C,IA
AA,mBAAS,,EAAE,kBAAQ,,CAAS;IAE7B,IAAA,iBAAwD,,EAAvD,aAAK,,EAAE,iBAAS,,EAAE,gBAAQ,,EAAE,
mBAA2B,,CAAC;IAC/D,IAAM,,QAAQ,,GAAG,,CAAC,,KAAK,,EAAE,,SAAS,,EAAE,,QAAQ,,EAAE,,WAAW,,CAAC
,,CAAC;IAE3D,IAAI,,KAAK,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,,GAAG,,CAAC,,MAAM,,CAAC,,MAAM,,CAAC,
CAAC;IACjD,IAAI,,UAAU,,CAAC;IACf,IAAI,,KAAK,,CAAC,,KAAK,,KAAK,,SAAS,,EAAE;QAC7B,UAAU;YAC
N,IAAI,,CAAC,,EAAC,,OAAO,,SAAA,,EAAE,,MAAM,,EAAE,,EAAC,,CAAC,,EAAE,,MAAM,,EAAC,,EAAE,,KAAK,,E
AAE,,EAAC,,KAAK,,EAAE,,SAAS,,EAAC,,EAAC,,CAAC,,CAAC;QACpE,KAAK,,GAAG,,OAAO,,CAAC,,SAAS,,CA
AC,,GAAG,,CAAC,,UAAU,,CAAC,,MAAM,,CAAC,,CAAC;KAClD;IACD,IAAM,,GAAG,,GAAG,,KAAK,,CAAC,,EA
AE,,CAAC;IAErB,IAAM,,GAAG,,GAAG,,OAAO,,CAAC,,UAAU,,CAAC,,QAAQ,,EAAE,,SAAS,,CAAC,,CAAC;IACp
D,IAAIjF,aAAI,,CAAC,,aAAa,,CAAC,,MAAM,,CAAC,,KAAK,,CAAC,,KAAK,,CAAC,,EAAE;QAC1C,OAAO,,GAAG
,,CAAC;KACZ;IACD,IAAM,,KAAK,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,,GAAG,,CAAC,,GAAG,,CAAC,,MAAM,,C
AAC,,CAAC,,EAAE,,CAAC;IAEnD,kBAAkB,,CACd,,GAAG,,EAAE,,KAAK,,EAAE,,SAAS,,EAAE,,QAAQ,,EAAE,,W
AAW,,EAAE,,SAAS,,EAAE,,QAAQ,,EACjE,YAAY,,GAAG,,CAAC,,GAAG,,CAAC,,EAAE,,gBAAgB,,GAAG,,CAAC,,
GAAG,,CAAC,,EAAE,,KAAK,,CAAC,,CAAC;IAE3D,IAAI,,UAAU,,IAAI,,IAAI,,EAAE;QACtB,OAAO,,CAAC,,WAA
W,,CAAC,,UAAU,,CAAC,,MAAM,,CAAC,,CAAC;KACxC;IAED,OAAO,,GAAG,,CAAC;AACb,,CAAC;AAEM,,IAA
M,oBAAoB,,GAAiB;IAChD,UAAU,,EAAE,iF,uBAAc;IAC1B,WAAW,,EAAE,,MAAM;IACnB,SAAS,,EAAE3E,,OA
AK;IAChB,UAAU,,EAAE,cAAkC;CAC/C;;ACxFD;;;;;;;;;;;;;;;AAwBA,IAAI,,WAE8C,,CAAC;AAEnD,SASA,,O
AAK,,CAAC,,OAAoB;IACjC,WAAW,,GAAG,,OAAO,,CAAC,,IAAI,,CAAC,,KAAK,,CAAC4E,,gBAAO,,EAAE,,IAAI,,
EAAE;QAC9C,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;KACT,CAAC,
CAAC;AACL,CAAC;SAEe,OAAO,,CAAnB,IAAwE;IAEnE,IAAA,oBAAM,,EAAE,sBAAO,,EAAE,kBAAK,,CAAS
;IAC/B,IAAA,YAAM,,CAAW;IACjB,IAAA,iBAAI,,CAAU;IAErB,IAAA,iBAAM,,IAAI,,GAAGlF,,aAAI,,CAAC,,cAAI,,CAAC,,aAAa,,CAAC,,cAAI,,CAAC,
,IAAI,,EAAE,,CAAC,,CAAC,,KAAK,,CAAC,,CAAC;IAEhD,IAAI,,CAAC,,CAAC,,CAAC,,MAAM,,EAAE,,EAAC,,CAAC,,GAAA,A,EAAE,,EAAE,,OAAO,,SA
AA,,EAAC,,CAAC,,CAAC;KACzC;IAED,IAAM,,GAAG,,GAAG,,OAAO,,CAAC,,UAAU,,CAAC,,CAAC,,CAAC,,KAA
K,EAAE,,CAAC,,CAAC,,KAAK,,CAAC,,CAAC;IACjD,IAAM,,GAAG,,GAAG,,OAAO,,CAAC,,SAAS,,CAAC,,GAAG,,
CAAC,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;IAC/C,IAAM,,KAAK,,GAAG,,OAAO,,CAAC,,SAAS,,C
AAC,,GAAG,,CAAC,,GAAG,,CAAC,,MAAM,,CAAC,,CAAC,,EAAE,,CAAC;IAEnD,IAAM,,SAAS,,GAAG,,IAAI,,UAAU
U,,CAAC,,IAAI,,UAAU,,CAAC,,IAAI,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IAC9D,IAAM,,aAAa,,GAAG,,IAAI,,UAU
U,,CAAC,,IAAI,,UAAU,,CAAC,,CAAC,,CAAC,,KAAK,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IAEhE,IAAM,,WAAW,,GAAG,,IAAI,,UAAU,,CAAC,,IAAI,,UAAU,,CAAC,,CAAC,,CAAC,,KAAK,,CAAC,,CAAC,,MAAM,,E
AAE,,KAAK,,CAAC,,CAAC;IAEvE,IAAM,,QAAQ,,GACV,,OAAO,,CAAC,,EAAC,,MAAM,,EAAE,,EAAC,,CAAC,,EAAC,,MAAM,,EAAE,,EAAC,,CAAC,,EAAE,,GAAG,,EAAC,,EAAE,,KAAK,,EAAE,,CAAC,,CAAC,,EAAE,,GAAG,,EAAC,,EAAE,,KAAK,,EAAE,,CAAC,,CAAC,,EAAE,,OAAO,,SAAA,,EAAC,,CAAC,,CAAC;IAEvE,IAAM,,EAAE,,GAAG,,IAAI,,UAAU,,CAAC,,IAAI,,UAAU,,CAAC,,IAAI,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IAC/D,IAAM,,EAAE,,GAAG,,IAAI,,UAAU,,CAAC,,IAAI,,UAAU,,CAAC,,IAAI,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IAE/D,IAAM,,KAAK,,GAAG,,IAAI,,UAAU,,CAAC,,IAAI,,UAAU,,CAAC,,IAAI,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IACjE,IAAM,,KAAK,,GAAG,,IAAI,,UAAU,,CAAC,,IAAI,,UAAU,,CAAC,,IAAI,,CAAC,,CAAC,,MAAM,,CAAC,,CAAC;IAEjE

AAC,CAAC;IACpC,IAAM,gBAAgB,GAAG,GAAG,CAAC;IAE7B,IAAM,UAAU,GAAG,OAAO,SAAS,KAAK,QAAQ;QAC5C,CAAC,SAAS,EAAE,SAAS,EAAE,SAAS,EAAE,WAAW,GAAG,CAAC,GAAG,gBAAgB,CAAC,GACjE,SAAS,SAAE,gBAAgB,EAAC,CAAC;IACrC,IAAM,SAAS,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,CAAC;IAEpF,UAAU,CAAC,OAAO,EAAE,KAAK,EAAE,WAAW,EAAE,UAAU,EAAE,OAAO,EAAE,OAAO,EAAE,OAAO,EAAE,SAAS,EAAE,UAAU,CAAC,MAAM,EAAE,KAAK,CAAC,CAAC;IACjH,UAAU,CAAC,OAAO,EAAE,GAAG,EAAE,CAAC,CAAC;IAC3B

AK,CAAC,EAAE;QACvC,OAAO,GAAG,CAAC;KACZ;IAEDU,UAAQ,CAAC,GAAG,EAAE,KAAK,CAAC,CA
AC;IACrB,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,aAAa,GAAiB;IACzC,UAAU,EAAE,SAAS;IACrB
,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEJ,OAAK;IAChB,UAAU,EAAE,OAA2B;CACxC;;AChDD;;;;;;;;;;;;;;;
;AAmBO,IAAM,SAAS,GAAiB,uBAAuB,CAACmF,YAAG,CAAC;;ACnBnE;;;;;;;;;;;;;;;AAqBA,IAAI/E,UACI,C
AAC;AAET,SASJ,OAAK,CAAC,OAAoB;IACjCI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAACgF,
gBAAO,EAAE,IAAI,aAAa;QACtD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;A
ACL,CAAC;AAED,SAAS,OAAO,CACZ,IAAwE;IAEnE,IAAA,sBAAO,EAAW,2BAAM,EAAE,oBAAG,CAAU;
IACvD,IAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,
EAAE,CAAC;IACpD,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK,EAAE,MAAM,
CAAC,KAAK,CAAC,CAAC;IAC3D,IAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,C
AAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,IAAM,QAAQ,GAAG,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,C
AAC,CAAC;IACnC,IAAM,KAAK,GAAG1F,aAAI,CAAC,aAAa,CAAC,MAAM,CAAC,KAAK,CAAC,GAAG,Q
AAQ,CAAC;;IAG1D,IAAIA,aAAI,CAAC,aAAa,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QAC
vC,OAAO,GAAG,CAAC;KACZ;IAEDU,UAAQ,CAAC,GAAG,EAAE,KAAK,EAAE,QAAQ,EAAE,KAAK,CAA
C,CAAC;IACtC,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,IAAM,aAAa,GAAiB;IACzC,UAAU,EAAE,SAAS;IACrB
,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEJ,OAAK;IAChB,UAAU,EAAE,OAA2B;CACxC;;AC1D
DD;;;;;;;;;;;;;;;AAyBA,SAAS,cAAc,CAACI,IAAI,B;IAC5B,QAAQ,EAAE,kBAAkB,EAAE,oBAAoB,EAAE,kBAAkB,CAAS;I
AC/B,IAAA,YAAC,EAAW,WAAW;IACzC,IAAA,6BAAU,EAAE,YAAE,EAAW,UAAU;IAEr

EAAE,KAAK,EAAE,EAAC,KAAK,OAAA,EAAE,IAAI,EAAE,UAAU,EAAC,EAAE,OAAO,SAAA,EAAC,CAAC,CAAC;QACpE,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC;QAClB,OAAO,MAAM,CAAC;KCf,CAAC,CAAC;AACL,CAAC;AAEM,IAAM,YAAY,GAAiB;IACxC,UAAU,EAAE0F,eAAM;IAClB,WAAW,EAAE,MAAM,IAAI,CAAC,UAAU,EAAE,MAAM,IAAI,CAAC,UAAU,EAAE,MAAM0B;CACvC;;ACjDD;;;;;;;;;;;;;;;;AAoBO,IAAM,UAAU,GAAiB,uBAAuB,CAAC,CAAC,CAAC,aAAa,IAAI,CAAC,CAAC;;ACpBrE;;;;;;;;;;;;;;;;AAmBO,IAAM,YAAY,GAAiB,uBAAuB,CAAC,CAAC,CAAC,eAAe,IAAI,CAAC,CAAC;;ACnBvE;;;;;;;;;;;;;;;;

C;IAED,OAAO,MAAM,CAAC;AAChB,CAAC;AAEM,IAAM,kBAAkB,GAAiB;IAC9C,UAAU,EAAEiG,qBAAY;IACxB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE3F,OAAK;IAChB,UAAU,EAAE,YAAgC;CAC7C;;AC/HD;;;;;;;;;;;;;;;AAkBA,IAAM4B,uBAAqB,GAAG,IAAI,CAAC;AAC5B,IAAM,SAAS,GAAClB,wBAAsB,EAAE,EAAE,CAAC;AAC3C,IAAM,SAAS,GAAC,CAAC,CAAC,C

U;IAE1B,IAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC
,EAAE,CAAC;IAC/C,IAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CA
AC,CAAC,MAAM,CAAC,CAAC;IACnE,IAAM,WAAW,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,EAAE,CA
AC;IACpC,WAAW,CAAC,WAAW,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC;IACxC,IAAM,S
AAS,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAC3D,IAAM,W
AAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IA
C/D,IAAM,UAAU,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,OAAO,CAAC,CAAC;IAC5D,IAAM,YA
AY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEj
E,QAAQ,CACJ,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,QAAQ,CAAC,CAA
C,CAAC,KAAK,CAAC,EAAE,CAAC,EAAE,MAAM,EAC9D,WAAW,EAAE,YAAY,CAAC,CAAC;IAE/B,OAAO,CAAC,SAAS,EAAE,UAAU,CAAC,CAAC;AACjC,SAAS,EAAE,UAAU,CAAC,CAAC;AAEH,IAAM,UAAU,GAAG,IAAI;IACtC,WAAW,CAAC,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,EAAE,jG,OAAO,K;IAChB,UAAU,EAAE,EAAE,IAAI,wB;CA
CrC;;ACnED;;;;;;;;;;;;;;;;AAqBA,IAAI,aAKyC,CAAC;AAE9C,SAASA,OAAO,K;IACjC,aAAa,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC;
QAC3D;QACR,QAAQ;QACR,QAAQ;QACR,MAAM;QACN,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,SAAS,CACd,IAAC0E;IAEC,rE,IAAA,sBAAO,EAAE,oBAAM,EAAE,kBAAK,CAAS;IAC/B,IAAC/B,OAAO,EAAE,oBAAM,EAAE,8BAAU,CAAS;IAC5C,IAAC5B,mCAAa,EAAE,yBAAQ,EAAE,2BAAS,EAAE,+BAAW,CAAS;IAE1D,IAAA,gBAAA2D,2BAAA,EAAA,kBAAA,EAAA,mBAAA,EAAA,kBAAA,EAAA,mBAAA0B,0BAAA,CAAC;IAAC,IAAA,kBAAA,EAAA,kBAAA,EAAA,mBAAA,EAAA,kBAAA,EAAA,mBAAA,EAAA,kBAAA,EAAA,m

C,CAAC;QAChB,IAAI,CAAC,CAAC,CAAC,GAAG,KAAK,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,
KAAK,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,OAAA,EAAE,IAAI,MAAA,EAAC,EAAE,OAAO,SAAA,EA
AC,CAAC,CAAC;KACtE;IACD,OAAO,IAAI,CAAC,GAAG,CAAC,UAAC,EAAe;YAAd,kBAAM,,EAAE,gBAA
K;QAAM,QAAC,EAAC,MAAM,QAAA,A,EAAE,KAAK,OAAA,A,EAAE,KAAK,EAAE,QAAQ,EAAC;KAAC,CAA
C,CAAC;AAC3E,CAAC;AAEM,IAAM,YAAY,GAAiB;IACxC,UAAU,EAAEmG,eAAM;IAClB,WAAW,EAAE,
MAAM;IACnB,UAAU,EAAE,MA0B;CACvC;;AC1DD;;;;;;;;;;;;;;;;AAqBA,SAAS,SAAS,CAAC,IAAqD,
IAAA,iBAAC,EAAG,sBAAO,CAAS;IACpC,IAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,
KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IACjD,IAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,
GAAG,CAAC,CAAC;IAChD,OAAO,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC;IAChB,OAAO,GAAG,CAAC,CAAC;A
ACb,CAAC;AAEM,IAAM,eAAA,GAAiB;IAC3C,UAAU,EAAEC,eAAM;IACrB,WAAW,EAAE,MAAM;IACnB,
UAAU,EAAE,SAA6B;CAC1C;;ACjCD;;;;;;;;;;;;;;;;AAsHA;AACA,IAAM,aAAa,GAAiB;IACpC,UAAU,EAAE,SAAS;IACrB,
SAAS;IACT,UAAU;IACV,SAAS;IACT,SAAS;IACT,YAAY;IACZ,aAAa;IACb,iBAAiB;IACjB,oBAAoB;IACpB,U
AAU;IACV,UAAU;IACV,iBAAiB;IACjB,YAAY;IACZ,YAAY;IACZ,yBAAyB;IACzB,SAAS;IACT,UAAU;IAC
V,mBAAmB;IACnB,YAAY;IACZ,kBAAkB;IAClB,2BAA2B;IAC3B,SAAS;IACT,WAAW;IACX,SAAS;IACT,g
BAAgB;IAChB,UAAU;IACV,mBAAmB;IACnB,WAAW;IACX,cAAc;IACd,iBAAiB;IACjB,oBAAoB;IACpB,iB
AAiB;IACjB,0BAA0B;IAC1B,cAAc;IACd,cAAc;IACd,aAAa;IACb,kBAAkB;IAClB,cAAc;IACd,eAAe;IACf,UA
AU;IACV,eAAe;IACf,SAAS;IACT,gBAAgB;IAChB,SAAS;IACT,aAAa;IACb,aAAa;IACb,UAAU;IACV,SAAS;I
ACT,aAAa;IACb,eAAe;IACf,cAAc;IACd,SAAS;IACT,yBAAyB;IACzB,yBAAyB;IACzB,yBAAyB;IACzB,cAAc;
IACd,YAAY;IACZ,cAAc;IACd,UAAU;IACV,WAAW;IACX,SAAS;IACT,WAAW;IACX,UAAU;IACV,WAAW;
IACX,aAAa;IACb,UAAU;IACV,WAAW;IACX,aAAa;IACb,oBAAoB;IACpB,aAAa;IACb,sBAAsB;IACtB,WAA
W;IACX,WAAW;IACX,eAAe;IACf,YAAY;IACZ,aAAa;IACb,SAAS;IACT,WAAW;IACX,aAAa;IACb,oBAAoB
;IACpB,YAAY;IACZ,UAAU;IACV,YAAY;IACZ,uBAAuB;IACvB,UAAU;IACV,kBAAkB;IAClB,SAAS;IACT,S
AAS;IACT,SAAS;IACT,UAAU;IACV,UAAU;IACV,UAAU;IACV,eAAe;IACf,eAAe;IACf,YAAY;IACZ,eAAe;C
AChB,CAAC;AAEF,KAA2B,UAAa,EAAb,+BAAa,EAAb,2BAAa,EAAb,IAAa,EAAE;IAArC,IAAM,YAAA;IACT,IAAM,
AA;IACrBC,uBAAc,CAAC,YAAY,CAAC,CAAC;;;;;;;;;;;;;;;;

E,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,MAAM,CAAC,SAAS,iB
AAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC
,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,SAAS,iBAAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAA
E,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,IAAI,MA
AM,CAAC,OAAO,6BAA6B,GAAG,WAAW,CAAC,6BAA6B,CAAC,EAAE,CAAC,IAAI,mBAAmB,CAAC,kBA
AkB,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CA
AC,mBAAmB,CAAC,OAAO,CAAC,kBAAkB,CAAC,OAAM,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,EAAE,C
AAC,IAAI,GAAG,CAAC,IAAI,GAAG,IAAI,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,cAAc,CAAC,GAAG,
CAAC,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,GAAG,EAAC,CAAC,CAAC,IAAI,UA
AU,CAAC,EAAE,CAAC,IAAI,WAAW,CAAC,gBAAgB,CAAC,IAAI,KAAK,CAAC,SAAS,MAAM,CAAC,OAA
O,CAAC,CAAC,MAAM,OAAO,CAAC,CAAC,IAAI,kBAAkB,CAAC,KAAK,CAAC,IAAI,qBAAqB,CAAC,KA
AK,CAAC,IAAI,mBAAmB,CAAC,KAAK,CAAC,IAAI,oBAAoB,CAAC,KAAK,CAAC,kBAAkB,CAAC,OAAO,
MAAM,GAAG,QAAQ,CAAC,qBAAqB,CAAC,OAAO,aAAa,GAAG,UAAU,CAAC,mBAAmB,CAAC,OAAO,O
AAO,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,C
AAC,IAAI,GAAG,QAAQ,CAAC,oBAAoB,CAAC,CAAC,kBAAkB,EAAE,CAAC,mBAAmB,EAAE,CAAC,qBA
AqB,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,EAAE,KAAK,CAAC,GAAG,sBAAsB,CAA
C,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,EAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,SAAS,UAU,C
AAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,YAAY,C
AAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,eAAe,CAAC,IAAI,KAAK,KAAK,CAAC,SAAS,CAAC,U
AAU,CAAgB,IAAI,MAAM,CAAC,IAAI,QAAQ,CAAC,GAAG,mBAAmB,CAAC,CAAC,GAAG,qBAAqB,CAA
C,CAAC,eAAe,CAACC,IAAe,CAAC,OAAO,CAAC,eAAe,CAAC,CAAC,IAAG,CAAC,KAAI,CAAC,eAAe,CAA
C,SAAS,CAAC,IAAG,CAAC,KAAK,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAG,
CAAC,MAAM,CAAC,MAAM,CAACC,EAAEa,CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CAACD,IAAe,CAA
C,QAAQ,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAA
C,CAAC,QAAQ,CAAC,MAAM,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAU,
CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAG,CAA
C,GAG,CAAC,MAAM,CAAC,CAAC,GAG,CAAC,IAAI,UAU,CAAC,GAG,EAAC,CAAC,MAAM,CAAC
,GAG,CAAC,MAAM,CAAC,CAAC,OAAO,GAG,CAAC,CAAC,GAG,OAAO,CAAC,MAAM,CAAC,CA
C,MAAM,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CA
AC,OAAO,CAAC,KAAK,CAAC,GAG,EAAC,CAAC,UAU,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,KA
AK,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,mBAAmB,CAAC,SAAS,EAAE,CAAC,CA
AC,GAG,EAAE,EAAE,YAAY,UAU,CAAC,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,CAAC,OAA
O,CAAC,IAAI,CAAC,CAAC,oBAAoB,CAAC,KAK,CAAC,CAAC,KAK,CAAC,SAAS,MAAM,CAAC,CAA
C,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAA
U,CAAC,OAAM,4BAA4B,CAAC,CAAC,IAAI,iBAAiB,CAAC,GAG,CAAC,iBAAiB,CAACE,eAAyB,CAAC,
MAAM,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAK,CAAC,yGAAyG,CAAC,CAAC,MAAM,CAAC,CAACC,CC,cA
AM,CAAC,MAAM,CAAC,iBAAiB,CAAC,KAK,GAG,oBAAoB,CAAC,CAAC,GAG,OAO
,IAAI,EAAE,WAW,CAAC,CAAC,KAK,CAAC,SAAS,UAU,CAAC,CAAC,CAAC,CAAC,OAO,IAAI,CA
AC,CAAC,CAAC,EAAC,CAAC,UAU,CAAC,SAS,UAU,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,G
AAG,OAO,UAU,GAG,UAU,CAAC,CAAC,OAO,IAAI,UAU,CAAC,UAU,CAAC,CAAC,CAAC,CA
AC,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAO,IAAI,GAG,Q
AAQ,CAAC,CAAC,OAO,IAAI,CAAC,CAAC,GAG,OAO,UAU,EAAE,WAW,CAAC,CAAC,UAU,CA
AC,WAU,CAAC,KAK,GAG,OAO,SAS,EAAE,WAW,CAAC,CAAC,UAU,CAAC,UAS,CAAC,GA
AG,OAO,IAAI,GAG,UAU,CAAC,CAAC,KAK,CAAC,SAS,MAM,CAAC,CAAC,IAAI,CAAC,MAM
,EAAC,EAAC,CAAC,GAG,OAO,KAK,GAG,WAW,CAAC,CAAC,GAG,OAO,OAO,GAG,WA
W,CAAC,OAO,CAAC,EAAE,CAAC,OAO,CAAC,GAG,CAAC,KAK,CAAC,OAO,CAAC,IAI,CAAC,
OAO,CAAC,KAK,CAAC,OAO,QAQ,GAG,WAW,CAAC,QAQ,CAAC,MAK,CAAC,CAAC,KAK
,GAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAG,qBAAqB,CAAC,CAAC,eAAe,CAAC,IAI,CAAC,QA

AQ,CAAC,KAAI,CAAC,KAAK,GAAG,OAAO,QAAQ,GAAG,WAAW,EAAE,QAAQ,CAAC,aAAa,CAAC,CAA
C,eAAe,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,CAAC,GAAG,OAAO,UAAU,KAAK,WAAW,IAAI,UAAU,C
AAC,CAAC,eAAe,CAAC,WAAU,CAAC,GAAG,eAAe,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,CAA
C,CAAC,eAAe,CAAC,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,eAAe,CAAC,WAAW,CAAC,GAAG,CAAC,C
AAC,CAAC,EAAC,CAAC,KAAI,CAAC,eAAe,CAAC,GAAE,CAAC,GAAG,mBAAmB,CAAC,CAAC,KAAK,C
AAC,SAAS,UAAU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAACF,
EAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CACD,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAAW,
CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,I
AAI,CAAC,MAAM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,CAAC,IAAI,GAA
G,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,
GAAG,CAAC,IAAI,UAAU,CAAC,GAAG,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,O
AAO,GAAG,EAAC,CAAC,KAAI,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,
cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,IAA
I,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,YAAY,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,UAAU
,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,
CAAC,GAAG,CAAC,KAK,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,IAAI,CA
AC,IAAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,CAAC,S
AAS,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,
IAAI,CAAC,KAK,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAA
G,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAG,CAAC,MAAM,EAAE,GAAG,EAAE,GAAG,CAAC,MA
AM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CA
AC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,IA
AI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,GAAG,mBAAmB,CAAC,CAAC,GAAG,OAAO,WAW,GAAG,
WAAW,CAAC,CACG,cAAM,CAAC,WAAW,CACC,UAAqB,CAAC,YAAW,CAAC,CAAC,IAAI,GAAG,CA
AC,MAAM,CAAC,OAAO,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,
GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,EAAE,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CA
AC,IAAI,GAAG,IAAI,eAAe,CAAC,CAAC,GAAG,eAAe,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,MA
AM,CAAC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAG,
MAAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,GAAG,MAAM,CA
AC,aAAa,CAAC,CAAC,WAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CA
AC,CAAC,KAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,GAA
G,CAAC,QAAQ,CAAC,KAK,CAAC,QAAQ,CAAC,KAK,CAAC,EAAE,CAAC,GAAG,CAAC,QAAQ,CAAC
,KAK,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,KAK,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,GA
AG,CAAC,IAAI,EAAC,CAAC,CAAmH,IAAI,UAAU,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,UAA
U,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,EAAE,IAAI,CA
AC,GAAG,OAAO,WAW,GAAG,QAAQ,CAAC,CAAC,KAK,CAAC,iCAAiC,EAAC,CAAC,IAAI,UAAU,CA
AC,IAAI,UAAU,CAAC,IAAI,KAK,CAAC,KAK,CAAgB,SAAS,MAAM,CAAC,SAAS,CAAC,IAAI,CAAC,C
AAC,GAAG,CAAC,SAAS,CAAC,CAAC,KAK,CAAC,oBAAoB,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,SAAS,QA
AQ,CAAC,KAK,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,GAAG,CAAC,KAK,CAAC,CAAC,MAAM
,CAAC,IAAI,CAAC,+BAA+B,CAAC,KAK,CAAC,4BAA4B,CAAC,CAAC,OAAO,IAAI,CAAC,SAAS,KAK,
CAAC,KAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC
,QAAQ,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,GAAG,GAAG,GAAG,IAAI,EA
AE,GAAG,GAAG,SAAS,EAAE,GAAG,GAAG,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,GAAG,CAAC,
MAAM,EAAE,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,YAAY,CAAC,
GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,OAAO,GAAG,CAAC,CAAC,OAAO,CAAC,SAAS,GAAG,C
AAC,CAAC,IAAI,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,kBAAkB,CAAC,GAAG,C
AAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,kBAAkB,CAAC,GAAG,CAAC,CAAC,G
AAG,UAAU,GAAG,QAAQ,CAAC,OAAO,YAAY,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,SAAS,C

AAC,OAAO,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,KAA
K,CAAC,CAAC,IAAI,KAAK,CAAC,EAAE,CAAC,IAAI,KAAK,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAA
C,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAA
C,IAAI,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,SAAS,CAAC,CAAC,G
AAG,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,SA
AS,CAAC,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,IAAI,CA
AC,CAAC,EAAC,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,YAAY,C
AAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CA
AC,IAAI,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAAE,CAAC,IAAI,WAAW,CAAC,QAAQ,CAAC,KAAK,
CAAC,SAAS,IAAI,CAAC,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,UAU,
GAAG,QAAQ,CAAC,GAAG,UAAU,EAAE,WAW,EAAE,CAAC,IAAI,CAAC,CAAC,OAAO,QAAQ,CAAC,K
AAK,CAAC,CAAC,OAAO,UAAU,CAAC,OAAO,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,S
AAc,CAAC,CAAC,CAAC,SAAS,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,IAAI,MAAM,
CAAC,GAAG,CAAC,cAAc,CAAC,IAAI,GAAG,CAAC,EAAE,CAAC,MAAM,EAAE,GAAG,EAAE,MAAM,CA
AC,CAAC,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,O
AAO,GAAG,CAAC,GAAG,EAAE,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,Y
AAY,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAG,EAAE,CAAC,CAAC,
EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAG,GAG,CAAC,CAAC,GAG,EAAE,MAM,CAAC,
YAAY,CAAC,CAAC,EAAE,CAAC,EAAE,GAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EA
AE,CAAC,IAAI,CAAC,GAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAG,CAAC,EAAE,CAAC,GAG,GAG,
GAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,GAG,EAAE,CAAC,EAAE,EAAE,CAAC,CA
AC,GAAE,CAAC,KAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,EAAE,CAAC,EAAE,EAAE,
EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,IAAI,CAAC,GAG,EAAE,CAAC,CAAC,GAAE,CAAC,GAG,EAA
E,CAAC,KAAK,CAAC,CAAC,GAG,EAAE,MAM,CAAC,YAAY,CAAC,EAAE,EAAC,CAAC,KAAI,CAAC,
IAAI,EAAE,CAAC,EAAE,CAAC,KAAK,CAAC,GAG,EAAE,MAM,CAAC,YAAY,CAAC,KAAK,CAAC,EA
AE,EAAE,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,GAG,CAAC,SAAS,Y
AAY,CAAC,GAG,CAAC,cAAc,CAAC,CAAC,OAAO,GAG,CAAC,iBAAiB,CAAC,gBAAgB,EAAE,CAAC,
GAG,CAAC,cAAc,CAAC,CAAC,EAAE,CAAC,SAAS,iBAAiB,CAAC,GAG,CAAC,IAAI,CAAC,MAM,CA
AC,eAAe,CAAC,CAAC,GAG,EAAE,eAAe,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,QAQ,C
AAC,MAM,CAAC,IAAI,MAM,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,
CAAC,CAAC,CAAC,GAG,CAAC,MAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GA
AG,CAAC,UAU,CAAC,CAAC,CAAC,CAAC,GAG,CAAC,EAAE,KAK,EAAE,CAAC,EAAE,KAK,CAA
C,CAAC,IAAI,EAAE,CAAC,GAG,CAAC,UAU,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KAK,E
AAE,CAAC,CAAC,CAAC,IAAI,GAG,EAAE,CAAC,CAAC,EAAE,CAAC,KAI,CAAC,GAG,CAAC,EAAE,
GAG,CAAC,CAAC,GAG,MAM,EAAE,MAM,CAAC,MAM,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,
EAAC,CAAC,KAK,GAG,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC,GAG,MAM,CAAC,CAAC,EAAE,MAM,C
AAC,MAM,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAA
C,MAM,EAAE,CAAC,CAAC,GAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAK,GAG,CAAC,EAAE,KAK
,CAAC,CAAC,GAG,MAM,CAAC,CAAC,EAAE,MAM,CAAC,MAM,IAAI,CAAC,MAM,EAAE,CAAC,
CAAC,GAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GAG,CAAC,CA
AC,EAAE,CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GAG,CAAC,CAAC,
GAAE,CAAC,KAI,CAAC,GAG,MAM,CAAC,CAAC,EAAE,MAM,CAAC,MAM,IAAI,CAAC,MAM,
EAAE,CAAC,CAAC,GAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GA
AG,CAAC,CAAC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GAG,CAAC,
CAAC,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GAG,CAAC,CAAC,
GAAE,CAAC,KAI,CAAC,GG,MAM,CAAC,CAAC,EAAE,MAM,CAAC,MAM,IAAI,CAAC,MAM,
EAAE,CAAC,CAAC,GG,CAAC,CAAC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,
CAAC,GG,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,GG,CAAC,
CAAC,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAM,EAAE,CAAC,CAAC,G

C,gBAAgB,EAAE,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,SAAS,eAAe,CAAC,GAAG,CAAC,CAAC,IAAI,G
AAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAA
C,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,GAAG,C
AAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,CAAC,IAAI
,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CA
AC,EAAE,GAAG,CAAC,EAAE,GAAG,CAAC,KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,GAAG,EAAE,CAAC,
CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,GAAG,EAAE,CAAC,CAAC,KAAK,GAAG,EAAE,EAAC,C
AAC,OAAO,GAAG,CAAC,SAAS,kBAAkB,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,gBAAgB,EAAE,CAA
C,GAAG,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC
,GAAG,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,CAAC,CAAC,SAAQ,C
AAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,OAAO,CAAC,M
AAM,CAAC,OAAO,CAAC,OAAO,CAAC,OAAO,CAAC,SAAS,0BAA0B,CAAC,GAAG,CAAC,CAAC,MAAM,
CAAC,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,C
AAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,C
AAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,C
AAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OA
AO,CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,
WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,G
AAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAAG,EAAC,CAA
C,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,EAAE,QAAQ,CAAC,GAAG,sBAAsB,CAAC,CAAC,UAA
U,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,EAAC,CAAC,KAAI,CAA
C,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,EAAC,CAAC,KAA
I,CAAC,UAAU,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,KAAK,CAAC,S
AAS,CAAC,UAAU,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,GAAG,EAAE,UAAU,CAA
C,MAAM,YAAY,iBAAiB,CAAC,CAAC,CAAC,GAAG,CAAC,6NAA6N,CAAC,CAAC,GAAG,mBAAmB,CAA
C,CAAC,OAAO,CAAC,GAAG,CAAC,mHAAmH,EAAC,CAAC,MAAM,KAAK,CAAC,YAAY,CAAC,CAAC,C
AAC,CAAC,GAAG,UAAU,CAAC,CAAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,C
AAC,UAAU,CAAC,0BAA0B,CAAC,MAAM,CAAC,CAAC,IAAI,SAAS,CAAC,IAAI,YAAY,CAAC,EAAE,CA
AC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,UAAU,CAAC,EAAE,CAAmB,IAAI,aAAa,CAAC,EAAE,CAAsD,G
AAG,CAAC,sBAAsB,CAAC,UAAU,CAAC,IAAI,CAAC,CAAC,IAAI,CAAC,UAAU,CAAC,kBAAkB,GAAE,C
AAC,CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,GAAG,sBAAsB,CAAC,OAAO,GAAG,MAAM,CAAC,
QAAQ,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,QAAQ,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,
QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,QAAQ,CAA
C,CAAC,MAAM,CAAC,CAAC,WAAW,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,KAAK,EAAE,EAAC,CA
AC,CAAC,oBAAoB,CAAC,YAAY,EAAC,CAAC,SAAS,WAAW,EAAE,CAAyB,GAAG,sBAAsB,CAAC,OAAO
,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAAO,EAAE,CAAC,GAAG,sBAAsB,CAAC,OAAO,oBAAoB,C
AAC,UAAU,EAAC,CAA4E,SAAS,OAAO,EAAE,CAAC,GAAG,sBAAsB,CAAC,OAAO,GAAG,MAAM,CAAC,
SAAS,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,S
AAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,C
AAC,MAAM,CAAC,CAAC,YAAY,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,C
AAC,oBAAoB,CAAC,aAAa,EAAC,CAAC,SAAS,WAAW,CAAC,EAAE,CAAC,CAAC,YAAY,CAAC,OAAO,C
AAC,EAAE,EAAC,CAAC,SAAS,YAAY,CAAC,EAAE,CAAC,CAAC,aAAa,CAAC,OAAO,CAAC,EAAE,EAAC
,CAAC,IAAI,eAAe,CAAC,CAAC,CAA+B,IAAI,qBAAqB,CAAC,IAAI,CAAC,SAAS,gBAAgB,CAAC,EAAE,C
AAC,CAAC,MAAM,CAAC,CAAC,sBAAsB,CAAC,qDAAqD,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAA
M,CAAC,wBAAwB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,CAAC,
SAAS,mBAAmB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAAM,CAAC,wBAAwB,CAAC,CA
AC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,GAAG,eAAe,EAAE,CAAC,CAAC,CA
A+F,GAAG,qBAAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBAAqB,CAAC,qBAAqB,CAAC,IAAI,CAAC,QAAQ,

GAAE,CAAC,CAAC,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,MAAM,CAAC,iBAAiB,CAA
C,CAAC,EAAE,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,C
AAC,MAAM,CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,CAAC,KAAK,CA
AC,sBAAsB,CAAC,CAAC,IAAI,KAAK,EAAE,KAAK,CAAC,CAAC,IAAI,EAAE,EAAE,CAAC,GAAG,CAAC,
IAAI,CAAC,CAAC,KAAK,CAAC,IAAI,CAAc,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,8CAA8C,CAAC,IAAI,C
AAC,CAAC,IAAI,WAAW,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,MA
AM,CAAC,CAAC,SAAS,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CAAC,SAAS,CA
AC,UAAU,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,MAAM,C
AAC,GAAG,CAAC,CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OAA
O,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa,CAAC,SAAS,CAAC,SAAS,SAAS,CAAC,QAA
Q,CAAC,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,cAAc,CAAC,sCAAsC,CAAC,G
AAG,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CAAC,UAAU,CAAC,cAAc,EAAC,CAAC,SAAS,S
AAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,IAAI,EAAE,cAAc,EAAE,UAAU,CAAC,CAAC,OAAO,I
AAI,UAAU,CAAC,UAAU,CAAC,CAAC,GAAG,UAAU,CAAC,CAAC,OAAO,UAAU,CAAC,IAAI,CAAC,CAA
C,KAAI,CAAC,MAAK,iDAAiD,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,KAAK,CAAC,GAAG,EAAC,CA
AC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC
,CAAC,GAAG,OAAO,KAAK,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,OAAO,K
AAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,
CAAC,GAAG,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,MAAK,sCAAsC,CAAC,cAAc,CAAC,GAAG,C
AAC,OAAO,QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,OAAO,SAA
S,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,GAAG,SAAS,CAAC,CAAC,OAAO,IAAI,OAAO,CA
AC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,SAAS,QAAQ,CAAC,CAAC,OAAO,
CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,EAAC,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,CAAC,CA
AC,OAAO,OAAO,CAAC,OAAO,EAAE,CAAC,IAAI,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,cAAc,CAAC,
CAAC,CAAC,CAAC,SAAS,UAAU,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,
SAAS,eAAe,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,OAAO,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CA
AC,CAAC,UAAU,CAAC,MAAM,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,IAAI,gBAAgB,CAAC,OAAO,C
AAC,aAAa,CAAC,MAAM,CAAC,OAAO,CAAC,aAAa,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,OAA
O,CAAC,sBAAsB,CAAC,CAAC,CAAC,UAAU,CAAC,GAAG,CAAC,EAAE,gBAAgB,CAAC,mBAAmB,CAAm
B,EAAC,CAAC,EAAC,CAAC,EAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,gBAAgB,CAAmB,E
AAC,CAAC,SAAS,yBAAyB,CAAC,MAAM,CAAC,CAAC,eAAe,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,
MAAM,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,sBAAsB,CAAC,QAAQ,CAAC,CAAC,OAAO,gBAAgB,EAA
E,CAAC,IAAI,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,IAAI
,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,QAAQ,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,yCAAyC,
CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC
,GAAG,CAAC,UAAU,EAAE,OAAO,WAAW,CAAC,oBAAoB,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc
,CAAC,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,OAAO,KAAK,GAAG,UAAU,CAAC,CAAC,OAAO,KA
AK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,C
AAC,IAAI,MAAM,CAAC,WAAW,CAAC,oBAAoB,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,MAAM,C
AAC,IAAI,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,iCAAiC,CAAC,MAAM,CAAC,
CAAC,GAAG,CAAC,2CAA2C,CAAC,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CA
AC,KAAI,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,
CAAC,CAAC,GAAG,IAAI,OAAO,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,IAAI,CAAC,eA
Ae,CAAC,CAAC,OAAO,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,qDAAqD,CAAC,CAAC,C
AAC,CAAC,OAAO,KAAK,CAAC,CAAC,gBAAgB,EAAE,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,OAA
M,EAAE,CAAC,IAAI,UAAU,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,MAAK,WAAW,CAAC,CAAC,KAA
K,CAAC,SAAS,EAAE,CAAC,EAAE,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,kCAAkC,CAAC,EAAE,CAA

C,EAAE,EAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,SAAS,cAAc,EAAE,CAAC,OAAO,CAAC,W
AAW,GAAE,CAAC,SAAS,oBAAoB,CAAC,SAAS,CAAC,CAAC,MAAM,SAAS,CAAC,MAAM,CAAC,CAAC,
CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,CAAC,KAAK,EAAE,CAAC,GAAG,OAAO,QAAQ,EAAE,UAAU,CA
AC,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,G
AAG,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,GAAG,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,CAAC,SAA
S,CAAC,GAAG,CAAC,IAAI,CAAC,GAAE,CAAC,KAAI,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,CAA
C,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,KAAI,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,GAAG,SAAS,C
AAC,IAAI,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,CAAC,KAAK,CAA
C,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,GAAG,
CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,OAAO,CAAC,EAAE,CAAC,K
AAK,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,
CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,
GAAG,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,
CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,
MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,
CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,
EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,MAAM,CA
AC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,GAAG,CAAC,QA
AQ,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,C
AAC,OAAO,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,CAAC,
EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,
CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,SAAS,CAAC,EAAE,CAAC,
MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,
CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC
,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,EAAE,CAAC,IAAI,CAAC,GAAG,CAAC,MAAM,C
AAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,OA
AO,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CA
AC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GA
AG,CAAC,OAAO,CAAC,GAAG,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,SAAS,CAA
C,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,UAAU,CAAC,GAAG,CAAC,YAY,
CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,YAY,CAAC,CAAC,CAAC,U
AAU,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,WAW,CAAC,EAAE,CAAC,SAAS,CAAC,GAAG,CA
AC,YAY,CAAC,EAAE,CAAC,UAAU,CAAC,CAAC,CAAC,YAY,CAAC,EAAE,CAAC,WAW,CAAC,EAA
E,CAAC,QAAQ,CAAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,CAAC,GAAG,CAAC,YAY,CAAC,E
AE,CAAC,WAW,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,CAAC,YAY,CAAC,EAAE,CAAC,QAAQ,CA
AC,EAAE,CAAC,eAAe,CAAC,EAAE,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,CAAC,SAAS,CA
AC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,YAY,CAAC,GAG,CAAC,MAA
M,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,GAG,CAA
C,SAS,CAAC,GAG,CAAC,MAM,CAAC,EAAE,CAAC,SAS,CAAC,EAAE,CAAC,SAS,CAAC,EAAE,C
AAC,eAAe,CAAC,EAAE,CAAC,UAU,CAAC,EAAE,CAAC,QAQ,CAAC,GAG,CAAC,CAAC,SAS,sBAA
sB,CAAC,IAI,CAAC,KAK,CAAC,CAAC,GAG,IAI,EAAE,CAAC,EAAE,IAI,CAAC,gBAAgB,EAAE,C
AAC,MAM,EAAE,IAI,CAAC,CAAC,EAAE,CAAC,EAAE,KAK,CAAC,CAAC,CAAC,OAM,CAAC,EAA
E,CAAC,GAG,KAK,EAAE,CAAC,CAAC,OAO,CAAC,CAAC,GAG,KAK,EAAE,UU,CAAC,KAK
,CAAC,QQ,CAAC,IAI,qBAAqB,CAAC,OO,CAAC,IAI,CAAC,iBAAiB,EAAE,CAAC,8BA8B,EAAE
,CAAC,CAAC,CAAC,IAI,eAAe,CAAC,CAAC,CAAC,GG,qBAAqB,EAAE,IAI,CAAC,CAAC,IAI,UA
U,CAAC,OO,CAAC,eAAe,CAAC,iBAAiB,EAAE,CAAC,8BA8B,EAAE,CAAC,CAAC,qBAAqB,CAAC,CA
AC,CAAC,CAAC,GG,UU,EAAE,qBAAqB,CAAC,CAAC,EAAE,KK,CAAC,eAAe,CAAC,CAAC,CA
AC,GG,KK,EAAE,CAAC,CAAC,OO,CAAC,CAAC,CAAC,IAI,GG,CAAC,OO,CAAC,MAA

M,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,GAAG,GAAG,EAAE,CAAC,
CAAC,OAAO,GAAG,CAAC,eAAe,CAAC,MAAK,8CAA8C,CAAC,GAAG,CAAC,MAAM,CAAC,wBAAwB,C
AAC,CAAC,sBAAsB,CAAC,SAAS,UAAU,CAAC,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAK,oFAA
oF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAK,iDAAiD,CAAC,iBAAiB,EAAE,CAAC,WAAW,CAAC,EAAE,
EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,C
AAC,OAAO,CAAC,MAAM,CAAC,SAAS,EAAE,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,CAAC,OA
AO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,OAAO,CAAC,MAAM,CAA
C,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,UAAS,CAAC,SAAS,YAAY,CAAC
,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAK,sFAAsF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAK,m
DAAmD,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,OAAO,CAAC,MAA
M,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,aAAa,CAAC,WAAW,CAA
C,CAAC,GAAG,sBAAsB,CAAC,MAAK,uFAAuF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAK,oDAAoD,CAA
C,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,GAAG,OAAO,CAAC,CAAC,iBAAi
B,EAAE,CAAC,WAAW,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,
CAAC,MAAM,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CAAC,CAAC,IAAI,OAAO,CAAC,CAAC
,aAAa,CAAC,EAAE,CAAC,cAAc,CAAC,EAAE,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,eAAe,CAAC,CA
AC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,eAAe,CAAC,EAAE,CAAC,CAAC,CAAC,OA
AO,CAAC,oBAAoB,GAAE,CAAC,CAAC,CAAC,WAAW,CAAC,UAAU,CAAC,IAAI,EAAE,CAAC,OAAO,CA
AC,GAAG,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,E
AAE,CAAC,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,iBA
AiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,EAAE,CAAC,IAAI,OAAO,CAAC,EAAE,C
AAC,GAAG,CAAC,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,SAAS,CAA
C,OAAO,CAAC,GAAG,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EA
AE,CAAC,CAAC,iBAAiB,EAAE,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAA
O,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,SAAS,CAAC,CAAC,
OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,EAAE,CAAC,C
AAC,wBAAwB,CAAC,EAAE,CAAC,CAAC,qBAAqB,CAAC,CAAC,CAAC,CAAC,2CAA2C,CAAC,EAAE,EA
AC,CAAC,CAAC,UAAU,CAAC,UAAU,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,kBAAkB,CAAC,EAAE,CA
AC,eAAe,CAAC,UAAU,EAAE,CAAC,eAAe,CAAC,UAAU,CAAC,MAAM,OAAO,CAAC,kBAAkB,CAAC,MA
AM,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,GAAG,EAAE,GAAE,CAAC,GAAG,sBAAsB,
EAAE,aAAa,EAAE,CAAC,wBAAwB,GAAE,CAAC,CAAC,8BAA8B,CAAC,SAAS,EAAE,CAAC,QAAQ,CAAC
,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,C
AAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CA
AC,CAAC,CAAC,OAAO,CAAC,eAAe,EAAE,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,
EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC
,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,sBAAsB,CAAC,EAAE,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,
UAAU,CAAC,CAAC,wBAAwB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,UAAU,CAAC
,SAAS,QAAQ,CAAC,CAAC,IAAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,OAAO,CAA
C,8BAA8B,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,WAAW,CAAC,CAAC,K
AAK,CAAC,MAAM,CAAC,EAAC,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,UAAU,CAAC,OAAO,CAAC,8B
AA8B,CAAC,aAAa,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,YAAY,C
AAC,EAAC,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,IAAI,CAAC,IAAI,OAAO,CAAC,QAAQ,CAA
C,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,GAAG,OAAO,EAAE,OAAO,
CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,OAAO,CAAC,MAAM,EAAC,CAAC,CAAC,OAA
O,CAAC,QAAQ,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,aA
Aa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,MAM,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC,
CAAC,CAAC,MAM,CAAC,SAAS,GAAE,CAAC,OAAO,CAAC,aAAa,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC
,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,IA

AI,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,OAAO
,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,SAAS,GAAE,CAAC,OAAO,CAAC,c
AAc,CAAC,GAAE,CAAC,CAAC,cAAc,CAAC,SAAS,OAAO,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAA
O,GAAG,OAAO,CAAC,gBAAgB,CAAC,CAAC,IAAI,SAAS,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBA
AgB,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,
EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC,KAAK,CAAC,OAAO,CAAC,gB
AAgB,EAAC,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,CAAC,GAAG,OAAO,CAAC,iBAAiB,EAAE,OAA
O,CAAC,SAAS,CAAC,KAAK,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,C
AAC,GAAG,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,KAAI,CAAC,CAAC,k
BAAkB,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,CAAC,+BAA+B,CAAC,UAAU,CAAC,OAAO,OAAO,CAA
C,QAAQ,CAAC,MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,IAAI,CAAC
,MAAM,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,
MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,
MAAM,CAAC,OAAO,CAAC,UAAS,CAAC,EAAC,CAAC,CAAC,+BAA+B,CAAC,SAAS,IAAI,CAAC,CAAC,i
BAAiB,EAAE,CAAC,4CAA4C,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,GAAE,CAAC,O
AAO,CAAC,iBAAiB,EAAE,CAAC,4CAA4C,EAAE,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,qBAAq
B,CAAC,SAAS,IAAI,CAAC,EAAE,CAAC,sBAAsB,CAAC,SAAS,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAA
M,CAAC,SAAS,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,I
AAI,GAAG,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,GAAG,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,m
CAAmC,CAAC,MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,CAAC,CAAC,cAAc,CAAC,EAAE,CAA
C,CAAC,cAAc,CAAC,EAAE,aAAa,EAAE,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,QAAQ,CAAC,CA
AC,CAAC,YAAY,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,WAAW,CAAC,
CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,cAAc,CAAC,EAAC,CAAC,KAAI,CAAC,OAAO,CAAC,KAAK,CAA
C,yCAAyC,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,CAAC,cAAc,CAAC,CAAC,qCAAqC,EAAC,CAAC,O
AAO,CAAC,mCAAmC,CAAC,SAAS,CAAC,MAAM,CAAC,GAAG,GAAG,GAAG,6BAA6B,CAAC,CAAC,4CA
A4C,GAAE,CAAC,KAAK,GAAG,GAAG,GAAG,aAAa,CAAC,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,EAA
C,CAAC,KAAK,GAAG,GAAG,GAAG,eAAe,CAAC,CAAC,aAAa,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,C
AAC,KAAK,GAAG,GAAG,GAAG,YAAY,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,C
AAC,KAAK,GAAG,GAAG,GAAG,cAAc,CAAC,CAAC,YAAY,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,CA
AC,KAAK,GAAG,GAAG,GAAG,QAAQ,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,IAAI,CAAC,GAAG,iBA
AiB,CAAC,iBAAiB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,
UAAU,EAAE,CAAC,OAAO,MAAM,CAAC,WAAU,CAAC,CAAC,KAAK,GAAG,GAAG,GAAG,OAAO,CAAC
,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,MAAM,C
AAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,UAAU,CAAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,CA
AC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,MAAM,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAA
G,OAAO,CAAC,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,C
AAC,MAAM,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,MAAM,CAAC,CAAC,IAAI,CAAC,QAAQ,CA
AM,CAAC,OAAO,EAAE,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,OAAO,CAAC,gB
AAgB,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,
MAAM,EAAC,CAAC,CAAC,KAAK,GAAG,GAAG,GAAG,aAAa,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,CA
AC,CAAC,YAAY,CAAC,EAAC,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,YAAY,UAAU,CAAC,OA
AO,MAAM,CAAC,CAAC,CAAC,KAAK,GAAG,GAAG,GAAG,YAAY,CAAC,CAAC,OAAO,CAAC,kBAAkB,
CAAC,MAAM,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,gBAAgB,CAAC,CAAC,OAAO,CAAC,qBAAqB,CA
AC,CAAC,CAAC,IAAI,EAAC,CAAC,KAAK,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,cAAc,CAAC,
AAC,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,KAAI,CAAC,IAAI,CAAC,GAAG,CAAC,iCAAiC,C
AAC,GAAG,EAAC,CAAC,OAAO,CAAC,mCAAmC,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC
,SAAS,CAAC,CAAC,CAAC,GAAG,CAAC,yBAAyB,CAAC,CAAC,CAAC,QAAQ,CAAC,GAAG,CAAC,CAAC,
CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,OAAO,EAAC,CAAC,CAAC,GAAG,mBAAmB,CAAC,CAAC

,MAAM,CAAC,EAAE,CAAC,SAAS,CAAC,SAAS,IAAI,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,IA
AI,CAAC,IAAI,CAAC,EAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,SAAS,IAAI,C
AAC,CAAC,MAAM,CAAC,OAAO,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MA
AM,CAAC,SAAS,IAAI,CAAC,EAAE,EAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,MAA
M,CAAC,WAAW,CAAC,MAAM,CAAC,qBAAqB,CAAC,EAAE,UAAU,CAAC,YAAY,CAAC,UAAU,CAAC,Y
AAY,CAAC,UAAU,CAAC,EAAC,CAAC,CAAC,oBAAoB,CAAC,UAAU,CAAC,IAAI,aAAa,CAAC,UAAU,CA
AC,2CAA2C,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,IAAI,CAAC,IAAI,MAAM,CAAC,aAAa,CAAC,EAAC,
CAAC,CAAC,YAAY,CAAC,UAAU,CAAC,GAAG,OAAO,CAAC,aAAa,CAAC,MAAM,EAAE,CAAC,CAAC,C
AAC,OAAO,CAAC,oBAAoB,EAAE,CAAC,OAAO,CAAC,sBAAsB,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC,
CAAC,EAAC,CAAC,GAAG,OAAO,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,OAAO,OAAO,CAAC,a
AAa,CAAC,GAAG,EAAE,CAAC,KAAK,OAAO,IAAI,CAAC,CAAC,YAAY,CAAC,SAAS,KAAK,CAAC,CAA
C,IAAI,CAAC,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC,KAAK,CAAC,MAAM,WAAW,CAAC,GAAG,EAA
E,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,SAAS,mBAAmB,CAAC,QAAQ,CAAC,QAAQ,CAAC,CA
AC,4BAA4B,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,YAAY,CAAC,QAAQ,EAAC,CAAC,MAAM,CAAC,q
BAAqB,CAAC,CAAC,mBAAmB,CAAC,SAAS,gBAAgB,EAAE,CAAC,OAAO,aAAa,CAAC,MAAM,CAAC,kB
AAkB,CAAC,CAAC,gBAAgB,CAAC,SAAS,gBAAgB,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,OAAO,SA
S,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,gB
AgB,CAAC,SAAS,cAAc,CAAC,SAAS,CAAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,o
BAAoB,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,QAAQ,CAAC,CAAC,QAAQ,CAAC,YAAY,CAAC,QAAQ,
CAAC,CAAC,kBAAkB,CAAC,IAAI,CAAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,E
AAC,CAAC,SAAS,YAAY,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,UAAU,CAAC,KAAK,CAAC,IAAI,CA
AC,IAAI,EAAC,CAAC,IAAI,mBAAmB,CAAC,GAAG,mBAAmB,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAA
C,IAAI,CAAC,CAAC,OAAO,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,G
AAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,EAAC,CAAC,KAAK,GAAG,sBAAsB,CAAC,CAAC,m
BAAmB,CAAC,UAAU,CAAC,OAAO,WAW,CAAC,GAAG,EAAE,CAAC,MAAM,CAAC,+BAA+B,CAAC,E
AAC,CAAC,KAAK,GAAG,OAAO,OAAO,GAAG,WAW,CAAC,CAAC,mBAAmB,CAAC,QAAQ,CAAC,KAA
K,mBAAmB,CAAC,UAAU,CAAC,OAAO,WAW,CAAC,GAAG,EAAE,CAAC,CAAC,SAAS,QAAQ,CAAC,K
AAK,CAAC,CAAC,iBAAiB,EAAE,CAAC,iBAAiB,EAAE,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,OAAO,K
AAK,CAAC,SAAS,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,
CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,SAAS,gCAAgC,CAAC,cAAc,CAAC,YA
AY,CAAC,CAAC,GAAG,cAAc,EAAE,YAAY,CAAC,CAAC,WAW,CAAC,CAAC,KAAK,CAAC,6BAA6B,C
AAC,EAAC,CAAC,KAAK,GAAG,sBAAsB,CAAC,CAAC,WAW,CAAC,CAAC,cAAc,CAAC,cAAc,CAAC,K
AAK,CAAC,oBAAoB,CAAC,EAAC,CAAC,KAAI,CAAC,IAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,cA
Ac,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,EAAE,OAAO,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CA
AC,CAAC,MAAM,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,KAAK,CAAC,oBAAoB,CAAC,EAAC,CAAC,
OAAO,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,KAAK,GAAE,CAAC,SAAS,yBAAyB,CAAC,IAAI,CAAC,M
AAM,CAAC,MAAM,CAAC,CAAC,IAAI,IAAI,CAAC,gBAAgB,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,O
AAO,UAU,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,SAAS,iDAAiD,CAAC,
cAAc,CAAC,SAAS,CAAC,EAAE,SAAS,sBAAsB,CAAC,IAAI,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GA
AG,IAAI,EAAE,CAAC,EAAE,IAAI,CAAC,gBAAgB,EAAE,CAAC,MAAM,EAAE,IAAI,CAAC,CAAC,EAAE,C
AAC,CAAC,OAAM,CAAC,EAAE,CAAC,GAAG,CAAC,kBAAkB,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,C
AAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAA
G,GAAG,GAAG,WAW,CAAC,OAAM,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,WAW,CAAC,OAAM,C
AAC,CAAC,CAAC,GAAG,GAAG,GAAG,IAAI,CAAC,OAAO,CAAC,CAAC,MAAK,4CAA4C,CAAC,GAAG,C
AAC,KAI,CAAC,GAAG,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,EAAE,
GAAG,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,IAI,IAI,CAAC,WAW,CAAC,GAAG,EAAE,CAAC,IA
AI,IAI,CAAC,IAI,CAAC,OAO,CAAC,IAI,QAAQ,CAAC,OAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,C
AAC,8BAA8B,EAAE,CAAC,CAAC,IAI,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,IAI,CAAC,WAW,CA

AC,GAAG,EAAE,CAAC,GAAG,IAAI,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,i
BAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,OAAM,CAAC,EAAE,CAAC,QAAQ,
CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC
,GAAG,QAAQ,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,4CAA4C,EAAE,CAAC,GAAG,OAAO,CAAC,IAAI,
CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,OAAM,CAAC,CAAC,CA
AC,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,IAAI,EA
AC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,CAA
C,gBAAgB,EAAE,CAAC,UAAU,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,SAAS,
6BAA6B,EAAE,CAAC,GAAG,mBAAmB,CAAC,OAAOC,EAAa,CAAC,IAAI,EAAE,CAAC,MAAM,CAAC,OA
AO,SAAS,CAAC,qBAAqB,CAAC,CAAC,SAAS,mCAAmC,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,IAAI,WA
AW,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,SAAS,EAAE,CAAC,IAAI,qBAAqB
,CAAC,WAAW,CAAC,IAAI,IAAI,CAAC,UAAU,CAAC,qBAAqB,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CA
AC,IAAI,EAAE,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAW,CAAC,CAAC,E
AAE,CAAC,CAAC,IAAI,GAAG,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAA
C,CAAC,CAAC,CAAC,CAAC,CAAC,IAAG,CAAC,IAAI,GAAG,CAAC,yCAAyC,CAAC,KAAK,CAAC,qBAAq
B,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,YAAY,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,8CA
A8C,CAAC,EAAE,CAAC,IAAI,qBAAqB,CAAC,EAAE,CAAC,SAAS,gBAAgB,CAAC,MAAM,CAAC,GAAG,C
AAC,CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,GAAG,GAAG,CAAC,CAAC,M
AAM,EAAE,CAAC,gBAAgB,EAAE,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,C
AAC,GAAG,CAAC,GAAG,MAAM,EAAE,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,CAAC,qBAAqB,CAAC,I
AAI,CAAC,MAAM,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,C
AAC,GAAG,CAAC,CAAC,CAAC,EAAE,IAAG,CAAC,OAAO,qBAAqB,CAAC,SAAS,qCAAqC,CAAC,KAAK,
CAAC,WAW,CAAC,IAAI,CAAC,CAAC,8CAA8C,CAAC,MAAM,CAAC,WAW,CAAC,IAAI,CAAC,CAAC,
IAAI,EAAE,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAW,CAAC,CAAC,EAAE,
CAAC,CAAC,8CAA8C,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC
,IAAI,YAAY,CAAC,KAAK,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,YAAY,CAAC,oBAAoB,CAAC,KA
AK,CAAC,CAAC,UAAU,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC
,IAAI,CAAC,8CAA8C,CAAC,CAAC,SAAS,yBAAyB,EAAE,CAAC,OAAO,gBAAgB,EAAE,CAAC,MAM,CA
AC,SAAS,yBAAyB,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,IAAI,CAAC,IAAI,CAAC,MAM,
CAAC,UAAU,CAAC,KAAK,GAAG,EAAE,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAM,CAAC,CAA
C,OAAO,CAAC,CAAC,MAM,CAAC,CAAC,EAAE,CAAC,SAAS,uBAAuB,CAAC,aAAa,CAAC,CAAC,IAI,
OAAO,CAAC,yBAAyB,EAAE,CAAC,GAAG,aAAa,EAAE,OAAO,CAAC,CAAC,OAAO,KAAK,CAAC,IAI,W
AAW,CAAC,UAAU,CAAC,GAG,aAAa,CAAC,WAW,CAAC,CAAC,OAAO,KAAK,CAAC,IAI,IAI,OAA
O,CAAC,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,IAI,iBAAiB,CAAC,
OAAO,EAAE,CAAC,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,iBAAiB,CAAC,IAI,CAAC,GAG,CAAC,iB
AAiB,CAAC,aAAa,CAAC,SAAS,CAAC,CAAC,IAI,OAAO,CAAC,IAI,CAAC,GAG,CAAC,WAW,CAAC
,OAAO,CAAC,IAI,CAAC,GAG,CAAC,aAAa,CAAC,iBAAiB,CAAC,CAAC,KAK,CAAC,CAAC,CAAC,IA
AI,WAW,CAAC,yBAAyB,CAAC,OAAO,CAAC,CAAC,GAG,WAW,CAAC,CAAC,OAAO,IAI,CAAC,C
AAC,OAAO,KAK,CAAC,IAI,QAAQ,CAAC,CAAC,cAAc,CAAC,CAAC,uBAAuB,CAAC,UAU,CA
AC,IAI,IAI,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,C
AAC,EAAE,CAAC,CAAC,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,EAAC,CAAC,QAAQ,CAAC,aAAa,CAAC
,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,GAAE,CAAC,CAAC,4BAA4B,CAAC,UAU,CAAC,GAG,CAAC,
QAAQ,CAAC,8BAA8B,CAAC,CAAmD,QAAQ,CAAC,8BAA8B,CAAC,KAAI,CAAC,CAAC,CAAC,aAAa,CA
AC,EAAE,CAAC,SAAS,CAAC,SAAS,cAAc,CAAC,UAU,CAAC,QAAQ,CAAC,CAAC,SAAS,sBAAsB,CAAC
,IAI,CAAC,IAI,CAAC,CAAC,GAG,IAI,CAAC,MAM,EAAE,IAI,CAAC,MAM,CAAC,OAO,KAA
K,CAAC,IAI,IAI,CAAC,IAI,IAI,CAAC,CAAC,GAG,IAI,CAAC,CAAC,CAAC,EAAE,IAI,CAAC,CA
AC,CAAC,CAAC,OAO,KAK,CAAC,OAO,IAI,CAAC,IAI,IAI,CAAC,IAI,QAQ,CAAC,aAAa,CAA
C,CAAC,IAI,IAI,CAAC,QAQ,CAAC,aAAa,CAAC,CAAC,CAAC,GAG,IAI,CAAC,cAAc,EAAE,

cAAc,EAAE,sBAAsB,CAAC,IAAI,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,Q
AAQ,CAAC,aAAa,CAAC,IAAI,CAAC,CAAC,cAAc,CAAC,cAAc,CAAC,UAAU,CAAC,UAAU,CAAC,QAAQ,
CAAC,QAAQ,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,CAA
C,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,UAAU,CAAC,EAAC,CAAC,CAAC,mBAAmB,CA
AC,SAAS,cAAc,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CA
AC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,cAAc,
EAAE,cAAc,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EA
AE,EAAC,CAAC,CAAC,CAAC,CAAC,8BAA8B,CAAC,UAAU,CAAC,OAAO,QAAQ,CAAC,cAAc,EAAE,QA
AQ,CAAC,mBAAmB,CAAC,mBAAmB,CAAC,CAAC,gBAAgB,CAAC,UAAU,CAAC,GAAG,CAAC,QAAQ,C
AAC,8BAA8B,EAAE,CAAC,CAAC,MAAM,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QA
AQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,aAAa,CA
AC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAA
E,CAAC,CAAC,IAAI,CAAC,cAAc,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,CAAC,QAAQ,EAAC,CAAC,CAAC
,CAAC,aAAa,CAAC,EAAE,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC,eAAe,CAAC,CAAC,IAAI,IAAI,CAA
C,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,
GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,EAAE,MAAM,GAAG,CAAC,eAAe,EAAE,eA
Ae,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,eAAe,CAAC,CAAC,CAAC,QAAQ,CAAC,cAAc,C
AAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,cAAc,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,
CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAA
C,CAAC,eAAe,CAAC,CAAC,CAAC,iBAAiB,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,QAAQ,CAAC,aAAa,
CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,uBAAuB,CAAC,SAAS,YAAY,CAAC,CAAC,
IAAI,cAAc,CAAC,SAAS,cAAc,CAAC,KAAK,CAAC,CAAC,EAAE,QAAQ,CAAC,cAAc,CAAC,QAAQ,CAAC,
mBAAmB,CAAC,YAAY,CAAC,QAAQ,CAAC,gBAAgB,EAAE,CAAC,YAAY,CAAC,WAAW,CAAC,KAAK,C
AAC,CAAC,QAAQ,CAAC,gBAAgB,EAAE,CAAC,EAAE,QAAQ,CAAC,eAAe,CAAC,CAAC,GAAG,YAAY,C
AAC,YAAY,CAAC,CAAC,YAAY,CAAC,iBAAiB,CAAC,cAAc,CAAC,YAAY,CAAC,MAAM,CAAC,gBAAgB,
CAAC,YAAY,CAAC,eAAe,CAAC,cAAc,CAAC,YAAY,CAAC,UAAU,CAAC,CAAC,QAAQ,CAAC,aAAa,CAA
C,IAAI,CAAC,YAAY,CAAC,CAAC,QAAQ,CAAC,4BAA4B,GAAE,CAAC,KAAI,CAAC,IAAI,IAAI,CAAC,CA
AC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAA
G,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,EAAE,YAAY,CAAC,MAAM,EAAE,QAAQ,CAAC
,aAAa,CAAC,CAAC,CAAC,CAAC,eAAe,EAAE,YAAY,CAAC,eAAe,CAAC,CAAC,QAAQ,CAAC,cAAc,C
,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,8BAA8B,CAAC,SAAS,YAAY,CAAC,gBAAgB,CAA
C,WAAW,CAAC,SAAS,CAAC,QAAQ,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,EAAE,CAAC,IAAI,OAAO,CA
AC,UAAU,CAAC,EAAE,CAAC,CAAC,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,WAAW,CA
AC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,iBAAiB,EAAE,CA
AC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,QAAQ,CAAC,2BAA2B,CAAC,CAAC,CAAC,YAAY,CA
AC,SAAS,CAAC,gBAAgB,CAAC,SAAS,CAAC,OAAO,CAAC,CAAC,YAAY,CAAC,QAAQ,EAAC,CAAC,CA
AC,+BAA+B,CAAC,SAAS,YAAY,CAAC,CAAC,OAAO,YAAY,EAAE,KAAK,CAAC,CAAC,CAAC,OAAO,CAAC,CA
AC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,mCAAmC,CAAC,QAAQ,OAAO,YAAY,CAAC,CAAC,CAAC,o
BAAoB,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,OAAM,EAAE,CAAC,GAAG,MAA
M,EAAE,MAAM,CAAC,OAAM,SAAS,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC,OAAM,SAAS,CAAC,OA
AO,MAAM,EAAE,MAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,iBAAiB,C
AAC,UAAU,CAAC,OAAO,QAAQ,CAAC,iBAAiB,EAAE,QAAQ,CAAC,uBAAuB,CAAC,CAAC,CAAC,SAAS,
eAAe,CAAC,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,eAAe,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,IAAI
,OAAO,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,YAAY,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAA
C,CAAC,OAAO,OAAO,CAAC,SAAS,wDAAwD,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,MAAM,C
AAC,CAAC,IAAI,QAAQ,CAAC,SAAS,EAAE,CAAC,IAAI,OAAO,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,I
AAI,eAAe,CAAC,CAAC,CAAC,GAAG,YAAY,CAAC,CAAC,eAAe,CAAC,eAAe,CAAC,YAAY,EAAC,CAAC,i
BAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,eAAe,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,C

AAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CA
AC,CAAC,MAAM,CAAC,2BAA2B,CAAC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,CAAC,eAAe,CA
AC,OAAO,CAAC,CAAC,YAAY,CAAC,QAAQ,EAAC,CAAC,SAAS,qDAAqD,CAAC,YAAY,CAAC,YAAY,C
AAC,KAAK,CAAC,MAAM,CAAC,CAAC,YAAY,CAAC,YAAY,CAAC,YAAY,CAAC,YAAY,CAAC,CAAC,E
AAE,CAAC,wDAAwD,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,sBAAs
B,CAAC,OAAO,CAAC,CAAC,OAAO,OAAO,CAAC,CAAC,CAAC,YAAY,CAAC,OAAO,CAAC,CAAC,OAAO
,CAAC,IAAI,kBAAkB,CAAC,CAAC,CAAC,CAAC,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,CAAC,CAAC
,CAAC,OAAO,MAAM,GAAG,WAAW,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,SAAS,eAAe,CAAC,MAA
M,CAAC,CAAC,MAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,kBAAkB,CAAC,M
AAM,CAAC,GAAG,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,S
AAS,CAAC,CAAC,OAAO,UAAU,CAAC,SAAS,qBAAqB,CAAC,MAAM,CAAC,CAAC,OAAO,eAAe,CAAC,M
AAM,CAAC,CAAC,SAAS,kDAAkD,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,
CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,OAAM,CAAC,CAAC,CAAC,GA
AG,MAAM,CAAC,eAAe,CAAC,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,eAAe,EAAE,CAAC,CAAC,CAA
C,KAAK,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAA
M,CAAC,GAAG,MAAM,CAAC,eAAe,EAAE,CAAC,MAAM,CAAC,2BAA2B,CAAC,CAAC,GAAG,MAAM,C
AAC,eAAe,CAAC,MAAM,CAAC,MAAM,CAAC,eAAe,CAAC,IAAI,kBAAkB,CAAC,KAAK,CAAC,GAAG,M
AAM,CAAC,WAAW,EAAE,MAAM,CAAC,WAAW,CAAC,KAAK,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,
CAAC,WAAW,CAAC,KAAK,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,YAAY,CAAC,CAAC,
CAAC,GAAG,CAAC,EAAE,YAAY,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,YAAY,CAAC,CAAC,CAAC,G
AAG,MAAM,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,OAAM,CAAC,MAAM,
CAAC,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,MAAM,CAAC,GAAG,kBAAkB,CAAC,CA
AC,MAAM,CAAC,WAAW,CAAC,KAAK,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,M
AAM,EAAC,CAAC,CAAC,KAAK,GAAG,MAAM,CAAC,eAAe,CAAC,CAAC,IAAI,YAAY,CAAC,iBAAiB,EA
AE,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,EAAE,CAAC,CAAC,qDAAqD,CAAC,YAAY,CAAC,MA
AM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,KAAI,CAAC,OAAM,CAAC,CAAC,CA
AC,OAAO,CAAC,CAAC,SAAS,+CAA+C,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,GAAG,s
BAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,C
AAC,CAAC,OAAO,kDAAkD,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,SAAS,mCAAmC,CA
AC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,
CAAC,GAAG,MAAM,CAAC,CAAC,OAAO,kDAAkD,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CA
AC,KAAI,CAAC,OAAO,+CAA+C,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,SAAS,q
CAAqC,CAAC,SAAS,CAAC,EAAE,SAAS,2BAA2B,CAAC,QAAQ,CAAC,IAAI,CAAC,EAAE,SAAS,qCAAqC,
CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,wBAAwB,CAAC,CAAC,GAAG,
GAAG,CAAC,CAAC,GAAG,CAAC,qBAAqB,CAAC,CAAC,SAAS,KAAK,CAAC,OAAO,CAAC,CAAC,GAAG,
CAAC,0BAA0B,CAAC,CAAC,KAAK,CAAC,OAAO,EAAC,CAAC,CAAC,GAAG,CAAC,qBAAqB,CAAC,CAA
C,SAAS,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC,GAAG,0BAA0B,CAAC,CAAC,
IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,EAAC,CAAC,CAAC,GAAG,CAAC,uBAAuB,CAAC,CAAC,S
AAS,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,GAAG,4BAA4B,CAA
C,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,OAAO,CAAC,SAAS,EAAC,CAAC,CAAC,OAAO,CAAC,CA
AC,CAAC,SAAS,sCAAsC,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,yBA
AyB,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,GAAG,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAAO,
GAAG,CAAC,sBAAsB,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,mBAAmB,CAAC,CAAC,SAAS,GAAG,CA
AC,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,GAAG,EAAC,CAAC,CAAC,GAAG,CAAC,iBAAiB,CAAC,C
AAC,SAAS,GAAG,CAAC,CAAC,GAAG,CAAC,oBAAoB,CAAC,CAAC,GAAG,EAAC,CAAC,CAAC,GAAG,C
AAC,eAAe,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,kBAAkB,CAAC,CAAC,GAAG,C
AAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,iCAAiC,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CA
AC,GAAG,CAAC,YAAY,CAAC,oBAAoB,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,aAAa,CA

AC,CAAC,SAAS,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,+BAA+B,CAAC,GAAG,CAAC,CAAC,OAAM,CAAC,EAAE,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,YAAY,CAAC,kBAAkB,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,OAAO,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,aAAa,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,iBAAiB,CAAC,EAAE,CAAC,eAAe,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,WAAW,CAAC,EAAE,CAAC,eAAe,CAAC,CAAC,CAAC,WAAW,CAAC,SAAS,WAAW,CAAC,SAAS,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,SAAS,CAAC,CAAC,EAAE,CAAC,SAAS,CAAC,UAAU,CAAC,QAAQ,CAAC,SAAS,KAAK,CAAC,CAAC,IAAI,GAAG ,CAAC,EAAE,CAAC,OAAO,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CA AC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,GA G,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAI, MAAM,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,CAA C,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,CA C,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,MAM,EAAE,YAAY,CAAC,iBAAiB,EAAE,CAAC,MAA M,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,SAAS,CAAC,GAAG, EAAC,CAAC,OAAO,MAAM,CAAC,CAAC,aAAa,CAAC,SAAS,MAAM,CAAC,sBAAsB,CAAC,CAAC,IAAI,G AAG,CAAC,MAM,CAAC,UAAU,CAAC,OAAO,CAAC,sBAAsB,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC, OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,eAAe,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,O AAO,MAAM,CAAC,CAAC,eAAe,CAAC,SAAS,GAAG,CAAC,sBAAsB,CAAC,CAAC,IAAI,MAAM,CAAC,OA AO,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,MAM,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,aAA a,EAAE,CAAC,IAAI,OAAO,CAAC,CAAC,MAM,CAAC,MAM,CAAC,UAU,CAAC,sBAAsB,CAAC,OAA O,CAAC,sBAAsB,CAAC,YAY,CAAC,KAK,CAAC,GAG,CAAC,CAAC,GAG,GAG,CAAC,MAM,CA AC,GAG,CAAC,MAM,CAAC,WW,CAAC,OAO,CAAC,EAE,CAAC,QAQ,CAAC,MAM,CAAC,C AAC,OAO,CAAC,GAG,OAO,sBAAsB,CAAC,yBAAyB,GAG,WW,EAE,sBAAsB,CAAC,yBAAyB, CAAC,CAAC,EAE,CAAC,cAc,CAAC,OAO,EAC,CAAC,OAO,MAM,CAAC,CAAC,kBAAkB,CAAC, SAS,aAa,CAAC,CAAC,EAE,CAAC,cAc,CAAC,EAE,CAAC,QAQ,CAAC,aAa,CAAC,CAAC,MA M,CAAC,GAG,CAAC,KK,CAAC,EAE,CAAC,cAc,EAE,EAE,CAAC,cAc,CAAC,KK,CAAC,O AM,EAE,aAa,EAE,CAAC,KK,CAAC,CAAC,CAAC,UU,CAAC,SS,aAa,CAAC,CAAC,OAO ,EAE,CAAC,QQ,CAAC,aAa,CAAC,CAAC,CAAC,aAa,CAAC,SS,aAa,CAAC,CAAC,GAG,EA E,CAAC,cAc,GAG,EAE,CAAC,QQ,CAAC,aAa,CAAC,CAAC,EAE,CAAC,cAc,CAAC,IAI,CAA C,GAG,OO,QQ,GAG,QQ,CAAC,QQ,CAAC,yBAAyB,CAAC,EAE,CAAC,QQ,CAAC,aA Aa,CAAC,CAAC,KK,CAAC,MM,CAAC,CAAC,GAG,EAE,CAAC,QQ,CAAC,aAa,CAAC,EAAE ,EAE,CAAC,QQ,CAAC,aAa,CAAC,CAAC,KK,CAAC,MM,CAAC,EAE,CAAC,QQ,CAAC,a AAa,CAAC,CAAC,KK,CAAC,MM,CAAC,WW,CAAC,SS,CAAC,KK,CAAC,EAE,CAAC,Q AAQ,CAAC,aAa,CAAC,CAAC,MM,CAAC,CAAC,EAE,CAAC,QQ,CAAC,aAa,CAAC,CAAC,KA I,CAAC,CAAC,cc,CAAC,SS,OO,CAAC,CAAC,GG,CAAC,OO,CAAC,OO,CAAC,EAE,C AC,cc,CAAC,GG,OO,CAAC,kBAkB,CAAC,OO,OO,CAAC,kBAkB,CAAC,II,CAAC,I AI,KK,CAAC,OO,CAAC,KK,CAAC,qCAAqC,CAAC,KK,CAAC,CAAC,sCAAsC,CAAC,KK, CAAC,CAAC,iCAAiC,CAAC,KK,CAAC,CAAC,KK,CAAC,qBAAqB,CAAC,KK,CAAC,YY,CAA C,0BA0B,CAAC,CAAC,+BA+B,CAAC,KK,CAAC,CAAC,II,II,CAAC,KK,CAAC,sBAsB,EA AE,EAE,EAE,CAAC,II,CAAC,OO,CAAC,SS,GG,CAAC,CAAC,GG,GG,CAAC,OO, CAAC,cc,CAAC,CAAC,CAAC,EAE,GG,CAAC,OO,CAAC,OO,CAAC,CAAC,CAAC,CA AC,KK,CAAC,YY,CAAC,GG,EE,CAAC,CAAC,CAAC,EE,CAAC,CAAC,oBAAoB,CAAC,SS,OA AO,CAAC,CAAC,II,CAAC,CAAC,EAE,CAAC,QQ,CAAC,OO,CAAC,CAAC,II,MM,CAAC, EAE,CAAC,YY,CAAC,OO,CAAC,CAAC,CAAC,QQ,CAAC,EAE,CAAC,gBAgB,CAAC,CAAC, CAAC,kBAkB,CAAC,CAAC,CAAC,CAAC,yBAyB,CAAC,CAAC,CAAC,CAAC,CAAC,II,MM,CAA C,MM,CAAC,QQ,CAAC,II,WW,CAAC,KK,CAAC,mBAmB,CAAC,CAAC,CAAC,KK,C

AAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,EAAE,CAAC,CAAC,CAAC
,IAAI,CAAC,CAAC,KAAK,CAAC,gBAAgB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CA
AC,CAAC,IAAI,CAAC,MAAM,CAAC,gBAAgB,CAAC,IAAI,CAAC,GAAG,CAAC,MAAM,CAAC,gBAAgB,C
AAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAA
C,EAAE,GAAG,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,IAAI,CAAC,WAAW,CA
AC,GAAG,CAAC,EAAC,CAAC,IAAI,GAAG,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,CAAC,IAAI,CAAC
,CAAC,GAAG,GAAG,CAAC,CAAC,IAAI,EAAE,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,QAAQ,CA
AC,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,EAAE,C
AAC,QAAQ,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,
CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,
CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,
CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CA
AC,CAAC,IAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,oCAAoC,CAAC,CAAC,SAAS,CAAC,WA
W,CAAC,kBAAkB,CAAC,CAAC,SAAS,mCAAmC,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,C
AAC,UAAU,EAAE,CAAC,CAAC,IAAI,eAAe,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,
CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,E
AAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EA
AE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE
,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,WAW,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,
EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,oBAAoB,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,
EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,uBAAuB,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,
EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,iBAAiB,CAAC,oCAAoC,CAAC,eAAe,CAAC,CAAC,8BAA8B,CAA
C,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,
iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,iBAAiB,EAAE,C
AAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,yBAAyB,CAAC,iBAAiB,EAAE,CAAC,CAAC,E
AAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,mBAAmB,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,
EAAE,CAAC,CAAC,CAAC,CAAC,wBAAwB,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC
,CAAC,CAAC,CAAC,4BA4B,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,
CAAC,CAAC,IAAI,MAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,CAA
C,OAAO,CAAC,CAAC,GAAG,iBAAiB,CAAC,mBAAmB,CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,aAAa,CAA
C,EAAE,CAAC,aAAa,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,OAAO,aAAa,CAAC,SAAS,gCAAgC,CAA
C,EAAE,CAAC,EAAE,CAAC,CAAC,OAAO,mCAAmC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,IAAI,QAAQ
,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,CAAC,CA
AC,SAAS,CAAC,SAAS,MAAM,CAAC,IAAI,CAAC,CAAC,IAAI,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,
MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,CAAC,EAAE,IAAI,GAAG,EAAE,CAAC,CAAC,CAAC,MAAM,GA
AG,CAAC,CAAC,GAAG,CAAC,GAAG,EAAE,iBAAiB,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,M
AAM,CAAC,MAAM,CAAC,EAAC,CAAC,KAAI,CAAC,MAAM,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,CAAA
C,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAU,CAAC,QAAQ,CAAC,OAAO,EAAE,CAAC,CAAC,
IAAI,GAAG,CAAC,iBAAiB,EAAE,CAAC,QAAQ,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,O
AAO,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,YAY,CAAC,GA
AG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAC,OAAO,
GAAG,CAAC,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAm
C,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,QAAQ,CAAC,EAAE,C
AAC,UAU,CAAC,WAW,CAAC,MAM,CAAC,SAS,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAA
mC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,UAU,CAAC,WAW,CAAC,MAM,CAAC,SAS,CA
AC,CAAC,SAAS,SAAS,CAAC,EAAE,CAAC,GAAG,CAAC,MAM,CAAC,IAI,CAAC,CAAC,GAG,sBAAs
B,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,GAG,CAAC,MAM,CAAC,IA
AI,CAAC,CAAC,IAAI,GAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,MA

AM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAiB,EAAE,CAAC,GAAG,CAAC,CAAC,CAA
C,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,C
AAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,
GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,SAAS,CAAC,EAAE,CAAC,gBAAgB,EAAE,CAAC,
GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,GAAG,EAAE,IAAG,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CA
AC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,SAAS,oBAAoB,CAAC,OAAO,CAAC,CAAC,IAAI,OAA
O,CAAC,OAAO,CAAC,kBAAkB,CAAC,GAAG,EAAE,CAAC,GAAG,OAAO,CAAC,OAAO,GAAE,CAAC,SA
AS,qBAAqB,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,IAAI,CAAC,UAAU,C
AAC,SAAS,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,EAAC,CAAC,EAAC,CAAC,SAAS,WAAW,CA
AC,YAAY,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAK,qFAAqF,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,Y
AAY,EAAE,CAAC,GAAG,MAAM,CAAC,OAAO,GAAG,SAAS,CAAC,MAAK,iBAAiB,CAAC,GAAG,CAAC,
YAAY,CAAC,WAAW,CAAC,MAAK,iCAAiC,CAAC,OAAO,CAAC,cAAc,CAAC,IAAI,CAAC,MAAM,CAAC,
CAAC,IAAI,SAAS,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,
CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,SAAS,CAAC,CAAC,C
AAC,CAAC,EAAE,CAAC,CAAC,CAAC,EAAC,CAAC,IAAI,SAAS,CAAC,YAAY,CAAC,SAAS,CAAC,YAAY,
CAAC,SAAS,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,YAAY,CAAC,WAAW,CAAC,CAAC,C
AAC,MAAM,CAAC,MAAM,CAAC,SAAS,CAAC,YAAY,CAAC,SAAS,CAAC,SAAS,CAAC,YAAY,CAAC,SA
AS,CAAC,iBAAiB,CAAC,YAAY,CAAC,iBAAiB,CAAC,gBAAgB,CAAC,YAAY,CAAC,WAW,CAAC,CAAC
,IAAI,GAAG,CAAC,OAAO,CAAC,gBAAgB,EAAE,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,
CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,YAAY,CAAC,QAAQ,CAAC,CAAC,OAAO,CAAC,K
AAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,OA
AO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,OAAO,CAA
C,gBAAgB,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CA
AC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAA
G,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,
CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,K
AAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,SAAS,CA
AC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,CAAC,EAAE,EAAE,CAA
C,CAAC,CAAC,YAAY,CAAC,QAAQ,CAAC,CAAC,IAAI,WAW,CAAC,2BAA2B,EAAE,CAAC,IAAI,aAAa,
CAAC,WAW,CAAC,EAAE,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,
EAAE,CAAC,CAAC,CAAC,aAAa,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,IAAI,GAAG,CA
AC,CAAC,KAAK,CAAC,KAAK,CAAC,eAAe,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,YAAY,CAA
C,GAAG,CAAC,kBAAkB,CAAC,YAAY,CAAC,WAW,CAAC,WAW,CAAC,YAAY,CAAC,SAAS,CAAC,W
AW,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,MAM,CAAC,UAU,CAAC,UAU,CAAC,GAAG,CAAC,IA
AI,CAAC,WAW,CAAC,GAAG,EAAE,CAAC,MAM,CAAC,WAW,CAAC,GAAG,CAAC,YAY,CAAC,Y
AAY,EAAC,CAAC,CAAC,GAAG,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,UAU,EAAE,CAAC,
OAO,MAM,CAAC,WAU,CAAC,CAAC,SAS,eAAe,CAAC,WAW,CAAC,IAAI,CAAC,aAAa,CAAC,GA
AG,CAAC,CAAC,GAAG,OAO,iBAAiB,GAAG,WAW,CAAC,CAAC,GAAG,CAAC,qFAAqF,CAAC,CAAC,
OAO,CAAC,CAAC,GAAG,CAAC,WAW,CAAC,CAAC,GAAG,CAAC,mDAAmD,CAAC,CAAC,OAO,EA
AE,CAAC,IAAI,YAY,CAAC,EAAE,CAAC,IAAI,KAK,CAAC,CAAC,CAAC,GAAG,sBAAsB,GAAG,YAY
,CAAC,MAM,GAAG,CAAC,EAAE,KAK,CAAC,CAAC,CAAC,OAO,qCAAqC,CAAC,SAS,CAAC,WAA
W,CAAC,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,CAAuB,IAAI,SAS,CAAC,CAAC,CAAC,IAAI,SAS,CAA
C,CAAC,CAAC,IAAI,QAQ,CAAC,CAAC,CAAC,GAAG,IAAI,EAAE,IAAI,EAAE,CAAC,CAAC,CAAC,CAA
C,SAS,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,CAAC,SAS,EAAE,KAK,CAAC,SAS,CA
AC,iBAAiB,EAAE,CAAC,IAAI,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,QAQ,CAAC,iBAAiB,EAAE,CAA
C,IAAI,CAAC,EAAE,EAAE,CAAC,CAAC,GAAG,EAAC,CAAC,KAAI,CAAC,SAS,CAAC,QAO,CAAC,IA
AI,iBAAiB,CAAC,SS,EAAE,CAAC,CAAC,GAAG,iBAAiB,CAAC,CAAC,SS,CAAC,SS,CAAC,EAA
E,CAAC,SS,EAAC,CAAC,KAI,CAAC,SS,EAAE,SS,CAAC,MAM,CAAC,SS,CAAC,CAAC,EA

AC,CAAC,IAAI,gBAAgB,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,
CAAC,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,gBAAgB,EAAE,
CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,WAAW,EAAE,CAAC,CAAC,CAAC,g
BAAgB,CAAC,iBAAiB,EAAE,CAAC,gBAAgB,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,gBAAgB,CAAC,IA
AI,OAAO,CAAC,gBAAgB,CAAC,GAAG,CAAC,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,O
AAO,CAAC,IAAI,YAAY,CAAC,CAAC,SAAS,CAAC,SAAS,CAAC,SAAS,CAAC,SAAS,CAAC,iBAAiB,CAAC
,iBAAiB,CAAC,QAAQ,CAAC,QAAQ,CAAC,YAAY,CAAC,aAAa,CAAC,WAAW,CAAC,gBAAgB,CAAC,GA
AG,CAAC,GAAG,CAAC,YAAY,CAAC,YAAY,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,YAAY,CAAC,G
AAG,CAAC,aAAa,CAAC,WAAW,CAAC,YAAY,CAAC,YAAY,EAAC,CAAC,KAAI,CAAC,WAAW,CAAC,YA
AY,EAAC,CAAC,OAAO,CAAC,CAAC,SAAS,uBAAuB,EAAE,CAAC,GAAG,CAAC,sBAAsB,CAAC,OAAO,I
AAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,OAAO,IAAI,cAAc,CAAC,OAAO,CAAC,I
AAI,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,cAAc,CAAC,OAA
O,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,C
AAC,CAAC,GAAG,QAAQ,EAAE,CAAC,CAAC,MAAK,WAAW,CAAC,SAAS,kCAAkC,EAAE,CAAC,GAAG,
mBAAmB,CAAC,OAAO,GAAG,qBAAqB,CAAC,OAAO,QAAQ,CAAC,0IAA0I,EAAC,CAAC,SAAS,4BAA4B,
CAAC,MAAM,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,GAAG,CAA
C,kDAAkD,CAAC,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,GAAG,sBAAsB,EAAE,aAAa,EAAE,EAAE,M
AAM,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,mCAAmC,CAAC,CAAC,OAAO,WAAW,CA
AC,OAAO,CAAC,KAAK,GAAG,CAAC,sBAAsB,EAAE,kCAAkC,EAAE,EAAE,MAAM,CAAC,CAAC,GAAG,
CAAC,cAAc,CAAC,MAAM,CAAC,mCAAmC,CAAC,CAAC,OAAO,WAAW,CAAC,OAAO,CAAC,IAAI,IAAI,
CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,IAAI,GAAG,MAAM,C
AAC,CAAC,GAAG,CAAC,mCAAmC,CAAC,MAAM,CAAC,sEAAsE,CAAC,CAAC,OAAO,WAAW,CAAC,KA
AK,CAAC,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,
CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,CAAC,GAAG,CAAC,2BAA2B,CAAC,MAAM,CAAC,+BAA+B,CA
AC,CAAC,OAAO,WAAW,CAAC,MAAM,CAAC,GAAG,KAAK,CAAC,CAAC,kCAAkC,GAAE,CAAC,OAAO,
CAAC,IAAI,YAAY,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,EAAE,CA
AC,CAAC,CAAC,GAAG,YAAY,EAAE,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,OAAO,CAAC,IAAI,CAAC,iB
AAiB,EAAE,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,EAAE,
CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,cAAc,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,
MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,aAAa,CAAC,
MAAM,CAAC,CAAC,KAAK,WAAW,CAAC,CAAC,KAAK,CAAC,eAAe,CAAC,QAAQ,CAAC,MAAM,CAAC,
CAAC,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,
uBAAuB,EAAE,CAAC,GAAG,CAAC,sBAAsB,CAAC,4CAA4C,EAAE,CAAC,sBAAsB,CAAC,MAAM,CAAC,
CAAC,CAAC,YAAY,CAAC,sBAAsB,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,SAAS,aAAa,CAAC,M
AAM,CAAC,MAAM,CAAC,CAAC,OAAO,4BAA4B,CAAC,MAAM,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,
SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAA
C,IAAI,CAAC,CAAC,OAAO,IAAI,EAAE,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CA
AC,IAAI,WAAW,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,KAAK,GA
AG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAA
G,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,
CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CA
AC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAA
C,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,
KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,K
AAK,EAAE,CAAC,OAAO,MAAM,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,K
AAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KA
AK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KA

AK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KA
AK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAA
K,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,
EAAE,CAAC,KAAK,EAAE,CAAC,OAAM,CAAC,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,K
AAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,K
AAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KA
AK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,KAA
K,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,IAAI,CAAC,KAAK,E
AAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,KAAK,EAAE,CAAC,OAAO,UAAU,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,KAA
K,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,
CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,C
AAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CA
AC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAA
C,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,CAAC,CAAC
,OAAO,GAAG,CAAC,KAAK,GAAG,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,
KAAK,CAAC,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,O
AAO,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,GAAG,OAAO,SAAS,GAAG,QAAQ,CAAC,OAAO,SAAS,CA
AC,qBAAqB,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,OA
AM,CAAC,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,OAAO,CAAC,mBAAmB,EAAE,CAAC,IAAI,KAAK,
CAAC,IAAI,oBAAoB,CAAC,CAAC,IAAI,CAAC,OAAO,CAAC,+CAA+C,CAAC,SAAS,CAAC,QAAQ,CAAC,S
AAS,CAAC,QAAQ,CAAC,CAAC,IAAI,aAAa,CAAC,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,YAAY,
CAAC,GAAG,CAAC,gCAAgC,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,yBAAyB,CAAC,GAAG,CA
AC,iDAAiD,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,mBAAmB,CA
AC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,6BAA6B,CAAC,GAAG,CAAC,qCAAqC,CAAC,GAAG,CAA
C,uBAAuB,CAAC,GAAG,CAAC,mCAAmC,CAAC,GAAG,CAAC,qCAAqC,CAAC,GAAG,CAAC,2BAA2B,CA
AC,GAAG,CAAC,gCAAgC,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,GAAG,CAAC,SA
AS,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,UAAU,EAAE,MAAM,CAAC,YAAY,CAAC,CAAC,GAA
G,CAAC,oBAAoB,CAAC,GAAG,CAAC,qBAAqB,CAAC,GAAG,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CA
AC,GAAG,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,EAAE,CAAC,IAAI,kBAAkB,CAAC,MAA
M,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAA
C,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CA
AC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CA
AC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BA0B,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BA0B,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAA
C,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAo
B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,C
AAC,CAAC,CAAC,IAAI,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC
,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,M
AAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,
CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,

MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC
,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAA
G,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,O
AAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,
CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,
MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CA
AC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,M
AAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,
CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC
,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GA
AG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,c
AAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,
SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAA
C,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CA
AC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KA
AK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,C
AAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA
AC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cA
c,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KA
AK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,C
AAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,
CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,M
AAM,CAAC,wBAAwB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CA
AC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GA
AG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,
QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAA
C,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CA

AC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC
,MAAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAW,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAA
C,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CA
AC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qBAAqB,CAAC,MAAM,CAAC,u
BAAuB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,C
AAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,SAAS,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK
,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,
MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CA
AC,MAAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,C
AAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,M
AAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAA
I,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,UAU,CAAC,O
AAM,CAAC,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,C
AAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,UAU,CAAC,MAM,CAAC,YAY
,CAAC,CAAC,UAU,CAAC,OAM,CAAC,UAU,CAAC,MAM,CAAC,YAY,CAAC,CAAC,MAM,CAA
C,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,IAI,
CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAU,CAAC,OAM,CAAC,IAI,CAAC,MAM,CAAC,MAM
,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAA
C,CAAC,CAAC,IAI,WAW,CAAC,MAM,CAAC,aAa,CAAC,CAAC,UAU,CAAC,OAM,CAAC,WAA
W,CAAC,MAM,CAAC,aAa,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,
CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAA
U,CAAC,OAM,CAAC,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAA
C,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,QAQ,CAAC,MAM,CAA
C,UAU,CAAC,CAAC,UAU,CAAC,OAM,CAAC,QAQ,CAAC,MAM,CAAC,UAU,CAAC,CAAC,MA
AM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,I
AI,QAQ,CAAC,MAM,CAAC,UAU,CAAC,CAAC,UAU,CAAC,OAM,CAAC,QAQ,CAAC,MAM,C
AAC,UAU,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAA
C,SAS,CAAC,CAAC,CAAC,IAI,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,
CAAC,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,E
AAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,
CAAC,UAU,CAAC,OAM,CAAC,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,KAK,
CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,QAQ,CAAC,
MAM,CAAC,UAU,CAAC,CAAC,UAU,CAAC,OAM,CAAC,QAQ,CAAC,MAM,CAAC,UAU,CAAC
,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAA
C,CAAC,IAI,UAU,CAAC,MAM,CAAC,YAY,CAAC,CAAC,UAU,CAAC,OAM,CAAC,UAU,CAAC

,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB

AM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CA
AC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC
,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,C
AAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ
,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAU
,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAA
C,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MA
AM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAU,CAAC,
OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,
CAAC,CAAC,UAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CA
AC,MAAM,CAAC,MAAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,
CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IAAI,CA
AC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CA
AC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UU,C
AAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,I
AI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,
OAAO,CAAC,CAAC,UU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM
,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC
,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UU,CAAC,OAAM,CAA
C,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,
KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UU,CAAC,MAAM,CAAC,YAY,CAAC,CAA
C,UU,CAAC,OAAM,CAAC,UU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UU,CAC,MA
AM,CAAC,YAY,CAAC,CAAC,UU,CAAC,OAAM,CAAC,UU,CAAC,MAM,CAAC,YAY,CAAC,C
AAC,MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,aAAa,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,UU,CAAC,OAAM,CAAC,aAAa,CAAC,MAA
M,CAAC,eAAe,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,UU,CAAC,OAAM
,CAAC,OAAO,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAK,CAAC,MAM,CAAC,OAAO,CAAC
,CAAC,UU,CAAC,OAM,CAAC,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KAK,CAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CA
AC,MAM,CAAC,mBAAmB,CAAC,CAAC,UU,CAAC,OAM,CAAC,iBAAiB,CAAC,MAM,CAAC,mBA
AmB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAAE,KAK,CAAC,IAI,CAAC,SAS
,CAAC,CAAC,CAAC,IAI,2BAA2B,CAAC,MAM,CAAC,6BAA6B,CAAC,CAAC,UU,CAAC,OAM,CA

AC,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4CAA4C,CAAC,MAAM,CAAC,8CAA8C,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4CAA4C,CAAC,MAAM,CAAC,8CAA8C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,+CAA+C,CAAC,MAAM,CAAC,iDAAiD,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,+CAA+C,CAAC,MAAM,CAAC,iDAAiD,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2CAA2C,CAAC,MAAM,CAAC,6CAA6C,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,2CAA2C,CAAC,MAAM,CAAC,6CAA6C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,yCAAyC,CAAC,MAAM,CAAC,2CAA2C,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,yCAAyC,CAAC,MAAM,CAAC,2CAA2C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4BAA4B,CAAC,MAAM,CAAC,8BAA8B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4BAA4B,CAAC,MAAM,CAAC,8BAA8B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4BAA4B,CAAC,MAAM,CAAC,8BAA8B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4BAA4B,CAAC,MAAM,CAAC,8BAA8B

AAS,CAAC,qBAAqB,CAAC,UAAS,CAAC,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAuB,GAAG,eAAe,CA
AC,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,sBAAsB,CAAC,CAAC,mBAAmB,CAAC,MAAM,CAAC,CAA
C,WAAW,EAAE,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,MA
AM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,KAAK,EAAE,CAAC,GAA
G,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,IAAI,CAAC,GAAG,K
AAK,CAAC,OAAO,WAAW,EAAE,CAAC,OAAO,EAAE,CAAC,mBAAmB,CAAC,MAAM,CAAC,CAAC,GAA
G,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,sBAAsB,CAAC,EAAE,CAAC,OAAO,GAAE,CAAC,G
AAG,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,YAAY,CAAC,CAAC
,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,EAAE,EAAC
,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,GAAE,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,G
AAE,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,SAAS,IAAI,CAAC,MAAM,CAAC,QA
AQ,CAAC,CAAC,GAAG,QAAQ,EAAE,aAAa,EAAE,MAAM,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,GA
AG,CAAC,QAAQ,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,aAa,CA
AC,YAAY,CAAC,MAM,CAAC,CAAC,CAAC,MAM,IAAI,UAAU,CAAC,MAM,CAAC,CAAO,CAAC,GA
AG,aAAa,CAAC,CAAE,KAAI,CAAC,OAAO,CAAC,mBAAmB,EAAE,CAAiC,GAAG,MAM,CAAC,QAAQ,C
AAC,CAAC,MAM,CAAC,QAAQ,CAAC,CAAC,MAM,CAAC,CAAC,KAK,CAAC,KAI,CAAC,KAK,C
AAC,MAM,CAAC,IAAI,UAU,CAAC,MAM,CAAC,EAAC,CAAC,GAAG,MAM,CAAC,SAAS,CAAC,CA
AC,CAAC,GAAG,OAAO,MAM,CAAC,SAAS,CAAC,EAAE,UAU,CAAC,MAM,CAAC,SAAS,CAAC,CA
AC,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAM,MAM,CAAC,SAAS,CAAC,CAAC,MAM,CA
AC,CAAC,CAAC,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,GAAG,EAAE,GAAE,CAAC,CAAC,GAAG,sBA
AsB,CAAC,CAAC,aAa,CAAC,KAK,CAAC,OAAO,CAAC,UAU,GAAE,CAAC,GAAG,EAAE,CAAC;AAC
n5mE;AACA;AACA,EAAE,OAAO,6BAA6B,CAAC,KAK;AAC5C,CAAC;AACD,EAAE;AACF,CAAC,GAAG
,CAAC;AAEH,cAAc,GAAG,6BAA6B;;;AChBzC,MAAM,kBAAkB,GAAG,ikGAAikG;;;ACCnmG,IAAI,iBAAiB,
GAAG,CAAC,WAAW;AACpC,EAAE,IAAI,UAU,GAAG,OAAO,QAAQ,KAK,WAAW,IAAI,QAAQ,CAAC,
aAa,GAAG,QAAQ,CAAC,aAa,CAAC,GAAG,GAAG,SAAS,CAAC;AACtH,EAAE,IAAI,OAAO,UAU,KAA
K,WAAW,EAAE,UAU,GAAG,UAU,IAAI,UAU,CAC;AAC/E,EAAE;AACF,SAAS,iBAAiB,EAAE;AAC5
B,EAAE,iBAAiB,GAAG,iBAAiB,IAAI,EAAE,CAC;AAC9C;AACA,IAAI,MAM,CAAC,OAAO,iBAAiB,GA
AG,WAW,CAAC,iBAAiB,CAAC,EAAE,CAAC,IAAI,mBAAmB,CAAC,kBAAkB,CAAC,MAM,CAAC,OAA
O,CAAC,CAAC,IAAI,OAAO,CAAC,SAAS,OAAO,CAAC,MAM,CAAC,CAAC,mBAAmB,CAAC,OAAO,CA
AC,kBAAkB,CAAC,OAAM,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,IAAI,GAAG,CAAC,IAAI,G
AAG,IAAI,MAM,CAAC,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAA
C,GAAG,CAAC,CAAC,MAM,CAAC,GAAG,EAAE,CAAC,CAAC,IAAI,UAU,CAAC,EAAE,CAAC,IAAI,W
AAW,CAAC,gBAAgB,CAAC,IAAI,KAK,CAAC,SAAS,MAM,CAAC,OAAO,CAAC,CAAC,MAM,OAAO,
CAAC,CAAC,IAAI,kBAAkB,CAAC,KAK,CAAC,IAAI,qBAAqB,CAAC,KAK,CAAC,IAAI,mBAAmB,CAA
C,KAK,CAAC,IAAI,oBAAoB,CAAC,KAK,CAAC,kBAAkB,CAAC,OAAO,MAM,GAAG,QAAQ,CAAC,q
BAAqB,CAAC,OAAO,aAa,GAAG,UU,CAAC,mBAAmB,CAAC,OAAO,OAAO,GAAG,QAAQ,EAAE,OA
AO,OAAO,CAAC,QAAQ,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,CAAC,IAAI,GAAG,QAAQ,CAA
C,oBAAoB,CAAC,CAAC,kBAAkB,EAAE,CAAC,mBAAmB,EAAE,CAAC,qBAAqB,CAAC,IAAI,eAAe,CAAC,
EAAE,CAAC,SAAS,UU,CAAC,IAAI,CAAC,CAAC,CAAC,GAAG,MAM,CAAC,YAY,CAAC,CAAC,CAAC,OA
AO,MAM,CAAC,YAY,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,eAAe,CAAC,IAAI,KAK,K
AAK,CAAC,SAAS,CAAC,UU,CAAgB,IAAI,MAM,CAAC,IAAI,QAAQ,CAAC,GAAG,mBAAmB,CAAC,C
AAC,GAAG,qBAAqB,CAAC,CAAC,eAAe,CAACL,IAAe,CAAC,OAAO,CAAC,eAAe,CAAC,CAAC,IAAG,CA
AC,KAI,CAAC,eAAe,CAAC,SAAS,CAAC,IAAG,CAAC,KAK,CAAC,SAAS,UU,CAAC,QAAQ,CAAC,
MAM,CAAC,CAAC,GAAG,CAAC,MAM,CAAC,MAM,CAACC,EAAa,CAAC,GAAG,CAAC,QAAQ,CAA
C,QAAQ,CACD,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAW,CAAC,CAAC,QAAQ,CAAC,CAAC,OAA
O,MAM,CAAC,cAc,CAAC,CAAC,QAAQ,CAAC,MAM,CAAC,IAI,CAAC,MAM,CAAC,CAAC,CAAC,
UU,CAAC,SAAS,UU,CAAC,QAAQ,CAAC,CAAC,IAI,GAG,CAAC,KAK,CAAC,QAAQ,CAAC,IA
AI,CAAC,CAAC,GAG,CAAC,GAG,CAAC,MAM,CAAC,CAAC,GAG,CAAC,IAI,UU,CAAC,GAA

G,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,GAAG,OA
AO,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,MAAM,C
AAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,GAAG,EAAC,CAAC,UAAU,CAAC,OAAO,CA
AC,MAAM,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,mBAAmB,C
AAC,SAAS,EAAE,CAAC,CAAC,GAAG,EAAE,EAAE,YAAY,UAAU,CAAC,CAAC,CAAC,MAAM,EAAE,CA
AC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,oBAAoB,CAAC,KAAK,CAAC,CAAC,KAAK,CA
AC,SAAS,MAAM,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,MAAM,C
AAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,,4BAA4B,EAAC,CAAC,KAAK,GAAG,oBAAoB,CAAC,CAA
C,GAAG,OAAO,IAAI,EAAE,WAAW,CAAC,CAAC,KAAK,CAAC,SAAS,UAAU,CAAC,CAAC,CAAC,CAAC,
OAAO,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,CAAC,CAAC,CAAC,IAA
I,IAAI,CAAC,GAAG,OAAO,UAAU,GAAG,UAAU,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,UAAU,CAAC,C
AAC,CAAC,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAA
O,IAAI,GAAG,QAAQ,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,GAAG,OAAO,UAAU,EAAE,WAAW,CAAC,
CAAC,UAAU,CAAC,WAAU,CAAC,KAAK,GAAG,OAAO,SAAS,EAAE,WAAW,CAAC,CAAC,UAAU,CAAC,
UAAS,CAAC,GAAG,OAAO,IAAI,GAAG,UAAU,CAAC,CAAC,KAAK,CAAC,SAAS,MAAM,CAAC,CAAC,IA
AI,CAAC,MAAM,EAAC,EAAC,CAAC,GAAG,OAAO,KAAK,GAAG,WAAW,CAAC,CAAC,GAAG,OAAO,OA
AO,GAAG,WAAW,CAAC,OAAO,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,OAAO,CA
AC,IAAI,CAAC,OAAO,CAAC,KAAK,CAAC,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,CAAC,MAAK,CA
AC,CAAC,KAAK,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,eAAe,CAAC
,IAAI,CAAC,QAAQ,CAAC,KAAI,CAAC,KAAK,GAAG,OAAO,QAAQ,GAAG,WAAW,EAAE,QAAQ,CAAC,a
AAa,CAAC,CAAC,eAAe,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,CAAC,GAAG,UAAU,CAAC,CAAC,eAAe,
CAAC,WAAU,CAAC,GAAG,eAAe,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CA
AC,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,eAAe,CAAC,WAAW,CAAC,GAAG,CAAC,CAAC,CAAC,EAA
C,CAAC,KAAI,CAAC,eAAe,CAAC,GAAE,CAAC,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GA
AG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,G
AAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,YAAY,CAAC,CAAC,GAAG,qBAAqB,CA
AC,CAAC,UAAU,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IA
AI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG
,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,EAAC,CAA
C,SAAS,CAAC,SAAS,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CA
AC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,a
AAa,CAAC,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAG,CAAC,MAAM,EAAE,GAAG,EAAE,G
AAG,CAAC,MAAM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,Q
AAQ,CAAC,CAAC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,CAAC,G
AAG,CAAC,IAAI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,IAAI,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC
,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,UA
AU,CAAC,EAAE,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,IAAI,eAAe,CAA
C,CAAC,GAAG,eAAe,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,e
AAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAAG,MAAM,CAAC,WAAW,CAAC,CAA
C,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,GAAG,MAAM,CAAC,aAAa,CAAC,CAAC,WAAW,CA
AC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAAM,C
AAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,M
AAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,EAAE,IAAI,CAAC,GAAG,
OAAO,WAAW,GAAG,QAAQ,CAAC,CAAC,KAAK,CAAC,iCAAiC,EAAC,CAAC,IAAI,UAAU,CAAC,IAAI,K
AAK,CAAC,KAAK,CAAgB,SAAS,MAAM,CAAC,SAAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,SAAS,CAA
C,CAAC,KAAK,CAAC,oBAAoB,CAAC,IAAI,EAAC,CAAC,CAAC,KAAK,QAAQ,CAAC,KAAK,CAAC,CAAC,
IAAI,IAAI,CAAC,MAAM,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,IAAI,CAAC,+BA+B,C
AAC,KAAK,CAAC,4BA4B,CAAC,CAAC,OAAO,IAAI,CAAC,SAS,KAK,CAAC,KAK,CAAC,UAU,C

AAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,QAAQ,CAAC,SAAS,GAAG,C
AAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,GAAG,GAAG,GAAG,IAAI,EAAE,GAAG,GAAG,SAAS,EAAE,
GAAG,GAAG,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,C
AAC,CAAC,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,YAAY,CAAC,GAAG,CAAC,GAAG,CAAC,G
AAG,EAAC,CAAC,OAAO,GAAG,CAAC,CAAC,OAAO,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAA
C,UAAU,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,kBAAkB,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,OA
AO,GAAG,CAAC,CAAC,CAAC,SAAS,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,QAAQ,C
AAC,OAAO,YAY,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,SAAS,CAAC,OAAO,OAAO,CAAC,G
AAG,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,KAAK,CAAC,CAAC,IAAI,KAK,
CAAC,EAAE,CAAC,IAAI,KAK,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,C
AAC,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,SAAS,CAAC,GAAG,
CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,SAAS,CAAC,CAAC,GAAG,KAK,GAAG,CAAC,C
AAC,KAAK,CAAC,SAAS,EAAE,CAAC,KAK,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,IAAI,CAAC,CAAC,
CAAC,EAAC,CAAC,KAAI,CAAC,KAK,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,EAAC,CAAC,CAA
C,CAAC,IAAI,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,IAAI,CAAC,KAK,CAAC,CAAC,GAG,CAAC,kBA
AkB,CAAC,GAAG,CAAC,CAAC,GAG,KAK,GAG,CAAC,CAAC,YAY,CAAC,KAK,CAAC,CAAC,OA
AO,GAAG,CAAC,SAAS,KAK,CAAC,KAK,CAAC,UAU,CAAC,QAAQ,CAAC,IAI,CAAC,CAAC,QAAQ
,CAAC,QAAQ,EAAE,EAAE,CAAC,IAI,WAW,CAAC,QAAQ,CAAC,KAK,CAAC,SAS,IAI,CAAC,CA
AC,OAO,IAI,GAAG,QAAQ,CAAC,CAAC,CAAC,IAI,UAU,CAAC,UAU,GAG,QAAQ,CAAC,GAG,
UAU,EAAE,WW,EAAE,CAAC,IAI,CAAC,CAAC,OAO,QAAQ,CAAC,KAK,CAAC,CAAC,OAO,U
AU,CAAC,OAO,KAK,CAAC,KAK,CAAC,UU,CAAC,QAAQ,CAAC,SAAc,CAAC,CAAC,CAAC,IA
AI,WW,CAAC,OAO,WW,GAG,WW,CAAC,IAI,WW,CAAC,MAM,CAAC,CAAC,SAS,C
AAC,SAS,iBAAiB,CAAC,IAI,CAAC,GAG,CAAC,cAc,CAAC,CAAC,IAI,MAM,CAAC,GAG,CAAC
,cAc,CAAC,IAI,MAM,CAAC,GAG,CAAC,MAM,IAI,CAAC,MAM,CAAC,EAAE,EAAE,MAM,E
AAE,MAM,CAAC,CAAC,EAAE,MAM,CAAC,GAG,MAM,CAAC,GAG,CAAC,EAAE,EAAE,IAI,CA
AC,QAAQ,EAAE,WW,CAAC,CAAC,OAO,WW,CAAC,MM,CAAC,IAI,CAAC,QAAQ,CAAC,GA
AG,CAAC,MM,CAAC,CAAC,CAAC,KAI,CAAC,IAI,GAG,CAAC,EAAE,CAAC,MM,GAG,CAA
C,MM,CAAC,CAAC,IAI,EAAE,CAAC,IAI,CAAC,GAG,EAAE,CAAC,CAAC,GAG,EAAE,EAAE,CA
AC,GAG,CAAC,CAAC,CAAC,GAG,EAAE,MM,CAAC,YY,CAAC,EAAE,CAAC,CAAC,QQ,CA
AC,IAI,EAAE,CAAC,IAI,CAAC,GAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAG,CAAC,EAAE,CAAC,G
AAG,GAG,GAG,CAAC,CAAC,GAG,EAAE,MM,CAAC,YY,CAAC,CAAC,EAAE,CAAC,EAAE,G
AAG,CAAC,CAAC,EAAE,CAAC,CAAC,QQ,CAAC,IAI,EAAE,CAAC,IAI,CAAC,GAG,EAAE,CAAC,
CAAC,EAAE,CAAC,GAG,CAAC,EAAE,CAAC,GAG,GAG,GAG,CAAC,CAAC,EAAE,CAAC,CAAC,E
AAE,CAAC,EAAE,GAG,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,GAAE,CAAC,KAI,CAAC,EAAE,CAAC
,CAAC,EAAE,CAAC,CAAC,GAG,EAAE,CAAC,EAAE,EAAE,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,IAA
I,CAAC,GAG,EAAE,CAAC,CAAC,GAAE,CAAC,GAG,EAAE,CAAC,KK,CAAC,CAAC,GAG,EAAE,
MM,CAAC,YY,CAAC,EAAE,EAAC,CAAC,KAI,CAAC,IAI,EAAE,CAAC,EAAE,CAAC,KK,CA
AC,GAG,EAAE,MM,CAAC,YY,CAAC,KK,CAAC,EAAE,EAAE,EAAE,CAAC,KK,CAAC,EAA
E,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,OAO,GAG,CAAC,SAS,YY,CAAC,GAG,CAAC,cAc,CA
AC,CAAC,OAO,GAG,CAAC,iBAAiB,CAAC,MM,CAAC,GAG,CAAC,cAc,CAAC,CAAC,EAAE,CA
AC,SAS,iBAAiB,CAAC,GAG,CAAC,IAI,CAAC,MM,CAAC,eAe,CAAC,CAAC,GAG,EAAE,eAe,
CAAC,CAAC,CAAC,CAAC,OAO,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,IAI,MM,CAAC,M
AM,CAAC,eAe,CAAC,CAAC,CAAC,IAI,IAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAG,CAAC,
MM,CAAC,EAAE,CAAC,CAAC,CAAC,IAI,CAAC,CAAC,GAG,CAAC,UU,CAAC,CAAC,CAAC,CA
AC,GAG,CAAC,EAAE,KK,EAAE,CAAC,EAAE,KK,CAAC,CAAC,IAI,EAAE,CAAC,GAG,CAAC,
UU,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KK,EAAE,CAAC,CAAC,CAAC,IAI,GAG,EA
AE,CAAC,CAAC,EAAE,CAAC,KI,CAAC,GAG,CAAC,EAAE,GAG,CAAC,CAAC,GAG,MM,EAA
E,MM,CAAC,MM,IAI,CAAC,MM,EAE,CAAC,CAAC,EAC,CAAC,KK,GAG,CAAC,EAAE

,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,C
AAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAA
C,CAAC,CAAC,GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,CAAC,GAAG,MAAM,CAAC,CAA
C,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,
CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,IAA
I,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAAI,CAAC,GAAG,MAAM,
CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,E
AAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,EAA
E,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,I
AAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,CAAC,IAAI,CAAC,MAA
M,CAAC,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,QAAQ,CAAC,SAAS,YAAY,CAAC,GAAG,CAAC,MAA
M,CAAC,eAAe,CAAC,CAAC,OAAO,iBAAiB,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,eAAe,CAA
C,CAAC,SAAS,kBAAkB,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CA
AC,MAAM,EAAC,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,GAAG,CAAC,CAAC,QAA
Q,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,CAAC,CAAC,SAAQ,CAAC,OAAO,CAAC,CAAC,I
AAI,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,
OAAO,CAAC,OAAO,CAAC,SAAS,0BAA0B,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAA
M,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,
CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,
MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,I
AAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CA
AC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAAG,CAA
C,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAAG,CAAC,CAAC,MAAM,
CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAAG,EAAC,CAAC,IAAI,cAAc,CAAC,MAA
M,CAAC,gBAAgB,CAAC,EAAE,QAAQ,CAAC,IAAI,SAAS,CAAC,IAAI,YAAY,CAAC,EAAE,CAAC,IAAI,UA
AU,CAAC,EAAE,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,aAAa,CAAC,EAAE,CAA8B,UAAU,CAAC,IA
AI,CAAC,CAAC,IAAI,CAAC,UAAU,CAAC,kBAAkB,GAAE,CAAC,CAAC,CAAC,CAAC,SAAS,MAAM,EAA
E,CAAC,GAAG,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,QAAQ,CAAC,EAA
E,UAAU,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MA
AM,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC,WAAW,CAAC,MAAM,CAAC,QAAQ,CAAC,
CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,YAAY,EAAC,CAAC,SAAS,WAAW,EAAE,CAAy
B,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAAO,EAAE,CAAC,oBAAoB,CAAC,UAAU,EAAC,CAAC,SA
AS,OAAO,EAAE,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,SA
AS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAA
C,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,CAAC,YAAY,CAAC,MAAM,CAAC,SA
AS,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,aAAa,EAAC,CAAC,SAAS,WAAW,CA
AC,EAAE,CAAC,CAAC,YAAY,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,SAAS,YAAY,CAAC,EAAE,CAAC,
CAAC,aAAa,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,IAAI,eAAe,CAAC,CAAC,CAA+B,IAAI,qBAAqB,CA
AC,IAAI,CAAC,SAAS,gBAAgB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAAM,CAAC,wBA
AwB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,CAAC,SAAS,mBAAm
B,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAAM,CAAC,wBAAwB,CAAC,CAAC,CAAC,MA
AM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,GAAG,eAAe,EAAE,CAAC,CAAC,CAA+F,GAAG,qB
AAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBAAqB,CAAC,qBAAqB,CAAC,IAAI,CAAC,QAAQ,GAAE,CAAC,
CAAC,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAA
E,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,
CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC,CAAC,IAAI,EAAE,EAAE,CAAC,GAAG,CAAC,IAAI,CAAC,
KAAK,CAAC,IAAI,CAAA,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,8CAA8C,CAAC,IAI,CAAC,CAAC,IAI,W
AAW,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,S

AAS,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CAAC,SAAS,CAAC,UAAU,CAAC,G
AAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,GAAG,CAAC,
CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OAAO,SAAS,CAAC,QA
AQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa,CAAC,SAAS,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OA
AO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,cAAc,CAAC,wBAAwB,CAAC,GAAG,CAAC,SAAS,
CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CAAC,UAAU,CAAC,cAAc,EAAC,CAAC,SAAS,SAAS,CAAC,IAAI,C
AAC,CAAC,GAAG,CAAC,GAAG,IAAI,EAAE,cAAc,EAAE,UAAU,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,
UAAU,CAAC,CAAC,GAAG,UAAU,CAAC,CAAC,OAAO,UAAU,CAAC,IAAI,CAAC,CAAC,KAAI,CAAC,MA
AK,iDAAiD,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,KAAK,CAAC,GAAG,EAAC,CAAC,CAAC,SAAS,gB
AAgB,EAAE,CAAC,GAAG,CAAC,UAAU,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,CAAC,GAAG,OAA
O,KAAK,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,cAAc,C
AAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,GAAG,CAA
C,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,MAAK,sCAAsC,CAAC,cAAc,CAAC,GAAG,CAAC,OAAO,QAAQ,
CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,cAAc,CAA
C,CAAC,CAAC,CAAC,KAAI,CAAC,GAAG,SAAS,CAAC,CAAC,OAAO,IAAI,OAAO,CAAC,SAAS,OAAO,CA
AC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,SAAS,QAAQ,CAAC,CAAC,OAAO,CAAC,IAAI,UAAU,
CAAC,QAAQ,CAAC,EAAC,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,OAAO,C
AAC,OAAO,EAAE,CAAC,IAAI,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,
SAAS,UAAU,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,SAAS,eAAe,CAAC,Q
AAQ,CAAC,MAAM,CAAC,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,CAAC,0BAA0B,
CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,
CAAC,mBAAmB,CAAmB,EAAC,CAAC,gBAAgB,CAAmB,CAAC,CAAC,SAAS,yBAAyB,CAAC,MAAM,CAA
C,CAAC,eAAe,CAAC,MAAM,CAAC,UAAU,CAAC,EAAC,CAAC,SAAS,sBAAsB,CAAC,QAAQ,CAAC,CAA
C,OAAO,gBAAgB,EAAE,CAAC,IAAI,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,WAAW,CAAC,WAAW,CA
AC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,QAAQ,CAAC,SAAS,MAAM,CAAC,CAAC,
GAAG,CAAC,yCAAyC,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,SAA
S,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,EAAE,OAAO,WAAW,CAAC,oBAAoB,GAAG,UAAU,EAAE,C
AAC,SAAS,CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,OAAO,KAAK,GAAG,UAAU,
CAAC,CAAC,OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAA
C,SAAS,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,WAAW,CAAC,oBAAoB,CAAC,QAAQ,CAAC,IAAI,CAAC
,CAAC,OAAO,MAAM,CAAC,IAAI,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,iCAAi
C,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,2CAA2C,CAAC,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,
CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,GAA
G,MAAM,CAAC,iBAAiB,CAAC,CAAC,GAAG,IAAI,OAAO,CAAC,MAAM,CAAC,iBAAiB,CA
AC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,
qDAAqD,CAAC,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,CAAC,gBAAgB,EAAE,CAAC,KAAK,CAAC,kBA
AkB,CAAC,CAAC,OAAM,EAAE,CAAC,SAAS,oBAAoB,CAAC,SAAS,CAAC,CAAC,MAAM,SAAS,CAAC,M
AAM,CAAC,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,CAAC,KAAK,EAAE,CAAC,GAAG,OAAO,QAA
Q,EAAE,UAAU,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,IAAI,IAAI,CAAC,QAAQ,C
AAC,IAAI,CAAC,GAAG,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,GAAG,QAAQ,CAAC,GAAG,GAAG,SAA
S,CAAC,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,GAAE,CAAC,KAAI,CAAC,SAAS,GAAG,CAAC,IAAI,
CAAC,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,KAAI,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,G
AAG,GAAG,SAAS,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,CAAC,SAAS,MAAM,EAA
E,CAAC,KAAK,GAAE,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,MAAM
,CAAC,UAAU,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,SAAS,yBAAyB,EAAE,C
AAC,OAAO,MAAM,CAAC,MAAM,CAAC,SAAS,yBAAyB,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,C
AAC,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,UAAU,CAAC,KAAK,GAAG,EAAE,CAAC,CAAC,0BAA0B,CA

AC,UAAU,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,SAAS,uBA
AuB,CAAC,aAAa,CAAC,CAAC,IAAI,OAAO,CAAC,yBAAyB,EAAE,CAAC,IAAI,WAAW,CAAC,UAAU,CAA
C,GAAG,aAAa,CAAC,WAAW,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,IAAI,OAAO,CAAC,CAAC,CAAC,O
AAO,EAAE,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,OAAO,EAAE,CAAC,CAA
C,EAAE,CAAC,OAAO,CAAC,CAAC,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,iBAAiB,CAAC,aAAa,CAAC,
SAAS,CAAC,CAAC,IAAI,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,WAAW,CAAC,OAAO,CAAC,IAAI,CAA
C,GAAG,CAAC,aAAa,CAAC,iBAAiB,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,yBAAy
B,CAAC,OAAO,CAAC,CAAC,GAAG,WAAW,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,OAAO,KAAK,CAAC,
IAAI,QAAQ,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,EAA
E,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,IAAI,CAAC,CAAC,IAAI,MAAM,CAAC,QAAQ,CAAC,O
AAO,CAAC,MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,CAAC,EAAE,IAAI,GAAG,EAAE,CAAC,CAAC,CAA
C,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,EAAE,iBAAiB,CAAC,MAAM,CAAC,CAAC,CAAC,CA
AC,CAAC,MAAM,CAAC,MAAM,CAAC,EAAC,CAAC,KAAI,CAAC,MAAM,CAAC,IAAI,CAAC,IAAI,EAAC,
CAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,QAAQ,CAAC,OAAO,EAAE,C
AAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CA
AC,OAAO,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,YAAY,,CAA
C,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAC,O
AAO,GAAG,CAAC,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,QAA
Q,CAAC,EAAE,CAAC,UAAU,CAAC,WAAW,CAAC,MAAM,CAAC,SAAS,CAAC,EAAE,SAAS,SAAS,CAAC,
EAAE,CAAC,GAAG,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,
CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,M
AAM,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CA
AC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,C
AAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,SAAS,CAAC,EAA
E,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,GAAG,EAAE,IAAG,CAAC,MAAM,CAAC
,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,SAAS,eAAe,EAAE,CAAC,OAAO,CAA
C,CAAC,SAAS,aAAa,EAAE,CAAC,OAAO,EAAE,CAAC,SAAS,QAAQ,CAAC,KAAK,CAAC,CAAC,MAAM,C
AAC,iBAAiB,EAAE,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,OAAO,KAAK,CAAC,SAAS,QAAQ,CAAC,IA
AI,CAAC,CAAC,OAAO,IAAI,EAAE,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,IAAI,W
AAW,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,
KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KA
AK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAA
K,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK
,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,E
AAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE
,CAAC,OAAO,MAAM,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG
,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CA
AC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAA
C,KAAK,EAAE,CAAC,OAAM,CAAC,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAA
C,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAA
G,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG
,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,

AAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,IAAI,CAAC,KAAK,EAAE,CAA
C,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,
KAAK,EAAE,CAAC,OAAO,UAAU,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OA
AO,IAAI,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAA
K,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO
,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,
EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,CAAC,CAAC,OAAO,G
AAG,CAAC,KAAK,GAAG,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,CA
AC,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,OAAO,CAA
C,CAAC,KAAK,EAAE,CAAC,CAAC,GAAG,OAAO,SAAS,GAAG,QAAQ,CAAC,OAAO,SAAS,CAAC,qBAAq
B,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,OAAM,CAAC,
CAAC,CAAC,IAAI,aAAa,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,C
AAC,uBAAuB,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,GAAG,CAAC,SAAS,CAAC,G
AAG,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,
UAAU,EAAE,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,
EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAA
C,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KA
AK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAw
B,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC
,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,gBAAgB,CAAC,MAAM,CAAC,kB
AAkB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CA
AC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,
MAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,KAAK,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,UAAU,C
AAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,
MAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,MAAM
,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,OAAO,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAM,CAA
C,SAAS,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CA
AC,QAAQ,CAAC,MAM,CAAC,UAAU,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAM,CAAC,cAAc,CAAC,C

AAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CA
AC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CA
AC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,C
AAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,G
AAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CA
AC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAA
C,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,C
AAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAA
M,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI
,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,O
AAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAA
gB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,
SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,a
AAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KA
AK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CA
AC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAA
C,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC
,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM
,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK
,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,CAA
C,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CA
AC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,M
AAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GA
AG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iB
AAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,
CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAA
C,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,UAAU,CAAC,OAAM
,CAAC,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS

,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAA
W,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,
CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,Q
AAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,
CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MA
AM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG
,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAA
M,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,WA
AW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,WAAW,CAAC,MAAM,CAAC,a
AAa,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,I
AAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KA
AK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC
,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM
,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC
,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAA
C,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MA
M,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,C
AAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,
EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAA
C,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KA
AK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CA
AC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,C
AAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,
CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,C
AAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,
CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,
IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAA
C,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
C,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,
MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,
IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,
CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,C
AAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,C
AAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAA

C,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM
,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAA
C,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM
,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,
EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAA
C,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAA
C,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CA
AC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,C
AAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,I
AAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,
OAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAO,CAAC,CAAC,MAAM
,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAA
C,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CA
AC,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,
MAAM,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAm
B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA
AC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MA
AM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAM,
CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAM,CAAC,YAY,CAAC,CAAC,
MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAA
C,IAAI,SAS,CAAC,MAM,CAAC,WAW,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,SAS,CAAC,MAA
M,CAAC,WAW,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAAE,KAK,CAAC,IAI,
CAAC,SAS,CAAC,CAAC,CAAC,IAI,QQQ,CAAC,MAM,CAAC,UU,CAAC,CAAC,UU,CAAC,OA
AM,CAAC,QQQ,CAAC,MAM,CAAC,UU,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,IAI,CA
AC,EAAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MM,CAAC,MM,C
AAC,UU,CAAC,OM,CAAC,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,MM,CAAC,KK,
AAK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,C
AAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,
CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAA
C,IAI,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,MAM
,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,
CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,IAI,
CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,
CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,
CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,
CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,MM,CAAC,MM,CAAC,QQ,CAAC,CAAC,U
AU,CAAC,OM,CAAC,MM,CAAC,MM,CAAC,QQ,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,
CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,UU,CAAC,MM,CAAC,
YY,CAAC,CAAC,UU,CAAC,OM,CAAC,UU,CAAC,MM,CAAC,YY,CAAC,CAAC,
MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,SS,CAAC,MA
M,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,
CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OA
AM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CA
AC,EAAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MM,CAAC,MM,C
AAC,CAAC,UU,CAAC,OM,CAAC,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,MM,CAAC,KK,K
AAK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,C
AAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,
CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAA
C,IAI,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,MAM
,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,
CAAC,SS,CAAC,CAAC,UU,
CAAC,OM,CAAC,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,
IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,kBAAkB,CAAC,MAM,CAA
C,oBAAoB,CAAC,CAAC,UU,CAAC,OM,CAAC,kBAAkB,CAAC,MM,CAAC,oBAAoB,CAAC,CAA
C,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CA

AC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MA
AM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,
CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,M
AAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI
,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,O
AAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO
,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAA
K,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OA
AO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,C
AAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UA
AU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,UAU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,
CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I
AAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,C
AAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CA
AC,CAAC,UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS
,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WA
W,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,C
AAC,CAAC,CAAC,IAAI,YAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAA
Y,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,UAU,CAAC,MAAM,CAAC,YAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,O
AAO,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,SAAS,UAU,CAAC,MAAM,CAAC,CAAC,CAAC,IAI,CAAC,Y
AAY,CAAC,IAAI,CAAC,OAAO,CAAC,+BA+B,CAAC,MAAM,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,C
AAC,OAAM,CAAC,qBAAqB,CAAC,SAAS,SAAS,EAAE,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,EAAE,CA
AC,GAAG,CAAC,SAAS,CAAC,qBAAqB,CAAC,UAAS,CAAC,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAu
B,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,
CAAC,CAAC,MAAM,CAAC,SAAS,KAAK,EAAE,CAAC,GAAG,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CA
AC,MAAM,CAAC,WAAW,CAAC,CAAC,IAAI,CAAC,GAAG,KAAK,CAAC,OAAO,WAW,EAAE,CAAC,OA
AO,EAAE,CAAC,mBAAmB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAA
M,CAAC,sBAAsB,CAAC,EAAE,CAAC,OAAO,GAAE,CAAC,GAAG,MAAM,CAAC,WAW,CAAC,CAAC,C

AAC,MAAM,CAAC,WAAW,CAAC,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,
UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,
GAAE,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,GAAE,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,GAAG,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,S
AAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CA
AC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,S
AAS,CAAC,CAAC,GAAG,EAAE,GAAE,CAAC,CAAC,GAAG,EAAE,CAAC;AAC334B;AACA;AACA,EAAE,
OAAO,iBAAiB,CAAC,KAAK;AAChC,CAAC;AACD,EAAE;AACF,CAAC,GAAG,CAAC;AAEH,cAAc,GAAG,i
BAAiB;;;;ICuBHM,+BAAa;IAK5C,qBAAmB,IAAqD;QAAxE,YACE,iBAAO,SAIR;QALkB,UAAI,GAAJ,IAAI,
CAAiD;;QAHhE,sBAAgB,GAAG,CAAC,CAAC;QAK3B,KAAI,CAAC,IAAI,CAAC,IAAI,CAAC,oBAAoB,CAA
C,YAAY,CAAC,CAAC;QAClD,kBAAkB,GAAG,KAAI,CAAC,IAAI,CAAC,IAAI,CAAC,eAAe,EAAE,CAAC;Q
ACtD,KAAI,CAAC,SAAS,GAAG,IAAIC,oBAAW,CAAC,KAAI,EAAEC,CAAC,CAAC;;KAClD;I
AED,2BAAK,GAAL,UAAM,MAAkC,EAAE,KAAe,EAAE,KAAe;QAExE,IAAM,MAAM,GAAG,EAAC,
EAAE,IAAI,CAAC,gBAAgB,EAAE,EAAC,CAAC;QAC7C,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,MAAM,EA
AE,KAAK,EAAE,KAAK,EAAE,CAAC,CAAC,CAAC;QAC3C,OAAO,MAAM,CAAC;KACf;IAED,gCAAU,GA
AV;QACE,OAAO,IAAI,CAAC,SAAS,CAAC,UAAU,EAAE,CAAC;KACpC;IAEK,0BAAI,GAAV,UAAW,CAAa
;;;;gBAChB,KAAK,GAAGrH,aAAI,CAAC,GAAG,EAAE,CAAC;gBACzB,CAAC,EAAE,CAAC;gBACzB,KAAK,
EAAE,CAAC;gBACzB,KAAK,GAAG,KAAK,CAAC;gBACpC,sBAAO,EAAC,QAAQ,UAAA,EAAC,EAAC;;;KACnB;
IAED,0BAAI,GAAJ,UACI,MAAc,EACd,QAAkB,EAClB,EAAc,EACd,KAAe,EACf,KAAe;QAEnB,IAAM,MAAM,GAAG,EAAC,
EAAE,IAAI,CAAC,gBAAgB,EAAE,EAAC,CAAC;QAC7C,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,MAAM,EA
AE,KAAK,EAAE,KAAK,EAAE,CAAC,CAAC,CAAC;QAC3C,OAAO,MAAM,CAAC;KACf;IAED,0BAAI,GAAJ,UAAK,
MAAc,EAAE,KAAe,EAAE,KAAe;QAEpD,IAAM,MAAM,GAAG,EAAC,EAAE,IAAI,CAAC,gBAAgB,EAAE,
EAAC,CAAC;QAC7C,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,CAAC,
CAAC,CAAC;QAC3C,OAAO,MAAM,CAAC;KACf;IAED,0BAAI,GAAJ,UAAK,MAAc,EAAE,KAAe,EAAE,KAAe;
QAEpD,IAAM,MAAM,GAAG,EAAC,EAAE,IAAI,CAAC,gBAAgB,EAAE,EAAC,CAAC;QAC7C,IAAI,CAAC,IAAI,
CAAC,MAAM,EAAE,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,CAAC,CAAC,CAAC;QAC3C,OAAO,MAAM,CAAC;
KACf;IAED,0BAAI,GAAJ,UAAK,MAAc,EAAE,KAAe,EAAE,KAAe;QAEpD

S,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,YAAY,CAAC;KAChD;IAED,6BAAO,GAAP;QACE,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,EAAE,CAAC;QACzB,IAAI,SAAS,IAAI,IAAI,CAAC,IAAI,EAAE;YAC1B,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,mBAAmB,EAAE,CAAC;SACzC;QACD,IAAI,CAAC,IAAI,GAAG,IAAI,CAAC;KAClB;IAED,4BAAM,GAAN;QACE,OAAO,EAAC,UAAU,EAAE,KAAK,EAAE,CAAC;KAC5B;;;;;;;IAQD,gCAAU,GAAV,UAAW,KAAe,EAAE,KAAe,EAAE,YAAqB;QAAhE,iBAEC;QADC,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,YAAY,CAAC,CAAC;QAC9C,OAAO,IAAI,CAAC;KACb;IAED,+BAAS,GAAT,UAAU,KAAe,EAAE,KAAe,EAAE,YAAqB;QAAj

AAE,CAAC,EACpC,EAAC,IAAI,EAAE,iBAAiB,EAAC,CAAC,CAAC;gCAC/B,IAAI,GAAGA,2BAAuB,CAAC,aAAa,CAAC,CAAC;6BAC/C;iCAAM;;gCAEL,IAAI,GAAGC,eAAW,CAAC,aAAa,CAAC,CAAC;6BACnC;;;4BAID,IAAI,CAAC,IAAI,CAAC,UAAC,MAAM;gCACf,WAAW,GAAG,IAAI,CAAC;gCACnB,WAAW,GAAG,KAAK,CAAC;gCAEpB,IAAM,cAAc,GAAW,IAAI,CAAC;;gCAEpC,MAAM,CAAC,IAAI,GAAG;oCACZ,IAAI,EAAE,MAAM,CAAC,KAAK,CAAC,MAAM,EAAE,IAAI,EAAE,EAAE,CAAC;oCACpC,oBAAoB,EAChB,MAAM,CAAC,KAAK,CAAC,yBAAyB,EAAE,IAAI,EAAE,EAAE,CAAC,QAAQ,CAAC,CAAC;oCAC7D,eAAe,EAAE,MAAM,CAAC,KAAK,CAAC,mBAAmB,EAAE,QAAQ,EAAE,EAAE,CAAC;oCAChE,cAAc,EAAE,MAAM,CAAC,KAAK,CAAC,CAAC,EAAE,EAAE,MAAM,CAAC,KAAK,CAAC,CAAC,EAAE,EAAE,CAAC;oCACrD

Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n\"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/types.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Reverse.js","sourceRoot":"","sources":["../../src/kernels/Reverse.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,OAAO,EAA2C,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIvH,OAAO,EAAC,QAAQ,EAAC,MAAM,YAAY,CAAC;AACpC,OAAO,EAAC,OAAO,EAAC,MAAM,WAAW,CAAC;AAElC,OAAO,EAAC,IAAI,EAAE,8C,CAAC;AAEnD,SAAS,KAAK,CAAC,OAAO;AAAE,QAAC,QAAQ,EAAE,QAAQ,EAAE,QAAQ,EAAE

'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes: Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend:
BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n 'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', // out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs, backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length === 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n
const reshaped =\n reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reverse.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2020 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernel_utils/shared.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Pack.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Mean.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/OneHot.js
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Identity.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cumsum.js

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/register_all_kernels.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/SplitV.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Neg.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/OnesLike.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ZerosLike.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Neg.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Select.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Prod.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prod.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Step.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV4.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Pack.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/base.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Equal.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/flags_wasm.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Floor.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Range.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2DBackpropInput.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Cumsum.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sqrt.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/OnesLike.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/flags_wasm.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Conv2DBackpropInput.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prod.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Step.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/base.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Fill.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Range.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Neg.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reverse.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NotEqual.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SplitV.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Floor.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Softmax.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/flags_wasm.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Mean.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Identity.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sqrt.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/NonMaxSuppressionV4.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ZerosLike.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/TopK.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/TopK.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Select.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Select.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Softmax.js

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/NotEqual.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/TopK.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Sqrt.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/base.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/ZerosLike.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/OneHot.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/OnesLike.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Conv2DBackpropInput.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Floor.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Step.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernel_utils/shared.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/register_all_kernels.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Fill.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Softmax.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Mean.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Reverse.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NotEqual.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/wasm-out/tfjs-backend-wasm-threaded-simd.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NonMaxSuppressionV4.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Equal.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Pack.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Equal.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SplitV.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reverse.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Range.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernel_utils/shared.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Fill.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cumsum.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Identity.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/OneHot.ts
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Ceil.js","sourceRoot":"","sources":["../../src/kernels/Ceil.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAaeG;AACH,OAAO,EAAe,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,UAAU,GAAe,uBAAuB,CAAC,IAAI,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ===\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Ceil.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Tile.js","sourceRoot":"","sources":["../../src/kernels/Tile.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,IAAI,EAAwB,MAAM,uBAAuB,CAAC;AAI5F,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,OAAO,EAAE,IAAI,QAAE2D,CAAC;AAEhE,OAAO,EAAE,SAAS,CAAC,OAAOoB,CAAC,UAAU,EAAE,IAAI,EAAE,SAAS,CAAC,UAAU,EAAE,SAAS,CAAC,UAAU,EAAE,SAAS,CAAC,UAAU

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tile.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Cosh.js","sourceRoot":"","sources":["../../src/kernels/Cosh.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,IAAI,EAAE,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,UAAU,GAAG,uBAAuB,CAAC,IAAI,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n\n * ===\n*/\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cosh.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"DepthToSpace.js","sourceRoot":"","sources":["../../src/kernels/DepthToSpace.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,IAAI,EAAE,MAAM,uBAAuB,CAAC;AAE5C,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,gBAAgB,GAAG,uBAAuB,CAAC,UAAU,CAAC,CAAC

C,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IACnD,gBAAgB,CACZ,GAAG,EAAE,SAAS,EAAE,YAAA
Y,EAAE,aAAa,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,GAAG,CAAC,EAC/D,gBAAgB,EAAE,eAAe,EAAE
,WAAW,CAAC,MAAM,EAAE,KAAK,CAAC,CAAC;IAElE,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM
,CAAC,MAAM,kBAAkB,GAAiB;IAC9C,UAAU,EAAE,YAAY;IACxB,WAAW,EAAE,MAAM;IACnB,SAAS,E
AAE,KAAK;IAChB,UAAU,EAAE,YAAgC;CAC7C,CAAC","sourcesContent":["/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
 or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==\n
*/\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace:
(\n   xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n   xStridesLength: number,
outputShape: Uint8Array, outputStrides: Uint8Array,\n   outSize: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null
/*void*/, [\n   'number', // xId\n   'number', // blockSize\n   'number', // channelsLast\n   'array',   // xStrides\n
'number', // xStridesLength\n   'array',   // outputShape\n   'array',   // outputStrides\n   'number', // outSize\n
'number',
  // outId\n]);\n}\n\nexport function depthToSpace(args: {\n backend: BackendWasm,\n inputs:
DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n
const {x} = inputs;\n const {blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight
= (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ?
x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const
outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth =
inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n   [batchSize,
outputHeight, outputWidth, outputDepth] :\n   [batchSize, outputDepth, outputHeight, outputWidth];\n\n const
out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const
xId = xData.id;\n const
 xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const
outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n   new
Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId =
backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n
wasmDepthToSpace(\n   xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n   outputShapeBytes,
outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig
= {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as
{} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthToSpace.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"tf-backend-
wasm.es2017.min.js","sources":["../src/kernels/types.ts","../src/kernels/_FusedMatMul.ts","../src/kernels/unary_kern
el.ts","../src/kernels/Abs.ts","../src/kernels/binary_kernel.ts","../src/kernels/Add.ts","../src/kernels/AddN.ts","../src/ke
rnels/Identity.ts","../src/kernels/Transpose.ts","../src/kernels/kernel_utils.ts","../src/kernels/All.ts","../src/kernels/Any

.ts","../src/kernels/ArgMax.ts","../src/kernels/AvgPool.ts","../src/kernels/Reshape.ts","../src/kernels/BatchMatMul.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Slice.js","../src/kernels/Slice.ts","../src/kernels/BatchToSpaceND.ts","../src/kernels/Cast.ts","../src/kernels/Ceil.ts","../src/kernels/ClipByValue.ts","../src/kernels/Concat.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Concat_impl.js","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/Max.ts","../src/kernels/Maximum.ts","../src/kernels/MaxPool.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/Minimum.ts","../src/kernels/MirrorPad.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/NotEqual.ts","../src/kernels/OneHot.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Pow.ts","../src/kernels/Prelu.ts","../src/kernels/Prod.ts","../src/kernels/Range.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Range_impl.js","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/ScatterNd.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Sin.ts","../src/kernels/Softmax.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/Step.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sub.ts","../src/kernels/Sum.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/Tile.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/Unpack.ts","../src/kernels/ZerosLike.ts","../src/register_all_kernels.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../src/base.ts","../src/version.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */

/\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, activation: number, biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null / void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number', // activation\n 'number', // biasId\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number' // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null)\n {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, outType || x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n return out;\n }\n\n return

{kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==========\n */\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs:
BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype ===
'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n

* See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const
{inputs, backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n
kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from

'./Identity';\nimport
{CppDType} from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength:
number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction
setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n
'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // dtype\n 'number', // outId\n
'array', // perm\n 'number', // perm.length\n]);\n}\n\nexport function transpose(\n args:\n {inputs:
TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n TensorInfo {\n const {inputs, backend,
attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to
simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape,
attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n if (perm[i] !== i) {\n
permIsNoOp = false;\n }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n
dataId: inputs.x.dataId,\n shape: reducedShape,\n dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n const
cloned = identity({inputs, backend});\n cloned.shape = outShape;\n return cloned;\n }\n\n const out =
backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId =
backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n
const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n xId,
xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n perm.length);\n return
out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new
Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n outShape[i] = inShape[perm[i]];\n }\n
return outShape;\n}\n\nfunction
removeOneSizeDims(\n shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[]
= [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n if (shape[i] !== 1) {\n
newShape.push(shape[i]);\n }\n if (shape[perm[i]] !== 1) {\n newPerm.push(perm[i]);\n }\n }\n for (let i =
0; i < newPerm.length; ++i) {\n let minValIdx = -1;\n for (let j = 0; j < newPerm.length; ++j) {\n if
(newPerm[j] >= i &&\n (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n minValIdx = j;\n
}\n }\n newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig:
KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as
KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use
this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from
'../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose
if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n *
@param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n x: TensorInfo,
axis:
number|number[], backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes:
number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n
const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes =
backend_util.getAxesPermutation(axes, xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if
(permutedAxes != null) {\n const newShape: number[] = new Array(xRank);\n for (let i = 0; i <
newShape.length; i++) {\n newShape[i] = xShape[permutedAxes[i]];\n }\n\n axes =
backend_util.getInnerMostAxes(axes.length, xRank);\n xTransposed =\n transpose({inputs: {x}, attrs: {perm:
permutedAxes}, backend});\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const transposedId =

backend.dataIdMap.get(xTransposed.dataId).id;\n if (transposedId !== xId) {\n inputWasTransposed = true;\n }\n }\n\n return {transposed:
 xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose}
 from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape,
 axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend,
 inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId =

transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
 License.\n *
==\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n   xId: number, dtype: number, outerSize: number, innerSize: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n 'number', // outer_size\n   'number', // inner_size\n   'number'   // out_id\n]);\n}\n\nfunction argmax(\n   args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
  let inputId = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n
  kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n

```
  xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n    filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n    padBottom: number, padLeft: number, strideHeight: number,\n strideWidth: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n    'number',  // xId\n    'number',  // batchSize\n 'number',  // inputHeight\n    'number',  // inputWidth\n    'number',  // filterHeight\n    'number',  // filterWidth\n 'number',  // padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // strideHeight\n    'number',  // strideWidth\n    'number',  // channels\n    'number',  // outId\n  ]);\n}\n\nfunction avgPool(\n    args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n  const {inputs, attrs, backend} = args;\n\n  const x = inputs.x as Tensor4D;\n  const xId
 = backend.dataIdMap.get(x.dataId).id;\n\n  const {filterSize, strides, pad, dimRoundingMode} = attrs;\n  const convInfo = backend_util.computePool2DInfo(\n      x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n  const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n  const channels = convInfo.inChannels;\n\n  if (convInfo.dataFormat !== 'channelsLast') {\n    throw new Error(\n        `wasm backend does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n  }\n\n  if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n    throw new Error(\n        `was backend only supports average pooling with dilation = [1, 1],
 ` +\n        `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n      xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n      padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n      outId);\n  return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n  kernelName: AvgPool,\n  backendName: 'wasm',\n  setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
 distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==========================================================================\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n    args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n  const {inputs, attrs} = args;\n  const {x} = inputs;\n  const {shape} = attrs;\n\n  const xSize = util.sizeFromShape(x.shape);\n  const $shape = util.inferFromImplicitShape(shape, xSize);\n\n  util.assert(\n      xSize === util.sizeFromShape($shape),\n      () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n          `shape must have the same number of elements.`);\n\n  // Backend needs to track
 refCount for the dataId for reshape op\n  args.backend.incRef(x.dataId);\n  return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n  kernelName: Reshape,\n  backendName: 'wasm',\n  kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
```

governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null /* void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number' // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const {transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n () => `Error in matMul: the input batch dimensions must either be the ` +\n `same or at least one input batch dimension must be 1. Got input ` +\n `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n innerShapeA === innerShapeB,\n () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n `${b.shape} and transposeA=${transposeA}` +\n ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation\n is designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape\n = outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport { backend_util, buffer, Slice, slice_util, util } from '@tensorflow/tfjs-core';\nimport { assertNotComplex } from '../cpu_util';\nexport function sliceImpl(vals, begin, size, shape, dtype) {\n const isContinous = slice_util.isSliceContinous(shape, begin, size);\n const length = util.sizeFromShape(size);\n const xStrides = util.computeStrides(shape);\n if (isContinous) {\n const flatOffset = slice_util.computeFlatOffset(begin, xStrides);\n if (dtype === 'string') {\n return vals.slice(flatOffset, flatOffset + length);\n }\n return vals.subarray(flatOffset, flatOffset + length);\n }\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(vals) :\n vals;\n const inBuf = buffer(shape, dtype, decodedData);\n const outBuf = buffer(size, dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n const outLoc = outBuf.indexToLoc(i);\n const inLoc = outLoc.map((idx, j) => idx + begin[j]);\n outBuf.set(inBuf.get(...inLoc), ...outLoc);\n }\n if (dtype === 'string') {\n return backend_util.fromStringArrayToUint8(outBuf.values);\n }\n return outBuf.values;\n}\nexport function slice(args) {\n const { inputs, backend, attrs } = args;\n const { x } = inputs;\n const { begin, size } = attrs;\n assertNotComplex(x, 'slice');\n const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n const vals = backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n kernelName: Slice,\n backendName: 'cpu',\n kernelFunc: slice\n};\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQU8sRUFBQyxRQUFRLEVBQUUsTUFBTSxFQUFFLEtBQUssRUFBRSxXQUFXLEVBQUUsSUFBSSxFQUFDLE1BQU0sMEJBQTBCO0FBQUMsRUFBQyxtQkFBbUIsRUFBQyxNQUFNLGlCQUFpQjtBQUFDLFNBQVMsU0FBUyxDQUFDLElBQUksRUFBRSxLQUFLLEVBQUUsSUFBSSxFQUFFLEtBQUssRUFBRSxLQUFLLEVBQUU7SUFBQyxNQUFNLFdBQVcsR0FBRyxXQUFXLENBQUMsaUJBQWlCLENBQUMsS0FBSyxFQUFFLEtBQUssRUFBRSxJQUFJLENBQUMsQ0FBQztJQUFDLE1BQU0sTUFBTSxHQUFHLElBQUksQ0FBQyxlQUFlLENBQUMsSUFBSSxDQUFDLENBQUM7SUFBQyxNQUFNLFFBQVEsR0FBRyxJQUFJLENBQUMsZUFBZSxDQUFDLEtBQUssQ0FBQyxDQUFDO0lBQUMsSUFBSSxDQUFDLFdBQVcsRUFBRTtRQUFDLE1BQU0sVUFBVSxHQUFHLFdBQVcsQ0FBQyxpQkFBaUIsQ0FBQyxLQUFLLEVBQUUsUUFBUSxDQUFDLENBQUM7UUFBQyxJQUFJLEtBQUssS0FBSyxRQUFRLEVBQUU7WUFBQyxPQUFPLElBQUksQ0FBQyxLQUFLLENBQUMsVUFBVSxFQUFFLFVBQVUsR0FBRyxNQUFNLENBQUMsQ0FBQztTQUFDO1FBQUMsT0FBTyxJQUFJLENBQUMsUUFBUSxDQUFDLFVBQVUsRUFBRSxVQUFVLEdBQUcsTUFBTSxDQUFDLENBQUM7S0FBQztJQUFDLE1BQU0sV0FBVyxHQUFHLEtBQUssS0FBSyxRQUFRLENBQUMsQ0FBQyxDQUFDLFlBQVksQ0FBQyxzQkFBc0IsQ0FBQyxJQUFJLENBQUMsQ0FBQyxDQUFDLElBQUksQ0FBQztJQUFDLE1BQU0sS0FBSyxHQUFHLE1BQU0sQ0FBQyxLQUFLLEVBQUUsS0FBSyxFQUFFLFdBQVcsQ0FBQyxDQUFDO0lBQUMsTUFBTSxNQUFNLEdBQUcsTUFBTSxDQUFDLElBQUksRUFBRSxLQUFLLENBQUMsQ0FBQztJQUFDLEtBQUssSUFBSSxDQUFDLEdBQUcsQ0FBQyxFQUFFLENBQUMsR0FBRyxNQUFNLENBQUMsSUFBSSxFQUFFLEVBQUUsQ0FBQyxFQUFFO1FBQUMsTUFBTSxNQUFNLEdBQUcsTUFBTSxDQUFDLFdBQVcsQ0FBQyxDQUFDLENBQUMsQ0FBQztRQUFDLE1BQU0sS0FBSyxHQUFHLE1BQU0sQ0FBQyxHQUFHLENBQUMsQ0FBQyxHQUFHLEVBQUUsQ0FBQyxDQUFDLEVBQUUsRUFBRSxDQUFDLEdBQUcsR0FBRyxLQUFLLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQztRQUFDLE1BQU0sQ0FBQyxHQUFHLENBQUMsS0FBSyxDQUFDLEdBQUcsQ0FBQyxLQUFLLENBQUMsRUFBRSxHQUFHLE1BQU0sQ0FBQyxDQUFDLENBQUM7S0FBQztJQUFDLElBQUksS0FBSyxLQUFLLFFBQVEsRUFBRTtRQUFDLE9BQU8sV0FBVyxDQUFDLHVCQUF1QixDQUFDLE1BQU0sQ0FBQyxNQUFNLENBQUMsQ0FBQztLQUFDO0lBQUMsT0FBTyxNQUFNLENBQUMsTUFBTSxDQUFDO0FBQUEsQ0FBQztBQUFDLE1BQU0sVUFBVSxLQUFLLENBQUMsSUFBSSxFQUFFO0lBQUMsTUFBTSxFQUFDLE1BQU0sRUFBRSxPQUFPLEVBQUUsS0FBSyxFQUFDLEdBQUcsSUFBSSxDQUFDO0lBQUMsTUFBTSxFQUFDLENBQUMsRUFBQyxHQUFHLE1BQU0sQ0FBQztJQUFDLE1BQU0sRUFBQyxLQUFLLEVBQUUsSUFBSSxFQUFDLEdBQUcsS0FBSyxDQUFDO0lBQUMsZ0JBQWdCLENBQUMsQ0FBQyxFQUFFLE9BQU8sQ0FBQyxDQUFDO0lBQUMsTUFBTSxDQUFDLE1BQU0sRUFBRSxNQUFNLENBQUMsR0FBRyxXQUFXLENBQUMsZ0JBQWdCLENBQUMsQ0FBQyxFQUFFLEtBQUssRUFBRSxJQUFJLENBQUMsQ0FBQztJQUFDLFdBQVcsQ0FBQyxnQkFBZ0IsQ0FBQyxDQUFDLEVBQUUsTUFBTSxFQUFFLE1BQU0sQ0FBQyxDQUFDO0lBQUMsTUFBTSxJQUFJLEdBQUcsT0FBTyxDQUFDLElBQUksQ0FBQyxHQUFHLENBQUMsQ0FBQyxDQUFDLE1BQU0sQ0FBQyxDQUFDLE1BQU0sQ0FBQztJQUFDLE1BQU0sT0FBTyxHQUFHLFNBQVMsQ0FBQyxJQUFJLEVBQUUsTUFBTSxFQUFFLEtBQUssRUFBRSxDQUFDLENBQUMsS0FBSyxFQUFFLENBQUMsQ0FBQyxLQUFLLENBQUMsQ0FBQztJQUFDLE9BQU8sT0FBTyxDQUFDLGNBQWMsQ0FBQyxLQUFLLEVBQUUsQ0FBQyxDQUFDLEtBQUssRUFBRSxPQUFPLENBQUMsQ0FBQztBQUFBLENBQUM7QUFBQyxNQUFNLENBQUMsTUFBTSxXQUFXLEdBQUcsRUFBQyxVQUFVLEVBQUUsS0FBSyxFQUFFLGFBQWEsRUFBRSxLQUFLLEVBQUUsVUFBVSxFQUFFLEtBQUssRUFBQyxDQUFDO0FBQUMsTUFBTSxDQUFDLE1BQU0sV0FBVyxHQUFHLEVBQUMsVUFBVSxFQUFFLEtBQUssRUFBRSxhQUFhLEVBQUUsS0FBSyxFQUFFLFVBQVUsRUFBRSxLQUFLLEVBQUMsQ0FBQztBQUFDLE1BQU0sQ0FBQyxNQUFNLFdBQVcsR0FBRyxFQUFDLFVBQVUsRUFBRSxLQUFLLEVBQUUsYUFBYSxFQUFFLEtBQUssRUFBRSxVQUFVLEVBQUUsS0FBSyxFQUFD

NLEVBQUUsT0FBTyxFQUFFLEtBQUssRUFBQyxHQUFHLElBQUksQ0FBQztJQUN0QyxNQUFNLEVBQUMsQ0FBQyxFQUFDLEdLEdBQUcsTUFBTSxDQUFDO0lBQ25CLE0sRUFBQyxFQUFDLEdLEdBQUcsTUFBTSxDQUFDO

XJuIG91dEJ1Zi52YWx1ZXMgYXMgVHlwZWRBcnJheTtcbn1cblxuZXhwb3J0IGZ1bmN0aW9uIHNsaWNlKFxu
ICAgIGFyZ3M6IHtpbnB1dHM6IFNsaWNlSW5wdXRzLCBiYWNrZW5kOiBBNYXRoQmFja2VuZENQVSwgYX
R0cnM6IFNsaWNlQXR0cnN9KTpcbiAgICBUZW5zb3JJbmZvIHtcbiAgY29uc3Qge2lucHV0cywgYmFja2VuZC
wgYXR0cnN9ID0gYXJncztcbiAgY29uc3Qge3h9ID0gaW5wdXRzO1xuICBjb25zdCB7YmVnaW4sIHNpemV9ID
0gYXR0cnM7XG5cbiAgY29uc3QgW2JlZ2luXywgc2l6ZV9dID0gc2xpY2VfdXRpbC5wYXJzZVNsaWNlUGFy
YW1zKHgsIGJlZ2luLCBzaXplKTtcblxuICBjb25zdCBpc0NvbnRpbnVvdXMgPSBzbGljZV91dGlsLmlzU2xpY2
VDb250aW51b3VzKHguc2hhcGUsIGJlZ2luXywgc2l6ZV8pO1xuICBjb25zdCB4VmFscyA9IGJhY2tlbmQucm
VhZFN5bmMoeC5kYXRhSWQpO1xuICBjb25zdCBvdXQgPSBiYWNrZW5kLm1ha2VPdXRwdXQoc2l6ZV8sIHguZH
R5cGUpO1xuICBjb25zdCB4U3RyaWRlcyA9IHV0aWwuY29tcHV0ZVN0cmlkZXMoeC5zaGFwZSk7XG4gIGNv
bnN0IG91dERhdGEgPSBiYWNrZW5kLmRhdGFJZE1hcC5nZXQob3V0LmRhdGFJZCk7XG5cbiAgaWYgKGlzQ29udG
lub3VzKSB7XG4gICAgY29uc3QgZmxhdE9mZnNldCA9XG4gICAgICAgIHNsaWNlX3V0aWwuY29tcHV0ZUZsYX
RPZmZzZXQoYmVnaW5fLCB4U3RyaWRlcyk7XG5cbiAgICBpZiAoeC5kdHlwZSA9PT0gJ3N0cmluZycpIHtcbiAg
ICAgIG91dERhdGEuc3RyaW5nQnl0ZXMgPVxuICAgICAgICAgIChcbiAgICAgICAgICAgICAgeFZhbHMgYXMgVWludDhBcnJheVtdKVxuICAgICAgICAgICAgICAgICAgLnNsaWNlKGZsYXRPZmZzZXQsIGZsYXRPZmZzZXQgKyB1dGlsLnNpemVGcm9tU2hhcGUoc2l6ZV8pKTtcbiAgICB9IGVsc2Uge1xuICAgICAgY2
9uc3Qgb3V0VmFscyA9IGJhY2tlbmQudHlwZWRBcnJheUZyb21IZWFwKG91dCk7XG4gICAgICBvdXRWYWxzLnNl
dChcbiAgICAgICAgICAoeFZhbHMgYXMgVHlwZWRBcnJheSlcbiAgICAgICAgICAgICAgLnN1YmFycmF5KGZsYX
RPZmZzZXQsIGZsYXRPZmZzZXQgKyB1dGlsLnNpemVGcm9tU2hhcGUoc2l6ZV8pKSk7XG4gICAgfVxuXG4gICAg
cmV0dXJuIG91dDtcbiAgfVxuXG4gIGlmICh4LmR0eXBlID09PVxuICAgICAgJ3N0cmluZycpIHtcbiAgICBjb2
5zdCByZXMgPSBzbGljZUltcGxDUFUoeFZhbHMsIGJlZ2luXywgc2l6ZV8sIHguc2hhcGUsIHguZHR5cGUpO1xu
ICAgIG91dERhdGEuc3RyaW5nQnl0ZXMgPSByZXMgYXMgVWludDhBcnJheVtdO1xuICAgIHJldHVybiBvdXQ7Xn
IH1cblxuICBjb25zdCBvdXRWYWxzID0gYmFja2VuZC50eXBlZEFycmF5RnJvbUhlYXAob3V0KTtcbiAgY29u
c3QgcmFuayA9IHguc2hhcGUubGVuZ3RoO1xuICBpZiAocmFuayA9PT0gMikge1xuICAgIHNsaWNlMmQoXG4gICAgICAgIH
hWYWxzIGFzIFR5cGVkQXJyYXksIHhTdHJpZGVzWzBdLCBvdXRWYWxzLCBiZWdpbl8gYXMgW251bWJlciwgbnVtYmVy
XSxcbiAgICAgICAgc2l6ZV8gYXMgW251bWJlciwgbnVtYmVyXSk7XG4gIH0gZWxzZSBpZiAocmFuayA9PT0gMykge1xu
ICAgIHNsaWNlM2QoXG4gICAgICAgIHhWYWxzIGFzIFR5cGVkQXJyYXksIHhTdHJpZGVzWzBdLCB4U3RyaWRlc1sxXS
wgb3V0VmFscyxcbiAgICAgICAgYmVnaW5fIGFzIFtudW1iZXIsIG51bWJlciwgbnVtYmVyXSwgc2l6ZV8gYXMgW251bW
JlciwgbnVtYmVyLCBudW1iZXJdKTtcbiAgfSBlbHNlIGlmIChyYW5rID09PSA0KSB7XG4gICAgc2xpY2U0ZChcbiAgICAg
ICAgeFZhbHMgYXMgVHlwZWRBcnJheSwgeFN0cmlkZXNbMF0sIHhTdHJpZGVzWzFdLCB4U3RyaWRlc1syXSwgb3V0VmFs
cyxcbiAgICAgICAgYmVnaW5fIGFzIFtudW1iZXIsIG51bWJlciwgbnVtYmVyLCBudW1iZXJdLFxuICAgICAgICBzaX
plXyBhcyBbbnVtYmVyLCBudW1iZXIsIG51bWJlciwgbnVtYmVyXSk7XG4gIH0gZWxzZSB7XG4gICAgY29uc3QgcmVz
ID1cbiAgICAgICAgc2xpY2VJbXBsQ1BVKHhWYWxzLCBiZWdpbl8sIHNpemVfLCB4LnNoYXBlLCB4LmR0eXBlKSBhcyBUeX
BlZEFycmF5O1xuICAgIG91dFZhbHMuc2V0KHJlcyk7XG4gIH1cblxuICByZXR1cm4gb3V0O1xufVxuXG5mdW5jdGlv
biBzbGljZTJkKFxuICAgIHhWYWxzOiBiYWNrZW5kX3V0aWwuVHlwZWRBcnJheSwgeFN0cmlkZTogbnVtYmVyLFxuICAgIG
91dFZhbHM6IGJhY2tlbmRfdXRpbC5UeXBlZEFycmF5LCBiZWdpbjogW251bWJlciwgbnVtYmVyXSxcbiAgICBzaXplOiBb
bnVtYmVyLCBudW1iZXJdKTogdm9pZCB7XG4gIGxldCBvdXRPZmZzZXQgPSAwO1xuICBjb25zdCBiZWdpbkkgPSBiZWdpbl
swXTtcbiAgY29uc3QgYmVnaW5KID0gYmVnaW5bMV07XG4gIGNvbnN0IGVuZEkgPSBiZWdpbkkgKyBzaXplWzBd
O1xuICBmb3IgKGxldCBpID0gYmVnaW5JOyBpIDwgZW5kSTsgaSsrKSB7XG4gICAgY29uc3QgeE9mZnNldCA9IGkgKi
B4U3RyaWRlICsgYmVnaW5KO1xuICAgIG91dFZhbHMuc2V0KHhWYWxzLnN1YmFycmF5KHhPZmZzZXQsIHhPZmZzZXQg
KyBzaXplWzFdKSwgb3V0T2Zmc2V0KTtcbiAgICBvdXRPZmZzZXQgKz0gc2l6ZVsxXTtcbiAgfVxufVxuXG5mdW5jdGlv
biBzbGljZTNkKFxuICAgIHhWYWxzOiBiYWNrZW5kX3V0aWwuVHlwZWRBcnJheSwgeFN0cmlkZTE6IG51bWJlciwgeFN0cm
lkZTI6IG51bWJlcixcbiAgICBvdXRWYWxzOiBiYWNrZW5kX3V0aWwuVHlwZWRBcnJheSwgYmVnaW46IFtudW1iZXIsIG51
bWJlciwgbnVtYmVyXSxcbiAgICBzaXplOiBbbnVtYmVyLCBudW1iZXIsIG51bWJlcl0pOiB2b2lkIHtcbiAgbGV0IG
91dE9mZnNldCA9IDA7XG4gIGNvbnN0IGJlZ2luSSA9IGJlZ2luWzBdO1xuICBjb25zdCBiZWdpbkogPSBiZWdpblsx
XTtcbiAgY29uc3QgYmVnaW5LID0gYmVnaW5bMl07XG4gIGNvbnN0IGVuZEkgPSBiZWdpbkkgKyBzaXplWzBd
O1xuICBjb25zdCBlbmRKID0gYmVnaW5KICsgc2l6ZVsxXTtcbiAgZm9yIChsZXQgaSA9IGJlZ2luSTsgaSA8IGVuZE
k7IGkrKykge1xuICAgIGZvciAobGV0IGogPSBiZWdpbko7IGogPA

endJ; j++) {\n const xOffset = i * xStride1 + j * xStride2 + beginK;\n outVals.set(xVals.subarray(xOffset, xOffset + size[2]), outOffset);\n outOffset += size[2];\n }\n }\n}\n\nfunction slice4d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n xStride3: number, outVals: backend_util.TypedArray,\n begin: [number, number, number, number],\n size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n for (let k = beginK; k < endK; k++) {\n const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n inputs: {x: xTransposedReshaped},\n backend,\n attrs: {begin: sliceBeginCoords,\n size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function cast(\n args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals =

backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
 may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null / void */, [\n   'number', // x_id\n   'number', // min\n   'number', // max\n   'number'   // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const
 {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n   args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length
 === 1) {\n   return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n   return out;\n

}\n\n const shapes = $inputs.map(t => t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n   // Any concat of n-dimensional tensors across any axis can be reduced to\n   // a concatenation of two-dimensional tensors across the axis 1 by first\n   // partitioning the axes of the original tensors into those less than the\n   // axis to be concatenated and the rest. Then reshape the tensors\n   // into a two-dimensional tensor by collapsing these two sets of axes and\n   // concatenate the resulting matrices across the axis 1, finally reshaping\n   // the result to have the proper shape.\n   const inputs2D = $inputs.map(t => {\n   const innerSize = util.sizeFromShape(t.shape.slice(axis));\n   const shape = [-1, innerSize];\n   return reshape({inputs: {x: t}, backend, attrs: {shape}});\n   });\n\n   const inputsValShapes = inputs2D.map(t => {\n   return {vals: backend.readSync(t.dataId), shape: t.shape};\n   });\n\n   // Concats 2d tensors along axis=1.\n   outShape =\n   backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n   const simplyConcat = inputs2D[0].shape[0] === 1;\n   const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n   simplyConcat) as string[];\n\n   const finalOutShape =\n   backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n   out.shape = finalOutShape;\n   const outData = backend.dataIdMap.get(out.dataId);\n   outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n   inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n   return out;\n }\n\n const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n const innerDims = $inputs.map(input => {\n   const innerDim = util.sizeFromShape(input.shape.slice(axis));\n   sumInnerDims += innerDim;\n   return innerDim;\n });\n const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n   let outOffset = b * sumInnerDims;\n   for (let i = 0; i < inVals.length; i++) {\n   const innerDim = innerDims[i];\n   const inOffset = b * innerDim;\n   const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n   outVals.set(vals, outOffset);\n   outOffset += innerDim;\n   }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function concatImpl(inputs, outShape, dtype, simplyConcat) {\n   const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n   if (simplyConcat && dtype !== 'string') {\n   // Use built-in TypedArray.set() method for speed.\n   let offset = 0;\n   inputs.forEach(input => {\n   const size = util.sizeFromShape(input.shape);\n   outVals.set(input.vals, offset);\n   offset += size;\n   });\n   }\n   else {\n   let colOffset = 0;\n   inputs.forEach(input => {\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(input.vals) :\n   input.vals;\n   let tIdx = 0;\n   for (let row = 0; row < input.shape[0]; ++row) {\n   const resIdx = row * outShape[1] + colOffset;\n   for (let col = 0; col < input.shape[1]; ++col) {\n   outVals[resIdx + col] = decodedData[tIdx++];\n   }\n   }\n   colOffset += input.shape[1];\n   });\n   }\n   return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7OztzOzs7OzsgOzs7OzsgOzs7Ozsg

xFQUFFLFlBQXFCO0lBQ3hDLE1BQU0sT0FBTyxHQUFHLElBQUksQ0FBQyxpQkFBaUIsQ0FBQyxLQUFLL
EVBQUUsSUFBSSxDQUFDLGFBQWEsQ0FBQyxRQUFRLENBQUMsQ0FBQyxDQUFDO0lBRTVFLElBQUk
sWUFBWSxJQUFJLEtBQUssS0FBSyxRQUFRLEVBQUU7UUFDdEMsa0RBQWtEO1FBQ2xELElBQUksTUFB
TSxHQUFHLENBQUMsQ0FBQztRQUNmLE9BQU0sTUFBTSxHQUFHLENBQUMsQ0FBQyxDQUFDLEVBQUU
U7WUFDckIsTUFBTSxJQUFJLEdBQUcsSUFBSSxDQUFDLGFBQWEsQ0FBQyxLQUFLLENBQUMsS0FBSy
xDQUFDLENBQUM7NUMsT0FBc0IsQ0FBQyxHQUFHLENBQUMsQ0FBQyxDQUFDLElBQUksQ0FBQyxLLE
CLElBQUksSUFBSSxHQUFHLENBQUMsQ0FBQztZQUVmLEtBQUssSUFBSSxDQUFDLEdBQUcsQ0FBQyxFQ
QUFFLEdBQUcsR0FBRyxLQUFLLENBQUMsS0FBSyxDQUFDLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQ
BRyxFQUFFO2dCQUM3QyxNLE1BQU0sR0FBRyxHQUFHLENBQUMsUUFBUSxDQUFDLENBQUMsQ0FBQyxDQ
0FBQyxHQUFHLFNBQVMsQ0FBQ3tnQkFDN0MsMsS0FBSyxJQUFJLEdBQUcsR0FBRyxDQUFDLENBQ
QUU7RUFBRSxHQUFHLENBQUMsQ0FBQyxDQUFDLEVBQUUsRUFBRSxHQUFHLENBQUMsQ0FBQyxDQ
QUU7b0JBQzdDLE9BQU8sR0FBRyxDQUFDLENBQUMsQ0FBQyxDQUFDLEdBQUcsQ0FBQyxDQUFDLEdBQ
UksRUFBRSxDQUFDLENBQUM7aUJDO2FBQ0wsTUFFTLElBQUksS0FBSyxDQUFDLENBQUMsQ0FBQyxDQ
QUssQ0FBQyxDQUFDLENBQUMsQ0FBQztBQUQ5QyxDQUFDLENBQUM5QixDQUFDLENBQUMsQ0FBQyxDQ
BTyxxPQUFPLENBQUM7QUFDbkIsIjpbIi8qKlxuICogQGxpY2Vuc2VcbiAqIENvcHlyaWdodCAyMDIwIEdvb2dsZSBMTEMuIEFsbCBSaWdodHMgUmVzZXJ2ZWQuXG4gKiBVc2Ugb2YgdGhpcyBzb3VyY2UgY29kZSBpcyBnb3Zlcm5lZCBieSBhIEJTRC1zdHlsZVxuICogbGljZW5zZSB0aGF0IGNhbiBiZSBmb3VuZCBpbiB0aGUgTElDRU5TRSBmaWxlLlxuICovXG5cbid1c2Ugc3RyaWN0JztcblxuLyoqXG4gKiBAZmlsZW92ZXJ2aWV3IFRoaXMgZmlsZSBjb250YWluc1xuICogQGdsaWNlbnNlIEJTRC1zdHlsZVxuICovXG5cbid1c2Ugc3RyaWN0JztcblxuLyoqXG4gKiBAZmlsZW92ZXJ2aWV3IFRoaXMgZmlsZSBjb250YWluc1xuICogQGxpY2Vuc2UgQlNELXN0eWxlXG4gKi9cblxuJ3VzZSBzdHJpY3QnO1xuXG4vKipcbiAqIEBmaWxlb3ZlcnZpZXcgVGhpcyBmaWxlIGNvbnRhaW5zXG4gKiBAbGljZW5zZSBCU0QtMy1DbGF1c2VcbiAqL

gICAgIGZvciAobGV0IGNvbCA9IDA7IGNvbCA8IGlucHV0LnNoYXBlWzFdOyArK2NvbCkge1xuICAgICAgICAgIC
AgIG91dFZhbHNbcmVzSWR4ICsgY29sXSA9IGRlY29kZWREYXRhW3RJZHgrK107XG4gICAgICAgIH1cbiA
gICAgIH1cblxuICAgICAgY29sT2Zmc2V0ICs9IGlucHV0LnNoYXBlWzFdO1xuICAgIH0pO1xuICB9XG5cbiAgcmV0dXJuIG91dFZhbHM7XG59XG4iXX0=","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util,
 Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n 'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n 'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', //
 padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction conv2d(\n   args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n   pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n
  const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend Conv2D does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight,
 dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport
{backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number, xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n
'number', // batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n 'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat,
dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast
? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize,
filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport
const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or

agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig}
from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n *
@license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\n\nexport const coshConfig: KernelConfig =
createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc,
TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast}
from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum
InterpolationMethod {\n bilinear = 0,\n nearest = 1\n}\n\nlet wasmCropAndResize: (\n imagesId: number,
boxesId: number, boxIndId: number, numBoxes: number,\n imagesShape: Uint8Array, cropHeight: number,
cropWidth: number,\n method: number, extrapolationValue: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null
/*void*/, [\n 'number', // imagesId\n 'number', // boxesId\n 'number', // boxIndId\n 'number', // numBoxes\n
'array', // images shape\n 'number', // cropHeight\n 'number', // cropWidth\n 'number', // method\n
'number', // extrapolation value\n 'number' // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend:
BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend,
inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image,
boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as
[number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData =
backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData =
cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData =
backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const
out = backend.makeOutput(outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const
imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n
imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n cropWidth,\n
InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n
extrapolationValue, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n
return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n
backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n *

@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n 'number', // x_id\n 'number', // exclusive\n 'number', // reverse\n 'number', // final_dim\n 'number', // out_id\n 'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n out = transpose(\n {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n 'number', // xId\n 'number', // blockSize\n 'number', // channelsLast\n 'array', // xStrides\n 'number', // xStridesLength\n 'array', // outputShape\n 'array', // outputStrides\n 'number', // outSize\n 'number', // outId\n

```
]);\n}\n\nexport function depthToSpace(args: {\n  backend: BackendWasm,\n  inputs: DepthToSpaceInputs,\n
attrs: DepthToSpaceAttrs\n}): TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {x} = inputs;\n  const
{blockSize, dataFormat} = attrs;\n\n  const batchSize = x.shape[0];\n  const inputHeight = (dataFormat ===
'NHWC') ? x.shape[1] : x.shape[2];\n  const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n
const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n  const outputHeight = inputHeight *
blockSize;\n  const outputWidth = inputWidth * blockSize;\n  const outputDepth = inputDepth / (blockSize *
blockSize);\n\n  const outputShape = (dataFormat === 'NHWC') ?\n      [batchSize, outputHeight, outputWidth,
outputDepth] :\n      [batchSize, outputDepth, outputHeight, outputWidth];\n\n  const out =
backend.makeOutput(outputShape, 'float32');\n\n  const xData = backend.dataIdMap.get(x.dataId);\n  const xId =
xData.id;\n  const xStridesBytes
 =\n      new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n  const outputShapeBytes = new
Uint8Array(new Int32Array(outputShape).buffer);\n  const outStridesBytes =\n      new Uint8Array(new
Int32Array(util.computeStrides(outputShape)).buffer);\n\n  const outId = backend.dataIdMap.get(out.dataId).id;\n
const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n  wasmDepthToSpace(\n      xId, blockSize, channelsLast,
xStridesBytes, x.shape.length - 1,\n      outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n  return
out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n  kernelName: DepthToSpace,\n  backendName:
'wasm',\n  setupFunc: setup,\n  kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs,
DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n    xId: number, batchSize: number,
inputHeight: number, inputWidth: number,\n    filterId: number, filterHeight: number, filterWidth: number, padTop:
number,\n    padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n    dilationHeight:
number, dilationWidth:
 number, strideHeight: number,\n    strideWidth: number, inputChannels: number, outputChannels: number,\n
outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmDepthwiseConv2d =\n
backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n      'number',  // xId\n      'number',  //
batchSize\n      'number',  // inputHeight\n      'number',  // inputWidth\n      'number',  // filterId\n      'number',  //
filterHeight\n      'number',  // filterWidth\n      'number',  // padTop\n      'number',  // padRight\n      'number',  //
padBottom\n      'number',  // padLeft\n      'number',  // isSamePad\n      'number',  // dilationHeight\n
'number',  // dilationWidth\n      'number',  // strideHeight\n      'number',  // strideWidth\n      'number',  //
inputChannels\n      'number',  // outputChannels\n      'number',  // outId\n    ]);\n}\n\nfunction
depthwiseConv2d(args: {\n  inputs: DepthwiseConv2dNativeInputs,\n
 backend: BackendWasm,\n  attrs: DepthwiseConv2dNativeAttrs\n}) {\n  const {inputs, attrs, backend} = args;\n\n
const {x, filter} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId =
backend.dataIdMap.get(filter.dataId).id;\n\n  const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n  const
$dilations = dilations == null ? [1, 1] : dilations;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as
Tensor4D).shape, (filter as Tensor4D).shape, strides,\n      ($dilations as number | [number, number]), pad,
dimRoundingMode,\n      true /* depthwise */);\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth =
convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const
padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n  const dilationHeight =
```

convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n
  const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n
  kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n *
 Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright
 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache
 License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n    inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape, value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n   xId: number, batch: number, imageHeight: number, imageWidth: number,\n   numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n   args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n   imageId, batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n * @license\n * Copyright
2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright
2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n xId: number, meanId: number, varianceId: number, offsetId: number,\n scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmBatchNorm = backend.wasm.cwrap(\n FusedBatchNorm, null /* void */,\n ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) ===
0) {\n return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
under the License.\n *
==========\n

```
*/\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc,
Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n    (xId: number, batchSize: number, inputHeight:
number, inputWidth: number,\n     filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number,
padTop: number, padRight: number, padBottom: number,\n     padLeft: number, isSamePad: number,
dilationHeight: number,\n     dilationWidth: number, strideHeight: number, strideWidth: number,\n
inputChannels: number, outputChannels: number, activation: number,\n     preluActivationWeightsId: number,
leakyreluAlpha: number, outId: number) =>\n         void;\n\nfunction setup(backend: BackendWasm) {\n
wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /*
 void */, [\n    'number',  // xId\n    'number',  // batchSize\n    'number',  // inputHeight\n    'number',  // inputWidth\n
'number',  // filterId\n    'number',  // filterHeight\n    'number',  // filterWidth\n    'number',  // biasId\n    'number',  //
padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // isSamePad\n
 'number',  // dilationHeight\n    'number',  // dilationWidth\n    'number',  // strideHeight\n    'number',  //
strideWidth\n    'number',  // inputChannels\n    'number',  // outputChannels\n    'number',  // activation\n    'number',
// preluActivationWeightsId\n    'number',  // leakyreluAlpha\n    'number',  // outId\n  ]);\n}\n\nfunction
fusedConv2d(args: {\n  inputs: FusedConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedConv2DAttrs\n})
{\n  const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n
strides,\n    pad,\n    dilations,\n
  dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo =
backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n
pad, dimRoundingMode);\n\n  const fusedActivation =\n      FusableActivation[activation as {} as keyof typeof
FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation} activation not yet
supported for FusedConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const
outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData =
backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n
`FusedConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n    if
(biasData.shape[0] !== outputChannels)
 {\n      throw new Error(\n          `FusedConv2D bias shape (${biasData.shape}) does not ` +\n          `match the
number of output channels (${outputChannels})`);\n    }\n    biasId = biasData.id;\n  }\n\n  const filterHeight =
convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const
padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft =
convInfo.padInfo.left;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth =
convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth =
convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type
=== 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const
inWidth = convInfo.inWidth;\n\n  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend
FusedConv2D does not
 support dataFormat:'` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out =
backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const
preluActivationWeightsId = preluActivationWeights == null ?\n      0 :\n
backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n  wasmFusedConv2d(\n      xId, batchSize, inHeight,
inWidth, filterId, filterHeight, filterWidth,\n      biasId, padTop, padRight, padBottom, padLeft, isSamePad,
dilationHeight,\n      dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n      fusedActivation,
preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n  return out;\n}\n\nexport const fusedConv2DConfig:
KernelConfig = {\n  kernelName: FusedConv2D,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc:
fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version
```

2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number,
 filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n
 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number', // outId\n]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n inputs: FusedDepthwiseConv2DInputs,\n backend: BackendWasm,\n attrs: FusedDepthwiseConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n const fusedActivation =\n FusableActivation[activation
 as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n throw new Error(\n `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n
 const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw new Error(\n `wasm backend FusedDepthwiseConv2D does not support dataFormat:'` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights

== null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'number', // indicesId\n 'number', // numSlices\n 'number', //
sliceRank\n 'number', // sliceSize\n 'array', // strides\n 'number' // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n
stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig,
KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n indicesId: number, batchSize: number, outStrides: Uint8Array,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'array', // xStrides\n 'number', // stridesSize\n 'number', // indicesId\n 'number', // batchSize\n 'array', // outStrides\n 'number' // outId\n]);\n}\n\nfunction gatherV2(\n args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x,

indices} = inputs;\n const {axis, batchDims} = attrs;\n\n // Throw error when any
 index is out of bound.\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const indicesVals =
backend.readSync(indices.dataId) as TypedArray;\n const axisDim = x.shape[parsedAxis];\n for (let i = 0; i <
indicesVals.length; ++i) {\n   const index = indicesVals[i];\n   util.assert(\n   index <= axisDim - 1 && index >=
0,\n   () =>\n   `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n }\n\n const
shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n   x as Tensor, indices as Tensor, parsedAxis,
batchDims);\n\n const flattenX = reshape({\n   inputs: {x},\n   attrs: {\n   shape: [\n   shapeInfo.batchSize,
shapeInfo.outerSize, shapeInfo.dimSize,\n   shapeInfo.sliceSize\n   ]\n   },\n   backend\n });\n const
indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n   inputs: {x: indices},\n   attrs:
{shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n
    backend\n });\n const flattenOutputShape = [\n   shapeInfo.batchSize, shapeInfo.outerSize, indicesSize /
shapeInfo.batchSize,\n   shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape,
x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n   return out;\n }\n const stridesSize = flattenX.shape.length
- 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData =
backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId =
backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n   new
Int32Array(util.computeStrides(flattenX.shape)).buffer);\n const outStridesBytes = new Uint8Array(\n   new
Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n   xId, CppDType[x.dtype],
xStridesBytes, stridesSize, indicesId,\n   shapeInfo.batchSize, outStridesBytes, outId);\n\n
backend.disposeData(flattenX.dataId);\n
  backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return
out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
 */\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n
createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
 */\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig}
from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n
 createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from
'./types';\n\nlet wasmFunc: (\n xId: number, dtype: number, leakyreluAlpha: number, outId: number) =>
void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu,
null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // leakyrelu_alpha\n 'number', //
out_id\n]);\n}\n\nexport function leakyRelu(\n args:\n {inputs: LeakyReluInputs, attrs: LeakyReluAttrs,
backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId =
backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either
float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape)
!== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(xId, CppDType[x.dtype], alpha,
outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n
backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n
createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n
createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, LogicalAnd}
from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util,
KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed)
{\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig:
KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or

agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n args:

{backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n
      // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n
    inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype: 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n
    // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n   backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMin = backend.wasm.cwrap(Min, null /*void*/, [\n   'number', // x_id\n 'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x}
 = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const inputRank = input.shape.length;\n\n backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMin(inputId, CppDType[x.dtype], reduceSize,

outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
 the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null /* void */, [\n 'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number',
 // mode\n   'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes,
 MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the

License.\n *
==========\n
*/\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport
{createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const
multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport
{createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig =
createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in
`non_max_suppression_impl.h`.\ninterface Result
{\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs:
number;\n}\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport
function parseResultStruct(\n backend: BackendWasm, resOffset: number): Result {\n const result = new
Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices = result[0];\n const
selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the
result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return
{pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs,
NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n
boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number)
=> number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n
NonMaxSuppressionV3,\n 'number', // Result*\n [\n
'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', //
iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend:
BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n

const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n   wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor
 =\n   backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number,\n padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n   NonMaxSuppressionV4,\n   'number', // Result*\n   [\n   'number', // boxesId\n 'number', // scoresId\n   'number', // maxOutputSize\n   'number', // iouThreshold\n   'number', // scoreThreshold\n   'bool',   // padToMaxOutputSize\n   ]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n   attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n   boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport

{BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n (boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n
const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth: number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmOneHot
= backend.wasm.cwrap(OneHot, null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n 'number', // onValue\n 'number', // offValue\n 'number' // out_id\n]);\n}\n\nfunction oneHot(\n args: {inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices} = inputs;\n const {depth, onValue, offValue} = attrs;\n\n const out = backend.makeOutput([...indices.shape, depth], 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n wasmOneHot(indicesId, depth, onValue, offValue, outId);\n\n return out;\n}\n\nexport const oneHotConfig:

KernelConfig = {\n kernelName: OneHot,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return
out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n   args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n   return expandDims(\n   {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n   util.assertShapesMatch(\n   shape, t.shape,\n   'All tensors passed to stack must have matching shapes');\n   util.assert(\n   dtype === t.dtype,\n   () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n   const expandedT =\n   expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n   intermediateTensorInfos.push(expandedT);\n   return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==========\n
*/\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType} from './types';\n\nlet wasmPadV2: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n   constantValue: number, outId:

number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', // constantValue\n   'number', // outId\n]);\n}\n\nfunction pad(\n   args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend,
  attrs: {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n   // Short-circuit the computation, since x doesn't have value, only\n   // the shape is used to compute output shape to pad.\n   return fill({\n   backend,\n   attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n   });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new
  Int32Array(postPaddingsFlat).buffer);\n\n wasmPadV2(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
  * ==\n */\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu = backend.wasm.cwrap(Prelu, null /* void */, [\n   'number', // x_id\n   'number', // weights_id\n   'number'   // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n
  const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n   backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n

kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
 permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n xId: number, reduceSize: number,\n   dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n   'number',\n   'number',\n   'number',\n   'number'\n]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs: ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const
 {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmProd(inputId, reduceSize,
 CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
 express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n   (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n   const {backend, attrs} = args;\n   const {start, stop, step, dtype} = attrs;\n   const values = rangeImplCPU(start, stop, step, dtype);\n\n const out = backend.makeOutput([values.length], dtype);\n   const outVals = backend.typedArrayFromHeap(out);\n   outVals.set(values);\n   return out;\n   };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n *

Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport { util } from '@tensorflow/tfjs-core';\nexport function rangeImpl(start, stop, step, dtype) {\n const sameStartStop = start === stop;\n const increasingRangeNegativeStep = start < stop && step < 0;\n const decreasingRangePositiveStep = stop < start && step > 1;\n if (sameStartStop || increasingRangeNegativeStep ||\n decreasingRangePositiveStep) {\n return util.makeZerosTypedArray(0, dtype);\n }\n const numElements = Math.abs(Math.ceil((stop - start) / step));\n const values = util.makeZerosTypedArray(numElements, dtype);\n if (stop < start && step === 1) {\n // Auto adjust the step's sign if it hasn't been set\n // (or was set to 1)\n step = -1;\n }\n values[0] = start;\n for (let i = 1; i < values.length; i++) {\n values[i] = values[i - 1] + step;\n }\n return values;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiUmFuZ2VfaW1wbC5qcyIsInNvdXJjZVJvb3QiOiIiLCJzb3VyY2VzIjpbIi4uLy4uLy4uLy4uLy4uLy4uL3RmanMtYmFja2VuZC1jcHUvc3JjL3tlcm5lbHMvUmFuZ2VfaW1wbC50cyJdLCJuYW1lcyI6W10sIm1hcHBpbmdzIjoiQUFBQTs7Ozs7Ozs7Ozs7O0dBZUc7QUFFSCxPQUFPLEVBQUMsSUFBSSxFQUFDLE1BQU0sc0JBQXNCLENBQUM7QUFFMUMsTUFBTSxVQUFVLFNBQVMsQ0FBQyxLQUFhLEVBQUUsSUFBWSxFQUFFLElBQVksRUFBRSxLQUFlO0lBQ3BFLE1BQU0sYUFBYSxHQUFHLEtBQUssS0FBSyxJQUFJLENBQUM7SUFDckMsTUFBTSwyQkFBMkIsR0FBRyxLQUFLLEdBQUcsSUFBSSxJQUFJLEdBQUcsQ0FBQyxDQUFDO0lBQ3pELE1BQU0sMkJBQTJCLEdBQUcsSUFBSSxHQUFHLEtBQUssSUFBSSxJQUFJLEdBQUcsQ0FBQyxDQUFDO0lBQzdELElBQUksQ0FBQyxhQUFhO1FBQ2QsMkJBQTJCO1FBQzNCLDJCQUEyQixDQUFDLEVBQUU7UUFDOUIsT0FBTyxJQUFJLENBQUMsdUJBQXVCLENBQUMsQ0FBQyxFQUFFLEtBQUssQ0FBQyxDQUFDO0tBQ2pEO0lBQ0QsTUFBTSxXQUFXLEdBQUcsSUFBSSxDQUFDLEdBQUcsQ0FBQyxJQUFJLENBQUMsSUFBSSxDQUFDLENBQUMsSUFBSSxHQUFHLEtBQUssQ0FBQyxHQUFHLElBQUksQ0FBQyxDQUFDLENBQUM7SUFDNUQsTUFBTSxNQUFNLEdBQUcsSUFBSSxDQUFDLHVCQUF1QixDQUFDLFdBQVcsRUFBRSxLQUFLLENBQUMsQ0FBQztJQUNoRSxJQUFJLElBQUksR0FBRyxLQUFLLElBQUksSUFBSSxLQUFLLENBQUMsRUFBRTtRQUM1QixnREFBZ0Q7UUFDaEQsMkNBQTJDO1FBQzNDLElBQUksR0FBRyxDQUFDLENBQUMsQ0FBQztLQUNiO0lBQ0QsTUFBTSxDQUFDLENBQUMsQ0FBQyxHQUFHLEtBQUssQ0FBQztJQUNsQixLQUFLLElBQUksQ0FBQyxHQUFHLENBQUMsRUFBRSxDQUFDLEdBQUcsTUFBTSxDQUFDLE1BQU0sRUFBRSxDQUFDLEVBQUUsRUFBRTtRQUNwQyxNQUFNLENBQUMsQ0FBQyxDQUFDLEdBQUcsTUFBTSxDQUFDLENBQUMsR0FBRyxDQUFDLENBQUMsR0FBRyxJQUFJLENBQUM7S0FDbkM7SUFDRCxPQUFPLE1BQU0sQ0FBQztBQUNsQixDQUFDIn0=

xcbiAgICBkdHlwZTogJ2Zsb2F0MzInfCdpbnQzMicpOiBEYXRhVHlwZU1hcFsnZmxvYXQzMicgfCAnaW50MzInXSB7XG4gIGNvbnN0IHNhbWVTdGFydFN0b3AgPSBzdGFydCA9PT0gc3RvcDtcbiAgY29uc3QgaW5jcmVhc2luZ1JhbmdlTmVnYXRpdmVTdGVwID0gc3RhcnQgPCBzdG9wICYmIHN0ZXAgPCAwO1xuICBjb25zdCBkZWNyZWFzaW5nUmFuZ2VQb3NpdGl2ZVN0ZXAgPSBzdGFydCA+IHN0b3AgJiYgc3RlcCA+IDA7XG4gIGlmICghc2FtZVN0YXJ0U3RvcCAmJiAhaW5jcmVhc2luZ1JhbmdlTmVnYXRpdmVTdGVwICYmXG4gICAgICAhZGVjcmVhc2luZ1JhbmdlUG9zaXRpdmVTdGVwKSB7XG4gICAgdGhyb3cgbmV3IEVycm9yKFxuICAgICAgICAnQ2Fubm90IGZvcmNlIGFuIGVtcHR5IHJhbmdlIHdpdGggbm9uemVybyBzdGVwLicpO1xuICB9XG4gIGlmIChzYW1lU3RhcnRTdG9wKSB7XG4gICAgcmV0dXJuIFtdO1xuICB9XG4gIGNvbnN0IHNpemUgPSBNYXRoLmFicyhNYXRoLmNlaWwoKHN0b3AgLSBzdGFydCkgLyBzdGVwKSk7XG4gIGNvbnN0IHZhbHMgPSBtYWtlWm9yZXNBcnJheShzaXplLCBkdHlwZSk7XG4gIGZvciAobGV0IGkgPSAwOyBpIDwgc2l6ZTsgaSsrKSB7XG4gICAgdmFsc1tpXSA9IHN0YXJ0O1xuICAgIHN0YXJ0ICs9IHN0ZXA7XG4gIH1cbiAgcmV0dXJuIHZhbHM7XG59XG5cbmV4cG9ydCBjb25zdCByYW5nZUNvbmZpZzogS2VybmVsQ29uZmlnID0ge1xuICBrZXJuZWxOYW1lOiBSYW5nZSxcbiAgYmFja2VuZDogJ2NwdScsXG4gIGtlcm5lbEZ1bmM6IHJhbmdlLFxufTtcblwiLFwiLyoqXG4gKiBAbGljZW5zZVxuICogQ29weXJpZ2h0IDIwMTkgR29vZ2xlIExMQy4gQWxsIFJpZ2h0cyBSZXNlcnZlZC5cbiAqIExpY2Vuc2VkIHVuZGVyIHRoZSBBcGFjaGUgTGljZW5zZSwgVmVyc2lvbiAyLjAgKHRoZSBcXFwiTGljZW5zZVxcXCIpO1xuICogeW91IG1heSBub3QgdXNlIHRoaXMgZmlsZSBleGNlcHQgaW4gY29tcGxpYW5jZSB3aXRoIHRoZSBMaWNlbnNlLlxuICogWW91IG1heSBvYnRhaW4gYSBjb3B5IG9mIHRoZSBMaWNlbnNlIGF0XG4gKlxuICogaHR0cDovL3d3dy5hcGFjaGUub3JnL2xpY2Vuc2VzL0xJQ0VOU0UtMi4wXG4gKlxuICogVW5sZXNzIHJlcXVpcmVkIGJ5IGFwcGxpY2FibGUgbGF3IG9yIGFncmVlZCB0byBpbiB3cml0aW5nLCBzb2Z0d2FyZVxuICogZGlzdHJpYnV0ZWQgdW5kZXIgdGhlIExpY2Vuc2UgaXMgZGlzdHJpYnV0ZWQgb24gYW4gXFwiQVMgSVNcXCIgQkFTSVMsXG4gKiBXSVRIT1VUIFdBUlJBTlRJRVMgT1IgQ09ORElUSU9OUyBPRiBBTlkgS0lORCwgZWl0aGVyIGV4cHJlc3Mgb3IgaW1wbGllZC5cbiAqIFNlZSB0aGUgTGljZW5zZSBmb3IgdGhlIHNwZWNpZmljIGxhbmd1YWdlIGdvdmVybmluZyBwZXJtaXNzaW9uc2FuZFxuICogbGltaXRhdGlvbnMgdW5kZXIgdGhlIExpY2Vuc2UuXG4gKlxuICogPT09PT09PT09P

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n xId:
number, batch: number, oldHeight: number, oldWidth: number,\n numChannels: number, newHeight: number,
newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null
/*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n
'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number', // alignCorners\n
'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend:
BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend,
inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters,
size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] =
images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData =
backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n
cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData =
backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out =
backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n
const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n xId, batch, oldHeight,
oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if
(castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const
resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n
backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes:
Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n
'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', //
out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs,
backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const
{x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length
=== 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n
const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new
Int32Array(x.shape).buffer);\n\n wasmReverse(\n xId, axesBytes, axes.length, outShapeBytes, x.shape.length,
outId);\n\n const reshaped =\n reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n
backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n
kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc:
setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the

Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // radians\n 'number', // centerX\n 'number', // centerY\n 'array', // fillBytes\n 'number', // fillLength\n 'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n *

@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==\n
*/\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n 'number', // indicesId\n 'number', // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs: ScatterNdInputs,
attrs: ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number,
eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n 1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const
selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n

* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n
*\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number, channels: number, batch: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null / void */, [\n 'number', // xId\n 'number', // outId\n 'number', // channels\n 'number' // batch\n]);\n}\n\nfunction softmax(\n args: {backend: BackendWasm,
inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n   args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs, attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n   const xSliceSize = [...size];\n   xSliceSize[$axis] = s;\n   const xSlice =\n   slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n   begin[$axis] += s;\n   return xSlice;\n });\n}\n\nexport const

splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n   createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n   'number', // x_id\n   'number', // alpha\n   'number', // dtype\n   'number', // out_id\n]);\n}\n\nfunction step(\n   args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return

out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
 the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n   xId: number, xStridesBytes: Uint8Array, xRank: number,\n   beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n   outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n   outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n   'number', // xId\n   'array',   // xStrides\n   'number', // xRank\n   'array',   // beginBytes\n   'array',   // endBytes\n   'array',   // stridesBytes\n   'array',   // outShapeBytes\n   'array',   // outStridesBytes\n
    'number', // outShapeLength\n   'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n   begin,\n   end,\n   strides,\n   beginMask,\n   endMask,\n   ellipsisMask,\n   newAxisMask,\n   shrinkAxisMask\n } = attrs;\n\n const {\n   finalShapeSparse,\n   finalShape,\n   isIdentity,\n   sliceDim0,\n   isSimpleSlice,\n   begin: $begin,\n   end: $end,\n   strides: $strides\n } =\n   slice_util.sliceInfo(\n   x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n   newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n   // Optimization #1, slice is a no-op plus reshape\n   result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n   // Optimization #2, slice is memory contiguous
 (only occurs in dim 0)\n   util.assert(\n   x.shape.length >= 1,\n   () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n   const size = slice_util.computeOutShape($begin, $end, $strides);\n   // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n   const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n   result =\n   reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n   backend.disposeData(sliced.dataId);\n } else {\n   const out = backend.makeOutput(finalShapeSparse, 'float32');\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n   const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n   const endBytes = new Uint8Array(new Int32Array($end).buffer);\n   const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n   const outputShapeBytes
 =\n   new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n   const outStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n\n   wasmStridedSlice(\n   xId, xStridesBytes, x.shape.length, beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n   result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n   backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT

WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n 'number', // input_id\n 'number', // reduce_size\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'sum', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the

\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n
*\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null / void */, [\n 'number', // x_id\n 'array', // x_shape\n 'number', // x_shape.length\n 'array', // new_shape\n 'number', // new_shape.length\n 'number' // out_id\n]);\n}\n\nfunction tile(\n args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n xDtype: CppDType, k: number, sorted: boolean,
outValuesId: number,\n outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'number', // k\n 'bool', // sorted\n 'number', // outValuesId\n 'number', // outIndicesId\n]);\n}\n\nexport const topk:\n (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n const {x} = inputs;\n const {k, sorted} = attrs;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const xShapeBytes

= new Uint8Array(new Int32Array(x.shape).buffer);\n const outputShape = x.shape.slice();\n outputShape[outputShape.length - 1] = k;\n const outValues = backend.makeOutput(outputShape, x.dtype);\n const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n const outIndices = backend.makeOutput(outputShape, 'int32');\n const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n wasmTopK(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n outValuesId, outIndicesId);\n\n return [outValues, outIndices];\n };\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength: number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n 'number', // imageId\n 'number', // transformsId\n 'bool', // isBatchTransform\n 'number', // batch\n 'number', // outHeight\n 'number', // outWidth\n 'number', // numChannels\n 'number', // imageWidth\n 'number', // imageHeight\n 'array', // strides\n 'number', // stridesLength\n 'number', // interpolationModeId\n 'number', // fillModeId\n 'number', // fillValue\n 'number' // outId\n]);\n}\n\nfunction transform(\n args:\n {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n const [outHeight, outWidth] =\n outputShape != null ? outputShape : [imageHeight, imageWidth];\n const outShape =\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n case 'constant':\n fillModeId = 1;\n break;\n case 'reflect':\n fillModeId = 2;\n break;\n case 'wrap':\n fillModeId = 3;\n break;\n case 'nearest':\n fillModeId = 4;\n break;\n default:\n fillModeId = 1;\n break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs}
from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from
'./Slice';\n\nfunction unpack(\n args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n
TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis <
0) {\n axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank =
value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank;
i++) {\n if (i !== axis) {\n outShape[outIndex++] = value.shape[i];\n }\n }\n const outs: TensorInfo[] = new
Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n
for (let i = 0; i < outs.length; i++) {\n begin[axis] = i;\n outs[i] = slice({inputs: {x: value}, attrs: {begin, size},
backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId,
dtype, shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n
backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend:
BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n
const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const
zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike
as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n//
We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the
library. A modular build would replace\n// the contents of this file and import only the kernels that are
needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig}
from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from
'./kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport
{anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig}
from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport
{batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport
{ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport
{concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport
{conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from
'./kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from
'./kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig}
from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from

'./kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from
'./kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from
'./kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from
'./kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from
'./kernels/FloorDiv';\nimport
{fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from
'./kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from
'./kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport
{gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport
{greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport
{leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport
{lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport
{logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport
{maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport
{meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from
'./kernels/Minimum';\nimport
{mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport
{negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from
'./kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from
'./kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from
'./kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig}
from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from
'./kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from
'./kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport
{rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig}
from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from
'./kernels/Reshape';\nimport {resizeBilinearConfig}
from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport
{rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from
'./kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from
'./kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from
'./kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport
{softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from
'./kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from
'./kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from
'./kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from
'./kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from
'./kernels/Sum';\nimport
{tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from
'./kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from
'./kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from
'./kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst
kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n
argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n
ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n
cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n
depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n
flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n

fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function

GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function

shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return

ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var

runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -sASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm

callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}var ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,EBADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EBUSY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,ENOTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERANGE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNATCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOANO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:128,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFUSED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOSTDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,EPROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,ENOTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:148,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:135};function _emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)return-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var mainThreadWoken=0;if(mainThreadWaitAddress==addr){var loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainThreadWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return 1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value \"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}function cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cancelThread!\";var pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var

```
PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var
 pthreadPoolSize=8;for(var
i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var
tb=_malloc(228);for(var
i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var
headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var
i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100
>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRON
MENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},t
hreadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.l
ength>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread
_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U
32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.stor
e(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscri
pten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var
tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHRE
AD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthr
ead_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in
PThread.pthreads){var
pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThre
ad.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var
worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var
i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var
pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeTh
readData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var
tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.thr
eadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.
allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.
worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(functio
n(){delete
PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorker
s.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=un
defined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_m
ain_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runti
me_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,o
nFinishedLoading){worker.onmessage=function(e){var
 d=e[\"data\"];var
cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;
if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var
thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{con
sole.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that
thread no longer
exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThread
Work\"){_emscripten_main_thread_process_queued_calls()}else
if(cmd===\"spawnThread\"){spawnThread(e.data)}else
if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else
if(cmd===\"killThread\"){killThread(d[\"thread\"])}else
if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else
```

```
if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete
 worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\": \"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var
 pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var t=performance.now()+msecs;while(performance.now()<t){}}};function establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function
 getNoExitRuntime(){return noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function ___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var _emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return
 _emscripten_proxy_to_main_thread_js(1,1,func,arg)}function __emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessage({\"cmd\":\"processQueuedMainThreadWork\"})}else if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueue\"})}else{var pthread=PThread.pthreads[targetThreadId];var worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}return 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function _emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function _emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-28;if(!ENVIRONMENT_IS_WEB){var
```

ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return 0;throw\"Atomics.wait returned an unexpected value \"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var i=JSEvents.eventHandlers.length-1;i>=0;--i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListeners:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListeners);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in

arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,argsList)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList});JSEvents.deferredCalls.sort(function(x,y){return x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.deferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!JSEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,eventTypeString){for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||eventTypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--)}}},_removeHandler:function(i){var h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);JSEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var jsEventHandler=function jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDeferredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventHandler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.eventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.eventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData){var stackTop=stackSave();var varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThread,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:function(targetThread){switch(targetThread){case 1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";if(target==screen)return\"#screen\";return target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return cString}function _emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var stackTop=stackSave();var varargs=stackAlloc(12);var targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32()[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[varargs+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestore(stackTop)}function _emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=targetCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height)}function maybeCStringToJsString(cString){return cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof

```
document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function
findEventTarget(target){target=maybeCStringToJsString(target);var
domElement=specialHTMLTargets[target]||(typeof
document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function
findCanvasEventTarget(target){return findEventTarget(target)}function
_emscripten_set_canvas_element_size_calling_thread(target,width,height){var
 canvas=findCanvasEventTarget(target);if(!canvas)return-
4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA
P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if
(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var
autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var
prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prev
Viewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;
canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else
if(canvas.canvasSharedPtr){var
targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_o
n_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function
_emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)retur
n
 _emscripten_proxy_to_main_thread_js(2,1,target,width,height);return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}function
_emscripten_set_canvas_element_size(target,width,height){var
canvas=findCanvasEventTarget(target);if(canvas){return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return
_emscripten_set_canvas_element_size_main_thread(target,width,height)}}function
_emscripten_set_current_thread_status(newStatus){}function
_emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var
ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ex
t[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcou
nt){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(
mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};
return
 1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var
ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers
WEBGL\"](n,bufs)};return 1}}function
__webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_dra
w\"))}var
GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],cont
exts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:
function
 recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var
ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return
ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var
len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-
```

1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return source},createContext:function(canvas,webGLContextAttributes){var ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var handle=GL.registerContext(ctx,webGLContextAttributes);return handle},registerContext:function(ctx,webGLContextAttributes){var handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensionsByDefault){GL.initExtensions(context)}return handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(contextHandle){return GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[contextHandle])GL.currentContext=null;if(typeof JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.contexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GLctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:function(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtensionsDone=true;var GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_object(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.indexOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var p=GL.programs[program];var ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var u=GLctx.getActiveUniform(p,i);var name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var j=1;j<u.size;++j){var n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}}}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function _emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"premultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerformanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return 0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function

_emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function _fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var global_libc=_emscripten_get_global_libc();var global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthread=pthread;var msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":threadParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthread=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded){worker.runPthread();delete worker.runPthread}}function _pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current environment does not support SharedArrayBuffer, pthreads are not available!\");return 6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return _emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-

=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_ptr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_PTHREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(threadParams)}return 0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var tb=_pthread_self();if(!tb)return;var cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function _emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKER)return;warnOnce(\"Blocking on the main thread is very dangerous, see https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function __emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread pointer!\");return ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread \"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return ERRNO_CODES.ESRCH}var detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread \"+thread+\", which was already detached!\");return ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[status>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PTHREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return 0}if(!block){return ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thread_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1)}}function _pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function _sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return

65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_canvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var _Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var _AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var _All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var _Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var _ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var _AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var _BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var _Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var

_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var

_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var

_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var

_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb

\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var
calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromiseResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw
new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRuntime();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"]
 = WasmBackendModuleThreadedSimd;\n","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n WasmBackendModule = WasmBackendModule || {};\n\n\nvar Module=typeof WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var
readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new
Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var
moduleOverrides={};var key;for(key in
Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var
thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var
ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var
ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof
importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof
process.versions===\"object\"&&typeof
process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function
locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return
scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var
nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").

dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i

]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function

addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function _emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function _emscripten_get_heap_size(){return HEAPU8.length}function

emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"o\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"p\"]).apply(null,arguments)};var

_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(null,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,arguments)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,arguments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,arguments)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).apply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var

_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var

_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var

_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}run();\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports ===
'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define ===
'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports ===
'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under
 the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors, storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object; // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n super();\n this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs = util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values: backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id = this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size * util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n memoryOffset);\n }\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset, dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n }\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset + util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n }\n\n /**\n * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n * is released, false otherwise.\n * @param dataId\n * @oaram force Optional, remove the data regardless of refCount\n */\n disposeData(dataId: DataId, force = false): boolean {\n if (this.dataIdMap.has(dataId)) {\n const data = this.dataIdMap.get(dataId);\n data.refCount--;\n if (!force && data.refCount > 0) {\n return false;\n }\n\n this.wasm._free(data.memoryOffset);\n this.wasm.tfjs.disposeData(data.id);\n this.dataIdMap.delete(dataId);\n }\n return true;\n }\n\n /** Return refCount of a `TensorData`. */\n refCount(dataId: DataId): number {\n if (this.dataIdMap.has(dataId)) {\n const tensorData = this.dataIdMap.get(dataId);\n return tensorData.refCount;\n }\n return 0;\n }\n\n incRef(dataId: DataId) {\n const data = this.dataIdMap.get(dataId);\n if (data != null) {\n data.refCount++;\n }\n }\n\n floatPrecision(): 32 {\n return 32;\n

```
  }\n\n  // Returns the memory offset of a tensor. Useful for debugging and unit\n  // testing.\n
getMemoryOffset(dataId: DataId): number {\n    return this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n
dispose() {\n    this.wasm.tfjs.dispose();\n    if ('PThread' in this.wasm) {\n
this.wasm.PThread.terminateAllThreads();\n    }\n    this.wasm = null;\n  }\n\n  memory() {\n    return {unreliable:
false};\n  }\n\n  /**\n   * Make a tensor info for the output of an op. If `memoryOffset` is not\n   * present, this
method allocates memory on the WASM heap. If `memoryOffset`\n   * is present, the memory was allocated
elsewhere (in c++) and we just record\n   * the pointer where that memory lives.\n   */\n  makeOutput(shape:
number[], dtype: DataType, memoryOffset?: number):\n      TensorInfo {\n    let dataId: {};\n    if (memoryOffset
== null) {\n      dataId = this.write(null /* values */, shape, dtype);\n    } else {\n      const id =
this.dataIdNextNumber++;\n      dataId = {id};\n
      this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount: 1});\n      const size =
util.sizeFromShape(shape);\n      this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n    }\n    return {dataId,
shape, dtype};\n  }\n\n  typedArrayFromHeap({shape, dtype, dataId}: TensorInfo):\n      backend_util.TypedArray
{\n    const buffer = this.wasm.HEAPU8.buffer;\n    const {memoryOffset} = this.dataIdMap.get(dataId);\n    const
size = util.sizeFromShape(shape);\n    switch (dtype) {\n      case 'float32':\n        return new Float32Array(buffer,
memoryOffset, size);\n      case 'int32':\n        return new Int32Array(buffer, memoryOffset, size);\n      case 'bool':\n
    return new Uint8Array(buffer, memoryOffset, size);\n      default:\n        throw new Error(`Unknown dtype
${dtype}`);\n    }\n  }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n  // this will be replace by rollup
plugin patchWechatWebAssembly in\n  // minprogram's output.\n  // tslint:disable-next-line:no-any\n
  return (imports: any, callback: any) => {\n    util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n
if (!response['ok']) {\n        imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n
response.arrayBuffer().then(binary => {\n        WebAssembly.instantiate(binary, imports).then(output => {\n
callback(output.instance, output.module);\n        });\n      });\n    });\n    return {};\n  };\n}\n\n/**\n * Returns the
path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported
whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM
binaries.\n */\nfunction getPathToWasmBinary(\n    simdSupported: boolean, threadsSupported: boolean,\n
wasmModuleFolder: string) {\n  if (wasmPath != null) {\n    // If wasmPath is defined, the user has supplied a full
path to\n    // the vanilla .wasm binary.\n    return wasmPath;\n  }\n\n  let path:
 WasmBinaryName = 'tfjs-backend-wasm.wasm';\n  if (simdSupported && threadsSupported) {\n    path = 'tfjs-
backend-wasm-threaded-simd.wasm';\n  } else if (simdSupported) {\n    path = 'tfjs-backend-wasm-simd.wasm';\n
}\n\n  if (wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n      return wasmFileMap[path];\n    }\n
}\n\n  return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm
bridge.\n *\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning
Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async
function init(): Promise<{wasm: BackendWasmModule}> {\n  const [simdSupported, threadsSupported] = await
Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n
env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) =>
{\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function
 overrides the Emscripten module locateFile utility.\n     * @param path The relative path to the file that needs to be
loaded.\n     * @param prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile =
(path, prefix) => {\n      if (path.endsWith('.worker.js')) {\n        const response = wasmWorkerContents;\n        const
blob = new Blob([response], {type: 'application/javascript'});\n        return URL.createObjectURL(blob);\n      }\n\n
  if (path.endsWith('.wasm')) {\n        return getPathToWasmBinary(\n            simdSupported as boolean,
threadsSupported as boolean,\n            wasmPathPrefix != null ? wasmPathPrefix : prefix);\n      }\n      return prefix
+ path;\n    };\n\n    // Use the instantiateWasm override when system fetch is not available.\n    // Reference:\n    //
https://github.com/emscripten-
core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n
if (customFetch) {\n
```

```
    factoryConfig.instantiateWasm =\n        createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n            wasmPathPrefix != null ? wasmPathPrefix :\n ''));\n  }\n\n  let initialized = false;\n  factoryConfig.onAbort = () => {\n    if (initialized) {\n      // Emscripten already called console.warn so no need to double log.\n      return;\n    }\n    if (initAborted) {\n      // Emscripten calls `onAbort` twice, resulting in double error\n      // messages.\n      return;\n    }\n    initAborted = true;\n    const rejectMsg =\n        'Make sure the server can serve the `.wasm` file relative to the ' +\n 'bundled js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n    reject({message: rejectMsg});\n  };\n\n  let wasm: Promise<BackendWasmModule>;\n  // If `wasmPath` has been defined we must initialize\n the vanilla module.\n  if (threadsSupported && simdSupported && wasmPath == null) {\n factoryConfig.mainScriptUrlOrBlob = new Blob(\n        [`var WasmBackendModuleThreadedSimd = ` +\n wasmFactoryThreadedSimd.toString()],\n        {type: 'text/javascript'});\n    wasm = wasmFactoryThreadedSimd(factoryConfig);\n  } else {\n    // The wasmFactory works for both vanilla and SIMD binaries.\n    wasm = wasmFactory(factoryConfig);\n  }\n\n  // The WASM module has been successfully created by the factory.\n  // Any error will be caught by the onAbort callback defined above.\n wasm.then((module) => {\n    initialized = true;\n    initAborted = false;\n\n    const voidReturnType: string = null;\n    // Using the tfjs namespace to avoid conflict with emscripten's API.\n    module.tfjs = {\n      init: module.cwrap('init', null, []),\n      initWithThreadsCount:\n          module.cwrap('init_with_threads_count', null, ['number']),\n
 getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n      registerTensor: module.cwrap(\n 'register_tensor', null,\n          [\n            'number',  // id\n            'number',  // size\n            'number',  // memoryOffset\n          ]),\n      disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n    };\n\n    resolve({wasm: module});\n  });\n});\n}\n\nfunction typedArrayFromBuffer(\n  buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n  case 'float32':\n    return new Float32Array(buffer);\n  case 'int32':\n    return new Int32Array(buffer);\n  case 'bool':\n    return new Uint8Array(buffer);\n  default:\n    throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n\nconst wasmBinaryNames = [\n  'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n  'tfjs-backend-wasm-threaded-simd.wasm'\n] as const\n ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n *     the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string, usePlatformFetch = false): void {\n  deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n      ' will be removed in a future release.');\n  if (initAborted) {\n    throw new Error(\n
   'The WASM backend was already initialized. Make sure you call ' +\n        '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n  }\n  wasmPath = path;\n  customFetch = usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n *  'tfjs-backend-wasm.wasm': 'renamed.wasm',\n *  'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n *  'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n *  - (string) The path to the directory where the WASM binaries are located.\n *     Note that this prefix will be used to load each binary (vanilla,\n *     SIMD-enabled, threading-enabled, etc.).\n *  - (object) Mapping from names of WASM binaries to custom\n *     full paths specifying the locations of those binaries. This is useful if\n *     your WASM binaries are not all located in the same directory,
```

or if your\n *   WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n *   the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n   prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n usePlatformFetch = false): void {\n if (initAborted) {\n   throw new Error(\n   'The WASM backend was already initialized. Make sure you call ' +\n   '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n   wasmPathPrefix = prefixOrFileMap;\n } else {\n   wasmFileMap = prefixOrFileMap;\n   const missingPaths =\n   wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n   if (missingPaths.length > 0) {\n   throw new Error(\n   `There were no entries found for the following binaries: ` +\n   `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n   `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n   }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM
 backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","export const wasmWorkerContents = 'var Module={};function threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function threadAlert(){var text=Array.prototype.slice.call(arguments).join(\" \");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var instance=new WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"]();Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self\"](),1);try{var result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else if(ex!=\"unwind\"){if(ex instanceof Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}else{Module[\"PThread\"].threadExit(-2);throw ex}}}}else if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else if(e.data.target===\"setimmediate\"){}else if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_

process_queued_calls\"]()}}else{err(\"worker.js received unknown command \"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception: \"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==*/\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n}, WASM_PRIORITY);\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n"],"names":["CppDType","FusableActivation","wasmFusedMatMul","fusedMatMulConfig","kernelName","_FusedMatMul","backendName","setupFunc","backend","wasm","cwrap","kernelFunc","args","inputs","attrs","a","b","bias","preluActivationWeights","dtype","Error","transposeA","transposeB","activation","leakyreluAlpha","aId","dataIdMap","get","dataId","id","bId","biasId","biasData","shape","length","preluActivationWeightsId","fusedActivation","leftDim","rightDim","batchDim","out","makeOutput","outId","aShapeBytes","Uint8Array","Int32Array","buffer","bShapeBytes","createUnaryKernelConfig","outType","wasmFunc","x","xId","util","sizeFromShape","absConfig","Abs","createBinaryKernelConfig","supportsFullBroadcast","outputType","newShape","backend_util","assertAndGetBroadcastShape","aBroadcastDims","getBroadcastDims","bBroadcastDims","loopsOverAllOfA","every","v","i","loopsOverAllOfB","addConfig","Add","addNConfig","AddN","inputIds","map","inputIdsBytes","identity","inVals","typedArrayFromHeap","set","identityConfig","Identity","wasmTranspose","transpose","reducedShape","perm","newPerm","push","minValIdx","j","removeOneSizeDims","permIsNoOp","outShape","inShape","Array","computeOutShape","cloned","permBytes","xShapeBytes","transposeConfig","Transpose","permuteAxesAndTranspose","axis","xShape","xRank","originalAxes","parseAxisParam","axes","permutedAxes","getAxesPermutation","xTransposed","inputWasTransposed","getInnerMostAxes","transposed","wasmAll","allConfig","All","keepDims","inputId","input","inputRank","assertAxesAreInnerMostDims","reduceShape","computeOutAndReduceShapes","reduceSize","disposeData","expandShapeToKeepDim","wasmAny","anyConfig","Any","argMaxConfig","ArgMax","transposedId","slice","outerSize","innerSize","wasmAvgPool","avgPoolConfig","AvgPool","filterSize","strides","pad","dimRoundingMode","convInfo","computePool2DInfo","filterHeight","filterWidth","padTop","padInfo","top","padRight","right","padBottom","bottom","padLeft","left","strideHeight","strideWidth","channels","inChannels","dataFormat","dilationWidth","dilationHeight","reshape","xSize","$shape","inferFromImplicitShape","assert","incRef","reshapeConfig","Reshape","wasmBatchMatMul","batchMatMulConfig","BatchMatMul","aRank","bRank","innerShapeA","innerShapeB","outerShapeA","outerShapeB","outerDimsA","outerDimsB","batchDimA","batchDimB","batchDimsCompatible","concat","b3dShape","a3d","b3d","a3dId","b3dId","Math","max","sliceImpl","vals","begin","siz

e","isContinous","slice_util","isSliceContinous","xStrides","computeStrides","flatOffset","computeFlatOffset","subarray","decodedData","fromUint8ToStringArray","inBuf","outBuf","outLoc","indexToLoc","inLoc","idx","fromStringArrayToUint8","values","begin_","size_","parseSliceParams","xVals","readSync","outData","stringBytes","res","sliceImplCPU","outVals","rank","xStride","outOffset","beginI","beginJ","endI","xOffset","slice2d","xStride1","xStride2","beginK","endJ","slice3d","xStride3","endK","beginL","k","slice4d","sliceConfig","Slice","batchToSpaceNDConfig","BatchToSpaceND","blockShape","crops","prod","reduce","reshaped","getReshaped","permuted","getPermuted","reshapedPermuted","getReshapedPermuted","sliceBeginCoords","getSliceBeginCoords","sliceSize","getSliceSize","xReshaped","result","cast","castConfig","Cast","ceilConfig","Ceil","wasmClip","clipByValueConfig","ClipByValue","clipValueMin","clipValueMax","t","$inputs","filter","shapes","assertParamsConsistent","inputs2D","inputsValShapes","simplyConcat","getArrayFromDType","offset","forEach","colOffset","tIdx","row","resIdx","col","concatImplCPU","finalOutShape","sumInnerDims","innerDims","innerDim","inOffset","concatConfig","Concat","wasmConv2d","conv2DConfig","Conv2D","filterId","dilations","$dataFormat","convertConv2DDataFormat","computeConv2DInfo","inputChannels","outputChannels","outChannels","isSamePad","type","wasmConv2DBackpropInput","conv2DBackpropInputConfig","Conv2DBackpropInput","dy","inputShape","batchSize","inHeight","inWidth","outHeight","outWidth","topPad","leftPad","isChannelsLast","dxStrides","dyStrides","fltS0","fltS1","fltS2","xBatchStride","xRowStride","xColStride","xChannelStride","yBatchStride","yRowStride","yColStride","yChannelStride","dyId","cosConfig","Cos","coshConfig","Cosh","InterpolationMethod","wasmCropAndResize","cropAndResizeConfig","CropAndResize","method","extrapolationValue","cropSize","image","boxes","boxInd","numBoxes","cropHeight","cropWidth","castedData","imagesData","imagesId","boxesId","boxIndId","imagesShapeBytes","wasmCumsum","cumsumConfig","Cumsum","exclusive","reverse","permutation","permutedX","permutedAxis","permutedOut","finalDim","permutedXId","permutedOutId","getUndoAxesPermutation","wasmDepthToSpace","depthToSpaceConfig","DepthToSpace","blockSize","outputHeight","outputWidth","outputDepth","outputShape","xStridesBytes","outputShapeBytes","outStridesBytes","wasmDepthwiseConv2d","depthwiseConv2dNativeConfig","DepthwiseConv2dNative","$dilations","eluConfig","Elu","equalConfig","Equal","expConfig","Exp","expandDims","dim","$dim","splice","expandDimsConfig","ExpandDims","fill","value","fillConfig","Fill","wasmFlipLeftRight","flipLeftRightConfig","FlipLeftRight","imageId","batch","imageHeight","imageWidth","numChannels","floorConfig","Floor","floorDivConfig","FloorDiv","wasmBatchNorm","fusedBatchNormConfig","FusedBatchNorm","varianceEpsilon","mean","variance","scale","meanId","varianceId","offsetId","scaleId","wasmFusedConv2d","fusedConv2DConfig","FusedConv2D","wasmFusedDepthwiseConv2d","fusedDepthwiseConv2DConfig","FusedDepthwiseConv2D","wasmGatherNd","gatherNdConfig","GatherNd","params","indices","resultShape","numSlices","gather_util","prepareAndValidate","indicesShape","sliceRank","indicesId","stridesBytes","wasmGather","gatherV2Config","GatherV2","batchDims","parsedAxis","indicesVals","axisDim","index","shapeInfo","segment_util","collectGatherOpShapeInfo","flattenX","dimSize","indicesSize","flattenIndex","flattenOutputShape","stridesSize","greaterConfig","Greater","greaterEqualConfig","GreaterEqual","leakyReluConfig","LeakyRelu","alpha","lessConfig","Less","lessEqualConfig","LessEqual","logConfig","Log","logicalAndConfig","LogicalAnd","wasmMax","maxConfig","Max","reductionIndices","maximumConfig","Maximum","wasmMaxPool","maxPoolConfig","MaxPool","wasmMean","meanConfig","Mean","reductionAxes","castedInput","wasmMin","minConfig","Min","minimumConfig","Minimum","MirrorPaddingMode","wasmMirrorPad","mirrorPadConfig","MirrorPad","paddings","mode","p","prePaddingsFlat","padTuple","postPaddingsFlat","prePaddingsBytes","postPaddingsBytes","multiplyConfig","Multiply","negConfig","Neg","parseResultStruct","resOffset","HEAPU8","pSelectedIndices","selectedSize","pSelectedScores","pValidOutputs","_free","nonMaxSuppressionV3Config","NonMaxSuppressionV3","iouThreshold","maxOutputSize","scoreThreshold","scores","scoresId","nonMaxSuppressionV4Config","NonMaxSuppressionV4","padToMaxOutputSize","nonMaxSuppressionV5Config","NonMaxSuppressionV5","softNmsSigma","notEqualConfig","NotEqual","wasmOneHot","oneHotConfig","OneHot","depth","onValue","offValue","onesLikeConfig","OnesLike","packConfig","Pack","assertShapesMatch","intermediateTensorInfos","expandedT","wasmPadV2","padV2Config","PadV2","constantValue","powConfig","Pow","wasmPrelu","preluConfig","Prelu","weightsId","wasmProd","prodConfig","Prod","rangeConfig","Range","start","stop","step","makeZerosTypedArray","numElements","abs","ceil","rangeImplCPU","realDivConfig","RealDiv","reluConfig","Relu","relu6Config","Relu6","wasmResizeBilinear","resizeBilinearConfig","ResizeBilinear","

images","alignCorners","halfPixelCenters","newHeight","newWidth","oldHeight","oldWidth","xData","wasmReverse","reverseConfig","Reverse","dims","axesBytes","outShapeBytes","wasmRotate","rotateWithOffsetConfig","RotateWithOffset","radians","fillValue","center","centerX","centerY","getImageCenter","fillValues","fillBytes","roundConfig","Round","rsqrtConfig","Rsqrt","wasmScatterNd","scatterNdConfig","ScatterNd","updates","numUpdates","outputSize","scatter_util","calculateShapes","updatesId","wasmSelect","selectConfig","Select","condition","e","conditionId","tId","eId","cRank","tRank","sigmoidConfig","Sigmoid","sinConfig","Sin","softmaxConfig","Softmax","logits","spaceToBatchNDConfig","SpaceToBatchND","completePaddings","paddedX","reshapedPaddedShape","permutedReshapedPaddedPermutation","flattenShape","paddedXReshaped","paddedXT","splitVConfig","SplitV","numOrSizeSplits","$axis","splitSizes","prepareSplitSize","s","xSliceSize","xSlice","sqrtConfig","Sqrt","squareConfig","Square","squaredDifferenceConfig","SquaredDifference","wasmStep","stepConfig","Step","wasmStridedSlice","stridedSliceConfig","StridedSlice","end","beginMask","endMask","ellipsisMask","newAxisMask","shrinkAxisMask","finalShapeSparse","finalShape","isIdentity","sliceDim0","isSimpleSlice","$begin","$end","$strides","sliceInfo","sliced","beginBytes","endBytes","subConfig","Sub","wasmSum","sumConfig","Sum","tanConfig","Tan","tanhConfig","Tanh","wasmTile","tileConfig","Tile","reps","newShapeBytes","wasmTopK","topKConfig","TopK","sorted","outValues","outValuesId","outIndices","outIndicesId","wasmTransform","transformConfig","Transform","transforms","interpolation","fillMode","transformsId","interpolationModeId","fillModeId","unpackConfig","Unpack","numOutputs","outIndex","outs","zerosLikeConfig","ZerosLike","kernelConfigs","kernelConfig","registerKernel","ENV","env","registerFlag","async","WebAssembly","validate","MessageChannel","port1","postMessage","SharedArrayBuffer","_scriptDir","WasmBackendModuleThreadedSimd","document","currentScript","src","undefined","__filename","GROWABLE_HEAP_I8","wasmMemory","updateGlobalBufferAndViews","HEAP8","GROWABLE_HEAP_U8","GROWABLE_HEAP_I32","HEAP32","GROWABLE_HEAP_U32","HEAPU32","GROWABLE_HEAP_F64","HEAPF64","readyPromiseResolve","readyPromiseReject","Module","Promise","resolve","reject","key","moduleOverrides","hasOwnProperty","quit_","status","toThrow","ENVIRONMENT_IS_WEB","ENVIRONMENT_IS_WORKER","ENVIRONMENT_IS_NODE","ENVIRONMENT_IS_SHELL","window","importScripts","process","versions","node","ENVIRONMENT_IS_PTHREAD","read_","readAsync","readBinary","nodeFS","nodePath","scriptDirectory","locateFile","path","nodeWorkerThreads","require$$0","dirname","__dirname","filename","binary","require$$1","ret","replace","ex","ExitStatus","abort","require$$2","console","error","global","Worker","read","f","data","readbuffer","scriptArgs","quit","print","log","warn","printErr","self","location","href","indexOf","substr","lastIndexOf","url","xhr","XMLHttpRequest","open","send","responseText","responseType","response","onload","onerror","performance","require$$3","wasmBinary","bind","err","warnOnce","text","shown","wasmModule","noExitRuntime","ABORT","getCFunc","ident","func","ccall","returnType","argTypes","opts","toC","string","str","len","stringToUTF8","stackAlloc","array","arr","writeArrayToMemory","cArgs","stack","converter","stackSave","apply","UTF8ToString","Boolean","convertReturnValue","stackRestore","numericArgs","arguments","UTF8ArrayToString","heap","maxBytesToRead","endIdx","u0","u1","u2","String","fromCharCode","ch","ptr","stringToUTF8Array","outIdx","maxBytesToWrite","startIdx","u","charCodeAt","outPtr","lengthBytesUTF8","alignUp","multiple","buf","Int8Array","Int16Array","Uint16Array","Uint32Array","Float32Array","Float64Array","wasmTable","INITIAL_MEMORY","Memory","initial","maximum","shared","byteLength","__ATPRERUN__","__ATINIT__","__ATMAIN__","__ATPOSTRUN__","preRun","addOnPreRun","shift","callRuntimeCallbacks","initRuntime","preMain","postRun","addOnPostRun","cb","unshift","___wasm_call_ctors","runDependencies","dependenciesFulfilled","addRunDependency","removeRunDependency","callback","what","RuntimeError","hasPrefix","prefix","prototype","startsWith","dataURIPrefix","isDataURI","fileURIPrefix","isFileURI","wasmBinaryFile","getBinary","file","getBinaryPromise","fetch","credentials","then","catch","createWasm","info","asmLibraryArg","receiveInstance","instance","module","exports","numWorkersToLoad","PThread","unusedWorkers","w","loadWasmModuleToWorker","receiveInstantiatedSource","output","instantiateArrayBuffer","receiver","instantiate","reason","instantiateStreaming","ASM_CONSTS","10520","10538","$0","$1","setTimeout","__emscripten_do_dispatch_to_thread","initPthreadsJS","callbacks","arg","ERRNO_CODES","EPERM","ENOENT","ESRCH","EINTR","EIO","ENXIO","E2BIG","ENOEXEC","EBADF","ECHILD","EAGAIN","EWOULDBLOCK","ENOMEM","EACCES","EFAULT","ENOTBLK","EBUSY","EEXIST","EXDEV","ENODEV","ENOTDIR","EISDIR","EINVAL","ENFILE","EMFILE","ENOTTY","ETXT

BSY","EFBIG","ENOSPC","ESPIPE","EROFS","EMLINK","EPIPE","EDOM","ERANGE","ENOMSG","EIDRM","ECHRNG","EL2NSYNC","EL3HLT","EL3RST","ELNRNG","EUNATCH","ENOCSI","EL2HLT","EDEADLK","ENOLCK","EBADE","EBADR","EXFULL","ENOANO","EBADRQC","EBADSLT","EDEADLOCK","EBFONT","ENOSTR","ENODATA","ETIME","ENOSR","ENONET","ENOPKG","EREMOTE","ENOLINK","EADV","ESRMNT","ECOMM","EPROTO","EMULTIHOP","EDOTDOT","EBADMSG","ENOTUNIQ","EBADFD","EREMCHG","ELIBACC","ELIBBAD","ELIBSCN","ELIBMAX","ELIBEXEC","ENOSYS","ENOTEMPTY","ENAMETOOLONG","ELOOP","EOPNOTSUPP","EPFNOSUPPORT","ECONNRESET","ENOBUFS","EAFNOSUPPORT","EPROTOTYPE","ENOTSOCK","ENOPROTOOPT","ESHUTDOWN","ECONNREFUSED","EADDRINUSE","ECONNABORTED","ENETUNREACH","ENETDOWN","ETIMEDOUT","EHOSTDOWN","EHOSTUNREACH","EINPROGRESS","EALREADY","EDESTADDRREQ","EMSGSIZE","EPROTONOSUPPORT","ESOCKTNOSUPPORT","EADDRNOTAVAIL","ENETRESET","EISCONN","ENOTCONN","ETOOMANYREFS","EUSERS","EDQUOT","ESTALE","ENOTSUP","ENOMEDIUM","EILSEQ","EOVERFLOW","ECANCELED","ENOTRECOVERABLE","EOWNERDEAD","ESTRPIPE","_emscripten_futex_wake","addr","count","Infinity","mainThreadWaitAddress","Atomics","load","__emscripten_main_thread_futex","mainThreadWoken","compareExchange","notify","killThread","pthread_ptr","pthread","pthreads","worker","terminate","freeThreadData","runningWorkers","cancelThread","cmd","cleanupThread","returnWorkerToPool","_emscripten_get_now","initMainThreadBlock","allocateUnusedWorker","tb","_malloc","headPtr","tlsMemory","store","__emscripten_thread_init","_emscripten_register_main_browser_thread_id","initWorker","threadExitHandlers","setThreadStatus","runExitHandlers","pop","_pthread_self","___pthread_tsd_run_dtors","runExitHandlersAndDeinitThread","exitCode","threadExit","threadCancel","terminateAllThreads","threadInfoStruct","allocatedOwnStack","stackBase","runWithoutMainThreadQueuedCalls","__emscripten_allow_main_runtime_queued_calls","receiveObjectTransfer","onFinishedLoading","onmessage","d","currentProxiedOperationCallerThread","thread","targetThread","_emscripten_main_thread_process_queued_calls","spawnThread","loaded","runPthread","alert","exit","target","lineno","message","on","urlOrBlob","pthreadMainJs","getNewWorker","busySpinWait","msecs","now","establishStackSpace","stackTop","stackMax","_emscripten_stack_set_limits","getNoExitRuntime","invokeEntryPoint","___assert_fail","line","___call_main","argc","argv","_main","setErrNo","___errno_location","_atexit","_emscripten_proxy_to_main_thread_js","__emscripten_notify_thread_queue","targetThreadId","mainThreadId","_abort","_emscripten_asm_const_int","code","sigPtr","argbuf","readAsmConstArgs","_emscripten_conditional_set_current_thread_status","expectedStatus","newStatus","_emscripten_futex_wait","val","timeout","tNow","tEnd","exchange","wait","_emscripten_memcpy_big","dest","num","copyWithin","_emscripten_num_logical_cores","require$$4","cpus","navigator","sync","numCallArgs","serializedNumCallArgs","_emscripten_run_in_main_runtime_thread_js","dateNow","_emscripten_receive_on_main_thread_js_callArgs","readAsmConstArgsArray","double","_emscripten_receive_on_main_thread_js","proxiedFunctionTable","_emscripten_get_heap_size","emscripten_realloc_buffer","grow","_emscripten_resize_heap","requestedSize","oldSize","maxHeapSize","cutDown","overGrownHeapSize","min","JSEvents","inEventHandler","removeAllEventListeners","eventHandlers","_removeHandler","deferredCalls","registerRemoveEventListeners","removeEventListenersRegistered","deferCall","targetFunction","precedence","argsList","arraysHaveEqualContent","arrA","arrB","call","sort","y","removeDeferredCalls","canPerformEventHandlerRequests","currentEventHandler","allowsDeferredCalls","runDeferredCalls","removeAllHandlersOnTarget","eventTypeString","h","removeEventListener","eventListenerFunc","useCapture","registerOrRemoveHandler","eventHandler","jsEventHandler","event","handlerFunc","callbackfunc","addEventListener","queueEventHandlerOnThread_iiii","eventHandlerFunc","eventTypeId","eventData","userData","varargs","__emscripten_call_on_thread","getTargetThreadForEventCallback","getNodeNameForTarget","screen","nodeName","fullscreenEnabled","webkitFullscreenEnabled","stringToNewUTF8","jsString","cString","_emscripten_set_offscreencanvas_size_on_target_thread_js","targetCanvas","width","height","targetCanvasPtr","_emscripten_set_offscreencanvas_size_on_target_thread","maybeCStringToJsString","specialHTMLTargets","findEventTarget","querySelector","findCanvasEventTarget","_emscripten_set_canvas_element_size_calling_thread","canvas","canvasSharedPtr","offscreenCanvas","controlTransferredOffscreen","autoResizeViewport","GLctxObject","GLctx","prevViewport","getParameter","viewport","_emscripten_set_canvas_element_size_main_thread","_emscripten_set_canvas_element_size","_emscripten_set_current_thread_status","_emscripten_set_thread_name","threadId","name","__

webgl_enable_ANGLE_instanced_arrays","ctx","ext","getExtension","divisor","first","primcount","__webgl_enable_OES_vertex_array_object","vao","__webgl_enable_WEBGL_draw_buffers","n","bufs","__webgl_enable_WEBGL_multi_draw","multiDrawWebgl","GL","counter","buffers","programs","framebuffers","renderbuffers","textures","uniforms","shaders","vaos","contexts","offscreenCanvases","timerQueriesEXT","programInfos","stringCache","unpackAlignment","recordError","errorCode","lastError","getNewId","table","getSource","shader","source","createContext","webGLContextAttributes","getContext","registerContext","handle","context","attributes","version","majorVersion","enableExtensionsByDefault","initExtensions","makeContextCurrent","contextHandle","currentContext","deleteContext","initExtensionsDone","disjointTimerQueryExt","getSupportedExtensions","populateUniformTable","program","ptable","maxUniformLength","maxAttributeLength","maxUniformBlockNameLength","utable","numUniforms","getProgramParameter","getActiveUniform","loc","getUniformLocation","__emscripten_webgl_power_preferences","_emscripten_webgl_do_create_context","powerPreference","contextAttributes","stencil","antialias","premultipliedAlpha","preserveDrawingBuffer","failIfMajorPerformanceCaveat","minorVersion","explicitSwapControl","proxyContextToMainThread","renderViaOffscreenBackBuffer","_emscripten_webgl_create_context","a0","a1","SYSCALLS","mappings","printChar","stream","curr","getStr","get64","low","high","_fd_close","fd","_fd_seek","offset_low","offset_high","whence","newOffset","_fd_write","iov","iovcnt","pnum","_pthread_cleanup_pop","execute","routine","_pthread_cleanup_push","threadParams","stackHigh","stackSize","tis","detached","global_locale","_emscripten_get_global_libc","msg","start_routine","startRoutine","time","transferList","_pthread_create","attr","_emscripten_sync_run_in_main_thread_4","_memalign","__pthread_testcancel_js","_emscripten_check_blocking_allowed","__emscripten_do_pthread_join","block","_emscripten_main_browser_thread_id","threadStatus","threadExitCode","_pthread_join","_sysconf","calledRun","r","c","A","q","l","g","o","z","m","this","run","doRun","implicit","returnCode","runCaller","ready","WasmBackendModule","UTF8Decoder","TextDecoder","endPtr","decode","BackendWasm","KernelBackend","[object
Object]","super","tfjs","initWithThreadsCount","threadsCount","actualThreadsCount","getThreadsCount","DataStorage","engine","dataIdNextNumber","move","numDataIds","kernelMs","refCount","memoryOffset","numBytes","bytesPerElement","registerTensor","byteOffset","typedArrayFromBuffer","force","has","delete","dispose","unreliable","write","getPathToWasmBinary","simdSupported","threadsSupported","wasmModuleFolder","wasmPath","wasmFileMap","init","all","getAsync","factoryConfig","endsWith","blob","Blob","URL","createObjectURL","wasmPathPrefix","customFetch","instantiateWasm","imports","arrayBuffer","createInstantiateWasmFunc","initialized","onAbort","initAborted","mainScriptUrlOrBlob","wasmFactoryThreadedSimd","toString","wasmFactory","wasmBinaryNames","numThreads","usePlatformFetch","deprecationWarn","prefixOrFileMap","missingPaths","join"],"mappings":";;;;;;;;;;;;;;;;oeAkBA,IAAYA,EASAC,ECJZ,IAAIC,iVDLJ,SAAYF,GAAAA,EAAAA,EAAAA,E

B,EAAEiB,MAAMC,OAC5Db,EAAYC,EAAYc,EAAiBL,EAAQI,EACjDX,GAAkB,EAAGkB,GAElBF,aC9EOQ
,EACZ5C,EAAoB6C,GACtB,IAAIC,EA0BJ,MAAO,CAAC9C,WAAAA,EAAYE,YAAa,OAAQC,UAxBzC,SAA
mBC,GACjB0C,EAAW1C,EAAQC,KAAKC,MAAMN,EAAY,KAAiB,CACzD,SACA,SACA,YAoBgDO,WAhBhBp
D,SAAoBC,GAElB,MAAMJ,QAACA,EAASK,QAAQsC,EAACA,EAACA,IAAMvC,EACzBwC,EAAM5C,EAAQkB,UA
AUC,IAAIwB,EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOgB,GAAWE,EAAEhB,
C,OAC/CuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAAhD,OAAsC,IAAlCwB,OAAKC,cAAcd,E
AAIP,QAI3BiB,EAASE,EAAKpD,EAASmD,EAAEhC,OAAQuB,GAAHxBF,ICxBN,MAAMe,EAA0BPQ
,gBCG/CC,EAAZrD,EAAoBsD,EAACpBvC,EAAMC,KAAIB+B,EA6DJ,MAAO,CAAC9C,WAAAA,EAAYE,YAAa,O
AAQC,UAxDzCsD,C,SAAmBC,GAACjB0C,EAAW1C,EAAQC,KAAKC,MAAMN,EAAY,KAAiB,CACzD,SACA,QA
CA,SACA,SACA,QACA,SACA,SACA,YA+BgDO,WA3BhBp,CD,SAAoBC,GAElB,MAAMJ,QAACA,EAASK,QAAQsC,EAACA,EAACA,IAAMvC,EACzBwC,EAAM5C,EAAQkB,UA
AUC,IAAIwB,EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOgB,GAAWE,EAAEhB,
C,OAAC,EAAGkB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,
EAAEA,EAAGkB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,
QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOgB,GAAWE,EAAEhB,
C,OAACC,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAAhD,OAAsC,IAAlCwB,OAAKC,cAAcd,E
AAIP,QAI3BiB,EAASE,EAAKpD,EAASmD,EAAEhC,OAAQuB,GAAHxBF,ICxBN,MAAMe,EAA0BPQ
,gBCG/CC,EAAZrD,EAAoBsD,EAACpBvC,EAAMC,KAAIB+B,EA6DJ,MAAO,CAAC9C,WAAAA,EAAYE,YAAa,O
AAQC,UAxDzCsD,C,SAAmBC,GAACjB0C,EAAW1C,EAAQC,KAAKC,MAAMN,EAAY,KAAiB,CACzD,SACA,QA
CA,SACA,SACA,QACA,SACA,SACA,YA+BgDO,WA3BhBp,CD,SAAoBC,GAElB,MAAMJ,QAACA,EAASK,QAAQsC,EAACA,EAACA,IAAMvC,EACzBwC,EAAM5C,EAAQkB,UA
AUC,IAAIwB,EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOgB,GAAWE,EAAEhB,
C,OAAC,EAAGkB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,
EAAEA,EAAGkB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,MAAOgB,GAAWE,EAAEhB,
QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOgB,GAAWE,EAAEhB,
C,O

sC,EAClhC,EAAKgD,EAAajD,EAAElB,MAAMC,OAAQlC,EAASmD,EAAEhC,OAAQuB,EAAOyD,EAC5DZ,
EAAKrD,QACFM,EAoCF,MAAM6D,EAAgC,CAC3CjG,WAAYkG,YACZhG,YAAa,OACbK,WAAY0E,EACZ9
E,UAzFF,SAAeC,GACb4E,EAAgB5E,EAAQC,KAAKC,MAAM4F,YAAW,KAAiB,CAC7D,SACA,QACA,SAC
A,SACA,SACA,QACA,sBCPYC,EACZpD,EAAeqD,EAAuBhG,GAMxC,MAAMiG,EAAuBC,EAASC,EAAEhC,OAAQuB,EAAOyD,EAAEhC,OAAQuB,EAAOyD,,MACXB
,EAAQvD,EAAElB,MAAMC,OAAEhByE,EAAetD,OAAKuD,eAAeJ,EAAMC,GAC/C,IAAII,EAAOF,,IAAOG,EAAEX,
AMG,EAAejD,eAAakD,mBAAmBF,EAAMH,GAC3D,IAAIM,EAAEAc,KAACdC,GAAqB,EACzBGAoB,EACzB,GAAhB
H,EAAsB,CACxB,MAAMlD,EAAqB,IAAIoC,MAAMU,GACACrC,IAAK,IAAIrC,EAAI,EAAIA,EAAIT,IT,EAAI1B,
OAAQmC,IACnCT,EASS,GAAKoC,EAAOK,EAAIhD,EAAIgD,EAAIhD,EAAIgD,EAAIhD,EAAIgD,EAAIhD,EAAIgD,,iBAAiBL,EAAK3E,,OAA
QwE,GAClDM,EACI3B,EAAU,CAACxE,OAAQ,CAACsC,EAAAAA,,GAAIrC,CAACsC,EAAAAA,,GAAIrC,CAACsC,EAAAAA,,GAAIrC

ACF,MAAMC,OAACA,EAAMC,MAAEA,EAAKN,QAAEA,GAAWI,EAE3BuC,EAAItC,EAAOsC,EACXC,EA
AM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,IAEtCgH,WAACA,EAAUC,QAAEA,EAAOC,IAAEA,,EA
AGC,gBAAEA,GAAmBlI,EAC9CmI,EAAWpF,eAAaqF,kBAC1B/F,EAAElB,MAAO4G,EAAYC,EAAS,EAAmB
C,EAAKC,GAEpDG,EAAeF,,EAASE,aACxBC,EAAcH,EAASG,,YACvBC,EAASJ,,EAASK,,QAAQC,IAC1BC,EA
AWP,EAASK,QAAQG,MAC5BC,EAAYT,,EAASK,,QAAQK,OAC7BC,EAAUX,,EAASK,,QAAQO,KAC3BC,EA
Aeb,EAASa,aACxBC,EAAcd,,EASc,YACvBC,EAAWf,,EAASgB,WAE1B,GAA4B,iBAAxBhB,EAASiB,WACX
,MAAM,IAAI9I,MAEN,6CAAG6H,EAASiB,2CAGlB,GAA+B,IAA3BjC,EAASkB,eAAmD,IAA5BlB,EAASmB,
eAC3C,MAAM,IAAIhJ,MAEN,0EAAQ6H,EAASmB,mBAAmBnB,EAASkB,mBAGnD,MAAM3H,EAAMhC,EA
AQiC,WAAWwG,EAASnD,SAAU,WAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAMhD,OA
JA6G,EACItF,EAAKD,,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAIkH,EAAcC
,EACvDC,EAAQG,,EAAUE,,EAAWE,,EASE,EAAcC,EAAaC,,EACjEtH,GACGF,,aCjEO6H,,EACZC
,MAAMC,OAACA,,EAAMC,MAAEA,,EAASC,GAAAA,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC
,MAAMC,OAACA,EAAMC,MAAEA,,EAASC,GAAAA,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC,
EAAQjH,OAAKC,cAAcH,EAAElB,OAC7BsI,EAAElB,IAAEA,,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC,IAAEA,,EAAKC
,MAAMC,OAACA,

AOvI,KAAI,CAAC0I,EAAK3H,IAAM2H,EAAMjB,EAAM1G,KACjDuH,EAAOjI,IAAIgI,EAAMtL,OAAO0L,MAAWF,GAEvC,MAAc,WAAVhM,EACO0C,eAAa0J,uBAAuBL,EAAOM,QAE/CN,EAAOM,gBCpBFjF,EACZ3HGACF,MAAOC,QAAQsC,EAACA,GAAIrC,OAAOuL,MAACA,EAAKC,KAAAEA,GAAK9L,QAAAA,EAAK+L,GAAIC,WAAAA,EAAAA,GAAAA,IAAAA,EAAAA,GAAAA,IAAAA,EAAAA,GAAAA,I

AuBFrQ,WAnBF,SAAcC,GAKZ,MAAMC,OAACA,EAAML,QAAEA,EAAOM,MAAEA,GAASF,GAC3BuC,EA
ACA,GAAKtC,GACNoQ,aAACA,EAAYC,aAAEA,GAAgBpQ,EAC/BsC,EAAM5C,EAAQkB,UAAUC,IAAIwB,
EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOkB,EAAEhC,OACpCuB,EAAQlC,E
AAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAEhD,OADAiP,EAAS1N,EAAK6N,EAAcC,O,GACnCF,aCp
BOmJ,EACZ/K,GACF,MAAMC,OAACA,EAAML,QAAEA,EAAGWI,EAAEpB4F,EAAOnD,OAAKuD,eAAehG,E
AAKE,MAAM0F,KAAM3F,EAAO,GAAGoB,OAAO,GAEnE,IAAI6D,EAAWjC,eAAaoC,gBpF,EAAO+D,
KAAIuM,GAAKA,EAAElP,QAAQuE,GAGtE,MAAM4K,EAAUvQ,QAAQwQ,EAAOF,GAAK9N,OAAKC,cAA
c6N,EAAElP,OAAS,IACjE,GAAuB,IAAnBmP,EAAQlP,OACV,GAAiO,EAAS,CAACjE,OAAQ,CAACC,E
AGiO,EAAQ,IAAK5Q,QAAAA,IAG5C,MAAMgC,EAAMhC,EAAQiC,WAAWqD,EAAUjF,EAAO,GAAGM,O
AEnD,GAAqC,IAAjCkC,OAAKC,cAAwC,GACrB,OAAOtD,EAGT,MAAM8O,EAASF,EAAQxM,IAAIuM,G
AAKA,EAAElP,QAGlC,GAFA4B,eAAa9N,uBAAuBD,EAAQ9K,GAEnB,WArB4K,EAAQ,GAAGjQ,MAAOoQ,
CAQjC,MAAMqQ,EAAWJ,EAAQxM,IAAIuM,IAC3B,MAAM1I,EAAYpF,OAAKC,cAAc6N,EAAElP,MAAMs
G,MAAM/B,IAEnD,OAAO6D,EAAQ,CAACxJ,QAAS,CAACC,EAAGgO,GAAI3Q,QAAAA,EAASM,MAAO,
CAACmB,MADnC,EAAE,EAAGwG,SAIfgJ,EAAKBD,EAAS5M,IAAIuM,IAAKA,EAAElP,MAAMuG,GAAIA,
,SASsD,EAAEvP,QAASK,MAAOkP,EAAElP,UAIrD6D,EAAC,IjC,eAAoC,gBAAgBuL,EAAS5M,IAAIuM,GA
AKA,EAAElP,MAAMuG,GAAIA,QAAAA,EAAQ,GAC7D,MAAMyP,EAAAwC,EAAS,GAAGvP,MAAOwP,CiM,ECpDH,SAAoBr
N,EAAQiF,EAAU3E,EAAOuQ,GAChD,MAAMxD,EAAMxD,EAAU7K,OAAKsO,kBxQ,EAAOkC,OAAKC,cAAcw
C,IAAjE,GAAI4L,GAA0B,WAAVvQ,EAAoB,EAAOoB,CAEpC,IAAIyQ,EAAS,EACb,MAAMC,EAAS
M6E,EAAOjJ,OAAKC,cAAcmE,EAAMxF,OAAtCiM,EAAQjJ,IAAIwC,EAAM2E,KAAMF,EAAQjJ,IAAIwC,
,SAGb,uBAAuBvF,EAAM2E,KAAMF,EAAQjJ,IAAIwC,EAAM2E,KAAMF,EAAQjJ,IAAIwC,EAAM2E,KAAMF,
EAAMvK,KAAM,KAAM+P+P,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,
EAAMvK,KAAM,KAAM+P+P,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,EAAS,EAAGC,
IAAK,IAAII,EAAM,EAAGC,EAAMzK,EAAMxF,OAAQgQ,EAAMC,EAAKD,IAAO,CAAE,MAAME,EAAO1K,EAAMwK,
AAkB,EAAI,EAAEzD,GAA4B,iBAAXxD,EAAMwK,GAAkBxK,EAAMwK,GAAOxK,EAAMwK,GAAKhQ,OAAS,EAAG,
MAAM1H,EAAMhC,EAAQiC,WAAWwG,EAASnD,EAAU,WAAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EA

AIZ,QAAQC,GAMhD,OALA8Q,EACIvP,EAAKD,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAI6Q,EAAU3J,EACnDC,EAAaC,EAAQG,EAAUE,EAAWE,EAAS0J,EACnDlJ,EAAgBD,EAAeL,,EAAcC,,EAAaoJ,,EAC1DC,,EAAgB1Q,GACbF,,ICzET,IAAIgR,,EAAqGG,,MAAMC,,EAA0C,CACrDrT,,WAAYsT,,sBACZpT,,YAAaa,,OACbC,,UA9FF,SAAeC,,EAAeC,,EAAeC,,E

ExBvU,EAAM6C,EACJ,CAACxE,OAAQ,CAACsC,EAAG+T,GAAcpW,MAAO,CAACyE,KAFb1B,eAAayT,uB
AAuBP,IAECvW,QAAAAA,IAC7DA,EAAQuH,YAAYiP,EAAUpV,QAC9BpB,EAAQuH,YAAYmP,EAAYtV,QA
ElC,OAAOY,ICrDT,IAAI+U,GA6DG,MAAMC,GAAmC,CAC9CpX,WAAYqX,eACZnX,YAAa,OACbC,UA3DF
,SAAeC,GACb+W,GAAmB/W,EAAQC,KAAKC,MAAM+W,eAAc,KAAe,
ACjE,SACA,SACA,SACA,QACA,S
ACA,QACA,QACA,SACA,YAkDF9W,oBA9C2BC,GAK3B,MAAMJ,QAAQCA,EAAOK,OAAOC,EAAMC,MAA
EA,GAASF,GAC3BuC,EAAOA,GAAKtC,GACN6W,UAAOA,EAASxN,WAAWA,GAAcpJ,EAE1B+S,EAAY1Q,
EAAElB,MAAM,GAKpB0V,GAJ8B,SAAfzN,EAAyB/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,IAIhCyV,
EAC7BE,GAJ6B,SAAf1N,EAAyB/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,IAIjCyV,EAC3BG,GAJ6B,S
AAf3N,EAAyB/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,KAIhCyV,EAAYA,GAAExCI,EAA8B,SAAf5N,EAAyB,
ACjB,CAAC2J,EAAW8D,EAAcC,GAAcvN,GAAcwN,EAAcC,GAAcC,GAAcC,GAAcC,GAAcC,GAAcC,EA
AQiC,WAAWqV,EAAa,WAGtC1U,EADQ5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QACpBC,GACZkW,EACF,I
AAInV,WAAW,IAAIC,WAAWQ,OAAKsJ,eAAexJ,EAAElB,QAAQa,QAE1DkV,EAAmB,IAAIpV,WAAW,IAAI
C,WAAWiV,GAAahV,QAC9DmV,EACF,IAAIrV,WAAW,IAAIC,WAAWQ,OAAKsJ,eAAemL,IAAchV,QAE9D
J,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAAMhD,OAJA0V,GAAIC,UAAUC,EAF2B,SAAfxN,
AwB,EAAI,EAEf6N,EAAe5U,EAAElB,MAAMC,OAAS,EAC9D8V,EAAkBC,EAAiBC,EAAY5V,EAAElB,MAAMC,
pDF,IC1DT,IAAI0V,GAmFG,MAAMC,GAA4C,CACvDvX,WAAYwX,eACZtX,YAAa,OACbC,UAjFF,SAAeC,
C,GACb0X,GAAmB1X,EAAQC,KAAKC,MAAMyX,eAAc,KAAe,
SACA,SACA,SACA,SACA,SACA,
SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,YA0DNzX,WAtDF,S
AAyBC,GAKvB,MAAMC,OAAOC,EAAMC,MAAMC,EAAIC,QAAQC,EAAMC,MAAMC,EAAIC,QAAQC,EAAMC,
OAAEA,GAAUxQ,EACduC,EAAM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,GACtCiR,EAAWtS,EAAQkB,UAAU
QkB,UAAUC,IAAI0P,EAAOzP,EAAQC,GAAMhD,OAAOiD,EAAIC,QAAQC,EAAMC,MAAMC,EAAIC,QAAQC,
B/P,EAAelB,MAAQoP,EAAoBpP,MAAO6G,EAAClDuP,EAA0CtP,EAAKC,GAAMhD,OAAOiD,EAAIC,QAAQC,
CxBC,EAAcH,EAASG,YACvBC,EAASJ,EAASK,QAAQC,GAAMC,MAAMC,EAAIC,QAAQC,EAAMC,MAAMC,EAAIC,
YT,EAASK,QAAQK,OAC7BC,EAAUX,EAASK,QAAQO,KAC3BC,EAAiBnB,EAAeoB,EAAWC,EAAcC,EAAWC,
SkB,cACzBL,EAAeb,EAAcmB,EAAcC,EAAcC,YAAcC,EAAWC,EAAcC,EAAWC,EAAcC,EAAWC,
SoK,YAC1BC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
CX,MAAMC,IAAIC,EAAIC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
,SAAUC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
EAAelB,MAAMC,GAAIkB,EAAelB,MAAMC,GAAIkB,EAAelB,MAAMC,GAAIkB,EAAelB,MAAMC,GAAIkB,
QG,EAAUE,EAAWC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
V,GAA0BtV,EAAwBuV,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
BCEpDC,GAAWhY,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,GAAMC,MAAMC,EAAIC,QAAQC,EAAMC,MAAMC,
CA,GAAS5G,GAAcgY,IAAIC,EAAIC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
F,MAAMC,OAAOC,EAAMC,MAAMC,EAAIC,QAAQC,EAAMC,MAAMC,EAAIC,QAAQC,EAAMC,MAAMC,EAAIC,
V,EAAUC,EAAWC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
M,GAAKtY,GAAcuY,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,
AAWI,EAAC1C4B,EAAMhC,EAAQiC,EAAWR,EAAOS,GAAGC,EAAOC,BX,EAAQwE,mBAAmBxC,GAAcnC0W,
KAAKC,GAAcN3W,EAAGF,MAAM4W,EAAGC,2BAAChZ,EAAWiZ,EAAOC,EAAZ/Y/Y,KAAWgZ,EAAOC,EAAZ/Y,
II,GA+BG,MAAMC,GAAoC,CAC/CC,WAAYC,eACZC,YAAa,OACbC,UAAWC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
CA,EAAMC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,
ACmB,MAAO2B,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,
M,GAAKtY,GAAcuY,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,EAAOC,
AWI,EAAC1C4B,EAAMhC,EAAQiC,EAAWR,EAAOS,GAAGC,EAAOC,BX,EAAQwE,mBAAmBxC,GAAcnC0W,
KAAKC,GAAcN3W,EAAGF,MAAM4W,EAAGC,2BAAChZ,EAAWiZ,EAAOC,EAAZ/Y/Y,KAAWgZ,EAAOC,EAAZ/Y,
II,GA+BG,MAAMC,GAAoC,CAC/CC,WAAYC,eACZC,YAAa,OACbC,UAAWC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,EAAcC,
CA,EAAMC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,GAAIC,EAAQC,
ACmB,MAAO2B,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,EAAKC,

,iBACZ9Z,YAAa,OACbC,UApCF,SAAeC,GACb0Z,GAAgB1Z,EAAQC,KAAKC,MACzB0Z,iBAAgB,KAChB,CAAC,SAAU,SAAU,SAAU,SAAU,SAAU,SAAU,YAkCjEzZ,WA/BF,SAAwBC,GAKtB,MAAMJ,QAAACA,EAAOK,KAAEC,EAAIC,MAAEC,EAAKC,KAAEC,EAAIC,MAAEC,EAAKC,KAAEC,EAAIC,MAAEC,EAAKC

AAI,EACnDM,EAAY5K,EAAS4K,UACrBC,EAAW7K,EAAS6K,SACpBC,EAAU9K,EAAS8K,QAEzB,GAAmB
,SAAf7J,EACF,MAAM,IAAI9I,MAEN,kEAAG8I,0BAGT,MAAM1H,EAAMhC,EAAQiC,WAAWwG,EAASnD,
SAAU,WAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAC1CM,EAAqD,MAA1BjB,EAC7B,E
ACAV,EAAQkB,UAAUC,IAAIT,EAAuBU,QAAQC,GAQzD,OANAmZ,GACI5X,EAAKyQ,EAAAKyQ,EAAWC,,EAAUC,E
AASjB,EAAU3J,EAAcC,EAC3DrH,EAAQsH,EAAQG,EAAUE,EAAWE,EAAS0J,EAAWlJ,EACzDD,EAAeL,,E
AAcC,EAAaoJ,EAAeC,EACzDhR,EAAiBD,EAA0BX,GAAAkB,EAAGkB,GAE7DF,IC3HT,IAAI2Y,GAiDG,MA
AMC,GAA+B,CAC1Chb,WAAYib,WACZ/a,YAAa,OACbC,UA/CF,SAAeC,GACb2a,GACCb2a,,GACAb2a,,GACAb2a,,GACAb2a,,GACAb2a,,QACA,YAuCF1a,WAnCF,SAAkBC,GAEhBC,EAAQ,GAAIC,GAAUF,GAAQ,GAAIG,GAAUH,GAAQ,GAAII,GAAUJ,GAAQ,GAAIK,GAAUL,GAAQ,GAAIM,GAAUN,GAAQ,GAAIO,GAAUP,GAAQ,GAAIQ,GAAUR,GAAQ,GAAIS,GAAUT,GAAQ,GAAIU,GAAUV,GAAQ,GAAIW,GAAUX,GAAQ,GAAIY,GAAUZ,GAAQ,GAAIa,GAAUb,GAAQ,GAAIc,GAAUd,GAAQ,GAAIe,GAAUf,GAAQ,GAAIgB,GAAUhB,GAAQ,GAAIiB,GAAUjB,GAAQ,GAAIkB,GAAUlB,GAAQ,GAAImB,GAAUnB,GAAQ,GAAIoB,GAAUpB,GAAQ,GAAIqB,GAAUrB,GAAQ,GAAIsB,GAAUtB,GAAQ,GAAIuB,GAAUvB,GAAQ,GAAIwB,GAAUxB,GAAQ,GAAIyB,GAAUzB,GAAQ,GAAI0B,GAAU1B,GAAQ,GAAI2B,GAAU3B,GAAQ,GAAI4B,GAAU5B,GAAQ,GAAI6B,GAAU7B,GAAQ,GAAI8B,GAAU9B,GAAQ,GAAI+B,GAAU/B,GAAQ,GAAIgC,GAAUhC,GAAQ,GAAIiC,GAAUjC,GAAQ,GAAIkC,GAAUlC,GAAQ,GAAImC,GAAUnC,GAAQ,GAAIoC,GAAUpC,GAAQ,GAAIqC,GAAUrC,GAAQ,GAAIsC,GAAUtC,GAAQ,GAAIuC,GAAUvC,GAAQ,GAAIwC,GAAUxC,GAAQ,GAAIyC,GAAUzC,GAAQ,GAAI0C,GAAU1C,GAAQ,GAAI2C,GAAU3C,GAAQ,GAAI4C,GAAU5C,GAAQ,GAAI6C,GAAU7C,GAAQ,GAAI8C,GAAU9C,GAAQ,GAAI+C,GAAU/C,GAAQ,GAAIgD,GAAUhD,GAAQ,GAAIiD,GAAUjD,GAAQ,GAAIkD,GAAUlD,GAAQ,GAAImD,GAAUnD,GAAQ,GAAIoD,GAAUpD,GAAQ,GAAIqD,GAAUrD,GAAQ,GAAIsD,GAAUtD,GAAQ,GAAIuD,GAAUvD,GAAQ,GAAIwD,GAAUxD,GAAQ,GAAIyD,GAAUzD,GAAQ,GAAI0D,GAAU1D,GAAQ,GAAI2D,GAAU3D,GAAQ,GAAI4D,GAAU5D,GAAQ,GAAI6D,GAAU7D,GAAQ,GAAI8D,GAAU9D,GAAQ,GAAI+D,GAAU/D,GAAQ,GAAIgE,GAAUhE,GAAQ,GAAIiE,GAAUjE,GAAQ,GAAIkE,GAAUlE,GAAQ,GAAImE,GAAUnE,GAAQ,GAAIoE,GAAUpE,GAAQ,GAAIqE,GAAUrE,GAAQ,GAAIsE,GAAUtE,GAAQ,GAAIuE,GAAUvE,GAAQ,GAAIwE,GAAUxE,GAAQ,GAAIyE,GAAUzE,GAAQ,GAAI0E,GAAU1E,GAAQ,GAAI2E,GAAU3E,GAAQ,GAAI4E,GAAU5E,GAAQ,GAAI6E,GAAU7E,GAAQ,GAAI8E,GAAU9E,GAAQ,GAAI+E,GAAU/E,GAAQ,GAAIgF,GAAUhF,GAAQ,GAAIiF,GAAUjF,GAAQ,GAAIkF,GAAUlF,GAAQ,GAAImF,GAAUnF,GAAQ,GAAIoF,GAAUpF,GAAQ,GAAIqF,GAAUrF,GAAQ,GAAIsF,GAAUtF,GAAQ,GAAIuF,GAAUvF,GAAQ,GAAIwF,GAAUxF,GAAQ,GAAIyF,GAAUzF,GAAQ,GAAI0F,GAAU1F,GAAQ,GAAI2F,GAAU3F,GAAQ,GAAI4F,GAAU5F,GAAQ,GAAI6F,GAAU7F,GAAQ,GAAI8F,GAAU9F,GAAQ,GAAI+F,GAAU/F,GAAQ,GAAIgG,GAAUhG,GAAQ,GAAIiG,GAAUjG,GAAQ,GAAIkG,GAAUlG,GAAQ,GAAImG,GAAUnG,GAAQ,GAAIoG,GAAUpG,GAAQ,GAAIqG,GAAUrG,GAAQ,GAAIsG,GAAUtG,GAAQ,GAAIuG,GAAUvG,GAAQ,GAAIwG,GAAUxG,GAAQ,GAAIyG,GAAUzG,GAAQ,GAAI0G,GAAU1G,GAAQ,GAAI2G,GAAU3G,GAAQ,GAAI4G,GAAU5G,GAAQ,GAAI6G,GAAU7G,GAAQ,GAAI8G,GAAU9G,GAAQ,GAAI+G,GAAU/G,GAAQ,GAAIgH,GAAUhH,GAAQ,GAAIiH,GAAUjH,GAAQ,GAAIkH,GAAUlH,GAAQ,GAAImH,GAAUnH,GAAQ,GAAIoH,GAAUpH,GAAQ,GAAIqH,GAAUrH,GAAQ,GAAIsH,GAAUtH,GAAQ,GAAIuH,GAAUvH,GAAQ,GAAIwH,GAAUxH,GAAQ,GAAIyH,GAAUzH,GAAQ,GAAI0H,GAAU1H,GAAQ,GAAI2H,GAAU3H,GAAQ,GAAI4H,GAAU5H,GAAQ,GAAI6H,GAAU7H,GAAQ,GAAI8H,GAAU9H,GAAQ,GAAI+H,GAAU/H,GAAQ,GAAIgI,GAAUhI,GAAQ,GAAIiI,GAAUjI,GAAQ,GAAIkI,GAAUlI,GAAQ,GAAImI,GAAUnI,GAAQ,GAAIoI,GAAUpI,GAAQ,GAAIqI,GAAUrI,GAAQ,GAAIsI,GAAUtI,GAAQ,GAAIuI,GAAUvI,GAAQ,GAAIwI,GAAUxI,GAAQ,GAAIyI,GAAUzI,GAAQ,GAAI0I,GAAU1I,GAAQ,GAAI2I,GAAU3I,GAAQ,GAAI4I,GAAU5I,GAAQ,GAAI6I,GAAU7I,GAAQ,GAAI8I,GAAU9I,GAAQ,GAAI+I,GAAU/I,GAAQ,GAAIgJ,GAAUhJ,GAAQ,GAAIiJ,GAAUjJ,GAAQ,GAAIkJ,GAAUlJ,GAAQ,GAAImJ,GAAUnJ,GAAQ,GAAIoJ,GAAUpJ,GAAQ,GAAIqJ,GAAUrJ,GAAQ,GAAIsJ,GAAUtJ,GAAQ,GAAIuJ,GAAUvJ,GAAQ,GAAIwJ,GAAUxJ,GAAQ,GAAIyJ,GAAUzJ,GAAQ,GAAI0J,GAAU1J,GAAQ,GAAI2J,GAAU3J,GAAQ,GAAI4J,GAAU5J,GAAQ,GAAI6J,GAAU7J,GAAQ,GAAI8J,GAAU9J,GAAQ,GAAI+J,GAAU/J,GAAQ,GAAIgK,GAAUhK,GAAQ,GAAIiK,GAAUjK,GAAQ,GAAIkK,GAAUlK,GAAQ,GAAImK,GAAUnK,GAAQ,GAAIoK,GAAUpK,GAAQ,GAAIqK,GAAUrK,GAAQ,GAAIsK,GAAUtK,GAAQ,GAAIuK,GAAUvK,GAAQ,GAAIwK,GAAUxK,GAAQ,GAAIyK,GAAUzK,GAAQ,GAAI0K,GAAU1K,GAAQ,GAAI2K,GAAU3K,GAAQ,GAAI4K,GAAU5K,GAAQ,GAAI6K,GAAU7K,GAAQ,GAAI8K,GAAU9K,GAAQ,GAAI+K,GAAU/K,GAAQ,GAAIgL,GAAUhL,GAAQ,GAAIiL,GAAUjL,GAAQ,GAAIkL,GAAUlL,GAAQ,GAAImL,GAAUnL,GAAQ,GAAIoL,GAAUpL,GAAQ,GAAIqL,GAAUrL,GAAQ,GAAIsL,GAAUtL,GAAQ,GAAIuL,GAAUvL,GAAQ,GAAIwL,GAAUxL,GAAQ,GAAIyL,GAAUzL,GAAQ,GAAI0L,GAAU1L,GAAQ,GAAI2L,GAAU3L,GAAQ,GAAI4L,GAAU5L,GAAQ,GAAI6L,GAAU7L,GAAQ,GAAI8L,GAAU9L,GAAQ,GAAI+L,GAAU/L,GAAQ,GAAIgM,GAAUhM,GAAQ,GAAIiM,GAAUjM,GAAQ,GAAIkM,GAAUlM,GAAQ,GAAImM,GAAUnM,GAAQ,GAAIoM,GAAUpM,GAAQ,GAAIqM,GAAUrM,GAAQ,GAAIsM,GAAUtM,GAAQ,GAAIuM,GAAUvM,GAAQ,GAAIwM,GAAUxM,GAAQ,GAAIyM,GAAUzM,GAAQ,GAAI0M,GAAU1M,GAAQ,GAAI2M,GAAU3M,GAAQ,GAAI4M,GAAU5M,GAAQ,GAAI6M,GAAU7M,GAAQ,GAAI8M,GAAU9M,GAAQ,GAAI+M,GAAU/M,GAAQ,GAAIgN,GAAUhN,GAAQ,GAAIiN,GAAUjN,GAAQ,GAAIkN,GAAUlN,GAAQ,GAAImN,GAAUnN,GAAQ,GAAIoN,GAAUpN,GAAQ,GAAIqN,GAAUrN,GAAQ,GAAIsN,GAAUtN,GAAQ,GAAIuN,GAAUvN,GAAQ,GAAIwN,GAAUxN,GAAQ,GAAIyN,GAAUzN,GAAQ,GAAI0N,GAAU1N,GAAQ,GAAI2N,GAAU3N,GAAQ,GAAI4N,GAAU5N,GAAQ,GAAI6N,GAAU7N,GAAQ,GAAI8N,GAAU9N,GAAQ,GAAI+N,GAAU/N,GAAQ,GAAIgO,GAAUhO,GAAQ,GAAIiO,GAAUjO,GAAQ,GAAIkO,GAAUlO,GAAQ,GAAImO,GAAUnO,GAAQ,GAAIoO,GAAUpO,GAAQ,GAAIqO,GAAUrO,GAAQ,GAAIsO,GAAUtO,GAAQ,GAAIuO,GAAUvO,GAAQ,GAAIwO,GAAUxO,GAAQ,GAAIyO,GAAUzO,GAAQ,GAAI0O,GAAU1O,GAAQ,GAAI2O,GAAU3O,GAAQ,GAAI4O,GAAU5O,GAAQ,GAAI6O,GAAU7O,GAAQ,GAAI8O,GAAU9O,GAAQ,GAAI+O,GAAU/O,GAAQ,GAAIgP,GAAUhP,GAAQ,GAAIiP,GAAUjP,GAAQ,GAAIkP,GAAUlP,GAAQ,GAAImP,GAAUnP,GAAQ,GAAIoP,GAAUpP,GAAQ,GAAIqP,GAAUrP,GAAQ,GAAIsP,GAAUtP,GAAQ,GAAIuP,GAAUvP,GAAQ,GAAIwP,GAAUxP,GAAQ,GAAIyP,GAAUzP,GAAQ,GAAI0P,GAAU1P,GAAQ,GAAI2P,GAAU3P,GAAQ,GAAI4P,GAAU5P,GAAQ,GAAI6P,GAAU7P,GAAQ,GAAI8P,GAAU9P,GAAQ,GAAI+P,GAAU/P,GAAQ,GAAIgQ,GAAUhQ,GAAQ,GAAIiQ,GAAUjQ,GAAQ,GAAIkQ,GAAUlQ,GAAQ,GAAImQ,GAAUnQ,GAAQ,GAAIoQ,GAAUpQ,GAAQ,GAAIqQ,GAAUrQ,GAAQ,GAAIsQ,GAAUtQ,GAAQ,GAAIuQ,GAAUvQ,GAAQ,GAAIwQ,GAAUxQ,GAAQ,GAAIyQ,GAAUzQ,GAAQ,GAAI0Q,GAAU1Q,GAAQ,GAAI2Q,GAAU3Q,GAAQ,GAAI4Q,GAAU5Q,GAAQ,GAAI6Q,GAAU7Q,GAAQ,GAAI8Q,GAAU9Q,GAAQ,GAAI+Q,GAAU/Q,GAAQ,GAAIgR,GAAUhR,GAAQ,GAAIiR,GAAUjR,GAAQ,GAAIkR,GAAUlR,GAAQ,GAAImR,GAAUnR,GAAQ,GAAIoR,GAAUpR,GAAQ,GAAIqR,GAAUrR,GAAQ,GAAIsR,GAAUtR,GAAQ,GAAIuR,GAAUvR,GAAQ,GAAIwR,GAAUxR,GAAQ,GAAIyR,GAAUzR,GAAQ,GAAI0R,GAAU1R,GAAQ,GAAI2R,GAAU3R,GAAQ,GAAI4R,GAAU5R,GAAQ,GAAI6R,GAAU7R,GAAQ,GAAI8R,GAAU9R,GAAQ,GAAI+R,GAAU/R,GAAQ,GAAIgS,GAAUhS,GAAQ,GAAIiS,GAAUjS,GAAQ,GAAIkS,GAAUlS,GAAQ,GAAImS,GAAUnS,GAAQ,GAAIoS,GAAUpS,GAAQ,GAAIqS,GAAUrS,GAAQ,GAAIsS,GAAUtS,GAAQ,GAAIuS,GAAUvS,GAAQ,GAAIwS,GAAUxS,GAAQ,GAAIyS,GAAUzS,GAAQ,GAAI0S,GAAU1S,GAAQ,GAAI2S,GAAU3S,GAAQ,GAAI4S,GAAU5S,GAAQ,GAAI6S,GAAU7S,GAAQ,GAAI8S,GAAU9S,GAAQ,GAAI+S,GAAU/S,GAAQ,GAAIgT,GAAUhT,GAAQ,GAAIiT,GAAUjT,GAAQ,GAAIkT,GAAUlT,GAAQ,GAAImT,GAAUnT,GAAQ,GAAIoT,GAAUpT,GAAQ,GAAIqT,GAAUrT,GAAQ,GAAIsT,GAAUtT,GAAQ,GAAIuT,GAAUvT,GAAQ,GAAIwT,GAAUxT,GAAQ,GAAIyT,GAAUzT,GAAQ,GAAI0T,GAAU1T,GAAQ,GAAI2T,GAAU3T,GAAQ,GAAI4T,GAAU5T,GAAQ,GAAI6T,GAAU7T,GAAQ,GAAI8T,GAAU9T,GAAQ,GAAI+T,GAAU/T,GAAQ,GAAIgU,GAAUhU,GAAQ,GAAIiU,GAAUjU,GAAQ,GAAIkU,GAAUlU,GAAQ,GAAImU,GAAUnU,GAAQ,GAAIoU,GAAUpU,GAAQ,GAAIqU,GAAUrU,GAAQ,GAAIsU,GAAUtU,GAAQ,GAAIuU,GAAUvU,GAAQ,GAAIwU,GAAUxU,GAAQ,GAAIyU,GAAUzU,GAAQ,GAAI0U,GAAU1U,GAAQ,GAAI2U,GAAU3U,GAAQ,GAAI4U,GAAU5U,GAAQ,GAAI6U,GAAU7U,GAAQ,GAAI8U,GAAU9U,GAAQ,GAAI+U,GAAU/U,GAAQ,GAAIgV,GAAUhV,GAAQ,GAAIiV,GAAUjV,GAAQ,GAAIkV,GAAUlV,GAAQ,GAAImV,GAAUnV,GAAQ,GAAIoV,GAAUpV,GAAQ,GAAIqV,GAAUrV,GAAQ,GAAIsV,GAAUtV,GAAQ,GAAIuV,GAAUvV,GAAQ,GAAIwV,GAAUxV,GAAQ,GAAIyV,GAAUzV,GAAQ,GAAI0V,GAAU1V,GAAQ,GAAI2V,GAAU3V,GAAQ,GAAI4V,GAAU5V,GAAQ,GAAI6V,GAAU7V,GAAQ,GAAI8V,GAAU9V,GAAQ,GAAI+V,GAAU/V,GAAQ,GAAIgW,GAAUhW,GAAQ,GAAIiW,GAAUjW,GAAQ,GAAIkW,GAAUlW,GAAQ,GAAImW,GAAUnW,GAAQ,GAAIoW,GAAUpW,GAAQ,GAAIqW,GAAUrW,GAAQ,GAAIsW,GAAUtW,GAAQ,GAAIuW,GAAUvW,GAAQ,GAAIwW,GAAUxW,GAAQ,GAAIyW,GAAUzW,GAAQ,GAAI0W,GAAU1W,GAAQ,GAAI2W,GAAU3W,GAAQ,GAAI4W,GAAU5W,GAAQ,GAAI6W,GAAU7W,GAAQ,GAAI8W,GAAU9W,GAAQ,GAAI+W,GAAU/W,GAAQ,GAAIgX,GAAUhX,GAAQ,GAAIiX,GAAUjX,GAAQ,GAAIkX,GAAUlX,GAAQ,GAAImX,GAAUnX,GAAQ,GAAIoX,GAAUpX,GAAQ,GAAIqX,GAAUrX,GAAQ,GAAIsX,GAAUtX,GAAQ,GAAIuX,GAAUvX,GAAQ,GAAIwX,GAAUxX,GAAQ,GAAIyX,GAAUzX,GAAQ,GAAI0X,GAAU1X,GAAQ,GAAI2X,GAAU3X,GAAQ,GAAI4X,GAAU5X,GAAQ,GAAI6X,GAAU7X,GAAQ,GAAI8X,GAAU9X,GAAQ,GAAI+X,GAAU/X,GAAQ,GAAIgY,GAAUhY,GAAQ,GAAIiY,GAAUjY,GAAQ,GAAIkY,GAAUlY,GAAQ,GAAImY,GAAUnY,GAAQ,GAAIoY,GAAUpY,GAAQ,GAAIqY,GAAUrY,GAAQ,GAAIsY,GAAUtY,GAAQ,GAAIuY,GAAUvY,GAAQ,GAAIwY,GAAUxY,GAAQ,GAAIyY,GAAUzY,GAAQ,GAAI0Y,GAAU1Y,GAAQ,GAAI2Y,GAAU3Y,GAAQ,GAAI4Y,GAAU5Y,GAAQ,GAAI6Y,GAAU7Y,GAAQ,GAAI8Y,GAAU9Y,GAAQ,GAAI+Y,GAAU/Y,GAAQ,GAAIgZ,GAAUhZ,GAAQ,GAAIiZ,GAAUjZ,GAAQ,GAAIkZ,GAAUlZ,GAAQ,GAAImZ,GAAUnZ,GAAQ,GAAIoZ,GAAUpZ,GAAQ,GAAIqZ,GAAUrZ,GAAQ,GAAIsZ,GAAUtZ,GAAQ,GAAIuZ,GAAUvZ,GAAQ,GAAIwZ,GAAUxZ,GAAQ,GAAIyZ,GAAUzZ,GAAQ,GAAI0Z,GAAU1Z,GAAQ,GAAI2Z,GAAU3Z,GAAQ,GAAI4Z,GAAU5Z,GAAQ,GAAI6Z,GAAU7Z,GAAQ,GAAI8Z,GAAU9Z,GAAQ,GAAI+Z,GAAU/Z,GAAQ,GAAIga,GAAUha,GAAQ,GAAIia,GAAUja,GAAQ,GAAIka,GAAUla,GAAQ,GAAIma,GAAUna,GAAQ,GAAIoa,GAAUpa,GAAQ,GAAIqa,GAAUra,GAAQ,GAAIsa,GAAUta,GAAQ,GAAIua,GAAUva,GAAQ,GAAIwa,GAAUxa,GAAQ,GAAIya,GAAUza,GAAQ,GAAI0a,GAAU1a,GAAQ,GAAI2a,GAAU3a,GAAQ,GAAI4a,GAAU5a,GAAQ,GAAI6a,GAAU7a,GAAQ,GAAI8a,GAAU9a,GAAQ,GAAI+a,GAAU/a,GAAQ,GAAIgb,GAAUhb,GAAQ,GAAIib,GAAUjb,GAAQ,GAAIkb,GAAUlb,GAAQ,GAAImb,GAAUnb,GAAQ,GAAIob,GAAUpb,GAAQ,GAAIqb,GAAUrb,GAAQ,GAAIsb,GAAUtb,GAAQ,GAAIub,GAAUvb,GAAQ,GAAIwb,GAAUxb,GAAQ,GAAIyb,GAAUzb,GAAQ,GAAI0b,GAAU1b,GAAQ,GAAI2b,GAAU3b,GAAQ,GAAI4b,GAAU5b,GAAQ,GAAI6b,GAAU7b,GAAQ,GAAI8b,GAAU9b,GAAQ,GAAI+b,GAAU/b,GAAQ,GAAIgc,GAAUhc,GAAQ,GAAIic,GAAUjc,GAAQ,GAAIkc,GAAUlc,GAAQ,GAAImc,GAAUnc,GAAQ,GAAIoc,GAAUpc,GAAQ,GAAIqc,GAAUrc,GAAQ,GAAIsc,GAAUtc,GAAQ,GAAIuc,GAAUvc,GAAQ,GAAIwc,GAAUxc,GAAQ,GAAIyc,GAAUzc,GAAQ,GAAI0c,GAAU1c,GAAQ,GAAI2c,GAAU3c,GAAQ,GAAI4c,GAAU5c,GAAQ,GAAI6c,GAAU7c,GAAQ,GAAI8c,GAAU9c,GAAQ,GAAI+c,GAAU/c,GAAQ,GAAIgd,GAAUhd,GAAQ,GAAIid,GAAUjd,GAAQ,GAAIkd,GAAUld,GAAQ,GAAImd,GAAUnd,GAAQ,GAAIod,GAAUpd,GAAQ,GAAIqd,GAAUrd,GAAQ,GAAIsd,GAAUtd,GAAQ,GAAIud,GAAUvd,GAAQ,GAAIwd,GAAUxd,GAAQ,GAAIyd,GAAUzd,GAAQ,GAAI0d,GAAU1d,GAAQ,GAAI2d,GAAU3d,GAAQ,GAAI4d,GAAU5d,GAAQ,GAAI6d,GAAU7d,GAAQ,GAAI8d,GAAU9d,GAAQ,GAAI+d,GAAU/d,GAAQ,GAAIge,GAAUhe,GAAQ,GAAIie,GAAUje,GAAQ,GAAIke,GAAUle,GAAQ,GAAIme,GAAUne,GAAQ,GAAIoe,GAAUpe,GAAQ,GAAIqe,GAAUre,GAAQ,GAAIse,GAAUte,GAAQ,GAAIue,GAAUve,GAAQ,GAAIwe,GAAUxe,GAAQ,GAAIye,GAAUze,GAAQ,GAAI0e,GAAU1e,GAAQ,GAAI2e,GAAU3e,GAAQ,GAAI4e,GAAU5e,GAAQ,GAAI6e,GAAU7e,GAAQ,GAAI8e,GAAU9e,GAAQ,GAAI+e,GAAU/e,GAAQ,GAAIgf,GAAUhf,GAAQ,GAAIif,GAAUjf,GAAQ,GAAIkf,GAAUlf,GAAQ,GAAImf,GAAUnf,GAAQ,GAAIof,GAAUpf,GAAQ,GAAIqf,GAAUrf,GAAQ,GAAIsf,GAAUtf,GAAQ,GAAIuf,GAAUvf,GAAQ,GAAIwf,GAAUxf,GAAQ,GAAIyf,GAAUzf,GAAQ,GAAI0f,GAAU1f,GAAQ,GAAI2f,GAAU3f,GAAQ,GAAI4f,GAAU5f,GAAQ,GAAI6f,GAAU7f,GAAQ,GAAI8f,GAAU9f,GAAQ,GAAI+f,GAAU/f,GAAQ,GAAIggb,GAAUhgb,GAAQ,GAAIigb,GAAUjgb,GAAQ,GAAIkgb,GAAUlgb,GAAQ,GAAImgb,GAAUngb,GAAQ,GAAIogb,GAAUpgb,GAAQ,GAAIqgb,GAAUrgb,GAAQ,GAAIsgb,GAAUtgb,GAAQ,GAAIugb,GAAUvgb,GAAQ,GAAIwgb,GAAUxgb,GAAQ,GAAIygb,GAAUzgb,GAAQ,GAAI0gb,GAAU1gb,GAAQ,GAAI2gb,GAAU3gb,GAAQ,GAAI4gb,GAAU5gb,GAAQ,GAAI6gb,GAAU7gb,GAAQ,GAAI8gb,GAAU9gb,GAAQ,GAAI+gb,GAAU/gb,GAAQ,GAAIghb,GAAUhhb,GAAQ,GAAIihb,GAAUjhb,GAAQ,GAAIkhb,GAAUlhb,GAAQ,GAAImhb,GAAUnhb,GAAQ,GAAIohb,GAAUphb,GAAQ,GAAIqhb,GAAUrhb,GAAQ,GAAIshb,GAAUthb,GAAQ,GAAIuhb,GAAUvhb,GAAQ,GAAIwhb,GAAUxhb,GAAQ,GAAIyhb,GAAUzhb,GAAQ,GAAI0hb,GAAU1hb,GAAQ,GAAI2hb,GAAU3hb,GAAQ,GAAI4hb,GAAU5hb,GAAQ,GAAI6hb,GAAU7hb,GAAQ,GAAI8hb,GAAU9hb,GAAQ,GAAI+hb,GAAU/hb,GAAQ,GAAIgib,GAAUhib,GAAQ,GAAIiib,GAAUjib,GAAQ,GAAIkib,GAAUlib,GAAQ,GAAImib,GAAUnib,GAAQ,GAAIoib,GAAUpib,GAAQ,GAAIqib,GAAUrib,GAAQ,GAAIsib,GAAUtib,GAAQ,GAAIuib,GAAUvib,GAAQ,GAAIwib,GAAUxib,GAAQ,GAAIyib,GAAUzib,GAAQ,GAAI0ib,GAAU1ib,GAAQ,GAAI2ib,GAAU3ib,GAAQ,GAAI4ib,GAAU5ib,GAAQ,GAAI6ib,GAAU7ib,GAAQ,GAAI8ib,GAAU9ib,GAAQ,GAAI+ib,GAAU/ib,GAAQ,GAAIgjb,GAAUhjb,GAAQ,GAAIijb,GAAUjjb,GAAQ,GAAIkjb,GAAUljb,GAAQ,GAAImjb,GAAUnjb,GAAQ,GAAIojb,GAAUpjb,GAAQ,GAAIqjb,GAAUrjb,GAAQ,GAAIsjb,GAAUtjb,GAAQ,GAAIujb,GAAUvjb,GAAQ,GAAIwjb,GAAUxjb,GAAQ,GAAIyjb,GAAUzjb,GAAQ,GAAI0jb,GAAU1jb,GAAQ,GAAI2jb,GAAU3jb,GAAQ,GAAI4jb,GAAU5jb,GAAQ,GAAI6jb,GAAU7jb,GAAQ,GAAI8jb,GAAU9jb,GAAQ,GAAI+jb,GAAU/jb,GAAQ,GAAIgkb,GAAUhkb,GAAQ,GAAIikb,GAAUjkb,GAAQ,GAAIkkb,GAAUlkb,GAAQ,GAAImkb,GAAUnkb,GAAQ,GAAIokb,GAAUpkb,GAAQ,GAAIqkb,GAAUrkb,GAAQ,GAAIskb,GAAUtkb,GAAQ,GAAIukb,GAAUvkb,GAAQ,GAAIwkb,GAAUxkb,GAAQ,GAAIykb,GAAUzkb,GAAQ,GAAI0kb,GAAU1kb,GAAQ,GAAI2kb,GAAU3kb,GAAQ,GAAI4kb,GAAU5kb,GAAQ,GAAI6kb,GAAU7kb,GAAQ,GAAI8kb,GAAU9kb,GAAQ,GAAI+kb,GAAU/kb,GAAQ,GAAIglb,GAAUhlb,GAAQ,GAAIilb,GAAUjlb,GAAQ,GAAIklb,GAAUllb,GAAQ,GAAImlb,GAAUnlb,GAAQ,GAAIolb,GAAUplb,GAAQ,GAAIqlb,GAAUrlb,GAAQ,GAAIslb,GAAUtlb,GAAQ,GAAIulb,GAAUvlb,GAAQ,GAAIwlb,GAAUxlb,GAAQ,GAAIylb,GAAUzlb,GAAQ,GAAI0lb,GAAU1lb,GAAQ,GAAI2lb,GAAU3lb,GAAQ,GAAI4lb,GAAU5lb,GAAQ,GAAI6lb,GAAU7lb,GAAQ,GAAI8lb,GAAU9lb,GAAQ,GAAI+lb,GAAU/lb,GAAQ,GAAIgmb,GAAUhmb,GAAQ,GAAIimb,GAAUjmb,GAAQ,GAAIkmb,GAAUlmb,GAAQ,GAAImmb,GAAUnmb,GAAQ,GAAIomb,GAAUpmb,GAAQ,GAAIqmb,GAAUrmb,GAAQ,GAAIsmb,GAAUtmb,GAAQ,GAAIumb,GAAUvmb,GAAQ,GAAIwmb,GAAUxmb,GAAQ,GAAIymb,GAAUzmb,GAAQ,GAAI0mb,GAAU1mb,GAAQ,GAAI2mb,GAAU3mb,GAAQ,GAAI4mb,GAAU5mb,GAAQ,GAAI6mb,GAAU7mb,GAAQ,GAAI8mb,GAAU9mb,GAAQ,GAAI+mb,GAAU/mb,GAAQ,GAAIgnb,GAAUhnb,GAAQ,GAAIinb,GAAUjnb,GAAQ,GAAIknb,GAAUlnb,GAAQ,GAAImnb,GAAUnnb,GAAQ,GAAIonb,GAAUpnb,GAAQ,GAAIqnb,GAAUrnb,GAAQ,GAAIsnb,GAAUtnb,GAAQ,GAAIunb,GAAUvnb,GAAQ,GAAIwnb,GAAUxnb,GAAQ,GAAIynb,GAAUznb,GAAQ,GAAI0nb,GAAU1nb,GAAQ,GAAI2nb,GAAU3nb,GAAQ,GAAI4nb,GAAU5nb,GAAQ,GAAI6nb,GAAU7nb,GAAQ,GAAI8nb,GAAU9nb,GAAQ,GAAI+nb,GAAU/nb,GAAQ,GAAIgob,GAAUhob,GAAQ,GAAIiob,GAAUjob,GAAQ,GAAIkob,GAAUlob,GAAQ,GAAImob,GAAUnob,GAAQ,GAAIoob,GAAUpob,GAAQ,GAAIqob,GAAUrob,GAAQ,GAAIsob,GAAUtob,GAAQ,GAAIuob,GAAUvob,GAAQ,GAAIwob,GAAUxob,GAAQ,GAAIyob,GAAUzob,GAAQ,GAAI0ob,GAAU1ob,GAAQ,GAAI2ob,GAAU3ob,GAAQ,GAAI4ob,GAAU5ob,GAAQ,GAAI6ob,GAAU7ob,GAAQ,GAAI8ob,GAAU9ob,GAAQ,GAAI+ob,GAAU/ob,GAAQ,GAAIgpb,GAAUhpb,GAAQ,GAAIipb,GAAUjpb,GAAQ,GAAIkpb,GAAUlpb,GAAQ,GAAImpb,GAAUnpb,GAAQ,GAAIopb,GAAUppb,GAAQ,GAAIqpb,GAAUrpb,GAAQ,GAAIspb,GAAUtpb,GAAQ,GAAIupb,GAAUvpb,GAAQ,GAAIwpb,GAAUxpb,GAAQ,GAAIypb,GAAUzpb,GAAQ,GAAI0pb,GAAU1pb,GAAQ,GAAI2pb,GAAU3pb,GAAQ,GAAI4pb,GAAU5pb,GAAQ,GAAI6pb,GAAU7pb,GAAQ,GAAI8pb,GAAU9pb,GAAQ,GAAI+pb,GAAU/pb,GAAQ,GAAIgqb,GAAUhqb,GAAQ,GAAIiqb,GAAUjqb,GAAQ,GAAIkqb,GAAUlqb,GAAQ,GAAImqb,GAAUnqb,GAAQ,GAAIoqb,GAAUpqb,GAAQ,GAAIqqb,GAAUrqb,GAAQ,GAAIsqb,GAAUtqb,GAAQ,GAAIuqb,GAAUvqb,GAAQ,GAAIwqb,GAAUxqb,GAAQ,GAAIyqb,GAAUzqb,GAAQ,GAAI0qb,GAAU1qb,GAAQ,GAAI2qb,GAAU3qb,GAAQ,GAAI4qb,GAAU5qb,GAAQ,GAAI6qb,GAAU7qb,GAAQ,GAAI8qb,GAAU9qb,GAAQ,GAAI+qb,GAAU/qb,GAAQ,GAAIgrb,GAAUhrb,GAAQ,GAAIirb,GAAUjrb,GAAQ,GAAIkrb,GAAUlrb,GAAQ,GAAImrb,GAAUnrb,GAAQ,GAAIorb,GAAUprb,GAAQ,GAAIqrb,GAAUrrb,GAAQ,GAAIsrb,GAAUtrb,GAAQ,GAAIurb,GAAUvrb,GAAQ,GAAIwrb,GAAUxrb,GAAQ,GAAIyrb,GAAUzrb,GAAQ,GAAI0rb,GAAU1rb,GAAQ,GAAI2rb,GAAU3rb,GAAQ,GAAI4rb,GAAU5rb,GAAQ,GAAI6rb,GAAU7rb,GAAQ,GAAI8rb,GAAU9rb,GAAQ,GAAI+rb,GAAU/rb,GAAQ,GAAIgsb,GAAUhsb,GAAQ,GAAIisb,GAAUjsb,GAAQ,GAAIksb,GAAUlsb,GAAQ,GAAImsb,GAAUnsb,GAAQ,GAAIosb,GAAUpsb,GAAQ,GAAIqsb,GAAUrsb,GAAQ,GAAIssb,GAAUtsb,GAAQ,GAAIusb,GAAUvsb,GAAQ,GAAIwsb,GAAUxsb,GAAQ,GAAIysb,GAAUzsb,GAAQ,GAAI0sb,GAAU1sb,GAAQ,GAAI2sb,GAAU3sb,GAAQ,GAAI4sb,GAAU5sb,GAAQ,GAAI6sb,GAAU7sb,GAAQ,GAAI8sb,GAAU9sb,GAAQ,GAAI+sb,GAAU/sb,GAAQ,GAAIgtb,GAAUhtb,GAAQ,GAAIitb,GAAUjtb,GAAQ,GAAIktb,GAAUltb,GAAQ,GAAImtb,GAAUntb,GAAQ,GAAIotb,GAAUptb,GAAQ,GAAIqtb,GAAUrtb,GAAQ,GAAIstb,GAAUttb,GAAQ,GAAIutb,GAAUvtb,GAAQ,GAAIwtb,GAAUxtb,GAAQ,GAAIytb,GAAUztb,GAAQ,GAAI0tb,GAAU1tb,GAAQ,GAAI2tb,GAAU3tb,GAAQ,GAAI4tb,GAAU5tb,GAAQ,GAAI6tb,GAAU7tb,GAAQ,GAAI8tb,GAAU9tb,GAAQ,GAAI+tb,GAAU/tb,GAAQ,GAAIgub,GAAUhub,GAAQ,GAAIiub,GAAUjub,GAAQ,GAAIkub,GAAUlub,GAAQ,GAAImub,GAAUnub,GAAQ,GAAIoub,GAAUpub,GAAQ,GAAIqub,GAAUrub,GAAQ,GAAIsub,GAAUtub,GAAQ,GAAIuub,GAAUvub,GAAQ,GAAIwub,GAAUxub,GAAQ,GAAIyub,GAAUzub,GAAQ,GAAI0ub,GAAU1ub,GAAQ,GAAI2ub,GAAU3ub,GAAQ,GAAI4ub,GAAU5ub,GAAQ,GAAI6ub,GAAU7ub,GAAQ,GAAI8ub,GAAU9ub,GAAQ,GAAI+ub,GAAU/ub,GAAQ,GAAIgvb,GAAUhvb,GAAQ,

,EAAoB,CAEtBQ,EAAQN,EACRK,EAFqBhH,EAAQkB,UAAUC,IAAIwF,EAAWvF,QAAQC,GAKhE,MAAM6F,EAAYD,EAAMxF,MAAMC,OAC9B2B,eAAa8D,2BAA2B,MAAOd,EAAMa,GACrD,MAAO5B,EAAU8B,GACb/D,eAAagE,0BAA0BJ,EAAMxF,MAAMC,O4E,GAClDiB,EAAazE,OAAKC,cAAsE,cAAcsE,GAEhCpF,EAAMhC,EAAQiC,WAAWqD,EAAU3C,EAAEhC,OAC3C,GAAwC,IAAApCkC,OAAKC,cAAcmE,EAAMxF,MAAMC,OAAOc,CAAzC,CAAzC,MAAMS,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAAhDmE,MAAMC,EAAQC,EAAQC,EAAQ

EAAEhC,OAAQ2G,EAAYpF,GAQlD,GALIuE,GAEFzG,EAAQuH,YAAYZ,EAAWvF,QAG7B2F,EAAU,CAEZ,
MAAM3D,EAAWC,eAAamE,qBAAqBxF,EAAIP,MAAO0E,GAC9DnE,EAAIP,MAAQ2B,EAGd,OAAOpB,IC9
DIyc,GACTxb,EAAyByb,WAFC,GCK9B,IAAKC,GAKL,IAAIC,IALJ,SAAKD,GACHA,yBACAA,6BAFF,CAAK
KA,KAAAA,QAkDE,MAAME,GAAgC,CAC3Cjf,WAAYkf,YACZhf,YAAa,OACbK,WA9BF,SAAmBC,GAAG
MAAOC,QAAQsC,EAAIA,GAAE3C,QAAAEA,EAASM,OAAOye,SAAIA,CAAC,EAAIA,GAAEC,KAAAA,EAAIlF,
EAAWyZ,EAAS3a,KACtB,CAAC6a,EAAGpb,IAAMob,EAAEE,GAAAtb,qBtc,EAAElB,MAAMoC,GAAKob,EAAE,
KAC9Crc,EAAM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,GACtCW,MhC,EAAQiC,WAAWqD,E
AAU3C,EAAEhC,OACrCuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAC1CuE,EAAc,IAAIxD,WA
AW,IAAIC,WAAWM,EAAElB,OAAOa,QAErD4c,EAAkBH,EAAS3a,KAAI+a,GAAAA,EAAGC,GAAGC,GAAGC,
BL,EAAS3a,KAAI+a,GAAAA,EAAGC,GAAGC,GAAGC,
ACF,IAAIjd,WAAW,IAAIC,WAAWM,EAAElB,OAAOa,QAAIgd,GAAAA,EAAGC,GAAGC,GAAGC,
ACF,IAAIld,WAAW,IAAIC,WAAWM,EAAElB,OAAOa,QAAIgd,GAAAA,EAAGC,GAAGC,GAAGC,
MC,OAAQlC,EAASmD,EAAEhC,OAAQ0e,EAAIC,GAAIC,GAAIC,GAAIC,GAAIC,GAAIC,GAAIC,GAAIC,GAAIC,
SAAeC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,
AA,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,
AAAA,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,
AAAA,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,
AAAA,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,GAAGC,
A

GAEzCF,ICpBF,MAAMwf,GAA+B,CAC1C5hB,WAAY6hB,WACZ3hB,YAAa,OACbK,WAXF,SAAkBC,GAChB,MAAOC,QAAQsC,EAACA,GAAE3C,QAAEA,GAAWI,EACzB4B,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOkB,EAAEhC,OAG1C,OAFgBX,EAAQwE,mBAAmBxC,GACnC0W,KAAK,GACN1W,ICmCF,MAAM0f,GAA2B,CACtC9hB,WAAY+hB,OACZ7hB,YAAa,OACbK,oBAxCEC,GAEF,MAAMC,OAACA,EAAEC,QAAEA,GAAWI,EAAElB,MAAOkB,EAAEhC,OAAOiC,WAAWU

0iB,MAACA,EAAKC,KAAEA,EAAIC,KAAEA,EAAIriB,MAAEA,GAASL,EAC7B0M,ECTL,SAAmB8V,EAAOC,EAAMC,EAAMriB,GAIzC,GAHsBmiB,IAAUC,GACID,EAAQC,GAAQC,EAAO,GACvBD,EAAOD,GAASE,EAAO,EAGvD,OAAOngB,OAAOKogB,oBAAoB,EAAGtiB,GAEvC,MAAMuiB,EAAczX,KAAK0X,IAAI1X,KAAK2X,IAAIH,EAAMC,EAAO,GAAI,GAAI,KAAK2X,MAAMlvB,EAAIsX,GAAQ,GAAK,EAAI,EAAI,GAAK,EAAI,EAAI,EAAI

Dctb,EAAQkB,UAAUC,IAAI4Z,EAAQ3Z,QACpBC,GAGxB+kB,EADcpmB,EAAQkB,UAAUC,IAAI4kB,EAAQ3kB,QACpBC,GAExBka,EAAe,IAAInZ,WAAW,IAAIC,WAAWiG,GAAShG,QAAEtDJ,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAKhD,OAJAukB,GACItK,EAAW8K,EAAQplB,EAAQ0a,EAAQ0K,EAAQplB,EAAQ0a,EAAQ0K,EAAQplB,EAAQ0a,EAAQ0

AAOK,OAAEA,EAAMC,MAAEA,GAASF,GAC3B2c,MAACA,GAASzc,GACVqC,EAACA,GAAKtC,EACNuC,
EAAM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,GAEtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MA
AOkB,EAAEhC,OACpCuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAEhD,OADAynB,GAASlmB,
EAAKma,EAAOvd,EAASmD,EAAEhC,OAAQuB,GACjCF,ICvBT,IAAIinB,GAmGG,MAAMC,GAAmC,CAC9
CtpB,WAAYupB,eACZrpB,YAAa,OACbC,UAhGF,SAAeC,GACbipB,GAAmBjpB,EAAQC,KAAKC,MAAMipB
,eAAc,KAAe,CACjE,SACA,QACA,SACA,QACA,QACA,QACA,QACA,SACA,YAsFFhpB,oBAlF2BC,G
AK3B,MAAMJ,QAAOA,EAAOK,OAAEA,EAAMC,MAAEA,GAASF,GAC3BuC,EAACA,GAAKtC,GAENwL,
MACJA,EAAKud,IACLA,EAAG9gB,QACHA,EAAO+gB,UACPA,EAASC,QACTA,EAAOC,aACPA,EAAYC,Y
ACZA,EAAWC,eACXA,GACEnpB,GAAEopB,iBACJA,EAAgBC,WAChBA,EAAUC,QAAQC,EAAUC,QAAQC,EAAUC,Q
A,EAASC,cACTA,EACAje,MAAOke,EACPX,IAAKY,EACL1hB,QAAS2hB,GAAEPje,aAAWke,UACPvnB,EAA
ElB,MAAOoK,EAAOud,IAAK9gB,EAAK9gB,EAAS+gB,UAAUC,QAAQC,EAAUC,QAAQC,EAAUC,Q
Z,EAEF5Z,EAASnG,EAAQ,CAACxJ,OAAQ,CAACsC,EAAAA,GAAI3C,QAAAA,EAASM,MAAO,CAACmB,
MAAOkoB,UAClD,GAAIE,GAAAaC,EAAEjnB,OAAKoH,OACDtH,EAAElB,MAAMC,QAAU,GAAIA,M
AM,yCAAyCiB,EAAElB,MAAMC,WAE3DMoK,EAAOE,aAAWvG,gBAAkBskB,EAAQC,EAAMC,GAE
hDE,EAASpiB,EAAM,CAAC1H,OAAQ,CAACsC,EAAAA,GAAI3C,QAAAA,EAASM,MAAO,CAACuL,MAA
Oke,EAAQje,KAAAA,KACnEkE,EACInG,EAAQ,CAACxJ,OAAQ,CAACsC,EAAAGwnB,GAASnqB,QAAAA,E
AASM,MAAO,CAACmB,MAAOkoB,UAC1D3pB,EAAQuH,YAAY4iB,EAAO/oB,YACtBuL,WAAYC,MAMY,EA
AMhC,EAAQiC,WAAWynB,EAAkB,WE3C9mB,EAAM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,G
ACtCkW,EACF,IAAInV,WAAW,IAAIC,WAAWQ,OAAKsJ,eAAexJ,EAAElB,QAAQa,QAC1D8nB,EAAAa,IAAIh
oB,WAAW,IAAIC,WAAW0nB,GAAQznB,QACnD+nB,EAAW,IAAIjoB,WAAW,IAAIC,WAAW2nB,GAAM1n
B,QAC/CiZ,EAAe,IAAInZ,WAAW,IAAIC,WAAW4nB,GAAU3nB,QAAEvDkV,EACF,IAAIpV,WAAW,IAAIC,W
AAWqnB,GAAkBpnB,QAC9CmV,EAAkB,IAAIrV,WACxB,IAAIC,WAAWQ,OAAKsJ,eAAeud,IAAmBpnB,QA
CpDJ,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAEhD4nB,GAEhE8U,EAAK2U,EAAAe5U,EAAEjnB,
MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,QAAQC,EAAUC,Q
G,EAAQ,CAACxJ,OAAQ,CAACsC,EAAAGX,GAAAMhC,EAACmB,MAAOkoB,UAC5D3pB,EAAQuH,YAAYvH,EAAQ
+DG,MAAMC,GAA0B,CACrC7qB,WAAY8qB,MACZ5qB,YAAa,OACbC,UAAWC,GAAEPje,aAAWke,UACPvnB,EAA
X,MAAMJ,QAAOA,EAAOK,OAAEA,EAAMC,MAAEA,GAASF,GAC3B4F,KAAAA,EAAIe,GAAAYzG,EAAEjnB,
MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,QAAQC,EAAUC,Q
F,EAAUpE,EAACVqE,EAAEQtE,EAEZ,MAAMgE,WAACA,EAAUN,KAAAA,EAAIe,GAAAYzG,EAAEjnB,
,GACnCV,EAAwBpD,EAAAGqD,EAAMhG,GAAEC,IAAAoe,EAAEjnB,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ
,EAAe9H,EAAQkB,UAAUC,IAAIwF,EAAWvF,QAAQC,GAAC1DyG,IAAiBlF,IAGnBqE,EAAQN,EACRK,
Uc,EACVsW,EAAgB/a,qD,iBACzBX,EAAwBqF,EAAMxF,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,Q
AO2c,GAClD9W,EAAazE,EAAMkC,EAAEjnB,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,Q
/C,GAAwC,IAApCkC,EAAMkC,EAAcmE,EAAMxF,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,Q
EAAIZ,QAAQC,GAAChDmpB,GAAQxjB,EAAMM,EAAY9H,EAAwBwC,EAAIrB,OAAQuB,GAAQpD,GALIuE,GAE
FzG,EAAQuH,YAAYZ,EAAWvF,QAAQC,GAAC7B7B2F,EAAU,CAEZ,MAAM3D,WAAWC,EAAEAamE,qBAAqBxF,EAAIP,M
AAO0E,GAC9DnE,EAAIP,MAAQ2B,EAAGd,OAAOpB,ICjEI2oB,GAA0BnoB,OAAOlB,QAAQC,GAAC2pB,GAA2BroB,
,EAAwBsoB,QCIhE,IAAIC,GAAqCG,MAAMC,GAA2B,CACtEC,WAAYC,MACZC,YAAa,OACbC,UAAWC,GAAEPje,aAAWke,UACPvnB,EAA
+qB,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,UAAUC,QAAQC,EAAUC,QAAQC,EAAUC,Q
A,EAAQje,KAAAA,KAAIe,GAAAYzG,EAAEjnB,MAAMC,QAAQ0oB,EAAYC,EAAU9oB,EAAQ+oB,U

AAUC,IAAIa,EAAIZ,QAAQC,GAIhD,OAHA0pB,GACInoB,EAAKgD,EAAajD,EAAElB,MAAMC,OAAQypB,EAAe/nB,EAAS1B,OAC1DlC,EAASwC,EAAIrB,OAAQuB,GAClBF,ICnCT,IAAIopB,GAkBG,MAsBMC,GAA2B,CACtCzrB,WAAY0rB,OACZC,YAAaC,OACbC,WAAYC,OACZC,YAAaC,OACbC,WAAYC,OACZC,YAAaC,OACbC,WAAYC

AAI,EAAI,EAAG,EACpD,EAAG,EAAI,EAAK,GAAK,EAAG,EAAG,EAAG,EAAG,GAAI,EAAG,IAAK,GAAI,
GAAI,QAOvD2qB,GAAIE,aAAa,gCAAgCC,UAG/C,GAAIH,GAAI5rB,IAAI,WACV,OAAO,EAGT,IAME,OAH
A,IAAIksB,gBAAiBC,MAAMC,YAAY,IAAIC,kBAAkB,IAGtDL,YAAYC,SAAS,IAAIhrB,WAAW,CACzC,EA
AG,GAAI,IAAK,IAAK,EAAG,EAAI,EAAI,EAAG,EAAG,EAAG,EAAI,GAAI,EAAK,EAAI,EAAG,EAAG,EAA
I,EAAG,EACnE,EAAG,EAAI,EAAK,EAAK,EAAG,GAAI,GAAI,EAAG,EAAG,EAAG,GAAI,EAAI,IAAK,GAA
I,EAAG,EAAG,GAAI,MAElE,MAAOqkB,GACP,OAAO,mPCvDX,IACMgH,EADFC,GACED,EAAAiC,oBAAAbC,EAAAC,EAAAC,EAAA

EAASE,MAAM,IAAOF,EAASE,MAAMD,KAAOD,EAASE,MAAMD,GAAM,EAAEF,EAAIE,IAA/RxE,EAAgB
,KAAQL,EAAkB,WAAaA,EAAkB,UAAKA,EAAoB,aAAcA,EAAoB,YAAKA,EAAa,OAAEO,EAAMP,EAAa,M
AA+PA,EAAmB,aAAEyE,EAAWzE,EAAmB,YAAE,IAA+HZ,EAAe2F,EAA1IC,EAAchF,EAAsB,gBAAG,EAA
6B,iBAAd1B,aAAwBiE,GAAM,mCAAiE,IAAsqG9uB,EAAO6rB,EAAMtO,EAAsByO,EAAOE,EAAgBE,EAA5t
GoF,GAAM,EAAqB,SAAS7pB,EAAOuc,EAAUkN,GAAUlN,GAAW4K,GAAM,qBAAqBsC,GAAO,SASK,EA
ASC,GAAO,IAAIC,EAAKpF,EAAO,IAAImF,GAAuF,OAAhF/pB,EAAOgqB,EAAK,gCAAgCD,EAAM,8BAAq
CC,EAAK,SASC,EAAMF,EAAMG,EAAWC,EAASh0B,EAAKi0B,GAAM,IAAIC,EAAI,CAACC,OAAS,SA
SC,GAAK,IAAIxD,EAAI,EAAE,GAAGwD,MAAAA,GAAmC,IAANA,EAAQ,CAAC,IAAIC,EAAOA,EAAI9yB,QAAQ,E
AAI9yB,QAAQ,GAAyBgzB,EAAaF,EAAjCxD,EAAI2D,GAAWF,GAA0BA,EAAI7D,GAAK,MAAQ
,SASC,GAAK,IAAI7D,EAAI2D,GAAWE,EAAInzB,QAAoC,OAA5BozB,GAAmBD,EAAI7D,GAAYA,IAAsJi
D,EAAKF,EAASC,GAAWe,EAAM,GAAOC,EAAM,EAAE,GAAG50B,EAAM,IAAIyD,EAAE,EAAEA,E
AAEzD,EAAKsB,OAAOmC,IAAI,CAAC,IAAIoxB,EAAUX,EAASvwB,IAAOoxB,GAAsB,IAARD,IAA
UA,EAAME,MAAYH,EAAMlxB,GAAGoxB,EAAU70B,EAAKyD,EAAKkxB,EAAMlxB,GAAGzD,EAAM,GAAGyD,EAAKyD,G
AAK,IAAImtB,EAAIiD,EAAKkB,MAAM,KAAKJ,GAAoE,OAA7D/D,EAAE,EAArY,SAA4BA,EAAK,CAAC,IAAIoE,EAAIpE,EAAK,GAAGoE,EAAI,IAAIA,EAAI,GAAGA,EAAI,IAAIA,EAAI,GAAGA,EAAI,IAAIA,EAAI,GAAGA

oH,MAA7GZ,EAAW,IAAId,YAAYqK,OAAO,CAACC,QAAUF,GAAAe,MAAMG,QAAU,MAAiBC,QAAS,KAA
uBr1B,kBAAkBkrB,mBAAgZ,MAA5XgG,EAAI,+NAAkO/D,GAAAqB6B,QAAQW,IAAI,qHAA2HrxB,MAAM,c
AAmBqtB,IAAY3rB,EAAO2rB,EAAW3rB,QAAOi1B,GAAAej1B,EAAOs1B,WAAW1J,GAA2B5rB,GAAAsB,IAAI
u1B,GAAa,GAAOC,GAAAW,GAAOC,GAAAW,GAAAyBC,GAAAc,GA4I,SAASC,KAAS,IAAGjI,EAAH,CAAiC,G
AAGnB,EAAAe,OAA8E,IAA/C,mBAAlBA,EAAAe,SAAAcA,EAAAe,OAAAE,CAAACA,EAAAe,SASA,EAAAe,OAAAEntB
,QAAQw2B,GAAAYrJ,EAAAe,OAAAEsJ,SAAAUC,GAAAqBP,KAAAc,SASQ,KAAAyCrI,GAA8BoI,GAAAqBN,IAAAY,S
AASQ,KAAatI,GAA8BoI,GAAAqBL,IAAAuF,SAASQ,KAAU,IAAGvI,EAAH,CAAiC,GAAAnB,EAAAgB,QAAAiF,IA
AjD,mBAAnBA,EAAAgB,UAAAcA,EAAAgB,QAAAE,CAAACA,EAAAgB,UAASA,EAAAgB,QAAAEntB,QAAQ82B,GAA
a3J,EAAAgB,QAAAEsJ,SAAAUC,GAAAqBJ,KAAAe,SASE,GAAAYO,GAAAIZ,GAAAaa,QAAQD,GAAAI,SASD,GAAAaC
,GAAAIT,GAAAcU,QAAQD,GAAAp8BzI,GAAAuB8H,GAAAW7yB,KAAAK,CAACgvB,KAAAK,WAAW0E,QAAAg5B,IA
AIC,GAAAgB,EAAAoCC,GAAAsB,KAAAK,SASC,GAAAiBz3B,GAAAI4I,GAAAQ+lB,EAAAuB,uDAAAuD4I,KAAAqB/J,E
AA+B,wBAAGA,EAA+B,uBAAAE+J,IAAAkB,SASG,GAAAoB13B,GAA6G,GAAAzGu3B,KAAAqB/J,EAA+B,wBA
AGA,EAA+B,uBAAAE+J,IAAAqC,GAAAjBA,IAAAqHC,GAAAsB,CAAC,IAAIG,EASH,GAAAsBA,GAAAsB,KAAKG,
KAAuE,SAAS5H,GAAAM6H,GAASpK,EAAAgB,SAAAGA,EAAAgB,QAAAEoK,GAASjJ,GAAAuBsB,QAAQC,MAAM,
wBAAuB,IAAK3wB,OAAAOo0B,OAAAgBxB,EAATyF,GAAAM,IAAAanF,GAAAM,EAAAkBmF,EAAAK,SASA,EAAAK
,+CAA+C,IAAIxS,EAAAE,IAAI0G,YAAAY+L,aAAAaD,GA4B,MAAtBrK,EAAAmBnI,GAASA,EAAAE,SAAS0S,GA
AU3E,EAAI4E,GAAAQ,OAAOnD,OAAOoD,UAAUC,WAAW9E,EAAI8E,WAAWF,GA8B,IAAtB5E,EAAIjC,Q
AAQ6G,GAAAxevK,EAAAwB,gBAAAE,GAAAGA,EAAAwB,gBAAAE,GA6b,IAAI0K,GAAAc,wCAAAwC,SASC,GAAA
U3I,GAAAU,OAAOsI,GAAAUtI,EAAAS0I,IAAAe,IAAAE,GAAAc,UAAAU,SASC,GAAAU7I,GAAAU,OAAOsI,GAAAUtI,E
AAS4I,IAAAe,IAAAE,GAAAe,uCAAAgH,SASC,GAAAUC,GAAAM,IAAAI,GAAAGA,GAAAMF,IAAAgBrG,EAAAY,OAAO,
IAAIlxB,WAAWkxB,GAAAY,GAAAGnD,EAAAY,OAAOA,EAAAW0J,GAAAW,KAAAkDAAmD,MAAAMrG,GAAAKp
C,GAAAMoC,IAAAM,SASsG,KAAAmB,IAAAIxG,IAAAa/D,GAAAoBC,GAAAuB,CAAAC,GAAAkBmBAARuK,QAAAqBL
,GAAAUC,IAAAiB,OAAAOI,MAAAMJ,GAAAe,CAAACK,YAAAY,gBAAAgBC,MAAAK,SAAShH,GAAAU,IAAAIA,EAAAa,GA
AG,KAAAK,uCAAAuC0G,GAAAe,IAAAI,OAAO1G,EAAAsB,iBAAAMiH,OAAAM,WAAAW,OAAAON,GAAAUD,OAAAuB,G
AAGzJ,EAAAW,OAAAO,IAAAIpB,SAAAQ,SASC,EAAAQC,GAAAQkB,EAAAUyJ,IAAAe,SAAS1S1G,GAAAUlE,EAAAQ,IA
AI3sB,WAAAW6wB,MAAAYjE,MAAAY,OAAAOF,QAAAQC,UAAAUkL,MAAAK,WAAAW,OAAAOL,GAAAUD,OAAAkkB,S
AASQ,KAAAa,IAAAIC,EAAAK,CAAAC75B,EAAAI85B,IAAAe,SAASC,EAAAgBC,GAAAQC,EAAAIC,GAAAQ,IAAAIC,EAAAA
SE,QAA6E,GAAArE5L,EAAAY,IAAAE4L,EAAAQnD,GAAAUzI,EAAAY,IAAAK,EAAAE+E,EAAAW4G,GAAAWxK,EAAAuB,
CAAC,IAAI0K,EAAAiBC,GAAAQC,cAAAcl5B,OAAAOi5B,GAAAQC,cAAAcvpB,SAAAQ,SASwpB,GAAAGF,GAAAuB,D
BAAuBD,GAAAE,aAAAiBH,GAAAiB3B,YAA8G,SAASgC,EAA0BC,GAAAQV,EAAAGU,GAAAAE,IAAAK,EAAAA,
AG,SAASC,EAAAuBC,GAAAU,OAAOpB,KAAAmBG,MAAAK,SAASnJ,GAAAQ3D,YAAAO,GAAAiB,YAAAE,GAAAQ5L,rK,EAA
OsJ,MAAAQH,KAAAKiB,GAAAS,SASE,GAAAQ5H,EAAI,0CAA0C4H,GAAAQhK,GAAAMgMmGK,MAAAomBB,GAAAp++Bp
L,GAAAwB8I,KAA+8BjK,EAAAwB,gBAAAG,IAAAgE,OAAAhDA,EAAAwB,gBAAAEuL,EAAAKE,GAAAgC,MAAAM7T,G
AAgE,OAA7D+M,EAAI,sDAAAsD/M,IAAAU,EAAAoD,OAAAxyB6M,GAAAsD,mBAAAnCnG,YAAAYkO,sBAAAoC7B,G
AAUG,KAAAkBD,GAAAUC,KAAAgC,mBAAAARI,MAAAsYkB,EAAAuBF,GAAAlYhBMAMJ,GAAAe,CAACK,YAAAY,g
BAAgBC,MAAAK,SAAShH,GAAAqE,OAAAhD9F,YAAAYkO,qBAAAqBpI,EAAASmH,GAAAoBH,GAAAKAc,GA0B,SA
ASK,GAAAuG,OAA/F5H,EAAI,kCAAAkC4H,GAAAQ5H,EAAI,6CAAAoDyH,EAAAuBF,UAAAkTb,MAAAMtL,GAA0B,
GAA3hF4K,GAAAUG,MAAAiBA,GAAAepJ,EAAAWoJ+E,KAAAE+E,IAAI2B,GAAAW,CAAAC,EAAAWoJ,MAAAK,WAAAW,
AAaC,MAAAM,SASC,EAAAGC,IAAAWC,WAAAC,GAAAmCH,KAAAK,KAAAK,SASG,KAAAiBlB
,GAAAQtC,cAAAc,SASD,GAAAqB0D,GAAAW,KAAAMA,EAAAUp6B,OAAAO,GAAAE,CAAAC,IAAAs3B,EAAAS8C,EAAA
U3D,QAAAQ,GAAAoB,mBAAAVa,EAAAV,CAA0D,IAAAI/E,EAAAK+E,K+E,EAAAS/E,KAAAsBiBAPAOAmCnG,IAAAfkL
,EAAAS+C,IAAAiBzE,GAAAUn2B,IAAAI8yB,EAAAdqD,GAAA2BA,GAAAUn2B,IAAAI8yB,EAAAdqD,CAAAoB0B0B,EAAAS+
C,KAAAW9H,OAAAoBnG,IAAAfkL,EAAAS+C,IAAAgBgB,EAAAS+C,KAAAW,EAAAS+C,KAAAW,KAAAsnAmCnG,IAAAfkL
AY,CAACC,MAAAM,GAAAGC,OAAAO,GAAAGC,OAAAM,MAAAM,GAAAGC,OAAAM,MAAAM,GAAAGC,OAAAM,IAAAI,GAAAGC,OAAAM,MAAAM,GAAAG
C,MAAAM,EAAAEC,QAAAQ,GAAAGC,OAAAM,MAAAM,EAAAEC,OAAAO,GAAAGC,OAAAO,EAAAEC,OAAAO,YAAAY,EAAAEC,OAAAO,GAAAG
AAGC,OAAAO,EAAAEC,OAAAO,GAAAGC,OAAAQ,IAAAI,GAAAGC,OAAAO,GAAAGC,OAAAM,MAAAM,GAAAGC,OAAAO,GAAAGC,OAAAM,MAAAM,GAAAG
O,GAAAGC,OAAAQ,IAAAI,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,
QAAQ,GAAAGC,OAAAM,MAAAM,GAAAGC,OAAAO,GAAAGC,OAAAO,GAAAGC,OAAAM,MAAAM,GAAAGC,OAAAO,GAAAGC,OAAAM,MAAAM,G

AAGC,KAAK,GAAGC,OAAO,GAAGC,OAAO,GAAGC,MAAM,GAAGC,OAAO,IAAIC,SAAS,IAAIC,OAAO,IAAIC,OAAO,IAAIC,OAAO,IAAIC,QAAQ,IAAIC,OAAO,IAAIC,OAAO,IAAIC,QAAQ,GAAGC,OAAO,GAAGC,MAAM,IAAIC,MAAM,IAAIC,OAAO,IAAIC,OAAO,IAAIC,QAAQ,IAAIC,QAAQ,IAAIC,UAAU,GAAGC,OAAO,IAAIC,OAAO,IAAIC,QAAQ,IAAIC,MAAM,IAAIC,MAAM,IAAIC,OAAO,IAAIC,OAAO,IAAIC,QAAQ,IAAIC,QAAQ,GAAGC,KAAK,IAAIC,OAAO,IAAIC,MAAM,IAAIC,OAAO,GAAGC,UAAU,GAAGC,QAAQ,IAAIC,QAAQ,EAAEC,SAAS,IAAIC,OAAO,IAAIC,QAAQ,IAAIC,QAAQ,IAAIC,QAAQ,IAAIC,QAAQ,IAAIC,QAAQ,IAAIC,SAAS,IAAIC,OAAO,GAAGC,UAAU,GAAGC,aAAa,GAAGC,MAAM,GAAGC,WAAW,IAAIC,aAAa,IAAIC,WAAW,GAAGC,QAAQ,GAAGC,aAAa,EAAEC,WAAW,GAAGC,SAAS,GAAGC,YAAY,GAAGC,UAAU,IAAIC,aAAa,GAAGC,WAAW,EAAEC,aAAa,GAAGC,YAAY,GAAGC,SAAS,GAAGC,UAAU,GAAGC,UAAU,IAAIC,aAAa,EAAEC,aAAa,GAAGC,SAAS,GAAGC,YAAY,GAAGC,SAAS,GAAGC,gBAAgB,GAAGC,gBAAgB,IAAIC,cAAc,EAAEC,UAAU,GAAGC,QAAQ,GAAGC,SAAS,GAAGC,aAAa,IAAIC,OAAO,IAAIC,OAAO,GAAGC,OAAO,GAAGC,QAAQ,IAAIC,UAAU,IAAIC,OAAO,GAAGC,UAAU,GAAGC,UAAU,GAAGC,gBAAgB,GAAGC,WAAW,GAAGC,SAAS,KAAKC,SAASC,GAAAuBC,EAAAKC,GAAAC,GAAAC,GAAAC,EAAAC,GAAAC,GAAAC,GAAAC,GAAAC,GAAAC,EAAAC,GAAAC,GAAAC,GAAAC,GAAAC,G

AKlC,EAAQE,SAAOF,EAAQE,OAAOF,QAAQ,QAAMS,mBAAmB,SAASP,GAAQ9J,GAAQ+L,iCAAgC,kBA
AkB/L,GAAQ6J,SAASC,EAAOF,QAAQgC,kBAAkB5L,GAAQC,cAAc31B,KAAKw/B,GAAQ9J,GAAQiK,eAA
ersB,OAAOoiB,GAAQiK,eAAerS,QAAQkS,GAAQ,GAAG9J,GAAQgK,eAAeF,EAAOF,SASE,EAAOF,aAAQz
W,MAAa4Y,gCAAgC,SASzS,GAAM5F,IAAoBsY,IAA8C,GAAG,EAAE,IAAI1S,IAAO,QAAQ5F,IAAoBsY,I
AA8C,GAAG,IAAIC,sBAAsB,SAAShV,KAAQkJ,uBAAuB,SAAS2J,EAAOoC,GAAmBpC,EAAOqC,UAAU,SA
ASrgB,GAAG,IAAIsgB,EAAEtgB,EAAQ,KAAMqe,EAAIiC,EAAO,IAAgG,GAA3FtC,EAAOF,UAAQ5J,GAAQ
qM,oCAAoCvC,EAAOF,QAAQgC,kBAAoBQ,EAAgB,cAAGA,EAAgB,cAAGf,KAAgB,CAAC,IAAIiB,EAAOt
M,GAAQ6J,SASuC,EAAEG,cAAoR,OAAnQD,EAAQA,EAAOxC,OAAOlX,YAAY9G,EAAEmL,KAAKmV,E
AAgB,cAAQzV,QAAQC,MAAM,0CAA0CuT,EAAI,uBAAuBiC,EAAgB,aAAE,4CAAuCpM,GAAQqM,yCAAo
ClZ,GAAiB,GAAS,gCAANgX,EAAqCqC,UAAoD,GAAS,gBAANrC,EAAqBsC,GAAY3gB,EAAEmL,WAAW,G
AAS,kBAANkT,EAAuBC,GAAcgC,EAAU,aAAQ,GAAS,eAANjC,EAAoBT,GAAW0C,EAAU,aAAQ,GAAS,iB
AANjC,EAAsBD,GAAakC,EAAU,aAAQ,GAAS,WAANjC,EAAgBL,EAAO4C,QAAO,EAAQR,GAAkBA,EAAk
BpC,GAAWA,EAAO6C,aAAY7C,EAAO6C,oBAAoB7C,EAAO6C,iBAAiB,GAAS,UAANxC,EAAe9iC,EAAI,U
AAU+kC,EAAY,SAAE,KAAKA,EAAQ,WAAQ,GAAS,aAANjC,EAAkBtR,EAAI,UAAUuT,EAAY,SAAE,KAA
KA,EAAQ,WAAQ,GAAS,UAANjC,EAAeyC,MAAM,UAAUR,EAAY,SAAE,KAAKA,EAAQ,WAAQ,GAAS,SA
ANjC,EAA2BL,EAAOF,SASR,QAAQC,KAAKzV,IAAoBkW,EAAOF,QAAQgC,iBAAiB,IAAI,IAAgB5L,GA
AQqK,mBAAmBP,QAAc,GAAS,gBAANK,EAAqB,IAAI0C,GAAKT,EAAc,YAAG,MAAMtgB,GAAW,GAAG,GAAGA,
aAAa0K,GAAW,OAAO,MAAM1K,MAAiB,eAANqe,EAAoBnK,GAAQqK,mBAAmBP,GAAsB,mBAANK,EAA
wBnK,GAAQiM,sBAAsBngB,EAAmL,MAA8B,iBAAhBnL,EAAmL,KAAK6V,OAAyBhD,EAAOlX,YAAY9
G,EAAmL,MAAW4B,EAAI,kCAAkCsR,GAAKnK,GAAQqM,yCAAoClZ,GAAW2W,EAAOtR,QAAQ,SAAS1
M,GAAG+M,EAAI,0BAA0B/M,EAAoEoK,SAAS,IAAIpK,EAAoEihB,OAAO,KAAKjhB,EAAmEkhB,UAAalY,IAA
qBgV,EAAOmD,GAAG,WAAU,SAAShW,GAAM6S,EAAOqC,UAAU,CAAClV,KAAKA,OAAS6S,EAAOmD,G
AAG,SAAQ,SAAShW,GAAM6S,EAAOtR,QAAQvB,MAAQ6S,EAAOmD,GAAG,QAAO,SAAShW,GAAM6S,EA
AOlX,YAAY,CAACuX,IAAM,OAAO+C,IAAIC,EAA4B,qBAAGpB,GAAWQ,EAAW2W,EAA4B,qBAAGA,,
KAAcuR,qBAAqB,WAAW,IAAI2C,EAAcvX,EAAW,6CAA6CoK,GAAQC,cAAc31B,KAAK,IAAIwsB,OAAOq
W,KAAiBC,aAAa,WAAuI,OAA3F,GAA9BpN,GAAQC,cAAcl5B,SAAWi5B,GAAQwK,uBAAuBxK,GAAQG,u
BAAuBH,GAAQC,cAAc,KAAOD,GAAQC,cAAcl5B,SAAWi5B,GAAQC,cAAcmL,MAAkB,MAAMiC,a
AAa,SAASC,GAAqC,IAA9B,IAAIt3B,EAAEyiB,EAAY8U,MAAMD,EAAY7U,MAAM8U,MAAMv3B,EAAOS,SAAS
SAASw3B,GAAoBC,EAASC,GAAUC,GAA6BF,EAASC,GAAUE,GAAqBH,EAASC,GAAUG,GAAKC,KAAKC,
0M,GAAejiB,EAAUqK,EAAS6X,EAAKzZ,EAAGzK,GAAM7C,EAAM,qBAAqBgE,EAAa5O,GAAWS,SAAS,CAACqE
AASuE,EAAavE,GAAU,mBAAmB6X,EAAKzU,EAAKmB,EAAanB,GAAM,qBAAqBSAS0U,GAAaC,EAAK
C,GAAqBC,MAAMF,EAAKC,GAA0Y,SAASE,GAASpwB,GAAwB,GAAlBqwB,GAAOrwB,GAAQ,GAAMswB,
EAAatwB,EAAMuwB,GAAOvwB,EAAMwwB,GAAOxwB,EAAMywB,GAAOzwB,EAAM0wB,GAAO1wB,EAAM2wB,GAAO3
EAAaA,EAAAM,SASswB,GAAQhV,EAAK8K,GAAQ,EAAK8K,GAAK,GAAGC,GAAK,EAAAuB,EAAAjV,EAAA
K8H,GAAK,SASoN,GAAiCC,EAAeC,EAAAc,GAAAC,GAAAC,GAAAC,GAAAC,GAAAC,GAAAC,GAAAC,GAAAC,
,GAAiBF,EAAOC,GAAUC,GAAUC,GAAU

c,EAAI2c,GAAKpc,IAAmBqc,WAAWF,EAAK1c,EAAIA,EAAI2c,GAAK,SAASE,KAAgC,OAAGjb,EAA2Bkb,
EAAcC,OAAOlpC,OAAcmpC,UAA+B,oBAAE,SAAS3B,GAAAoCntB,EAAM+uB,GAAgK,IAA1J,IAAIC,EAAAYt
V,UAAU/zB,OAAO,EAAMszB,EAAME,KAAgB8V,EAAsBD,EAAgB3qC,EAAKu0B,GAAAiC,EAAtBqW,GAA6
BxqC,EAAEJ,GAAM,EAAUyD,EAAE,EAAEA,EAAEknC,EAAYlnC,IAAI,CAAC,IAAIk4B,EAAItG,UAAU,EA
AE5xB,GAAG4qB,IAAoBjuB,EAAEqD,GAAGk4B,EAAI,IAAI/K,EAAIia,GAA0ClvB,EAAMivB,EAAsB5qC,E
AAK0qC,GAA0B,OAApBvV,GAAaP,GAAchE,EA91GnC,EAA4B,oBAAEsZ,GAAqEtZ,EAAyB,iBAAE0Z,GA
AmF1Z,EAAyB,iBAAE2Z,GA0VvD,GArBxV,EAAyC,WAAW,IAAI9e,EAAEkf,QAAgB,SAAI,OAAY,IAAL
lf,EAAE,GAAOA,EAAE,GAAG,KAAaqf,EA4C,WAAW,OAAOoD,YAAY8U,MAAMrZ,EAAsC,+BAA4B,oB
AAVqc,QAA2CA,QAAiC,WAAW,OAAO9X,YAAY8U,OAA+8E,IAAIiD,GAA+C,GAAOC,GAAsB,GAAG,SA
ASzB,GAAiBF,EAAO1S,GAAoC,IAAIZ,EAAW,IA9CiV,GAAsB1pC,OAAO,EAASq1B,IAAM,GAAGq/Cyd
/H,IAAmBqb,MAAU,CAAC,IAAI4B,EAAOlV,EAAG,IAAOkV,GAAY,EAAJtU,GAAMA,IAAMqU,GAAsBnmC
,KAAKomC,EAAO5c,IAAoBsI,KAAO,GAAG1I,IAAoB0I,MAAQA,EAAI,OAAOqU,GAAsB,SAASE,GAAsCvv
B,EAAMgvB,EAAY3qC,GAAM+qC,GA+3CpC,OAAOqpC,EA0B,IAAd,IAAIvqC,EAAJ,GAAM,EAAUyD,EAAE,
EAAEA,EAAEknC,EAAYlnC,IAAKsnC,GA+CtC,GAAG4qB,IAAoBjuB,EAAEqD,GAAoG,OAAhFkY
,EAAM,EAAqDuf,IAAYvf,EAAM,GA9CwvB,GAAqBxvB,IAAwCoZ,MAAM,KAAKgW,IAAgD,KA
A4B,OAAOpd,IAAmB1sB,OAAO,SAAS+pC,GA0B3/B,GAAM,IAAqG,OAAjAyd,GmiB,EAAWyd,KAAK5/B,EA
KxJ,EAAOs1B,WAAW,QAAQ,IAAI1J,GA2BD,EAAW3rB,QAAe,EAAE,MAAMmkB,KAAK,SASklB,GAA
wBC,GAAe,IAAIC,EAAQL,KA4B,GAAGI,GAAeC,EAAS,OAAO,EAAM,IAAIC,EAAY,WAAW,GAAGF,
AcE,EAAa,OAAO,EAAM,IAAI,IAAIC,EAAQ,EAAEA,GAAS,EAAEA,GAAS,EAAE,CAAC,IAAIC,EAAkBH,G
AAS,EAAE,GAAGE,GA6N,GApNC,EAAkBvgC,KAAKwgC,IAAID,EAAQ,EAAkBJ,EAAc,WAAsHH,/FhgC,
KAAKwgC,IAAIH,EAAYjV,GAAQprB,KAAKC,IAAIkgC,EAAcI,GAAmB,SA2E,OAAO,EAAM,OAAO,EAA
M,IAAIE,GAAS,CAACC,eAAe,wBAAwB,WAAW,IAAI,IAAIvoC,EAAEqoC,GAASG,GAAc,SAAcA,
,EAAEmC,GAAG,IAAIA,EAAQoC,GAASI,eAAeoC,GAAGqoC,GAASI,eAAeoC,GAASG,cAAc,GAAGH,IAAI
C,6BAA6B,WAAeN,GAASO,iCAAkFP,GAASO,gCAA+B,IAAOF,cAAc,GAAGG,UAAU,SASC,EAAeC,EAA
WC,GAAU,SASC,EAAuBC,EAAKC,GAAM,GAAGD,EAAKrrC,QAAQsrC,GAAQsrC,EAAKtrC,QAAQurC,GAAQ,OAAO,OAAO,EAAM,I
AAI,IAAImC,KAAKkpC,EAAM,GAAGA,EAAKlpC,EAAMmpC,IAAIC,EAAKlpC,EAAMmpC,IAAIC,EAAKlpC,EAAMmpC,IAAIC

AAO,EAAE,KAAK,EAAE,OAAOvM,GAAQqM,oCAAoC,QAAQ,OAAOE,IAAe4H,qBAAqB,SAASrH,GAAQ,OAAIA,EAAmBA,GAAQ9X,OAAa,UAAa8X,GAAQsH,OAAa,UAAiBtH,GAAQA,EAAOuH,SASvH,EAAOuH,SAAS,GAAtH,IAA0HC,kBAAkB,WAAW,OAAOthB,OAAOshB,mBAAmBthB,OASuhB,0BAA0B,SASC,GAAgBC,GAAAU,IAAI1tC,EAAOk1B,EAAgBwY,GAAAU,EAAMC,EAAQhK,GAAAQ3jC,EAAOA8C,CgzB,EAAa0a,EAASC,EAAQ3tC,EAAOe2tC,EAAa0a,EAASC,EAAQ3tC,EAAOe,EAAQ,GAAAyyB,EAAOmb,EAAAU,EAAMC,EAAQhK,GAAAQ,EAAOA,EAAOA,EAAOA

ASU,GAAe,OAAOpC,GAAGU,SAAS0B,IAAgBE,cAAc,SAASF,GAAkBpC,GAAGqC,iBAAiBrC,GAAGU,SAA
S0B,KAAepC,GAAGqC,eAAe,MAA0B,iBAAXnI,IAAoBA,GAASuB,0BAA0BuE,GAAGU,SAAS0B,GAAe5D,
MAAMN,QAAW8B,GAAGU,SAAS0B,IAAgBpC,GAAGU,SAAS0B,GAAe5D,MAAMN,SAAO8B,GAAGU,SA
AS0B,GAAe5D,MAAMN,OAAOK,iBAAYziB,GAAU5N,GAAM8xB,GAAGU,SAAS0B,GAAeeR,QAAQ5B,GAA
GU,SAAS0B,GAAe,MAAMF,eAAe,SASL,GAA+C,GAAlCA,IAAQA,EAAQ7B,GAAGqC,iBAAkBR,EAAQU,
mBAAX,CAAqCV,EAAQU,oBAAmB,EAAK,IAAI/D,EAAMqD,EAAQrD,MAAMU,GAAsCV,GAAOiB,GAAu
CjB,GAAOmB,GAAkCnB,GAAOA,EAAMgE,sBAAsBhE,EAAMa,aAAa,4BAA4BS,GAAgCtB,IAAgBA,EAAMi
E,0BAA0B,IAAQpjC,SAAQ,SAAS+/B,GAAQA,EAAI7e,QAAQ,gBAAgB,GAAG6e,EAAI7e,QAAQ,SAAS,GAA
Gie,EAAMa,aAAaD,QAASsD,qBAAqB,SASC,GAA0O,IAAjO,IAAI11B,EAAE+yB,GAAGG,SASwC,GAAa
C,EAAO5C,GAAGa,aAAa8B,GAAS,CAACpC,SAAS,GAAGsC,iBAAiB,EAAEC,oBAAoB,EAAEC,2BAA2B,G
AAOC,EAAOJ,EAAOrC,SAAa0C,EAAYzE,GAAM0E,oBAAoBj2B,EAAE,OAAepb,EAAE,EAAEA,EAAEoxC,I
AAcpxC,EAAE,CAAC,IAAI4yB,EAAE+Z,GAAM2E,iBAAiBl2B,EAAEpb,GAAOotC,EAAKxa,EAAEwa,KAAK
2D,EAAOC,iBAAiBppC,KAAKC,IAAIkpC,EAAOC,iBAAiB5D,EAAKvvC,OAAO,GAAsB,KAAhBuvC,EAAKl
pC,OAAO,KAASkpC,EAAKA,EAAKlpC,MAAM,EAAEkpC,EAAKxe,YAAY,OAAM,IAAI2iB,EAAI5E,GAAM
6E,mBAAmBp2B,EAAEgyB,GAAM,GAAGmE,EAAI,CAAC,IAAI/zC,GAAGmB,SAASnB,GAAGO,
UAAUyC,EAAO/D,GAAM,CAACxa,EAAE3qB,KAAKzK,GAAI2wC,GAAGO,SASlxC,GAAI+zC,EAAI,IAAI,
IAAIjwC,EAAE,EAAEA,EAAEsxB,EAAE3qB,OAAO3G,EAAE,CAAC,IAAIysC,EAAEX,EAAK,IAAI9rC,EAAA
E,IAAIiwC,EAAI5E,GAAM6E,mBAAmBp2B,EAAE2yB,GAAGvwC,EAAG2wC,GAAGmB,SASnB,GAAGO,
UAAUP,GAAGO,SASlxC,GAAI+zC,EAAOaE,GAAqC,CAAC,UAAU,YAAY,oBAAoB,SASC,GAAoC9N,EA
AOqM,GAAY,IAAIvzC,EAAEuzC,GAAY,EAAM0B,EAAgBnnB,IAAoB9tB,KAAek1C,EAAkB,CAAC14B,QA
AUsR,IAAoB9tB,KAAU8gB,QAAUgN,IAAoB9tB,KAAUm1C,UAAYrnB,IAAoB9tB,KAAUo1C,YAActnB,IAA
oB9tB,KAAWq1C,qBAAuBvnB,IAAoB9tB,KAAWs1C,wBA0BxnB,IAAoB9tB,KAAWi1C,gBAAkBF,GAAqC
E,GAAiBM,+BAAiCznB,IAAoB9tB,KAAWyzC,aAAa3lB,IAAoB9tB,KAAWw1C,aAAa1nB,IAAoB9tB,KAAW0
zC,0BAA0B5lB,IAAoB9tB,MAAWy1C,oBAAoB3nB,IAAoB9tB,MAAW01C,yBAAyB5nB,IAAoB9tB,MAAW2
1C,6BAA6B7nB,IAAoB9tB,OAAgB2vC,EAAOF,GAAsBvI,GAAQ,OAAIyI,EAAoBuF,EAAkBO,oBAA4B,EAA
oBhE,GAAGwB,cAActD,EAAOuF,GAA/F,EAAuI,SASU,GAAiCC,EAAGC,EAAI,OAAOd,GAAoC,C
GAAI,IAA4sQ7F,GAAxsQ8F,GAAS,CAACC,SAAS,GAAGrE,QAAQ,CAAC,KAAK,GAAG,IAAIsE,UAAU,SA
ASC,EAAOC,GAAM,IAAIp0C,EAAOg0C,GAAQuE,EAAGC,SAAS,GAAGC,IAAIC,EAAOC,iBAAiB,KAAqB,
EAAWz0C,EAAOuF,GAAOmvC,EAAOC,iBAAiB,KAAqB,EAAWz0C,EAAOuF,GAAOmvC,EAAOC,iBAAiB,KA
Q/H,aAAQ7gB,EAAU3sB,IAAI,WAAkF,OAAvEm1C,GAAS3H,SAAS,EAAUtgB,IAAoBioB,GAAS3H,QAAQ,G
AAG,IAAegI,OAAO,SASvgB,GA+B,OAAlBhB,EAAagB,IAAiBwgB,GAAM,SASC,EAAIC,GAAOD,GAAM,I
AAM,SASE,GAAUC,GAAI,OAAGhnB,EAA8BkZ,GAAoC,GAAE,EAAE8N,GAAW,EAAE,SASC,GAAS
D,EAAGE,EAAWC,EAAYC,EAAOC,GAAW,GAAW,EAAWrnB,EAAOsnB,GAAOC,EAAOC,GAAW,EAAE8N,GAAW
,EAAE,SASC,GAAS,GAAW,EAAWC,EAAOC,GAAW,GAAW,EAAWrnB,EAAOsnB,GAAOC,EAAOC,GAAW,EAAE
AWC,EAAYC,EAAOC,GAAW,GAAW,EAAWrnB,EAAOsnB,GAAOC,EAAOC,GAAW,EAAE8N,GAAW,EAAE,SAS
,GAAUC,GAAI,OAAGhnB,EAA8BkZ,GAAoC,GAAE,EAAE8N,GAAW,EAAE,SASC,GAAS,GAAW,EAAWC,
kZ,GAAoC,GAAE,EAAE8N,GAAW,EAAE,SASC,GAAS,GAAW,EAAWC,EAAOC,GAAW,GAAW,EAAWrnB,EAAO
AASE,UAAUQ,EAAG5oB,IAAmBgI,EAAIjxB,IAAIqlC,GAAK/V,EAAOC,IAAIC,EAAOC,iBAAiB,KAAqB,EAAW
GjN,EAAW,EAAE,SASkN,GAAqBC,GAAS,EAAIC,IAAIC,EAAOC,iBAAiB,KAAqB,EAAWz0C,EAAOuF,GAAOm
SASC,GAAsBD,EAAQ7b,GAAKpB,IAAIC,EAAOC,iBAAiB,KAAqB,EAAWz0C,EAAOuF,GAAOmvC,EAAOC,iBAA
gB,CAAuByE,MAAO,SASqL,GAAY0Q,GAAc,GAAG9nB,EAAuB,KAAK,sFAAsF,IAAIyU,9J,GAAQo
N,eAAe,QAAoBja,IAAjB2W,EAAOF,GAAK,kBAAkB,IAAIuT,EAAOF,GAAK,kCAAkC3J,GA
AQiK,eAAe3/B,KAAKw/B,GAAqC,IAA7B,IAAIc,EAAUF,GAAK,KAAKC,EAAOF,GAAK,KAAKC,EAAOF,GA
AGwqB,IAAoBkX,EAAY,EAAF1hC,GAAK,GAAG,EAAE,IAAIk0C,EAAUD,EAAarR,UAAUqR,EAAaE,
AczT,EAAQ5J,GAAQ6J,SASsT,EAAaxT,aAAa,CAACG,OAAOA,EAAOgC,UAAUqR,EAAarR,UAAUuR,UA
AUF,EAAaE,UAAUxR,kBAAkBsR,EAAatR,kBAAkBD,iBAAiBuR,EAAaxT,aAAiB2T,EAAI1T,EAAQgC,kBA
AkB,EAAExC,QAAQyB,MAAMjX,IAAoB0pB,KAAYH,EAAaI,UAAUnU,QAAQyB,MAAMjX,IAAoB0pB,KA
Aa1S,GAAWxB,QAAQyB,MAAMjX,IAAoB0pB,KAAY1T,EAAQgC,kBAAkBxC,QAAQyB,MAAMjX,IAAoB0

pB,KAAYH,EAAaE,WAAWjU,QAAQyB,MAAMjX,IAAoB0pB,KAAYF,GAAAWhU,QAAQyB,MAAMjX,IAAo
B0pB,KAAaH,EAAaE,WAAWjU,QAAQyB,MAAMjX,IAAoB0pB,KAAeF,GAAAWhU,QAAQyB,MAAMjX,IAAo
B0pB,KAAgBH,EAAaI,UAAU,IAAkDC,EAAlCC,KAA4D,GAAGrU,QAAQyB,MAAMjX,IAAoB0pB,KAAaE,G
AAe1T,EAAOF,QAAQA,EAAQ,IAAI8T,EAAI,CAACvT,IAAM,MAAMwT,cAAgBR,EAAaS,aAAaxc,IAAM+b,
EAAa/b,IAAIwK,iBAAmBuR,EAAaxT,YAAYmC,UAAYqR,EAAarR,UAAUuR,UAAYF,EAAaE,WAAWvT,EA
AO6C,WAAW,WAW+Q,EAAIG,KAAKplB,YAAY8U,MAAMzD,EAAOlX,YAAY8qB,EAAIP,EAAaW,eAAk
BhU,EAAO4C,SAAQ5C,EAAO6C,oBAAoB7C,EAAO6C,YAAY,SASoR,GAAgBpU,EAAYqU,EAAKL,EAAc
vc,GAAK,GAA8B,oBAApBvO,kBAA4H,OAA3FgG,EAAI,uFAA8F,EAAAE,IAAI8Q,EAAsE,OAAzD9Q,EAAI,q
DAA4D,GAAG,IAAIilB,EAAa,GAAe,GAAGzoB,GAA+C,IAAtByoB,EAAa/2C,OAAoB,OAAOk3C,GAAsC,UA
AUtU,EAAYqU,EAAKL,EAAcvc,GAA2B,IAAIic,EAAU,EAAMvR,EAAU,EAAMyR,EAAS,EAAKS,IAAa,GAA
PA,GAAUX,EAAU3pB,IAAoBsqB,GAAM,GAAGX,GAAW,MAAMvR,EAAUpY,IAAoBsqB,EAAK,GAAG,GA
AGT,EAA2C,IAAlC7pB,IAAoBsqB,EAAK,IAAI,IAAYX,EAAU,QAAQ,IAAIxR,EAA6B,GAAXC,EAAgBD,EA
AmBC,EAAUoS,GAAU,GAAGb,qC/tC,GAArBw8B,GAAWuR,GA2B,GAAqC,IAAlC,IAAIzR,EAAiBlB,
GAAQ,KAAaxhC,EAAE,EAAEA,EAAE,KASA,EAAE0qB,KAAqBgY,GAAkB,GAAG1iC,GAAG,EAAEwqB,I
AAoBiW,GAAa,GAAGiC,EAAiBlY,IAAoBkY,EAAiB,IAAI,GAAGA,EAAiB,IAAIjB,EAAQiB,EAAiB,IAAIlY,I
AAoBiX,GAAS,GAAGA,EAAQ,IAAIwS,EAAa,CAACrR,UAAUA,EAAUuR,UAAUA,EAAUxR,kBAAkBA,EA
AkB0R,SASA,EAASK,aAAaD,EAAchU,YAAYiC,EAAiBxK,IAAIA,EAAI0c,aAAaA,GA8I,OAA7HzoB,GA
AwB8nB,EAAahT,IAAI,cAAcvX,YAAYuqB,EAAaW,IAAmBrR,GAAY0Q,GAAqB,EAAE,SASgB,KA0B,G
AAI9oB,EAAJ,CAAkC,IAAIoV,EAAGY,KAAgB,GAAIZ,IA6BrB,QAAQC,KAAKzV,IAAoB6W,EAAG,IAAI,
IAAgG,GAAvDrB,QAAQC,KAAKzV,IAAoB6W,EAAG,GAAG,GAAkB,KAAK,aAAY,SAAS2T,KAAwwCtpB,G
AA8BD,GAA6BiE,EAAS,4IAA4I,SASulB,GAA6B/R,EAAO5pB,EAAO4pB,GAAO,IAAIhS,EAAS5X,EAAO,GAAxE
EAAI,oDAA2DwI,GAAYG,MAAM,GAAGnM,GAAwBgW,MAAiBiB,EAAmE,OAA3DzT,EAAI,WAAWyT,EA
AO,qCAA4CjL,GAAY8C,QAAa,IAAI9O,GAAwBkpB,MAAsCjS,EAAuE,OAA/DzT,EAAI,eAAeyT,EAAO,qCA
A4CjL,GAAY8C,QAAmD,GAAlCzQ,IAAoB4Y,EAAO,IAAI,KAAaA,EAA+H,OAAvHzT,EAAI,oCAAoCyT,EA
AO,wEA+EjL,GAAYG,MAAkE,GAA/C4H,QAAQC,KAAKzV,IAAoB0Y,EAAO,IAAI,GAAwF,OAAxEzT,EAAI,
4BA4ByT,EAAO,iCAAwCjL,GAAYuB,OAAsD,IA5C0b,GAAOF,OAA4C,CAAC,IAAII,EAAapV,QAAQ
C,KAAKzV,IAAoB0Y,EAAO,GAAG,GAAG,GAAiB,GAAdkS,CAAC,IAAIC,EAAerV,QAAQC,KAAKz
V,IAAoB0Y,EAAO,GAAG,GAAG,GAAwN,OAAlN5X,IAAoBhB,IAAoBgB,GAAQ,GAAG+pB,GAAerV,QAAQyB,MA
AMjX,IAAoB0Y,EAAO,IAAI,EAAE,GAAOjX,EAAgBkX,IAAkDzT,YAAY,CAACuX,GAAWyR,GAAK8B,9oB,GA
AuB9C,EAAO,EAAEkS,EAAanpB,EAAuB,IAAI,IAAI,SASqpB,GAAcpS,EAAO5X,IAAO,GAAG,GAAG,GAA
6B/R,EAAO5X,IAAO,GAAG,GAAM,SASiqB,GAASrI,GAAM,GAAjCjB,IAAoBjjB,YAAiBkjB,GAAGjhB,EAAuB,OAAOkZ,GAAoC,EAAE,EAAE+
H,GAAM,OAAOA,GAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GA8B,OAAOnF,GAAkB,KAAK,IAAI,KAA
K,IAAI,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KA
AK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,
KAAK,EAAE,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GA
AG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAA
K,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,OAAO,KAAK,GA
AG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAA
I,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAA
K,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,
IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KA
AK,GAAG,KAAK,GAAG,OAAO,EAAE,KAAK,IAAI,KAAK,IAAI,KAAK,EAAE,KAAK,IAAI,KAAK,EAAE,K
AAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KA
AK,GAAG,KAAK,GAAG,OAAO,EAAE,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,EA
AE,OAAO,KAAK,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,GAAG,KAAK,GAAG,K
AAK,GAAG,OAAO,WAAW,KAAK,GAAG,KAAK,EAAE,OAAO,MAAM,KAAK,GAAG,KAAK,GAAG,OAAO
,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,KAAK,KAAK,EAAE,OAAO,QAAQ,KAAK,EAAE,OAAO,MAA

M,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,O
AAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,EAAE,
OAAO,IAAI,KAAK,IAAI,OAAO,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,EAAE,OAAO,GAAG,KAAK,EA
AE,OAAO,EAAE,KAAK,GAAG,OAAO,EAAE,KAAK,GAAI,MAAsB,iBAAZjB,WA4BA,UAA+B,qBAAY,EA
AgB,OAAb9B,GAAS,KAAW,EAAM/Y,GAAuB2K,GAAQuK,sBAAgC,IAA44fqU,GAAx4fhO,GAAqB,CAAC,K
AAKtC,GAAQ2H,GAAgDmG,GAAUE,GAASK,GAAUgC,IAAcjf,GAAc,CAAC5T,EAAIgiB,GAAe+Q,EAAI7Q,
GAAahmC,EAAIwmC,GAAiC3oC,EAAI8oC,GAAO6D,EAAI5D,GAA0BpkC,EAAIykC,GAAkD7C,EAAIgD,G
AAuB0P,EAAI/V,GAAuB/R,EAAIsT,GAAoBhmB,EAAIqrB,GAAuBoP,EAAIhP,GAA8BjU,EAAI6U,GAAsCqO
,EAAIhO,GAAwB/nC,EAAIitC,GAAoChtC,EAAIitC,GAAsCzoB,EAAI0oB,GA4BlW,EAAIsb,GAAiCyD,EAA
I7C,GAAUnF,EAAIqF,GAAS4C,EAAIvC,GAAUwC,EAAIje,GAAet7B,EAAI0tB,GAAYY,EAAmB,WAAEkrB,
EAAIrC,GAAqB/oC,EAAIkpC,GAAsBlK,EAAI+K,GAAgBsB,EAAIX,GAAc1oC,EAAI2oC,IAAmC3gB,IAAjBw
B,KAAoCtL,EAA2B,mBAAE,WAAW,OAAO8J,GAAmB9J,EAA2B,mBAAEA,EAAY,IAAK,GAAGsG,MAAM,
KAAKM,aAA6sV4P,IAAvrVxW,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAA
M,KAAKM,YAAyC5G,EAAiC,yBAAE,WAAW,OAAgCA,EAAiC,yBAAEA,EAAY,IAAK,GAAGsG,MAAM,K
AAKM,YAAmC5G,EAA2B,mBAAE,WAAW,OAA0BA,EAA2B,mBAAEA,EAAY,IAAK,GAAGsG,MAAM,KA
AKM,YAAiC5G,EAAyB,iBAAE,WAAW,OAAwBA,EAAyB,iBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM
,YAA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB
5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAA
a,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,W
AAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OA
AaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAA
a,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,
EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,I
AAK,GAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAK,G
AAGsG,MAAM,KAAKM,YAA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG
,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,K
AAKM,YAA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,
YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC
5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,
EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MA
AE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAA+B5G,EAAmB,eAAE,WAA
W,OAAsBA,EAAmB,eAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OA
AeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAA8B5G,EAAsB,cAAE,WAAW,OAAqBA,E
AAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuC5G,EAA+B,uBAAE,WAAW,OAA8BA,EAA+B
,uBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,
EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,eAAE,WAAW,OAAcA,EAAe,eAAEA,EAAY,IAA
M,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG
,MAAM,KAAKM,YAA+B5G,EAAmB,eAAE,WAAW,OAAsBA,EAAmB,eAAEA,EAAY,IAAM,IAAGsG,MAAM
,KAAKM,YAAuB5G,EAAe,eAAE,WAAW,OAAcA,EAAe,eAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,Y
AA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgC5
G,EAAwB,gBAAE,WAAW,OAAuBA,EAAwB,gBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B6B5G,E
AAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsC5G,EAA8B,s
BAAE,WAAW,OA6B6BA,EAA8B,sBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAA
E,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B0B5G,EAAkB,UAAE,WA
W,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAA
gBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B8B5G,EAAsB,cAAE,WAAW,OAAqBA,EA
AsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,
WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,E

AAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAA
Y,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IA
AGsG,MAAM,KAAKM,YAA4B5G,EAAoB,YAAE,WAAW,OAAmBA,EAAoB,YAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KA
AKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,Y
AAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G
,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KA
AE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAA
W,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OA
AkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA
,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,K
AAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EA6B,qBAAE
A,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EA6B,qBAAEA,E
AAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EA6B,qBAAEA,EAAY
,IAAM,IAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,
IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGs
G,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,K
AAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA
AuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EA
Ac,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,
WAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,
OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,
Ae,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwC5G,EAAgB,wB,gBAAE,WAAW,OAAuBA,EAAgB,wB,g
BAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAkC5G,EAA0B,kBAAE,WAAW,OAAyBA,EA0B,kBAAEA,EAA
Y,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IA
AGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAA
M,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,K
AAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,
AAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WA
AW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OA
AaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,
eA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwC5G,EAAgB,2B,mBAAE,WAAW,OAAuBA,
EA2B,mBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MA
AEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA4B5G,EAAoB,cAAE,WAAW,OAAqBA,EAAoB,cAAEA,EAAY,
IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IA
AGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAA
M,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,
AAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAA
W,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,
EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,
WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA4B5G,EAAoB,cAAE,WAAW,OAAqBA,EAAoB,cAAEA,EAAY,IAAM,
IAAGsG,MAAM,KAAKM,YAAwC5G,EAAgB,wB,gBAAE,WAAW,OAAuBA,EAAgB,wB,gB

B,GAA4BvpB,EAAoC,4BAAE,WAAW,OAAOupB,GAA4BvpB,EAAoC,4BAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBuQ,GAAcnX,EAAsB,cAAE,WAAW,OAAOmX,GAAcnX,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBwQ,GAAAyBpX,EAAAiC,yBAAAE,WAAW,OAAAOoX,GAAAyBpX,EAAAiC,yBAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgB0R,GAAA6CtY,EAAAqD,6CAAAE,WAAW,OAAAOsY,GAAA6CtY,EAAAqD,6CAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsBiSiQ,IAAAtO7W,EAAAwD,gDAAAE,WAAW,OAAAuDA,uDA,EAAAwD,gDAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA4D5G,EAAAoD,4CAAAE,WAAW,OAAA6W,6W,GAAA4C7W,EAAAoD,4CAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBaAgByjB,GAAAmCrqB,EAAA2C,mCAAAE,WAAW,OAAAOqqB,GAAAmCrqB,EAAA2C,mCAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmG,GAAAmCrqB,EAAA2C,mCAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmG,GAAAmC/M,EAAA2C,mCAAAE,WAAW,OAAAO+M,GAAAmC/M,EAAA2C,mCAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmG,GAAAyBjT,EAAAqD,6CAAAE,WAAW,OAAAO+M,GAAAyBjT,EAAAqD,6CAAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmG

AAc,KAAE9nB,MAAM,GAAG8nB,QAAY,GAAE,qBAAoB,SAASqB,GAAI,KAAKA,aAAcC,IAAa,MAAMD,KAAMrB,QAAY,GAAE,qBAAqBuB,IAAuDvC,EAAgB,QAAE,WAAW,MAAM,+BAAsCa,GAAsC,oBAANgC,OAAmBzB,EAAM,SAAoB0B,GAAG,OAAOD,KAAKC,IAAxBD,EAAW,WAAoBE,GAAG,IAAIC,EAAW,WAAWyvB,WAAWF,KAA0B1nB,EAAAqB,IAAzBrB,EAAAqB,IAAAwmB,EAAAC,EAAAC,EAAAC

,KAAK,CAAC,GAAGH,EAAO,GAAGT,EAAO,MAAMF,EAAKW,KAAU,IAAIG,GAAG,EAAEd,EAAKW,KA
AU,IAAM,GAAFG,OAAU,GAAGA,GAAG,MAAM,CAAC,GAAGH,EAAO,GAAGT,EAAO,MAAMF,EAAKW,
KAAU,IAAIG,GAAG,GAAGd,EAAKW,KAAU,IAAIG,GAAG,EAAE,GAAGd,EAAKW,KAAU,IAAM,GAAFG,
MAAS,CAAC,GAAGH,EAAO,GAAGT,EAAO,MAAMF,EAAKW,KAAU,IAAIG,GAAG,GAAGd,EAAKW,KA
AU,IAAIG,GAAG,GAAG,GAAGd,EAAKW,KAAU,IAAIG,GAAG,EAAE,GAAGd,EAAKW,KAAU,IAAM,GAA
FG,GAAqB,OAAfd,EAAKW,GAAQ,EAASA,EAAOE,EAAS,SAAS9B,EAAaF,EAAImC,EAAOJ,GAAiB,OAAO
F,EAAkB7B,EAAI3U,EAAO8W,EAAOJ,GAAiB,SAASzB,EAAmBF,EAAMtyB,EAAG6zB,EAAM1pB,IAAImw
B,EAAMtyB,GAAQ,SASu0B,EAAQl0B,EAAEm0B,EAAGkD,OArCn0B,EAAEm0B,EAAS,IAAGn0B,GAAGm0
m0B,EAASn0B,EAAEm0B,EAAGBn0B,EAAwE,SASurB,EAA2B6I,GAAKz0B,EAAOy0B,EAAIlI,EAAc,MA
AEV,EAAM,IAAI6I,UAAUD,GAAKlI,EAAe,OAAS,IAAIoI,WAAWF,GAAKlI,EAAe,OAAEP,EAAO,IAAIjsB,
WAAW00B,GAAKlI,EAAe,OAAEhP,EAAO,IAAIzd,WAAW20B,GAAKlI,EAAgB,QAAU,IAAIqI,YAAYH,GA
AKlI,EAAgB,QAAU,IAAIsI,YAAYJ,GAAKlI,EAAgB,QAAU,IAAIuI,aAAaL,GAAKlI,EAAgB,QAAU,IAAIwI,a
AAaN,GAAwBlI,EAAuB,eAA1C,IAA0DyI,EAAcO,EAAa,GAAOC,EAAW,GAAOC,EAAW,GAAOC,EAAc,GA
AyF,SAASC,IAAS,GAAGpJ,EAAe,OA8E,IAA/C,mBAAlBA,EAAe,SAAcA,EAAe,OAAE,CAACA,EAAe,SA
SA,EAAe,OAAEntB,QAAQw2B,EAAYrJ,EAAe,OAAEsJ,SAAUC,GAAqBP,GAAc,SASQ,IAAsCD,GAAK,
GAAY,SASQ,IAAU,GAAG1J,EAAgBL,QAAiF,IAAjD,mBAAnBA,EAAgB,SAAsBA,EAAgB,UAAE,CAAC,U
AAcA,EAAgB,QAAE,CAACA,EAAgB,UASA,EAAgB,QAAEntB,QAAQ82B,EAAa3J,EAAgB,QAAEsJ,SAAUC,C
,GAAqBJ,GAAe,SASE,EAAYO,GAAIZ,EAAaa,QAAQD,GAAI,SASD,EAAaC,GAAIT,EAAcU,QAAQD,G
AA9tBX,EAAW7yB,KAAK,CAACgvB,KAAK,WAAW0E,QAAiB,IAAIC,EAAgB,EAAoCC,EAAsB,KAAK,SA
ASC,GAAiBz3B,GAAI,GAAIu3B,EAAqB/J,EAAA+B,EAAwBA,GAAA,EAAA+B,EAAuB/B,EAAA+J,GAAkB,SASG,GAAA6B,GAAoB13B,GAAA6
G,GAAIzB,Gu3B,IAAIqB/J,EAAA+B,EAAwBA,GAAA,EAAA+B,EAAuB/B,EAAA+J,GAAqC,GAAIjBA,HC,EAAsB,CAAC,IAAI
G,EAASH,EAAsBA,EAAsB,KAAKG,GAAuE,SAAS5H,GAAM6H,GAAM,GAAGC,EAAgBD,EAAM,GAAGE,EAAgBF,
,GAAIzB,EAAyB,EAAGyB,EAAM,GAAGG,EAAgBH,EAAM,GAAGI,EAAgBJ,EAAM,GAAGK,EAAgBL,EAAM,GAAGM,
YAAY+L,aAAaD,GAA4B,MAAtBrK,EAAmBnI,GAASA,EAAE,SAAS0S,GAAU3E,EAAI4E,GAAQ,OAAOnD,D,
OAAOoD,UAAUC,WAAW9E,EAAI8E,WAAWF,GAA8B,IAAtB5E,EAAjC,QAAQ6G,GAAtZvK,EAAwB,gBA
AE,GAAGA,EAAwB,gBAAE,GAA2W,IAAI0K,GAAc,wCAAwC,SASC,GAAU3I,GAAU,OAAOsI,GAAUtI,E
AAS0I,IAAe,IAAIE,GAAc,UAAU,SASC,GAAU7I,GAAU,OAAOsI,GAAUtI,,EAAS4I,IAAe,IAAIE,GAAe,yBA
AkG,SASC,GAAUC,GAAM,IAAI,GAAGA,GAAMF,GAAG,EAAY,OAAO,IAAIlxB,WkB,WAAWkxB,G,G
AAGnD,EAAY,OAAOA,EAAW0J,GAAW,KAAK,kDAAmD,MAAMrG,GAAKpC,C,GAAMoC,MC,IAAM,SASsG,K
AAmB,IAAIxG,IAAe/D,D,GAAoBC,GAAuB,CAAC,GAAKzB,GAAU,uCAAqBL,GAAqB,OAAOI,IAAiB,OAAOI,MAA
MJ,GAAe,CAACK,YAAY,gBAAgBC,MAAK,SAAShH,GAAMiH,GAAMC,GAAMC,GAAMC,GAAMC,GAAMC,GAAMC,GAAMC,
IAAI,OAAO1G,GAAsB,iBAAMiH,GAAM,WAAW,OAAOA,GAAM,SAASC,GAAMC,GAAMC,GAAMC,GAAMC,GAAMC,GAAMC,
SAAQ,SASC,EAAQC,GAAkB,EAAUyyB,GAAS,SAAS,EAAQC,GAAkB,EAAUyyB,GAAS,SAAS,EAAQC,GAAkB,EAAUyyB,
gC,EAA0BC,GAAQV,EAAU,EAAgBU,GAAQV,EAAU,EAAgBU,GAAQV,EAAU,EAAgBU,GAAQV,EAAU,EAAgBU,GAAQV,EAAU,
EAAI,0CAA0C4H,GAAQhK,EAAU,EAAgBgK,GAAQhK,EAAU,EAAgBgK,GAAQhK,EAAU,EAAgBgK,GAAQhK,EAAU,EAAgBgK,GAAQhK,EAAU,
EAAEuL,EAAQ,EAAgBvL,EAAQ,EAAgBuL,EAAQ,EAAgBvL,EAAQ,EAAgBuL,EAAQ,EAAgBvL,EAAQ,EAAgB

K1c,EAAIA,EAAI2c,GAAK,SAASgB,KAA4B,OAAO3rB,EAAOne,OAAO,SAAS+pC,GAA0B3/B,GAAM,IAAAq
G,OAAjGmiB,EAAWyd,KAAK5/B,EAAKxJ,EAAOs1B,WAAW,QAAQ,IAAI1J,EAA2BD,EAAW3rB,QAAe,EA
AE,MAAMmkB,KAAK,SAASklB,GAAwBC,GAAe,IAAIC,EAAQL,KAAgCM,EAAY,WAAW,GAAGF,EAAcE,,
EAAa,OAAO,EAAM,IAAI,IAAIC,,EAAQ,EAAEA,GAAS,EAAEA,GAAS,EAAE,CAAC,IAAIC,EAAkBH,GAAS
,EAAE,GAAGE,GAA6N,GAApNC,EAAkBvgC,KAAKwgC,IAAID,EAAkBJ,EAAc,WAAsHH,GAA/FhgC,KAA
KwgC,IAAIH,EAAYjV,EAAQprB,KAAKC,IAAIkgC,EAAcI,GAAmB,SA2E,OAAO,EAAM,OAAO,EAAhgHx
S,GAAUG,MAAiBA,GAAepJ,EAAWoJ,KAAi9G,IAAI2c,GAAS,CAACC,,SAAS,GAAGrE,QAAQ,CAAC,KAAK
,GAAG,IAAIsE,UAAU,SAASC,EAAOC,GAAM,IAAIp0C,EAAOg0C,GAASpE,QAAQuE,GAAkB,IAAPC,,CAAi
B,KAAPA,IAAqB,IAATD,EAAWz0C,EAAWkkC,KAAkBkwB,EAAWpB,KAAkBqB,EAAOC,GAAO,EAAOC,,
EAAO2C,KAAKyxC,IAAQ/H,,aAAQ7gB,EAAU3sB,IAAI,WAAqE,OAA1Dm1C,GAAS3H,SAAS,EAAUrgB,EA
AOgoB,GAAS3H,QAAQ,GAAG,IAAegI,OAAO,SASvgB,GAA+B,OAAlBhBhB,EAAagB,IAAiBwgB,MAAM,SA
ASC,EAAIC,GAAM,OAAOD,EAAIC,,EAAOC,GAAM,IAAIC,EAAOC,GAAM,IAAIC,EAAOC,GAAM,IAAIC,,
EAAYC,EAAOC,EAAIC,EAAOC,EAAIC,EAAOC,EAAIC,EAAOC,EAAIC,EAAOC,EAAIC,EAAOC,E

AAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,E
AAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAA
E,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,
OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,
EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,
SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA
,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IA
AK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GA
AGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,
MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OA4BA,EA6B,qBAAEA,EAAY,IAAK,GAAGsG,MA
AM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAK
M,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA+B
5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EA
AgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cA
AE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuC5G,EA+B,uBAAE,W
AAW,OA8BA,EA+B,uBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,
OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,E
AAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAA
EA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA+B5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EA
AY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,
GAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAG
sG,MAAM,KAAKM,YAAgC5G,EAAwB,gBAAE,WAAW,OAAuBA,EAAwB,gBAAEA,EAAY,IAAK,GAAGsG,
MAAM,KAAKM,YA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM
,KAAKM,YAAsC5G,EA8B,sBAAE,WAAW,OA6BA,EA8B,sBAAEA,EAAY,IAAK,GAAGsG,MAAM,KA
AKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,Y
A0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB
5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAA
sB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WA
AE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,W
AAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,O
AAkBA,EAAmB,WAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA
,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA4B4G,EAAoB,YAAE,WAAW,OAAmBA,EAAo
B,YAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,I
AAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IA
AGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,M
AM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAK
M,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2
B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA0B5G
,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,
KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B5G,EAAqC,qBAAE,W
AAW,OA4BA,EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B5G,EAAqC,qBAAE,WAAW,
OA4BA,EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B5G,EAAqC,qBAAE,WAAW,OA4BA,
EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,
UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM
A,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,I
AAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAG

sG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgC5G,EAAwB,gBAAE,WAAW,OAAuBA,EAAwB,gBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAkC5G,EAA0B,kBAAE,WAAW,OAAyBA,EAA0B,kBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAa,KAAE,WAAW,OAAcA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAa,KAAE,WAAW,OAAcA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAa,KAAE,WAAW,OAAcA,EAAa,K

CC,GAAAA,EAAIkM,YAAAA,EAAa9L,MAAAA,EAAOd,MAAAA,EAAOk7C,aAAc,KAAMD,SAAAA,IAI1D,MAAM9vC,EAAOjJ,OAAKC,cAAcrB,GAC1Bq6C,EAAWhwC,EAAOjJ,OAAKk5C,gBAAgBp7C,GACvCk7C,EAAe5B,KAAKh6C,KAAKolC,QAAQyW,GAEvC7B,KAAK/4C,UAAUuD,IAAIrD,EAAQ,CAACC,GAAAAA,AIw6C,aAAAA,EAAcp6C,MAAAA,EAAOd,MAAAA,EAAOi7C,SAAAA,IAE5D3B,KAAKh6C,KAAKg7C,KAAKe,eAAe36C,EAAIyK,EAAM+vC,GAE1B,MAAV7uC,GACFitC,KAAKh6C,KAAK4f,OAAOpb,IACb,IAAIrC,WACC4K,EAAOC1K,EAAOC0K,EAAmCivC,WAAYH,GACpDI,DD,GAIRd,GAAAA,EAAOe1K,EAAOC0K,EAAmCivC,WAAYH,GACpDI,DD,GAIRd,GAAAA,EAAOe35C

CnB,CACE,SACA,SACA,WAENqH,YAAaizB,EAAOt6B,MAAM,eAdG,KAc6B,CAAC,WAC3Do8C,QAAS9hB,EAAOt6B,MAAM,UAfO,KAeoB,KAGnD6uB,EAAQ,CAAC9uB,KAAMu6B,UAmBrB,MAAM6jB,GAAkB,CACtB,yBAA0B,8BAC1B,wCAIF,IAAIxB,GAAmB,KACnBW,GAAyB,KACzBV,GAAkD,GAClDkB,IAAc,EACdP,IAAc,EAAyFlB,IAAIAtC,IAAIAgB,EAAChBC,IAAIAsB,oBEvcV,QAAQluB,MAAMjtB,KAAKA,SAAAc88C,QAAAC,QAAAC,QAAAC

C,MAAM,CAAC;IAC1C,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC;IACtC,MAAM,YAAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,MAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,QAAQ,GAAG,QAAQ,CAAC,UAAU,CAAC;IAErC,IAAI,QAAQ,CAAC,UAAU,KAAK,cAAc,EAAE;QAC1C,MAAM,IAAI,KAAK,CAAC,4CAA4C;YAC5C,GAAG,QAAQ,CAAC,UAAU,+BAA+B,CAAC,CAAC;KAC5D;IAED,IAAI,QAAQ,CAAC,aAAa,KAAK,CAAC,IAAI,QAAQ,CAAC,cAAc,KAAK,CAAC,EAAE;QACjE,MAAM,IAAI,KAAK,CAAC,oEAAoE;YACpE,QAAQ,QAAQ,CAAC,cAAc,KAAK,QAAQ,CAAC,aAAa,IAAI,CAAC,CAAC;KACrE;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;IAC3D,MAAM,KAAK,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;IAE1D,MAAM,KAAK,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;IAC1

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/AvgPool.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"RotateWithOffset.js","sourceRoot":"","sources":["../../src/kernels/RotateWithOffset.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,gBAAgB,EAA4D,MAAM,uBAAuB,CAAC;AAC5I,OAAO,EAAC,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAInD,IAAI,UAAiE,CAAC;AAEtE,SAAS,KAAK,CAAC,OAAoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,gBAAgB,EAAE,IAAI,EAAE,CAAC,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE

imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n   [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n   [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n   imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n   centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/RotateWithOffset.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/
/**
* @license
* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy
 of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/
/**
* @license

```
* Copyright 2020 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the
 License for the specific language governing permissions and
* limitations under the License.
* =============================================================================
*/
/**
* @license
* Copyright 2020 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* =============================================================================
*/
/**
* @deprecated Use `setWasmPaths` instead.
* Sets the path to the `.wasm` file which will be fetched when the wasm
 * backend is initialized. See
* https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers
* for more details.
* @param path wasm file path or url
* @param usePlatformFetch optional boolean to use platform fetch to download
*     the wasm file, default to false.
*
* @doc {heading: 'Environment', namespace: 'wasm'}
*/
```

Found in path(s):

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.fesm.js

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"tf-backend-wasm.fesm.js","sources":["../src/kernels/types.ts","../src/kernels/_FusedMatMul.ts","../src/kernels/unary_kernel.ts","../src/kernels/Abs.ts","../src/kernels/binary_kernel.ts","../src/kernels/Add.ts","../src/kernels/AddN.ts","../src/kernels/Identity.ts","../src/kernels/Transpose.ts","../src/kernels/kernel_utils.ts","../src/kernels/All.ts","../src/kernels/Any.ts","../src/kernels/ArgMax.ts","../src/kernels/AvgPool.ts","../src/kernels/Reshape.ts","../src/kernels/BatchMatMul.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Concat_impl.js","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Range_impl.js","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Slice.js","../src/kernels/Slice.ts","../src/kernels/BatchToSpaceND.ts","../src/kernels/Cast.ts","../src/kernels/Ceil.ts","../src/kernels/ClipByValue.ts","../src/kernels/Concat.ts","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/Max.ts","../src/kernels/Maximum.ts","../src/kernels/MaxPool.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/Minimum.ts","../src/kernels/MirrorPad.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/NotEqual.ts","../src/kernels/OneHot.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Pow.ts","../src/kernels/Prelu.ts","../src/kernels/Prod.ts","../src/kernels/Range.ts","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/ScatterNd.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Sin.ts","../src/kernels/Softmax.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/Step.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sub.ts","../src/kernels/Sum.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/Tile.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/Unpack.ts","../src/kernels/ZerosLike.ts","../src/register_all_kernels.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../src/version.ts","../src/base.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
 WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==*/\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing

permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from
'./types';\n\nlet wasmFusedMatMul:\n (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n
bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, activation: number,
biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n
void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul,
null /* void */, [\n 'number',
// a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n
'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number', // activation\n
'number', // biasId\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number' //
out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend:
BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias,
preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n
`_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB,
activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId =
backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null) {\n
const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new
Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n
}\n biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n
backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n
FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw
new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n
}\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] :
b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim],
a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new
Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n
wasmFusedMatMul(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n transposeA,
transposeB, fusedActivation, biasId, preluActivationWeightsId,\n leakyreluAlpha || 0, outId);\n\n return
out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName:
'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function
createUnaryKernelConfig(\n kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId:
number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n
wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n
'number', // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n
TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n

const out = backend.makeOutput(x.shape, outType || x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype === 'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n
createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds:
Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend:
BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n
'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs:
TensorInfo[], backend: BackendWasm}) {\n const {inputs,
backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-
sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x
=> backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new
Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes,
inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n
kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n
* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed
to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport
{TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function
identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} =
args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n
const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const
identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n
kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from
'./Identity';\nimport {CppDType}
 from './types';\n\nlet wasmTranspose: (\n    xId: number, xShape: Uint8Array, xShapeLength: number, dtype:
CppDType,\n    outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend:
BackendWasm) {\n  wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n    'number',  // xId\n
'array',   // x.shape\n    'number',  // x.shape.length\n    'number',  // dtype\n    'number',  // outId\n    'array',   // perm\n
 'number',  // perm.length\n  ]);\n}\n\nexport function transpose(\n    args:\n        {inputs: TransposeInputs, backend:
BackendWasm, attrs: TransposeAttrs}):\n    TensorInfo {\n  const {inputs, backend, attrs} = args;\n  // Reduce any
dimensions with size one. Lower-rank transpose kernel performs\n  // better due to simpler memory access pattern.\n
const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n  let permIsNoOp = true;\n  for
(let i = 0; i < perm.length; i++) {\n    if (perm[i] !== i) {\n      permIsNoOp
 = false;\n    }\n  }\n  const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n  const x = {\n    dataId:
inputs.x.dataId,\n    shape: reducedShape,\n    dtype: inputs.x.dtype\n  };\n\n  if (permIsNoOp) {\n    const cloned =
identity({inputs, backend});\n    cloned.shape = outShape;\n    return cloned;\n  }\n\n  const out =
backend.makeOutput(outShape, x.dtype);\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const outId =
backend.dataIdMap.get(out.dataId).id;\n  const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n
const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n  wasmTranspose(\n      xId,
xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n      perm.length);\n  return
out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n  const outShape = new
Array(inShape.length);\n  for (let i = 0; i < outShape.length; i++) {\n    outShape[i] = inShape[perm[i]];\n  }\n
return outShape;\n}\n\nfunction
 removeOneSizeDims(\n    shape: number[], perm: number[]): [number[], number[]] {\n  const newShape: number[]
= [];\n  const newPerm: number[] = [];\n  for (let i = 0; i < shape.length; ++i) {\n    if (shape[i] !== 1) {\n
newShape.push(shape[i]);\n    }\n    if (shape[perm[i]] !== 1) {\n      newPerm.push(perm[i]);\n    }\n  }\n  for (let i =
0; i < newPerm.length; ++i) {\n    let minValIdx = -1;\n    for (let j = 0; j < newPerm.length; ++j) {\n      if
(newPerm[j] >= i &&\n          (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n        minValIdx = j;\n
  }\n    }\n    newPerm[minValIdx] = i;\n  }\n  return [newShape, newPerm];\n}\n\nexport const transposeConfig:
KernelConfig = {\n  kernelName: Transpose,\n  backendName: 'wasm',\n  kernelFunc: transpose as {} as
KernelFunc,\n  setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
 file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from
'../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose
if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n *
@param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n    x: TensorInfo,
axis: number|number[],
 backend: BackendWasm): {\n  transposed: TensorInfo|null,\n  axes: number[],\n  originalAxes: number[],\n
inputWasTransposed: boolean\n} {\n  const xShape = x.shape;\n  const xRank = x.shape.length;\n\n  const
originalAxes = util.parseAxisParam(axis, xShape);\n  let axes = originalAxes;\n  const permutedAxes =
backend_util.getAxesPermutation(axes, xRank);\n  let xTransposed = null;\n  let inputWasTransposed = false;\n  if
(permutedAxes != null) {\n    const newShape: number[] = new Array(xRank);\n    for (let i = 0; i <
```

newShape.length; i++) {\n newShape[i] = xShape[permutedAxes[i]];\n }\n\n axes = backend_util.getInnerMostAxes(axes.length, xRank);\n xTransposed =\n transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n if (transposedId !== xId) {\n inputWasTransposed = true;\n }\n }\n\n return {transposed:
xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet
wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n
const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend, inputs,
attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes,

inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, outerSize: number, innerSize: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // outer_size\n 'number', // inner_size\n 'number' // out_id\n]);\n}\n\nfunction argmax(\n args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId\n = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==========\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from

'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, strideHeight: number,\n strideWidth: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // channels\n 'number', // outId\n]);\n}\n\nfunction avgPool(\n args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:\` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n throw new Error(\n `was backend only supports average pooling with dilation = [1, 1], ` +\n `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n `shape must have the same number of elements.`);\n\n // Backend needs to track refCount for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
{BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null /* void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number' // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const
{transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n () => `Error in matMul: the input batch dimensions
must either be the ` +\n `same or at least one input batch dimension must be 1. Got input ` +\n `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n innerShapeA === innerShapeB,\n () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n `${b.shape} and transposeA=${transposeA}` +\n ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation is
designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape =
outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function concatImpl(inputs, outShape, dtype, simplyConcat) {\n const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n if (simplyConcat && dtype !== 'string') {\n // Use built-in TypedArray.set() method for speed.\n let offset = 0;\n inputs.forEach(input => {\n const size = util.sizeFromShape(input.shape);\n outVals.set(input.vals, offset);\n offset += size;\n });\n }\n else {\n let colOffset = 0;\n inputs.forEach(input => {\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(input.vals) :\n input.vals;\n let tIdx = 0;\n for (let row = 0; row < input.shape[0]; ++row) {\n const resIdx = row * outShape[1] + colOffset;\n for (let col = 0; col < input.shape[1]; ++col) {\n outVals[resIdx + col] = decodedData[tIdx++];\n }\n }\n colOffset += input.shape[1];\n });\n }\n return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUVBLE9BQU8sRUFBRSxZQUFZLEVBQUUsSUFBSSxFQUFFLE1BQU0sdUJBQXVCLENBQUM7QUFFM0QsTUFBTSxVQUFVLFVBQVUsQ0FBQyxNQUFnQixFQUFFLFFBQWtCLEVBQUUsS0FBZSxFQUFFLFlBQXNCO0lBQ3RGLE1BQU0sT0FBTyxHQUFHLElBQUksQ0FBQyxlQUFlLENBQUMsS0FBSyxFQUFFLElBQUksQ0FBQyxlQUFlLENBQUMsUUFBUSxDQUFDLENBQUMsQ0FBQztJQUM1RSxJQUFJLFlBQVksSUFBSSxLQUFLLEtBQUssUUFBUSxFQUFFO1FBQ3RDLDBDQUEwQztRQUMxQyxvQ0FBb0M7UUFDcEMsSUFBSSxNQUFNLEdBQUcsQ0FBQyxDQUFDO1FBQ2YsTUFBTSxDQUFDLE9BQU8sQ0FBQyxLQUFLLENBQUMsRUFBRTtZQUNyQixNQUFNLElBQUksR0FBRyxJQUFJLENBQUMsZUFBZSxDQUFDLEtBQUssQ0FBQyxLQUFLLENBQUMsQ0FBQztZQUMvQyxPQUFPLENBQUMsR0FBRyxDQUFDLEtBQUssQ0FBQyxJQUFJLEVBQUUsTUFBTSxDQUFDLENBQUM7WUFDaEMsTUFBTSxJQUFJLElBQUksQ0FBQztRQUNqQixDQUFDLENBQUMsQ0FBQztLQUNIO1NBQU07UUFDTixJQUFJLFNBQVMsR0FBRyxDQUFDLENBQUM7UUFDbEIsTUFBTSxDQUFDLE9BQU8sQ0FBQyxLQUFLLENBQUMsRUFBRTtZQUNyQixNQUFNLFdBQVcsR0FBRyxLQUFLLEtBQUssUUFBUSxDQUFDLENBQUM7Z0JBQ3ZDLFlBQVksQ0FBQyx1QkFBdUIsQ0FBQyxLQUFLLENBQUMsSUFBSSxDQUFDLENBQUMsQ0FBQztnQkFDbEQsS0FBSyxDQUFDLElBQUksQ0FBQztZQUNaLElBQUksSUFBSSxHQUFHLENBQUMsQ0FBQztZQUNiLEtBQUssSUFBSSxHQUFHLEdBQUcsQ0FBQyxFQUFFLEdBQUcsR0FBRyxLQUFLLENBQUMsS0FBSyxDQUFDLENBQUMsQ0FBQyxFQUFFLEVBQUUsR0FBRyxFQUFFO2dCQUNsRCxNQUFNLE1BQU0sR0FBRyxHQUFHLEdBQUcsUUFBUSxDQUFDLENBQUMsQ0FBQyxHQUFHLFNBQVMsQ0FBQztnQkFDN0MsS0FBSyxJQUFJLEdBQUcsR0FBRyxDQUFDLEVBQUUsR0FBRyxHQUFHLEtBQUssQ0FBQyxLQUFLLENBQUMsQ0FBQyxDQUFDLEVBQUUsRUFBRSxHQUFHLEVBQUU7b0JBQ2xELE9BQU8sQ0FBQyxNQUFNLEdBQUcsR0FBRyxDQUFDLEdBQUcsV0FBVyxDQUFDLElBQUksRUFBRSxDQUFDLENBQUM7aUJBQzVDO2FBQ0Q7U0FDRDtRQUNELFNBQVMsSUFBSSxLQUFLLENBQUMsS0FBSyxDQUFDLENBQUMsQ0FBQyxDQUFDO1FBQzdCLENBQUMsQ0FBQyxDQUFDO0tBQ0g7SUFDRCxPQUFPLE9BQU8sQ0FBQztBQUNoQixDQUFD

gV0lUSE9VVCBXQVJSQU5USUVTIE9SIENPTkRJVElPTlMgT0YgQU5ZIEtJTkQsIGVpdGhlciBleHByZXNzI
G9yIGltcGxpZWQuXG4gKiBTZWUgdGhlIExpY2Vuc2UgZm9yIHRoZSBzcGVjaWZpYyBsYW5ndWFnZSBnb3
Zlcm5pbmcgcGVybWlzc2lvbnMgYW5kXG4gKiBsaW1pdGF0aW9ucyB1bmRlciB0aGUgTGljZW5zZS5cbiAqID
09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09PT09
PT09PT09PT09XG4gKi9cblxuaW1wb3J0IHtiYWNrZW5kX3V0aWwsIEJhY2tlbmRWYWx1ZXMsIERhdG
FUeXBlLCBUeXBlZEFycmF5LCB1dGlsSBmcm9tICdAdGVuc29yZmxvdy90ZmpzLWNvcmUnO1xuXG5leHBv
cnQgZnVuY3Rpb24gY29uY2F0SW1wbChhcbiAgICBpbnB1dHM6IEFycmF5PHt2YWxzOiBCYWNrZW5kVmFsd
WVzLCBzaGFwZTogbnVtYmVyW119Piwgb3V0U2hhcGU6IG51bWJlcltdLFxuICAgIGR0eXBlOiBEYXRhVHl
wZSwgc2ltcGx5Q29uY2F0OiBib29sZWFuKTogVHlwZWRBcnJheSB7XG4gIGNvbnN0IG91dFZhbHMgPSB1dGlsLmdldEFycmF5RnJvbURUeXBlKGR0eXBlLCB1dGlsLnNpemVGcm9tU2hhcGUob3V0U2hh
cGUpKTtcblxuICBpZiAoc2ltcGx5Q29uY2F0ICYmIGR0eXBlICE9PSAnc3RyaW5nJykge1xuICAgIC8vIEFVZSBi
dWlsdC1pbiBUeXBlZEFycmF5LnNldCgpIG1ldGhvZCBmb3Igc3BlZWQuXG4gICAgY29uc3Qgc2l6ZSA9IHV0aWwuc
2l6ZUZyb21TaGFwZShhbnB1dC5zaGFwZSk7XG5cbiAgICBpZiAoc2l6ZSA9PT0gb3V0VmFscy5sZW5ndGgpIHtcbiAgICAg
IGZvciAobGV0IGkgPSAwOyBpIDwgc2l6ZTtcbiAgICAgIGNvbnN0IHZhbCA9IGFueSA9IGFueSA9IGFueS

BMkIsR0FBRyxJQUFJLEdBQUcsS0FBSyxJQUFJLElBQUksR0FBRyxDQUFDLENBQUM7SUFFN0QsSUFBSSxhQUFhLElBQUksMkJBQTJCO1FBQzVDLDJCQUEyQixFQUFFO1FBQy9Q9CLE9BQU8sSUFBSSxDQUFDLG1CCQUFtQixDQUFDLENBQUMsRUFBRSxDQUFDLENBQUMsRUFBRSxDQUFDLENBQUMsRUFBRSx

*/\nimport { backend_util, buffer, Slice, slice_util, util } from '@tensorflow/tfjs-core';\nimport { assertNotComplex } from '../cpu_util';\nexport function sliceImpl(vals, begin, size, shape, dtype) {\n   const isContinous = slice_util.isSliceContinous(shape, begin, size);\n   const length = util.sizeFromShape(size);\n   const xStrides = util.computeStrides(shape);\n   if (isContinous) {\n   const flatOffset = slice_util.computeFlatOffset(begin, xStrides);\n   if (dtype === 'string') {\n   return vals.slice(flatOffset, flatOffset + length);\n   }\n   return vals.subarray(flatOffset, flatOffset + length);\n   }\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(vals) :\n   vals;\n   const inBuf = buffer(shape, dtype, decodedData);\n   const outBuf = buffer(size, dtype);\n   for (let i = 0; i < outBuf.size; ++i) {\n   const outLoc = outBuf.indexToLoc(i);\n   const inLoc = outLoc.map((idx, j) => idx + begin[j]);\n   outBuf.set(inBuf.get(...inLoc), ...outLoc);\n   }\n   if (dtype === 'string') {\n   return backend_util.fromStringArrayToUint8(outBuf.values);\n   }\n   return outBuf.values;\n}\nexport function slice(args) {\n   const { inputs, backend, attrs } = args;\n   const { x } = inputs;\n   const { begin, size } = attrs;\n   assertNotComplex(x, 'slice');\n   const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n   slice_util.assertParamsValid(x, $begin, $size);\n   const vals = backend.data.get(x.dataId).values;\n   const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n   return backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n   kernelName: Slice,\n   backendName: 'cpu',\n   kernelFunc: slice\n};\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRzs7Ozs7Ozs7Oz

UMsQ0FBQztJQUU3QixNQUFNLENBQUMsTUFBTSxFQUFFLEtBQUssQ0FBQyxHQUFHLFVBQVUsQ0FB
QyxnQkFBZ0IsQ0FBQyxDQUFDLEVBQUUsS0FBSyxFQUFFLElBQUksQ0FBQyxDQUFDO0lBQ3BFLFlFVBQ
VUsQ0FBQyxpQkFBaUIsQ0FBQyxDQUFDLEVBQUUsTUFBTSxFQUFFLEtBQUssQ0FBQyxDQUFDO0lBRS
9DLE1BQU0sSUFBSSxHQUE9BQU8sQ0FBQyxJQUFJLENBQUMsR0FBRyxDQUFDLENBQUMsQ0FBQ
yxNQUFNLENBQUMsQ0FBQyxNQUFNLENBQUM7SUFDL0MsTUFBTSxPQUFDLEdBU0UsQ0FBQ
DLElBQUksRUFBRSxNQUFNLEVBQUUsS0FBSyxFQUFFLENBQUMsQ0FBQyxLQUFLLLEVBQUUsQ0FBQy
xDQUFDLEtBQUssQ0FBQyxDQUFDO0lBQ2pFLE9BQU8sT0FBTyxDQUFDLGNBQWMsQ0FBQyxLLE
VBQUUsQ0FBQyxDQUFDLEtBQUssRUFBRSxPQUFPLENBQUMsQ0FBQztJQUN6RCxPQUFPLENBQUMsT0FBTyxDQUFDLENBQUMsQ6RCxDQUFDO0lBQ2pFLE9BQU8sT0FBTyxDQUFDLGNBQWMsQ
TUFBTSxxDQUFDLE1BQU0sQ1E1MDEwMDEwMDEwM

wgYXR0cnN9ID0gYXJncztcbiAgY29uc3Qge3h9ID0gaW5wdXRzO1xuICBjb25zdCB7YmVnaW4sIHNpemV9ID
0gYXR0cnM7XG5cbiAgYXNzZXJ0Tm90Q29tcGxleCh4LCAnc2xpY2UnKTtcblxuICBjb25zdCBbJGJlZ2luLCAk
c2l6ZV0gPSBzbGljZV91dGlsLnBhcnNlU2xpY2VQYXJhbXMoeCwgYmVnaW4sIHNpemUpO1xuICBzbGljZV9
1dGlsLmFzc2VydFBhcmFtc1ZhbGlkKHgsICRiZWdpbiwgJHNpemUpO1xuXG4gIGNvbnN0IHZhbHMgPSBiY
NrZW5kLmRhdGEuZ2V0KHguZGF0YUlkKS52YWx1ZXM7XG4gIGNvbnN0IG91dFZhbHMgPSBzbGljZUltcG
wodmFscywgJGJlZ2luLCAkc2l6ZSwgeC5zaGFwZSwgeC5kdHlwZSk7XG4gIGNvbnN0IG91dCA9IGJhY2tlb
VUZW5zb3JJbmZvKCRzaXplLCB4LmR0eXBlLCBvdXRWYWxzKTtcbiAgcmV0dXJuIHtkYXRhSWQsIHNoYWN
lQ29uZmlnOiBLZXJuZWxDb25maWcgPSB7XG4gIGtlcm5lbE5hbWU6IFNsaWNlLFxuICBiYWNrZW5kTmFtZ
TogJ2NwdScsXG4gIGtlcm5lbEZ1bmM6IHNsaWNlIGFzIHt9IGFzIEtlcm5lbEZ1bmNcbn07XG4iXX0=","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Slice, slice_util, SliceAttrs, SliceInputs, TypedArray, util}
from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {sliceImplCPU} from
'../kernel_utils/shared';\n\nexport function slice(\n   args: {inputs: SliceInputs, attrs: SliceAttrs, backend:
BackendWasm}) {\n const {inputs: {x}, attrs: {begin, size}, backend} = args;\n\n const [begin_, size_] =
slice_util.parseSliceParams(x, begin, size);\n\n const isContinous = slice_util.isSliceContinous(x.shape, begin_,
size_);\n const xVals = backend.readSync(x.dataId);\n const out = backend.makeOutput(size_, x.dtype);\n const
xStrides = util.computeStrides(x.shape);\n const outData = backend.dataIdMap.get(out.dataId);\n\n
  if (isContinous) {\n   const flatOffset = slice_util.computeFlatOffset(begin_, xStrides);\n\n   if (x.dtype ===
'string') {\n   outData.stringBytes =\n   (xVals as Uint8Array[])\n   .slice(flatOffset, flatOffset +
util.sizeFromShape(size_));\n   } else {\n   const outVals = backend.typedArrayFromHeap(out);\n
outVals.set(\n   (xVals as TypedArray)\n   .subarray(flatOffset, flatOffset +
util.sizeFromShape(size_)));\n   }\n\n   return out;\n }\n\n if (x.dtype === 'string') {\n   const res =
sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype);\n   outData.stringBytes = res as Uint8Array[];\n   return
out;\n }\n\n const outVals = backend.typedArrayFromHeap(out);\n const rank = x.shape.length;\n if (rank === 2)
{\n   slice2d(\n   xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n   size_ as
[number, number]);\n } else if (rank === 3) {\n   slice3d(\n   xVals
 as TypedArray, xStrides[0], xStrides[1], outVals,\n   begin_ as [number, number, number], size_ as [number,
number, number]);\n } else if (rank === 4) {\n   slice4d(\n   xVals as TypedArray, xStrides[0], xStrides[1],
xStrides[2], outVals,\n   begin_ as [number, number, number, number],\n   size_ as [number, number, number,
number]);\n } else {\n   const res =\n   sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n
outVals.set(res);\n }\n\n return out;\n}\n\nfunction slice2d(\n   xVals: backend_util.TypedArray, xStride:
number,\n   outVals: backend_util.TypedArray, begin: [number, number],\n   size: [number, number]): void {\n let
outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const endI = beginI + size[0];\n for (let i =
beginI; i < endI; i++) {\n   const xOffset = i * xStride + beginJ;\n   outVals.set(xVals.subarray(xOffset, xOffset +
size[1]), outOffset);\n   outOffset += size[1];\n }\n}\n\nfunction
 slice3d(\n   xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n   outVals:
backend_util.TypedArray, begin: [number, number, number],\n   size: [number, number, number]): void {\n let
outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI =
beginI + size[0];\n const endJ = beginJ + size[1];\n for (let i = beginI; i < endI; i++) {\n   for (let j = beginJ; j <
endJ; j++) {\n   const xOffset = i * xStride1 + j * xStride2 + beginK;\n   outVals.set(xVals.subarray(xOffset,
xOffset + size[2]), outOffset);\n   outOffset += size[2];\n   }\n }\n}\n\nfunction slice4d(\n   xVals:
backend_util.TypedArray, xStride1: number, xStride2: number,\n   xStride3: number, outVals:

backend_util.TypedArray,\n begin: [number, number, number, number],\n size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n
  const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n   for (let j = beginJ; j < endJ; j++) {\n   for (let k = beginK; k < endK; k++) {\n   const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n   outOffset += size[3];\n   }\n   }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
 under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const
 permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n   transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n   {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n   inputs: {x: xTransposedReshaped},\n   backend,\n attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig
 = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport
 {BackendWasm} from '../backend_wasm';\n\nexport function cast(\n   args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n   TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals =

backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null / void */, [\n   'number', // x_id\n   'number', // min\n   'number', // max\n   'number'   // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n
  wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
 {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n   args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1) {\n   return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n   return out;\n }\n\n const shapes = $inputs.map(t

```
=> t.shape);\n  backend_util.assertParamsConsistent(shapes, axis);\n\n  if ($inputs[0].dtype === 'string') {\n    // Any concat of n-dimensional tensors across any axis can be reduced to\n    // a concatenation of two-dimensional tensors across the axis 1 by first\n    // partitioning the axes of the original tensors into those less than the\n    // axis to be concatenated and the rest. Then reshape the tensors\n    // into a two-dimensional tensor by collapsing these two sets of axes and\n    // concatenate the resulting matrices across the axis 1, finally reshaping\n    // the result to have the proper shape.\n    const inputs2D = $inputs.map(t => {\n      const innerSize = util.sizeFromShape(t.shape.slice(axis));\n      const shape = [-1, innerSize];\n      return reshape({inputs: {x: t}, backend, attrs: {shape}});\n    });\n\n    const inputsValShapes = inputs2D.map(t => {\n      return {vals: backend.readSync(t.dataId), shape: t.shape};\n    });\n\n    // Concats 2d tensors along axis=1.\n    outShape =\n        backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n    const simplyConcat = inputs2D[0].shape[0] === 1;\n    const outVals = concatImplCPU(\n        inputsValShapes, outShape, inputs[0].dtype,\n                      simplyConcat) as string[];\n\n    const finalOutShape =\n        backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n    out.shape = finalOutShape;\n    const outData = backend.dataIdMap.get(out.dataId);\n    outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n    inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n    return out;\n  }\n\n  const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n  let sumInnerDims = 0;\n  const innerDims = $inputs.map(input => {\n    const innerDim = util.sizeFromShape(input.shape.slice(axis));\n    sumInnerDims += innerDim;\n    return innerDim;\n  });\n  const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n  const outVals = backend.typedArrayFromHeap(out);\n  for (let b = 0; b < batchDim; b++) {\n    let outOffset = b * sumInnerDims;\n    for (let i = 0; i < inVals.length; i++) {\n      const innerDim = innerDims[i];\n      const inOffset = b * innerDim;\n      const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n      outVals.set(vals, outOffset);\n      outOffset += innerDim;\n    }\n  }\n  return out;\n}\n\nexport const concatConfig: KernelConfig = {\n  kernelName: Concat,\n  backendName: 'wasm',\n  kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n =============================================================================\n */\n\nimport {backend_util, Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n    xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n    filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n    padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n    dilationHeight: number, dilationWidth: number, strideHeight: number,\n    strideWidth: number, inputChannels: number, outputChannels: number,\n    outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n    'number',  // xId\n    'number',  // batchSize\n    'number',  // inputHeight\n    'number',  // inputWidth\n    'number',  // filterId\n    'number',  // filterHeight\n    'number',  // filterWidth\n    'number',  // padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // isSamePad\n    'number',  // dilationHeight\n    'number',  // dilationWidth\n    'number',  // strideHeight\n    'number',  // strideWidth\n    'number',  // inputChannels\n    'number',  // outputChannels\n    'number',  // outId\n  ]);\n}\n\nfunction conv2d(\n    args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n  const {inputs, attrs, backend} = args;\n\n  const {x, filter} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n  const $dataFormat =
```

backend_util.convertConv2DDataFormat(dataFormat);\n
const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend Conv2D does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\n\nimport {backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number, xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n 'number', // batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n 'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n

inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n
const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast ? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize,
filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest

= 1\n}\n\nlet wasmCropAndResize: (\n imagesId: number, boxesId: number, boxIndId: number, numBoxes: number,\n imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n method: number, extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n 'number', // imagesId\n 'number', // boxesId\n 'number', // boxIndId\n 'number', // numBoxes\n 'array', // images shape\n 'number', // cropHeight\n 'number', // cropWidth\n 'number', // method\n
  'number', // extrapolation value\n 'number' // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData = backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData = cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData = backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n
 const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n cropWidth,\n InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n extrapolationValue, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n 'number', // x_id\n 'number', // exclusive\n 'number', // reverse\n 'number', // final_dim\n
  'number', // out_id\n 'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId
 = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0,

finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n out = transpose(\n {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n 'number', // xId\n 'number', // blockSize\n 'number', // channelsLast\n 'array', // xStrides\n 'number', // xStridesLength\n 'array', // outputShape\n 'array', // outputStrides\n 'number', // outSize\n 'number', // outId\n]);\n}\n\nexport function depthToSpace(args: {\n backend: BackendWasm,\n inputs: DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n const {blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n [batchSize, outputHeight, outputWidth, outputDepth] :\n [batchSize, outputDepth, outputHeight, outputWidth];\n\n const out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const xId = xData.id;\n const xStridesBytes =\n new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n new Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n wasmDepthToSpace(\n xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport

{BackendWasm} from
'../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n strideWidth: number, inputChannels: number, outputChannels: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number',
// dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n ($dilations as number | [number, number]), pad, dimRoundingMode,\n true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth
= convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n filterWidth,
padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
under the License.\n *
==\n */\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n
createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs,
KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs:
ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} =
args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape
= input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n // Negative value is counted from the tail of rank.\n
util.assert(\n -(inputRank + 1) <= dim,\n () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n
inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs:
{x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n
kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n
* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs:
FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape,
value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals =
backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig:
KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as
KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed

on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n imageId, batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n */\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n xId: number, meanId: number, varianceId: number, offsetId: number,\n scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n

wasmBatchNorm = backend.wasm.cwrap(\n FusedBatchNorm, null /* void */,\n ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth:\n number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number', // outId\n]);\n}\n\nfunction fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n backend: BackendWasm,\n attrs: FusedConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode);\n\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n throw new

```
Error(\n `FusedConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n
 const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw new Error(\n `wasm backend FusedConv2D does not support dataFormat:` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha ||
 0, outId);\n\n return out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n kernelName: FusedConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs,
 FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n
 void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n
 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n
 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number', // outId\n ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n inputs: FusedDepthwiseConv2DInputs,\n backend: BackendWasm,\n attrs: FusedDepthwiseConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n
```

```
    dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo =
backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n
pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation as {}
as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation}
activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const
outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData =
backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n
`FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n
    }\n    if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedDepthwiseConv2D bias
shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n
  biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth =
convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const
padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n  const dilationHeight =
convInfo.dilationHeight;\n  const dilationWidth = convInfo.dilationWidth;\n  const strideHeight =
convInfo.strideHeight;\n  const strideWidth = convInfo.strideWidth;\n  const inputChannels =
convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n  const batchSize =
convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const inWidth = convInfo.inWidth;\n\n  if
(dataFormat !== 'NHWC') {\n    throw
  new Error(\n        `wasm backend FusedDepthwiseConv2D does not support dataFormat:` +\n        `${dataFormat}'.
Please use 'NHWC'.`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId =
backend.dataIdMap.get(out.dataId).id;\n  const preluActivationWeightsId = preluActivationWeights == null ?\n      0
:\n      backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n  wasmFusedDepthwiseConv2d(\n      xId,
batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n      biasId, padTop, padRight, padBottom, padLeft,
isSamePad, dilationHeight,\n      dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n
fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n  return out;\n}\n\nexport const
fusedDepthwiseConv2DConfig: KernelConfig = {\n  kernelName: FusedDepthwiseConv2D,\n  backendName:
'wasm',\n  setupFunc: setup,\n  kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n
 * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet
wasmGatherNd: (\n    xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n
  sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n    void;\n\nfunction
setup(backend: BackendWasm): void {\n  wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n
'number',  // xId\n    'number',  // dtype\n    'number',  // indicesId\n    'number',  // numSlices\n    'number',  //
sliceRank\n    'number',  // sliceSize\n    'array',   // strides\n    'number'   // outId\n  ]);\n}\n\nfunction gatherNd(args:
{backend: BackendWasm, inputs: GatherNdInputs}):\n    TensorInfo {\n  const {backend, inputs} = args;\n  const
{params, indices} = inputs;\n\n  const [resultShape, numSlices, sliceSize, strides] =\n
gather_util.prepareAndValidate(params, indices);\n\n  const out = backend.makeOutput(resultShape,
params.dtype);\n  if (numSlices === 0) {\n    return out;\n  }\n\n  const indicesShape = indices.shape;\n  const
sliceRank = indicesShape[indicesShape.length - 1];\n\n  const xData = backend.dataIdMap.get(params.dataId);\n
const xId = xData.id;\n
```

```
  const indicesData = backend.dataIdMap.get(indices.dataId);\n  const indicesId = indicesData.id;\n\n  const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  wasmGatherNd(\n      xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n      stridesBytes, outId);\n\n  return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n  kernelName: GatherNd,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n    xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n    indicesId: number, batchSize: number, outStrides: Uint8Array,\n    outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n    'number',  // xId\n    'number',  // dtype\n    'array',  // xStrides\n    'number',  // stridesSize\n    'number',  // indicesId\n    'number',  // batchSize\n
    'array',   // outStrides\n    'number'   // outId\n  ]);\n}\n\nfunction gatherV2(\n    args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {x, indices} = inputs;\n  const {axis, batchDims} = attrs;\n\n  // Throw error when any index is out of bound.\n  const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n  const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n  const axisDim = x.shape[parsedAxis];\n  for (let i = 0; i < indicesVals.length; ++i) {\n    const index = indicesVals[i];\n    util.assert(\n        index <= axisDim - 1 && index >= 0,\n        () =>\n            `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n  }\n\n  const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n      x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n  const flattenX = reshape({\n    inputs: {x},\n    attrs: {\n      shape: [\n
 shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n        shapeInfo.sliceSize\n      ]\n    },\n    backend\n  });\n  const indicesSize = util.sizeFromShape(indices.shape);\n  const flattenIndex = reshape({\n    inputs: {x: indices},\n    attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n    backend\n  });\n  const flattenOutputShape = [\n    shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n    shapeInfo.sliceSize\n  ];\n\n  const out = backend.makeOutput(flattenOutputShape, x.dtype);\n  if (util.sizeFromShape(x.shape) === 0) {\n    return out;\n  }\n  const stridesSize = flattenX.shape.length - 1;\n\n  const xData = backend.dataIdMap.get(flattenX.dataId);\n  const xId = xData.id;\n\n  const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n  const indicesId = indicesData.id;\n\n  const outId = backend.dataIdMap.get(out.dataId).id;\n\n  const xStridesBytes = new Uint8Array(\n      new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n
  const outStridesBytes = new Uint8Array(\n      new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n  wasmGather(\n      xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n      shapeInfo.batchSize, outStridesBytes, outId);\n\n  backend.disposeData(flattenX.dataId);\n  backend.disposeData(flattenIndex.dataId);\n\n  // reshape\n  out.shape = shapeInfo.outputShape;\n  return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n  kernelName: GatherV2,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
```

law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
* distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu, null / void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // leakyrelu_alpha\n 'number', // out_id\n]);\n}\n\nexport function leakyRelu(\n args:\n {inputs: LeakyReluInputs, attrs: LeakyReluAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google

LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n   'number', // x_id\n   'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if

(inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed)
 {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
 permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
 and\n * limitations under the License.\n *
==\n
/\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null / void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n   x.dtype === 'float32',\n   () =>\n   `Error in MaxPool: only float32 input

is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n   x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend does not support dataFormat:'` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out =
 backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n   padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n   strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n   args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
  let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype:
 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out =
backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n

kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
 file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMin = backend.wasm.cwrap(Min,
 null /*void*/, [\n   'number', // x_id\n   'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const inputRank = input.shape.length;\n\n
backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmMin(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n
outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', // mode\n   'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple
=> padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes, MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in

`non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n   backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices = result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize,
  pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
  http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
  ==\n
  */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from
  './NonMaxSuppression_util';\n\nlet wasmFunc: (\n   boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n   NonMaxSuppressionV3,\n   'number', // Result*\n   [\n   'number', // boxesId\n   'number', // scoresId\n   'number', // maxOutputSize\n   'number', // iouThreshold\n   'number', // scoreThreshold\n   ]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n   wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold,
  scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n   backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed
  to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
  ==\n
  /\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number,\n   padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n   NonMaxSuppressionV4,\n   'number', // Result\n   [\n   'number', // boxesId\n

'number',
// scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'bool', // padToMaxOutputSize\n]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n
const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n(boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n
'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction
kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n
return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport
{KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n
createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
{KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth: number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmOneHot = backend.wasm.cwrap(OneHot, null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n
'number', // onValue\n 'number', // offValue\n 'number' // out_id\n]);\n}\n\nfunction oneHot(\n args: {inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices} = inputs;\n const {depth, onValue, offValue} = attrs;\n\n const out =
backend.makeOutput([...indices.shape, depth], 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n
wasmOneHot(indicesId, depth,
onValue, offValue, outId);\n\n return out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n kernelName:
OneHot,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out =
backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName:
'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n return expandDims(\n {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n util.assertShapesMatch(\n shape, t.shape,\n 'All tensors passed to stack must have matching shapes');\n util.assert(\n dtype === t.dtype,\n () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n const expandedT =\n expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n intermediateTensorInfos.push(expandedT);\n return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType} from './types';\n\nlet wasmPadV2: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'array', // pre-paddings\n 'array', // post-paddings\n 'number', // constantValue\n 'number', // outId\n]);\n}\n\nfunction pad(\n args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend, attrs: {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n // Short-circuit the computation, since x doesn't have value, only\n // the shape is used to compute output shape to pad.\n return fill({\n backend,\n attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes =\n new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmPadV2(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu = backend.wasm.cwrap(Prelu, null /* void */, [\n 'number', // x_id\n 'number', // weights_id\n 'number' // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n xId: number, reduceSize: number,\n dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n 'number',\n 'number',\n 'number',\n 'number'\n]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs: ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are

done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape]
=\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmProd(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} = args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step, dtype);\n\n const
out = backend.makeOutput([values.length], dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(values);\n return out;\n};\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the

\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n   xId: number, batch: number, oldHeight: number, oldWidth: number,\n   numChannels: number, newHeight: number, newWidth: number,\n   alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n   'number', // xId\n   'number', // batch\n   'number', // oldHeight\n   'number', // oldWidth\n   'number', // numChannels\n   'number', // newHeight\n   'number', // newWidth\n   'number', // alignCorners\n   'number', // halfPixelCenters\n   'number'   // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n   castedData =\n cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n   xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n   return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n   xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n   alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n   backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport

{identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes: Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n 'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', // out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs, backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length === 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n const reshaped =\n reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // radians\n 'number', // centerX\n 'number', // centerY\n 'array', // fillBytes\n 'number', // fillLength\n 'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS

OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n 'number', // indicesId\n 'number', // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs:
ScatterNdInputs, attrs:
ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

==========\n*/\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number, eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n 1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except\n in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *\n http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId:
number, channels: number, batch: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n
wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n 'number', // xId\n 'number', // outId\n
'number', // channels\n 'number' // batch\n]);\n}\n\nfunction softmax(\n args: {backend: BackendWasm,
 inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} =
args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape,
logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n
const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if
(util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return
out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n
 * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND,
SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from
'./PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction
spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs:
SpaceToBatchNDAttrs\n}) {\n const {inputs, backend,
 attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod =
util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n
completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i <
x.shape.length; ++i) {\n completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n
inputs: {x},\n backend,\n attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const
reshapedPaddedShape =\n backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const
permutedReshapedPaddedPermutation = backend_util.getPermuted(\n reshapedPaddedShape.length,
blockShape.length, false);\n\n const flattenShape =\n backend_util.getReshapedPermuted(paddedX.shape,
blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs:
ReshapeAttrs = {shape: reshapedPaddedShape};\n
  const paddedXReshaped =\n reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const
transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n TransposeAttrs = {perm:
permutedReshapedPaddedPermutation};\n const paddedXT =\n transpose({inputs: transposeInputs, backend,
attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const
resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n {inputs:
resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n
backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return
result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n
backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n *
Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under

the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs, attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n const xSliceSize = [...size];\n xSliceSize[$axis] = s;\n const xSlice =\n slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n begin[$axis] += s;\n return xSlice;\n });\n}\n\nexport const splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright

2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n 'number', // x_id\n 'number', // alpha\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction step(\n args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n xId: number, xStridesBytes: Uint8Array, xRank: number,\n beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n 'number', // xId\n 'array', // xStrides\n 'number', // xRank\n 'array', // beginBytes\n 'array', // endBytes\n 'array', // stridesBytes\n 'array', // outShapeBytes\n 'array', // outStridesBytes\n 'number', // outShapeLength\n 'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n begin,\n end,\n strides,\n beginMask,\n endMask,\n ellipsisMask,\n newAxisMask,\n shrinkAxisMask\n } = attrs;\n\n const {\n finalShapeSparse,\n finalShape,\n isIdentity,\n sliceDim0,\n isSimpleSlice,\n begin: $begin,\n end: $end,\n strides: $strides\n } =\n slice_util.sliceInfo(\n x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n // Optimization #1, slice is a no-op plus reshape\n result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n // Optimization #2, slice is memory contiguous (only occurs in dim 0)\n util.assert(\n x.shape.length >= 1,\n () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n const size = slice_util.computeOutShape($begin, $end, $strides);\n // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n result =\n reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n backend.disposeData(sliced.dataId);\n } else {\n const out = backend.makeOutput(finalShapeSparse,

'float32');\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n const endBytes = new Uint8Array(new Int32Array($end).buffer);\n const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n const outputShapeBytes =\n   new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n const outStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmStridedSlice(\n   xId, xStridesBytes, x.shape.length, beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n backend.disposeData(out.dataId);\n}\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
 http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n   'number', // input_id\n   'number', // reduce_size\n   'number', // dtype\n
    'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'sum', reductionAxes, input.shape.length);\n const [outShape, reduceShape]
 =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if

(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null /* void */, [\n 'number', // x_id\n 'array', // x_shape\n 'number', // x_shape.length\n 'array', // new_shape\n 'number', // new_shape.length\n 'number' // out_id\n]);\n}\n\nfunction tile(\n args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All

```
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n    xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n    xDtype: CppDType, k: number, sorted: boolean, outValuesId:
    number,\n    outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n    'number',  // xId\n    'array',   // x.shape\n    'number',  // x.shape.length\n    'number',  // x.dtype\n    'number',  // k\n    'bool',    // sorted\n    'number',  // outValuesId\n    'number',  // outIndicesId\n  ]);\n}\n\nexport const topk:\n    (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n        TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n          const {x} = inputs;\n          const {k, sorted} = attrs;\n\n          const xId = backend.dataIdMap.get(x.dataId).id;\n          const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n          const outputShape = x.shape.slice();\n          outputShape[outputShape.length - 1] = k;\n          const outValues = backend.makeOutput(outputShape, x.dtype);\n          const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n
          const outIndices = backend.makeOutput(outputShape, 'int32');\n          const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n          wasmTopK(\n              xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n              outValuesId, outIndicesId);\n\n          return [outValues, outIndices];\n        };\n\nexport const topKConfig: KernelConfig = {\n  kernelName: TopK,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n    imageId: number, transformsId: number, isBatchTransform: boolean,\n    batch: number, outHeight: number, outWidth: number, numChannels: number,\n    imageWidth: number, imageHeight: number, strides: Uint8Array,\n    stridesLength: number, interpolationModeId: number, fillModeId: number,\n    fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n    'number',  // imageId\n    'number',  // transformsId\n    'bool',    // isBatchTransform\n    'number',  // batch\n    'number',  // outHeight\n    'number',  // outWidth\n    'number',  // numChannels\n    'number',  // imageWidth\n    'number',  // imageHeight\n    'array',   // strides\n    'number',  // stridesLength\n    'number',  // interpolationModeId\n    'number',  // fillModeId\n    'number',  // fillValue\n    'number'   // outId\n  ]);\n}\n\nfunction transform(\n    args:\n        {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {image, transforms} = inputs;\n  const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n  const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n  const [outHeight, outWidth] =\n      outputShape != null ? outputShape : [imageHeight, imageWidth];\n  const outShape =\n      [batch, outHeight, outWidth,\n       numChannels] as
```

[number, number, number, number];\n const strides =\n   new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n   case 'constant':\n   fillModeId = 1;\n   break;\n   case 'reflect':\n   fillModeId = 2;\n   break;\n   case 'wrap':\n   fillModeId = 3;\n   break;\n   case 'nearest':\n   fillModeId = 4;\n   break;\n   default:\n   fillModeId = 1;\n   break;\n }\n\n wasmTransform(\n   imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n   outWidth, numChannels, imageWidth, imageHeight, strides,\n   image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n   outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nfunction unpack(\n   args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n   TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n   axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank = value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank; i++) {\n   if (i !== axis) {\n   outShape[outIndex++] = value.shape[i];\n   }\n }\n const outs: TensorInfo[] = new Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n for (let i = 0; i < outs.length; i++) {\n   begin[axis] = i;\n   outs[i] = slice({inputs: {x: value}, attrs: {begin, size}, backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype, shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n//
We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the library. A modular build would replace\n// the contents of this file and import only the kernels that are needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig} from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from './kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport {anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig} from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport {batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from './kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from './kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from './kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from './kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from './kernels/FloorDiv';\nimport {fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from './kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport {gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport {logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from './kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from './kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from './kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from

'./kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from
'./kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from
'./kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport
{softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from
'./kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from
'./kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from
'./kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from
'./kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from
'./kernels/Sum';\nimport
{tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from
'./kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from
'./kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from
'./kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst
kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n
argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n
ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n
cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n
depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n
flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n fusedMatMulConfig,\n
fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n
gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n
lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n
meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n
nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n
notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n
preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n
resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n
scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n
spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n
squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n
tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n
zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n
*/\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array
passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that
contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new
Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26,
11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-
feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n //
TODO(annxingyuan): Enable node support once this is resolved:\n //
https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n

// Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var

nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return

Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --

experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function

receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}var ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,EBADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EBUSY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,ENOTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERANGE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNATCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOANO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:128,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFUSED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOSTDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,EPROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,ENOTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:148,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:135};function _emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)return-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var mainThreadWoken=0;if(mainThreadWaitAddress==addr){var loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainThreadWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return

1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value \"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}function cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cancelThread!\";var pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var pthreadPoolSize=8;for(var i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var tb=_malloc(228);for(var i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRONMENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},threadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.length>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.store(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscripten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthread_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in PThread.pthreads){var pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThread.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeThreadData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(function(){delete PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorker

s.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=undefined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,onFinishedLoading){worker.onmessage=function(e){var
d=e[\"data\"];var
cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var
thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{console.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that thread no longer
exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThreadWork\"){_emscripten_main_thread_process_queued_calls()}else
if(cmd===\"spawnThread\"){spawnThread(e.data)}else
if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else
if(cmd===\"killThread\"){killThread(d[\"thread\"])}else
if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else
if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete
worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else
if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var
detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else
if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else
if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else
if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else
if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\":
\"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var
pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var
t=performance.now()+msecs;while(performance.now()<t){}}};function
establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function getNoExitRuntime(){return
noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return
wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function
___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var
_emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var
t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else

```
if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(1,1,func,arg)}function __emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessage({\"cmd\":\"processQueuedMainThreadWork\"})}else if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueue\"})}else{var pthread=PThread.pthreads[targetThreadId];var worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}return 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function _emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function _emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-28;if(!ENVIRONMENT_IS_WEB){var ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return 0;throw\"Atomics.wait returned an unexpected value \"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function
```

```
emscripten_realloc_buffer(size){try{wasmMemory.grow(size-
buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return
1}catch(e){}}function _emscripten_resize_heap(requestedSize){var
oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var
maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var
cutDown=1;cutDown<=4;cutDown*=2){var
overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize
+100663296);var
newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var
replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var
JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var
 i=JSEvents.eventHandlers.length-1;i>=0;--
i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListen
ers:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListene
rs);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence
,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in
arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var
call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,args
List)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList
});JSEvents.deferredCalls.sort(function(x,y){return
x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var
i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.d
eferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return
JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!J
SEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var
call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--
i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,event
TypeString){for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||event
TypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--
)}}},_removeHandler:function(i){var
h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);J
SEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var
 jsEventHandler=function
jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDef
erredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--
JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventH
andler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.e
ventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.e
ventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--
)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData)
{var stackTop=stackSave();var
varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs
+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThr
ead,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:f
unction(targetThread){switch(targetThread){case
```

1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";if(target==screen)return\"#screen\";return target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return cString}function _emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var stackTop=stackSave();var varargs=stackAlloc(12);var targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32()[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[varargs+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestore(stackTop)}function _emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=targetCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height)}function maybeCStringToJsString(cString){return cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function findEventTarget(target){target=maybeCStringToJsString(target);var domElement=specialHTMLTargets[target]||(typeof document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function findCanvasEventTarget(target){return findEventTarget(target)}function _emscripten_set_canvas_element_size_calling_thread(target,width,height){var canvas=findCanvasEventTarget(target);if(!canvas)return-4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prevViewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else if(canvas.canvasSharedPtr){var targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_on_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function _emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(2,1,target,width,height);return _emscripten_set_canvas_element_size_calling_thread(target,width,height)}function _emscripten_set_canvas_element_size(target,width,height){var canvas=findCanvasEventTarget(target);if(canvas){return _emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return _emscripten_set_canvas_element_size_main_thread(target,width,height)}}function _emscripten_set_current_thread_status(newStatus){}function _emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ext[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcount){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};

return
1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var
ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers
WEBGL\"](n,bufs)};return 1}}function
__webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_dra
w\"))}var
GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],cont
exts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:
function
recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var
ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return
ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var
len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-
1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return
source},createContext:function(canvas,webGLContextAttributes){var
ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var
handle=GL.registerContext(ctx,webGLContextAttributes);return
handle},registerContext:function(ctx,webGLContextAttributes){var
handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var
context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:
ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof
webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensions
ByDefault){GL.initExtensions(context)}return
handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx
=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(c
ontextHandle){return
GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[context
Handle])GL.currentContext=null;if(typeof
JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.co
ntexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GL
ctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:f
unction(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtension
sDone=true;var
GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_obj
ect(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"
EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var
exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.inde
xOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var
p=GL.programs[program];var
ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-
1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var
numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var
u=GLctx.getActiveUniform(p,i);var
name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-

1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var j=1;j<u.size;++j){var n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function _emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"premultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerformanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return 0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function _emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function _fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atom

ics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var
global_libc=_emscripten_get_global_libc();var
global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthr
ead=pthread;var
msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":thre
adParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthre
ad=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded
){worker.runPthread();delete worker.runPthread}}function
_pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current
environment does not support SharedArrayBuffer, pthreads are not available!\");return
6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var
error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return
_emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return
error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-
1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+
8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var
allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-
=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var
i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_p
tr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var
headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var
threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached
,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_P
THREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(thread
Params)}return
0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var
tb=_pthread_self();if(!tb)return;var
cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var
canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function
_emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKE
R)return;warnOnce(\"Blocking on the main thread is very dangerous, see
https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function
__emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread
pointer!\");return
ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread
\"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else
if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main
thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var
self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread
\"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return
ERRNO_CODES.ESRCH}var
detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread
\"+thread+\", which was already detached!\");return
ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var
threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var
threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[sta
tus>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PT
HREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return

0}if(!block){return
ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thread_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1)}}function
_pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function
_sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var
maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case
235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case
159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case
48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case
161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case
49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case
97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case
157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case
69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case
34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return
65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case
71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case
6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return
navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-
1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var
proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var
asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_canvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var asm=createWasm();var
___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var

_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var

_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var

```
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).appl
y(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(nu
ll,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,argume
nts)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arg
uments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,argum
ents)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).app
ly(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,argum
ents)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,a
rguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Mo
dule[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).app
ly(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWith
Offset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(nul
l,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arg
uments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra
\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).
apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).ap
ply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)
};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).a
pply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,argume
nts)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(n
ull,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_Squared
Difference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,argume
nts)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"as
m\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,argument
s)};var
```

_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=

Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var
calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromiseResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw
new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRuntime();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"]
= WasmBackendModuleThreadedSimd;\n","export const wasmWorkerContents = 'var Module={};function
threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function
threadAlert(){var text=Array.prototype.slice.call(arguments).join(\"
\");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var

err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var instance=new WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"]();Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self\"](),1);try{var result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else if(ex!=\"unwind\"){if(ex instanceof Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}else{Module[\"PThread\"].threadExit(-2);throw ex}}}}else if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else if(e.data.target===\"setimmediate\"){}else if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_process_queued_calls\"]()}}else{err(\"worker.js received unknown command \"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception: \"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n WasmBackendModule = WasmBackendModule || {};\n\n\nvar Module=typeof WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var

ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function

\"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){a

ddOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var

exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function _emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function _emscripten_get_heap_size(){return HEAPU8.length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};

var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Mod
ule[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads
_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=M
odule[\"asm\"][\"o\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"
asm\"][\"p\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(n
ull,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments
)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,argument
s)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,ar
guments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};
var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).app
ly(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,argument
s)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\
"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).ap
ply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Modul
e[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments
)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,argu
ments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]
=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).a
pply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=M
odule[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=M
odule[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)}

;var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"g

a\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var

_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun(

)}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}run();\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors, storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object; // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n super();\n this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs = util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values: backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id = this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size * util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n memoryOffset);\n }\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset, dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n }\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset + util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n }\n\n /**\n * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n * is released, false otherwise.\n * @param dataId\n * @oaram force Optional, remove the data regardless of refCount\n */\n

```
disposeData(dataId: DataId, force = false): boolean {\n    if (this.dataIdMap.has(dataId)) {\n      const data =
this.dataIdMap.get(dataId);\n      data.refCount--;\n      if (!force && data.refCount > 0) {\n        return false;\n
}\n\n      this.wasm._free(data.memoryOffset);\n      this.wasm.tfjs.disposeData(data.id);\n
this.dataIdMap.delete(dataId);\n    }\n    return true;\n  }\n\n  /** Return refCount of a `TensorData`. */\n
refCount(dataId: DataId): number {\n    if (this.dataIdMap.has(dataId)) {\n      const tensorData =
this.dataIdMap.get(dataId);\n
      return tensorData.refCount;\n    }\n    return 0;\n  }\n\n  incRef(dataId: DataId) {\n    const data =
this.dataIdMap.get(dataId);\n    if (data != null) {\n      data.refCount++;\n    }\n  }\n\n  floatPrecision(): 32 {\n
return 32;\n  }\n\n  // Returns the memory offset of a tensor. Useful for debugging and unit\n  // testing.\n
getMemoryOffset(dataId: DataId): number {\n    return this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n
dispose() {\n    this.wasm.tfjs.dispose();\n    if ('PThread' in this.wasm) {\n
this.wasm.PThread.terminateAllThreads();\n    }\n    this.wasm = null;\n  }\n\n  memory() {\n    return {unreliable:
false};\n  }\n\n  /**\n   * Make a tensor info for the output of an op. If `memoryOffset` is not\n   * present, this
method allocates memory on the WASM heap. If `memoryOffset`\n   * is present, the memory was allocated
elsewhere (in c++) and we just record\n   * the pointer where that memory lives.\n   */\n  makeOutput(shape:
 number[], dtype: DataType, memoryOffset?: number):\n      TensorInfo {\n    let dataId: {};\n    if (memoryOffset
== null) {\n      dataId = this.write(null /* values */, shape, dtype);\n    } else {\n      const id =
this.dataIdNextNumber++;\n      dataId = {id};\n      this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype,
refCount: 1});\n      const size = util.sizeFromShape(shape);\n      this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n    }\n    return {dataId, shape, dtype};\n  }\n\n  typedArrayFromHeap({shape, dtype, dataId}:
TensorInfo):\n      backend_util.TypedArray {\n    const buffer = this.wasm.HEAPU8.buffer;\n    const
{memoryOffset} = this.dataIdMap.get(dataId);\n    const size = util.sizeFromShape(shape);\n    switch (dtype) {\n
case 'float32':\n        return new Float32Array(buffer, memoryOffset, size);\n      case 'int32':\n        return new
Int32Array(buffer, memoryOffset, size);\n      case 'bool':\n        return new Uint8Array(buffer, memoryOffset,
 size);\n      default:\n        throw new Error(`Unknown dtype ${dtype}`);\n    }\n  }\n}\n\nfunction
createInstantiateWasmFunc(path: string) {\n  // this will be replace by rollup plugin patchWechatWebAssembly in\n
// minprogram's output.\n  // tslint:disable-next-line:no-any\n  return (imports: any, callback: any) => {\n
util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n      if (!response['ok']) {\n
imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n      response.arrayBuffer().then(binary => {\n
  WebAssembly.instantiate(binary, imports).then(output => {\n          callback(output.instance, output.module);\n
});\n      });\n    });\n    return {};\n  };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param
simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n *
@param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n
   simdSupported: boolean, threadsSupported: boolean,\n    wasmModuleFolder: string) {\n  if (wasmPath != null)
{\n    // If wasmPath is defined, the user has supplied a full path to\n    // the vanilla .wasm binary.\n    return
wasmPath;\n  }\n\n  let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n  if (simdSupported &&
threadsSupported) {\n    path = 'tfjs-backend-wasm-threaded-simd.wasm';\n  } else if (simdSupported) {\n    path =
'tfjs-backend-wasm-simd.wasm';\n  }\n\n  if (wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n
return wasmFileMap[path];\n    }\n  }\n\n  return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm
module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property
'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in
Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n  const
[simdSupported,
 threadsSupported] = await Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n
env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) =>
{\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function overrides the Emscripten
module locateFile utility.\n     * @param path The relative path to the file that needs to be loaded.\n     * @param
prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile = (path, prefix) => {\n
```

if (path.endsWith('.worker.js')) {\n const response = wasmWorkerContents;\n const blob = new Blob([response], {type: 'application/javascript'});\n return URL.createObjectURL(blob);\n }\n\n if (path.endsWith('.wasm')) {\n return getPathToWasmBinary(\n simdSupported as boolean,\n threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : prefix);\n }\n return prefix + path;\n
};\n\n // Use the instantiateWasm override when system fetch is not available.\n // Reference:\n // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n if (customFetch) {\n factoryConfig.instantiateWasm =\n createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : ''));\n }\n\n let initialized = false;\n factoryConfig.onAbort = () => {\n if (initialized) {\n // Emscripten already called console.warn so no need to double log.\n return;\n }\n if (initAborted) {\n // Emscripten calls `onAbort` twice, resulting in double error\n // messages.\n return;\n }\n initAborted = true;\n const rejectMsg =\n 'Make sure the server can serve the `.wasm` file relative to the ' +\n 'bundled
js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n reject({message: rejectMsg});\n };\n\n let wasm: Promise<BackendWasmModule>;\n // If `wasmPath` has been defined we must initialize the vanilla module.\n if (threadsSupported && simdSupported && wasmPath == null) {\n factoryConfig.mainScriptUrlOrBlob = new Blob(\n [`var WasmBackendModuleThreadedSimd = ` +\n wasmFactoryThreadedSimd.toString()],\n {type: 'text/javascript'});\n wasm = wasmFactoryThreadedSimd(factoryConfig);\n } else {\n // The wasmFactory works for both vanilla and SIMD binaries.\n wasm = wasmFactory(factoryConfig);\n }\n\n // The WASM module has been successfully created by the factory.\n // Any error will be caught by the onAbort callback defined above.\n wasm.then((module) => {\n initialized = true;\n initAborted = false;\n\n const voidReturnType: string
= null;\n // Using the tfjs namespace to avoid conflict with emscripten's API.\n module.tfjs = {\n init: module.cwrap('init', null, []),\n initWithThreadsCount:\n module.cwrap('init_with_threads_count', null, ['number']),\n getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n registerTensor: module.cwrap(\n 'register_tensor', null,\n [\n 'number', // id\n 'number', // size\n 'number', // memoryOffset\n]),\n disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n };\n\n resolve({wasm: module});\n });\n });\n}\n\nfunction typedArrayFromBuffer(\n buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer);\n case 'int32':\n return new Int32Array(buffer);\n
case 'bool':\n return new Uint8Array(buffer);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n}\n}\n\nconst wasmBinaryNames = [\n 'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport
function setWasmPath(path: string, usePlatformFetch = false): void {\n deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n ' will be removed in a future release.');\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n }\n wasmPath = path;\n customFetch =

usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n * 'tfjs-backend-wasm.wasm': 'renamed.wasm',\n * 'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n * 'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n * - (string) The path to the directory where the WASM binaries are located.\n * Note that this prefix will be used to load each binary (vanilla,\n * SIMD-enabled, threading-enabled, etc.).\n * - (object) Mapping from names of WASM binaries to custom\n * full paths specifying the locations of those binaries. This is useful if\n * your WASM binaries are not all located in the same directory, or if your\n * WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n usePlatformFetch = false): void {\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n wasmPathPrefix = prefixOrFileMap;\n } else {\n wasmFileMap = prefixOrFileMap;\n const missingPaths =\n wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n if (missingPaths.length > 0) {\n throw new Error(\n `There were no entries found for the following binaries: ` +\n `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n},\nWASM_PRIORITY);\n"],"names":["setup","wasmFunc","sliceImplCPU","concatImplCPU","supportsFullBroadcast","setupFunc","kernelFunc","rangeImplCPU","require$$0","require$$1","require$$2","global","require$$3","require$$4","wasmFactoryThreadedSimd","wasmFactory"],"mappings":";;;;;;;;;;;;;;;;;;;;;;AAAA;;;;;;;;;;;;;;;;AAiBA;AACA,IAAAY,QAAMX;AAAN,WAAAW,WAAAC,QAAAC,QAAAC,Q

KAAjB,iBAAiB;;AC3B7B;;;;;;;;;;;;;;;AAuBA,IAAI,eAKQ,CAAC;AAEb,SAAS,KAAK,CAAC,OAAoB;IACjC,eAAe,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,YAAY,EAAE,IAAI,aAAa;QAClE,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,gBAAgB,CAAC,IAAIzB;QAC7B,IAAI,CAAC,IAAI,GAAGA,IAAI,CAAC;IACnB,CAAC;IAED,gBAAgB,CAAC,SAAS,CAAC,QAAQ,GAAG;QACpC,OAAO,IAAI,CAAC,IAAI,CAAC;IACnB,CAAC;IAED,OAAO,gBAAgB,CAAC;AAC1B,CAAC,CAAC,EAAE,CAAC;AAEL,IAAI,eAAe,GAAG,CAAC,WAAW;IAChC,IAAI,eAAe,GAAG,MAAM,CAAC,cAAc;SACxC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,IAAI,UAAU,CAAC,UAAU,CAAC,EAAE,UAAU,CAAC,CAAC,CAAC,UAAU,CAAC,EAAE,UAAU,CAAC,CAAC,CAAC,MAAM

G,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAC/C,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAE/C,MAAM,UAAU,GAAG,KAAK,IAAI,IAAI,GAAG,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC;QACnD,MAAM,QAAQ,GAAG,YAAY,CAAC,0BAA0B,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;QAC3E,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,UAAU,CAAC,CAAC;;QAGrD,IAAI,IAAI,CAAC,aAAa,CAAC,QAAQ,CAAC,KAAK,CAAC,EAAE;YACtC,OAAO,GAAG,CAAC;SACZ;QAED,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;QAEpE,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;QAEtD

C,CAAC,KAAK,CAAC,EAAE;YACjB,UAAU,GAAG,KAAK,CAAC;SACpB;KACF;IACD,MAAM,QAAQ,GAAG,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,KAAK,EAAE,KAAK,CAAC,IAAI,CAAC,CAAC;IAC7D,MAAM,CAAC,GAAG;QACR,MAAM,EAAE,MAAM,CAAC,CAAC,CAAC,MAAM;QACvB,KAAK,EAAE,YAAY;QACnB,KAAK,EAAE,MAAM,CAAC,CAAC,CAAC,KAAK;KACtB,CAAC;IAEF,IAAI,UAAU,EAAE;QACd,MAAM,MAAM,GAAG,QAAQ,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM,CAAC,CAAC,CAAC,KAAK,GAAG,QAAQ,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,GAAG,QAAQ,CAAC,KAAK,CAAC,CAAC,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM

AAC;IAC/B,MAAM,EAAC,CAAC,EAAC,GAAG,MAAM,CAAC;IACnB,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAI,OAAO,GAAG,GAAG,CAAC;IAClB,IAAI,KAAK,GAAG,CAAC,CAAC;IAEd,MAAM,EAAC,UAAU,EAAE,IAAI,EAAE,YAAY,,EAAE,kBAAkB,EAAC,GACtD,uBAAuB,CAAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;IAE9C,IAAI,kBAAkB,EAAE;QACtB,MAAM,YAAY,,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,,CAAC,CAAC,EAAE;QAChE,jE,KAAK,GAAG,UAAU,CAAC;QACnB,nB,OAAO,GAAG,GAAG,YAAY,,CAAC;KACxB;IAED,MAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;IACrC,YAAY,,CAAC,0BAA0B,CAAC,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;IAChE,MAAM,CAAC,QAAQ,EAAE,MAAM,CAAC,QAAQ,EAAE,WAAW,CAAC,GAAC,zB,YAAY,,CAAC,yBAAyB,CAAC,KAAK,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;IAC9G,IAAC9D,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,CAAC,EAAE

G,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,KAAK,GAAG,EAAE;;;YAGxB,KAAK,GAAG,UAAU,CAAC;YACnB,OAAO,GAAG,YAAY,,CAAC;SACxB;KACF;IAED,MAAM,QAAQ,GAAG,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;IAC1C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,OAAO,,CAAC,CAAC,CAAC;IACrD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,,CAAC,GAAG,CAAC,MAAM,,CAAC,CAAC,EAAE,CAAC;IAC/C,MAAM,SAAS,,GAAG,CAAC,IAAI,,CAAC,aAAa,,CAAC,GAAG,CAAC,KAAK,,CAAC,CAAC;IACjD,MAAM,SAAS,,GAAG,CAAC,KAAK,,CAAC,IAAI,,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IACnC,MAAM,SAAS,,GAAG,CAAC,IAAI,,CAAC,IAAI,,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IACl

ACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,WAAW,CAAC,IAIpB;IACC,MAAM,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,CAAC,EAAE,CAAC,EAAE,CAAC,EAAC,GAAG,MAAM,CAAC;IACtB,MAAM,EAAC,UAAU,EAAE,UAAU,EAAC,GAAG,KAAK,CAAC;IAEvC,IAAI,CAAC,CAAC,KAAK,KAAK,SAAS,IAAI,CAAC,CAAC,KAAK,KAAK,SAAS,EAAE;QAClD,MAAM,IAAI,KAAK,CAAC,4DAA4D,CAAC,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,CAAC,KAAK

CA;AACA;AACA;AACA;AACA;AACA;AAEO,SAAS,UAAU,CAAC,MAAM,EAAE,QAAQ,EAAE,KAAK,EA
AE,YAAY,EAAE;AAClE,IAAI,MAAM,OAAO,GAAG,IAAI,CAAC,iBAAAiB,CAAC,KAAK,EAAE,IAAI,CAAC,
aAAa,CAAC,QAAQ,CAAC,CAAC,CAAC;AAChF,IAAI,IAAI,YAAY,IAAI,KAAK,KAAK,QAAQ,EAAE;AAC5
C;AACA,QAAQ,IAAI,MAAM,GAAG,CAAC,CAAC;AACvB,QAAQ,MAAM,CAAC,OAAO,CAAC,KAAK,IAA
I;AAChC,YAAY,MAAM,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC;AACzD,
YAAY,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,IAAI,EAAE,MAAM,CAAC,CAAC;AAC5C,YAAY,MAAM,
IAAI,IAAI,CAAC;AAC3B,SAAS,CAAC,CAAC;AACX,KAAK;AACL,SAAS;AACT,QAAQ,IAAI,SAAS,GAAG,
CAAC,CAAC;AAC1B,QAAQ,MAAM,CAAC,OAAO,CAAC,KAAK,IAAI;AAChC,YAAY,MAAM,WAAW,GA
AG,KAAK,KAAK,QAAQ;AAClD,gBAAgB,YAAY,CAAC,sBAAsB,CAAC,KAAK,CAAC,IAAI,CAAC;AAC/D,
gBAAgB,KAAK,CAAC,IAAI,CAAC;AAC3B,YAAY,IAAI,IAAI,GAAG,CAAC,CAAC;AACzB,YAAY,MAAM,WAAW,GAAG,IAAI,IAAI,GAAG,CAAC,CAAC;AAC7C,YAAY,IAAI,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,EAAE,GA
AG,EAAE;AAC3D,gBAAgB,MAAM,MAAM,GAAG,CAAC,CAAC;AACjC

EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,IAAI,EAAC,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IAE1D
,MAAM,CAAC,MAAM,EAAE,KAAK,CAAC,GAAG,UAAU,CAAC,gBAAgB,CAAC,CAAC,EAAE,KAAK,EA
AE,IAAI,CAAC,CAAC;IAEpE,MAAM,WAAW,GAAG,UAAU,CAAC,gBAAgB,CAAC,CAAC,CAAC,KAAK,E
AAE,MAAM,EAAE,KAAK,CAAC,CAAC;IACxE,MAAM,KAAK,GAAG,OAAO,CAAC,QAAQ,CAAC,CAAC,C
AAC,MAAM,CAAC,CAAC;IACzC,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,CAAC,
CAAC,KAAK,CAAC,CAAC;IAC/C,MAAM,QAAQ,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,CAAC,CAAC,
AAC,CAAC;IAC9C,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CA
AC,CAAC;IAElD,IAAI,WAAW,EAAE;QACf,MAAM,UAAU,GAAG,UAAU,CAAC,iBAAiB,CAAC,MAAM,EA
AE,QAAQ,CAAC,CAAC;QAElE,IAAI,CAAC,CAAC,KAAK,KAAK,QAAQ,EAAE;YACxB,OAAO,CAAC,WA
AW;gBACd,KAAsB;qBAClB,KAAK,CAAC,UAAU,EAAE,UAAU,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CA
AC,CAAC,CAAC;SACpE;aAAM;YACL,MAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,
CAAC;YAChD,OAAO,CAAC,GAAG,CACN,KAAoB;iBAChB,QAAQ,CAAC,UAAU,EAAE,UAAU,GAAG,IAA
I,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;SACxE;;QAED,OAAO,GAAG,CAAC,KAAK,CAAC;KAClB;;IAED,I
AAI,CAAC,CAAC,KAAK,KAAK,QAAQ,EAAE;QACxB,MAAM,GAAG,GAAG,GAAG,CAAC,KAAK,CAAC,CAAC,
MAAM,EAAE,KAAK,EAAE,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;QACjE,OAAO,CA
CjE,OAAO,CAAC,WAAW,GAAG,GAAG,CAAC,KAAK,CAAC,CAAC,QAAQ,CAAC,KAAK,CAAC,CAAC,
IAED,MAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,
kBAAkB,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC;IAChE,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC;IAC5B,IAAI,IAAI,KAAK,CAAC,CAAC,EAAE;QACf,MAAM,GAAG,GAAG,GAAG,CAAC,KAAK,CAAC,CAAC,EAAE,IAAI,CAAC,CAAC;QACjC,MAAM,GAAG,GAAG,GAAG,CAAC,KAAK,CAAC,IAAI,GAAG,CAAC,CAAC;QAC/B,OAAO,CAAC,WAAW,GAAG,GAAG,GAAG,GAAG,GAAG,GAAG,CAAC;KACtC;;IAED,OAAO,GAAG,CAAC,KAAK,CAAC;CAClB;;AAED,MAAM,UAAU,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,
CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,

C,CAAC;IAExB,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;Q
AClC,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;YAClC,KAA
K,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;gBAClC,MAAM,OAAO,
GAAG,CAAC,GAAG,QAAQ,GAAG,CAAC,GAAG,QAAQ,GAAG,CAAC,GAAG,QAAQ,GAAG,MAAM,CAAC
;gBACpE,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,QAAQ,CAAC,OAAO,EAAE,OAAO,GAAG,IAAI,CAAC,
CAAC,CAAC,CAAC,EAAE,SAAS,CAAC,CAAC;gBACnE,SAAS,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC;aACt
B;SACF;KACF;AACH,CAAC;AAEM,MAAM,WAAW,GAAiB;IACvC,UAAU,EAAE,KAAK;IACjB,WAAW,EA
AE,MAAM;IACnB,UAAU,EAAE,KAAyB;CACtC;;AChJD;;;;;;;;;;;;;;;AAyBA,SAAS,cAAc,CAAC,IAIvB;IACC,
MAAM,EAAC,MAAM,EAAE,KAAK,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,CAAC,
MAAM,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,CAAC,EAAC,CAAC,E
AAC,GAAG,MAAM,CAAC;IACnB,MAAM,EAAC,UAAU,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACjC,
MAAM,IAAI,GAAG,UAAU,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,CAAC,C
AAC,CAAC;IAEhD,MAAM,QAAQ,GAAG,YAAY,CAAC,WAAW,CAAC,CAAC,CAAC,KAAK,EAAE,UAAU,
EAAE,IAAI,CAAC,CAAC;IACrE,MAAM,QAAQ,GAAG,YAAY,CAAC,WAAW,CAAC,QAAQ,CAAC,MAAM,
EAAE,UAAU,CAAC,MAAM,CAAC,CAAC;IAC9E,MAAM,gBAAgB,GAAG,YAAY,CAAC,WAAW,CAAC,mBAAmB,CAAC,
CAAC,CAAC,KAAK,EAAE,UAAU,EAAE,IAAI,CAAC,CAAC;IAChE,MAAM,gBAAgB,GAAG,YAAY,CAAC,WAAW,CAAC,mB
AAmB,CAAC,KAAK,EAAE,UAAU,CAAC,MAAM,CAAC,CAAC;IAC/D,MAAM,SAAS,GAAG,YAAY,CAAC,WAAW,CAAC,gBAAgB,EAAE,KAAK,EAAE,UAAU,CAAC,MAAM,CAAC,CAAC;IAE1E,MAAM,OAAO,GAAG,CAAC,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,CAAC,CAAC,EAAE,KAAK,EAAE,OAAO,EAAE,KAAK,EAAE,KA
AK,EAAE,QAAQ,EAAE,KAAK,EAAE,CAAC,CAAC,EAAE,KAAK,EAAE,CAAC,CAAC,EAAE,KAAK,EAAE,CAAC,CAAC

AAK,CAAC,CAAC,CAAC,CAAC,CAAC;IAEtE,IAAI,QAAQ,GAAG,YAAY,CAAC,eAAe,CAAC,MAAM,CAAA
C,GAAG,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,EAAE,IAAI,CAAC,CAAC;;IAG5E,MAAM,OAAO,
GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,IAAI,IAAI,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,GA
AG,CAAC,CAAC,CAAC;IACpE,IAAI,OAAO,CAAC,MAAM,KAAK,CAAC,EAAE;QACxB,OAAO,QAAQ,CA
AC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,OAAO,CAAC,CAAC,CAAC,EAAC,EAAE,OAAO,EAAC,CAA
C,CAAC;KACrD;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,MAAM,CAAC,CA
AC,CAAC,CAAC,KAAK,CAAC,CAAC;IAE1D,IAAI,IAAI,CAAC,aAAa,CAAC,QAAQ,CAAC,KAAK,CAAC,E
AAE;QACtC,OAAO,GAAG,CAAC;KACZ;IAED,MAAM,MAAM,GAAG,OAAO,CAAC,GAAG,CAAC,CAAC,I
AAI,CAAC,CAAC,KAAK,CAAC,CAAC;IACzC,YAAY,CAAC,sBAAsB,CAAC,MAAM,EAAE,IAAI,CAAC,CA
AC;IAElD,IAAI,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,KAAK,QAAQ,EAAE;;;;;;;;QAQjC,MAAM,QAAQ,
GAAG,OAAO,CAAC,GAAG,CAAC,CAAC;YAC5B,MAAM,SAAS,GAAG,IAAI,CAAC,aAAa,CAAC,aAAa,CAAC,CAAC,C
AAC,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC;YAC1D,MAAM,KAAK,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,C
AAC,EAAE,SAAS,CAAC,CAAC;YAC9B,OAAO,OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,EAAC,CAAC,EAAE,CA
AC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,KAAK,EAAC,CAAC,CAAC;SAC3D,CAAC,CAAA
C;QAEH,MAAM,eAAe,GAAG,QAAQ,CAAC,GAAG,CAAC,CAAC;YACpC,OAAO,EAAC,IAAI,EAAE,OAAO,
CAAC,QAAQ,CAAC,MAAM,CAAC,EAAE,KAAK,EAAE,CAAC,CAAC,KAAK,EAAC,CAAC;SAC7C,CAAC;QAEF,MAAM,
WAAW,GAAG,YAAY,CAAC,sBAAsB,CAAC,OAAO,CAAC,CAAC;QAEnE,QAAQ,CAAC,OAAO,CAAC,CAAC,
CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,YAAY,CAAC;QAC/C,MAAM,YAAY,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,C
AAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC;QAChD,MAAM,OAAO,GAAG,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,C
ACT,eAAe,EAAE,QAAQ,EAAE,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,EAC1C,YAAY,CAAC,aAAa,CAAC;QAE9C,MAAM,aAAa,GACf,YAAY,CAAC,eAAe,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

EAAE,GAAG,EAAE,eAAe,EAAE,UAAU,EAAC,GAAG,KAAK,CAAC;IACrE,MAAM,WAAW,GAAG,YAAY,
CAAC,uBAAAuB,CAAC,UAAU,CAAC,CAAC;IACrE,MAAM,QAAAQ,GAAG,YAAY,CAAC,iBAAAiB,CAC1C,CA
Ac,CAAC,KAAK,EAAG,MAAmB,CAAC,KAAK,EAAE,OAAO,EAAE,SAAS,EACrE,GAAG,EAAE,eAAe,EAA
E,KAAK,EAAE,WAAW,CAAC,CAAC;IAE9C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,MA
AM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,MAAM,GAAG,QAAQ,CAAC,OAAO,CAAC
,GAAG,CAAC;IACpC,MAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;IACxC,MAAM,SAA
S,GAAG,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;IAC1C,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CA
AC,IAAI,CAAC;IACtC,MAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,MAAM,aAAa,
CAAC;IAC7C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,MAAM,WAAW,GAA
G,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;IAC1C,MAAM,cA
Ac,GAAG,QAAQ,CAAC,WAAW,CAAC;IAC5C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,KAA
K,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;IAE3D,IAAI,QAAQ,CAAC,UAAU,KAAK,cAAc,EAAE;QAC1C
,MAAM,IAAI,KAAK,CACX,mDAAmD;YACnD,GAAG,QAAQ,CAAC,UAAU,,+BAA+B,CAAC,CAAC;KAC5D
;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;I
AC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,
EAAE,CAAC;IACnD,UAAU,CACN,GAAG,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,C
AAC,KAAK,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,QAAQ,EAAE,YA
AY,EAC/D,WAAW,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAC5D,cAAc,EAA
E,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EACvE,cAAc,EAAE,KAAK,CAAC,CAAC;IAC3B,OAAO,G
AAG,CAAC;AACb,CAAC;AAEM,MAAM,YAAY,GAAiB;IACxC,UAAU,EAAE,MAAM;IAClB;AAqBA,IAAI,
uBAAQ8C,CAAC;AAEnD,SAASA,OAAK,CAAC,OAAOoB;IACjC,uBAAuB,GAAG,OAAO,CAAC,IAAI,CAAC,K
AAK,CAAC,mBAAmB,EAAE,IAAI,EAAE;QACtE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,
QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,
QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,
QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,
KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,mBAAmB,CAAC,IAI5B;IACC,MAAM,EAAC,OAAO,EAAE,
MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,OAAO,EAAE,EAAE,EAAE,EAAE,MAAM,EAAC,GAAG,M
AAM,CAAC;IAC5B,MAAM,EAAC,OAAO,EAAE,OAAO,EAAE,EAAE,GAAG,EAAE,UAAU,EAAE,eAAe,EAAE,UAAU,EAAC,GA
AG,KAAK,CAAC;IAEtE,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,uBAAuB,GAAG,OAAO,CAAC,IAAI,CAAC,u
BAAAuB,CAAC,UAAU,CAAC,CAAC,CAAC;IACrE,MAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,uBAAuB,GAAG,OAAO,CAAC,IAAI,CAAC,u
BAAAuB,CAAC,UAAU,CAAC,CAAC,CAAC;IAEp

M,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,IAAI,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,EAAE,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACjD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,
CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEzD,uBAAuB,CACnB,IAAI,EAAE,QAAQ,EAAE
,SAAS,EAAE,YAAY,EAAE,WAAW,EAAE,QAAQ,EAAE,OAAO,EACvE,UAAU,EAAE,SAAS,EAAE,QAAQ,E
AAE,WAAW,EAAE,YAAY,EAAE,WAAW,EACvE,MAAM,EAAE,OAAO,EAAE,KAAK,EAAE,KAAK,EAAE,
KAAK,EAAE,YAAY,EAAE,UAAU,EAC9D,UAAU,EAAE,cAAc,EAAE,YAAY,EAAE,UAAU,EAAE,UAAU,E
AChE,cAAc,EAAE,KAAK,CAAC,CAAC;IAC3B,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,yBAAyB,
GAAiB;IACrD,UAAU,EAAE,mBAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,EAAE,OAAK;IAChB,UAAU,EAAE,mBAAuC;CACpD;;AC/HD;;;;;;;;;;;;;;;;AAqBO,MAAM,SAAS,GAAiB,uBAAuB,CAAC,GAAG,CAAC,GAAG,CAAC;;ACrBnE;;;;;;;;;;;;;;;;AAoBO,MAAM,UAAU,GAAiB,uBAAuB,CAAC,IAAI,CAAC,GAAG,CAAC;;ACpBzE;;;;;;;;;;;;;;;;AAuBA;AACA,IAAK,mBAAGJ;AAHD,WAAK,mBAAmB;IACtB,qEAAY,CAAA;IACZ,mEAAW,CAAA;IACX,iBAAG,CAAA;AACP,CAAC,EAHW,mBAAmB,KAAnB,mBAAmB,QAG9B;AAED,MAAM,UAAU,GAAG,IAAI,GAAG,CAAC;IACvB,CAAC,mBAAmB,CAAC,EAAE,EAAE,mBAAmB,CAAC,EAAE,CAAC;IAChD,CAAC,mBAAmB,CAAC,GAAG,EAAE,mBAAmB,CAAC,GAAG,CAAC;IAClD,CAAC,mBAAmB,CAAC,GAAG,EAAE,mBAAmB,CAAC,GAAG,CAAC;CACrD,CAAC,CAAC;AAEH,MAAM,UAAU,gBAAgB,CAAC,IAAyB;IACtD,OAAO,UAAU,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,mBAAmB,CAAC,EAAE,CAAC;AACxD,CAAC;AAED

IAEzE,MAAM,WAAW,GAAG,OAAO,CAAC,UAAU,CAAC,SAAS,CAAC,KAAK,EAAE,SAAS,CAAC,KAAK,CAAC,CAAC;IACzE,MAAM,QAAQ,GAAG,SAAS,CAAC,KAAK,CAAC,YAAY,CAAC,CAAC;IAC/C,MAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/D,MAAM,aAAa,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnE,UAAU,CAAC,WAAW,EAAE,SAAS,CAAC,GAAG,CAAC,EAAE,OAAO,GAAG,CAAC,GAAG,CAAC,EAAE,QAAQ,EAAE,CzD,aAAa,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC;;IAG7C,IAAI,GAAG,GAAG,WAAW,CAAC;IAC1B,tB,IAAI,WAAW,KAAK,IAAI,EAAE;QACxB,MAAM,eAAe,GAAG,CAAC,CAAC,CAAC

EAAE,SAAS,EAAE,GAAG,EAAE,eAAe,EAAC,GAAG,KAAK,CAAC;IAEzD,MAAM,UAAU,GAAG,SAAS,IA
AI,IAAI,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,SAAS,CAAC;IAE1D,MAAM,QAAQ,GAAG,YAAY
,CAAC,iBAAiB,CAC1C,CAAc,CAAC,KAAK,EAAG,MAAmB,CAAC,KAAK,EAAE,OAAO,EACzD,UAAwC,E
AAE,GAAG,EAAE,eAAe,EAC/D,IAAI,iBAAiB,CAAC;IAE1B,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CA
AC;IAC3C,MAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,MAAM,GAAG,QAAQ,CAA
C,OAAO,CAAC,GAAG,CAAC;IACpC,MAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;IAC
xC,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;IAC1C,MAAM,OAAO,GAAG,QAAQ,C
AAC,OAAO,CAAC,IAAI,CAAC;IACtC,MAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,MAAM,aAAa
,GAAG,QAAQ,CAAC,aAAa,CAAC;IAC7C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,MAAA
M,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;IA
C1C,MAAM,cAAc,GAAG,QAAQ,CAAC,WAAW,CAAC;IAC5C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,C
AAC,IAAI,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;IAE3D,IAAI,QAAQ,CAAC,UAAU,KAAK,cAA
c,EAAE;QAC1C,MAAM,IAAI,KAAK,CACX,kEAAkE;YAClE,GAAG,QAAQ,CAAC,UAAU,+BAA+B,CAAC,C
AAC;KAC5D;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,C
AAC,CAAC;IAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,
CAAC,CAAC,EAAE,CAAC;IACnD,mBAAmB,CACf,GAAG,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,
EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,QA
AQ,EAAE,YAAY,EAC/D,WAAW,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAC
5D,cAAc,EAAE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EACvE,cAAc,EAAE,KAAK,CAAC,CAAC;IA
C3B,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,2BAA2B,GAAiB;IACvD,UAAU,EAAE,qBAAqB;IACj
C,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEA,OAAK;IAChB,UAAU,EAAE,eAAmC;CAChD;;AC7GD;;;;;;;;;;
;;;;;AAoBO,MAAM,SAAS,GAAiB,uBAAuB,CAAC,GAAG,CAAC;;ACpBnE;;;;;;;;;;;;;;;;AAoBA,MAAMI,uBAAq
B,GAAG,KAAK,CAAC;AAC7C,MAAM,WAAW,GACpB,wBAAwB,CAAC,KAAK,EAAEA,uBAAqB,EAAE,M
AAM,CAAC;;ACtBlE;;;;;;;;;;;;;;;;AAoBO,MAAM,SAAS,GAAiB,uBAAuB,CAAC,GAAG,EAAE,SAAS,CAAC;;A
CpB9E;;;;;;;;;;;;;;;;SAsBgB,UAAU,CAAC,IAI1B;IACC,MAAM,EAAC,MAAM,EAAE,KAAK,EAAE,OAAO,EA
AC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,KAAK,EAAC,GAAG,MAAM,CAAC;IACvB

WAAW,CAAC,GAAG,KAAK,CAAC,KAAK,CAAC;IAElE,iBAAiB,CACb,OAAO,EAAE,KAAK,EAAE,WAAW,EAAE,UAAU,EAAE,WAAW,EAAE,KAAK,CAAC,CAAC;IACjE,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,mBAAmB,GAAiB;IAC/C,UAAU,EAAE,aAAa;IACzB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,aAAiC;IAC7C,SAAS,EAAEA,OAAK;CACjB;;ACzDD;;;;;;;;;;;;;;;;AAmBO,MAAM,WAAW,GAAiB,uBAAuB,CAAC,KAAK,CAAC;;ACnBvE;;;;;;;;;;;;;;;;AAqBA,MAAMI,uBAAqB,GAAG,CAAC,CAAC,CAAC

AAC,OAAO,CAAC,IAAI,CAAC;IACtC,MAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;IAC/C,MAAM,aAAa
,GAAG,QAAQ,CAAC,aAAa,CAAC;IAC7C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;IAC3C,MAA
M,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;IACzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;IA
C1C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CA
AC;IAC3D,MAAM,SAAS,GAAG,QAAQ,CAAC,SAAS,CAAC;IACrC,MAAM,QAAQ,GAAG,QAAQ,CAAC,QA
AQ,CAAC;IACnC,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC;IAEjC,IAAI,UAAU,KAAK,MAAM,EA
AE;QACzB,MAAM,IAAI,KAAK,CACX,wDAAwD;YACxD,GAAG,UAAU,uBAAuB,CAAC,CAAC;KAC3C;IA
ED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IAC
7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EA
AE,CAAC;IACnD,MAAM,wBAAwB,GAAG,sBAAsB,IAAI,IAAI;QAC3D,CAAC;QACD,OAAO,CAAC,SAAS,
CAAC,GAAG,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAE5D,eAAe,CACX,GAAG,EAAE,
SAAS,EAAE,QAAQ,EAAE,OAAO,EAAE,QAAQ,EAAE,YAAY,EAAE,WAAW,EACtE,MAAM,EAAE,MAAM,
EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAAE,cAAc,EACvE,aAAa,EAAE,YAAY,EAAE,WAA
W,EAAE,aAAa,EAAE,cAAc,EACvE,eAAe,EAAE,wBAAwB,EAAE,cAAc,IAAI,CAAC,EAAE,KAAK,CAAC,C
AAC;IAE3E,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,iBAAiB,GAAiC;IAC7C,UAAU,EAAE,WA
W;IACvB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,EAAE,EAAE,OAAK;IAChB,UAAU,EAAE,WAA+B;CAC5C;;ACzJ
D;;;;;;;;;;;;;;;;AAuBA,IAAI,wBAAQ,CAAC;AAEb,SAASA,OAAK,CAAC,OAAoB;IACjC,wBAAwB;QACpB,OA
AO,CAAC,IAAI,CAAC,KAAK,CAAC,oBAAoB,EAAE,IAAI,aAAa;YACxD,QAAQ;YACR,QAAQ;YACR,QAA
Q;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YAC
R,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAA
Q;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR,QAAQ;SACT,CAAC,CAAC;AACT,CAAC
;AAED,SAAS,oBAAoB,CAAC,IAI7B;IACC,MAAM,EAAC,MAAM,EAAE,MAAM,EAAE,KAAK,EAAE,GAAG,
IAAI,CAAC;IACtC,MAAM,EAAC,MAAM,EAAC,CAAC,EAAE,MAAM,EAAE,IAAI,EAAC,sBAAsB,EAAC,GAAG,C
AAC;IACzD,MAAM,EACJ,OAAO,EACP,EACE,OAAO,EACP,GAAG,EACH,SAAS,EACT,UAAU,EACV,eAAe,EACf,UAAU,EACV,
cAAc,EACf,GAAG,KAAK,CAAC;IAEV,MAAM,QAAQ,GAAG,YAAY,CAAC,iBAAiB,CAC7C,KAAK,CAAC,QAAQ,
EAAG,KAAK,CAAC,KAAK,EAAG,KAAK,CAAC,GAAG,CAAC,CAAC;IAE9C,MAAM,EAAC,MAAM,EAAE,MAAM,EAAC,GAAG,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,EAAC,MAAM,EAAE,
CAAC,EAAE,MAAM,EAAC,CAAC,CAAC,EAAC,MAAM,EAAE,CAAC,EAAC,CAAC;IAEhD,MAAM,IAAI,GAAG,IAAI,UAAU,CAAC,MAAM,GAAG,MAAM,CAAC,CAAC;IAC7C,IAAI,CAAC,GAAG,CAAC,MAAM,
EAAE,CAAC,CAAC;IACf,IAAI,CAAC,GAAG,CAAC,MAAM,EAAE,MAAM,CAAC,MAAM,CAAC,CAAC;IAEhC,MAAM,MAAM,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,CAAC;IACtC,MAAM,CAAC,GAAG,CAAC,MAAM,
EAAE,CAAC,CAAC;IACf,MAAM,CAAC,GAAG,CAAC,MAAM,EAAE,MAAM,CAAC,MAAM,CAAC,CAAC;IAEhC

S,CAAC,CAAC;IAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAA
M,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,wBAAwB,GAAG,sBAAsB,IAAI,IAAI;QAC3D,CAAC;QACD,O
AAO,CAAC,SAAS,CAAC,GAAG,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAE5D,wBAAw
B,CACpB,GAAG,EAAE,SAAS,EAAE,QAAQ,EAAE,OAAO,EAAE,QAAQ,EAAE,YAAY,EAAE,WAW,EACt
E,MAAM,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAAE,cAAc,EACvE,aAAa,E
AAE,YAAY,EAAE,WAAW,EAAE,aAAa,EAAE,cAAc,EACvE,eAAe,EAAE,wBAAwB,EAAE,cAAc,IAAI,CAA
C,EAAE,KAAK,CAAC,CAAC;IAE3E,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,0BAA0B,GAAiB;IA
CtD,UAAU,EAAE,oBAAoB;IAChC,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEA,OAAK;IAChB,UAAU,EAAA
E,oBAAwC;CACrD;;AC1JD;;;;;;;;;;;;;;;AAuBA,IAAI,YAGI,CAAC;AAET,SASA,OAAK,CAAC,OAAoB;IACj
C,YAAY,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,QAAQ,EAAE,IAAI,WAW;QACzD,QAAQ;QACR,
QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;KACT,CAAC,
CAAC;AACL,CAAC;AAED,SAAS,QAAQ,CAAC,IAAoD;IAEpE,MAAM,EAAC,OAAO,EAAE,MAAM,EAAC,
GAAG,IAAI,WAAW,EAAE,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC;IAC3C,OAAO,IAAI,UAAU,CAAC,MAAM,
CAAC,WAAW,EAAE,SAAS,EAAE,MAAM,CAAC,UAAU,EAAE,MAAM,CAAC,CAAC;AAC3E,CAAC;AAED,SAAS,
QAAQ,CAAC,IAAgB,EAAE,IAAY;IAC9C,MAAM,EAAC,MAAM,EAAC,GAAG,IAAI,CAAC;IACtB,MAAM,GAAG,
GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,WAAW,EAAE,IAAI,EAAE,MAAM,CAAC,UAAU,GAAG,IAAI,CAAC,
CAAC;IAC5E,OAAO,GAAG,CAAC,MAAM,CAAC;AACpB,CAAC;AAED,SAAS,QAAQ,CAAC,IAAgB,EAAE,IAAY,
EAAE,MAAc;IAC9D,MAAM,GAAG,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,WAAW,EAAE,IAAI,EAAE,MAAM,
CAAC,CAAC;IAC7D,GAAG,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC;AAChB,CAAC;AAED,SAAS,QAAQ,CAAC,IAAgB,
EAAE,IAAY;IAC9C,MAAM,GAAG,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,WAAW,EAAE,IAAI,EAAE,CAAC,
CAAC;IAC5D,OAAO,GAAG,CAAC,CAAC,CAAC;AACf,CAAC;AAED,SAAS,QAAQ,CAAC,IAAgB,EAAE,IAAY,
EAAE,KAAa;IAC7D,MAAM,GAAG,GAAG,IAAI,UAAU,CAAC,MAAM,CAAC,WAAW,EAAE,IAAI,EAAE,CAAC,
CAAC;IAC5D,GAAG,CAAC,CAAC,CAAC,GAAG,KAAK,CAAC;AACl

a,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACrC,OAAO,GAAG,CAAC;KACZ;IACD,MAAM
,WAAW,GAAG,QAAQ,CAAC,KAAK,CAAC,MAAM,GAAG,CAAC,CAAC;IAE9C,MAAM,KAAK,GAAG,OA
AO,CAAC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC;IACrD,MAAM,GAAG,GAAG,KA
AK,CAAC,EAAE,CAAC;IAErB,MAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CA
AC,MAAM,CAAC,CAAC;IAC/D,MAAM,SAAS,GAAG,WAAW,CAAC,EAAE,CAAC;IAEjC,MAAM,KAAK,G
AAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,M
AAM,aAAa,GAAG,IAAI,UAAU,CAChC,IAAI,UAAU,CAAC,IAAI,CAAC,cAAc,CAAC,QAAQ,CAAC,KAAK,C
AAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAChE,MAAM,eAAe,GAAG,IAAI,UAAU,CAClC,IAAI,UAAU,CAAC,IAAI
C,IAAI,CAAC,cAAc,CAAC,kBAAkB,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAEpE,UAAU,CACN,GAAG
,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,aAAa,EAAE,WAAW,EAAE,SAAS,EAC7D,SAAS,C
AAC,SAAS,EAAE,eAAe,EAAE,KAAK,CAAC,CAAC;IAEjD,OAAO,CAAC,WAAW,CAAC,QAAQ,CAAC,MA
AM,CAAC,CAAC;IACrC,OAAO,CAAC,WAAW,CAAC,YAAY,CAAC,MAAM,CAAC,CAAC;;IAGzC,GAAG,C
AAC,KAAK,GAAG,SAAS,CAAC,WAAW,CAAC;IAClC,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,c
AAc,GAAiB;IAC1C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEA,OAAK;IAChB
,UAAU,EAAE,QA4B;CACzC;;ACzHD;;;;;;;;;;;;;;;AAoBA,MAAMI,uBAAqB,GAAG,KAAK,CAAC;AAC7D,MAAM,aAAa,GACtB,uBAAqB,CAAC;;ACvBzB,MAAM,eAAe,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC

,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAClD,IAAI,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAA
K,CAAC,KAAK,CAAC,EAAE;QACzC,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAA
G,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACnD,OAAO,CAAC,OAAO,EAAE,QAAQ,CAAC,CAAC,CAA
C,KAAK,CAAC,EAAE,UAAU,EAAE,KAAK,CAAC,CAAC;KACxD;IAED,IAAI,kBAAkB,EAAE;;QAEtB,OAA
O,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KCxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,MAA
M,QAAQ,GAAG,YAAY,CAAC,oBAAoB,CAAC,GAAG,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC;QAC5E,G
AAG,CAAC,KAAK,GAAG,QAAQ,CAAC;KCtB;IAED,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,S
AAS,GAAiB;IACrC,UAAU,EAAE,GAAG;IACf,WAAW,EAAE,MAAM;IACnB,SAAS,EAAEA,EAAOA;IAChB,UAAU,EAAE,GAAAuB;CACpC;;ACrF;;;;;;;;;;;;;;;AAmBA,MAAMI,uBAAQ,GAAG,CAAC,KAAK,CAAC,CAAC;AAEzB,MAAM,aAAa,GAAG,CAAC,KAAK,CAAC,CAAC;AAE9B

AAC,CAAC;SAC/C;KACF;IAED,YAAY,CAAC,0BAA0B,CACnC,MAAM,EAAE,aAAa,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;IAC/C,MAAM,CAAC,QAAQ,EAAE,WAAW,CAAC,GACzB,YAAY,CAAC,yBAAAyB,CAAC,KAAK,CAAC,KAAK,EAAE,aAAa,CAAC,CAAC;IACvE,MAAM,UAAU,GAAG,IAAI,CAAC,aAAa,CAAC,WAAW,CAAC,CAAC;IACnD,IAAI,WAAW,GAAG,KAAK,CAAC,KAAK,CAAC;IACxB,IAAI,KAAK,CAAC,KAAK,KAAK,KAAK,SAAS,EAAE;QAC7B,WAAW;YACP,IAAI,CAAC,EAAC,OAAO,EAAE,MAAM,EAAE,EAAC,CAAC,EAAE,KAAK,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,SAAS,EAAC,CAAC,CAAC;QACnE,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;KACxD;IAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;IACpD,IAAI,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACzC,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QAC/D,OAAO

CAAC,mBAAmB,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,gBAAgB,CA
AC;IACvE,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CA
AC,EAAE,CAAC;IAC/C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KA
AK,CAAC,CAAC;IAClD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAA
C,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC;IAEnE,MAAM,eAAe,GAAG,QAAQ,GAAG,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC;IAC9D,MAAM,gBAAgB,GAAG,QAAQ,GAAG,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC;IAC/D,MAAM,gBAAgB,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC

,gBAAgB,CAAC,CAAC;IAElE,MAAM,kBAAkB,GAAG,OAAO,CAAC,UAAU,CAAC,EAAE,EAAE,OAAO,EA
AE,aAAa,CAAC,CAAC;IAE1E,OAAO,CAAC,qBAAqB,EAAE,kBAAkB,CAAC,CAAC;AACrD,CAAC;AAEM,
MAAM,yBAAyB,GAAiB;IACrD,UAAU,EAAE,mBAAmB;IAC/B,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE
D,OAAK;IAChB,UAAU,EAAE,mBAAuC;CACpD;;AC9ED;;;;;;;;;;;;;;;;AAuBA,IAAIC,UAGU,CAAC;AAEf,SAA
SD,OAAK,CAAC,OAAoB;IACjCC,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CACzB,mBAAmB,EACnB
B,QAAQ;IACR;QACE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT
,CAAC,CAAC;AACT,CAAC;AAED,SAASK,YAAU,CAAC,IAAInB;IACC,MAAM,EAAC,OAAO,EAAE,MAAM,
EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,YAAY,EAAE,aAAa,EAAE,cAAc,EAAE,YAA
Y,EAAC,GAAG,KAAK,CAAC;IAC1E,MAAM,EAAC,KAAK,EAAE,MAAM,EAAC,MAAM,EAAC,GAAG,MAAM,CAAC;IAE
/B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,EA
AE,CAAC;IACvD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,EAAE,CAAC;IAEzD,MAAM,SAAS,GAAGL,UAAQ,CAACtB,OAAO,EAAE,QAAQ,EAAE,aAAa,E
AAE,YAAY,EAAE,cAAc,EAC9D,YAAY,CAAC,CAAC;IAElB,MAAM,EAAC,gBAAgB,EAAE,YAAY,EAAE,eA
Ae,EAAE,aAAa,EAAC,GAClE,iBAAiB,CAAC,OAAO,EAAE,SAAS,CAAC,CAAC;;;IAI1C,OAAO,CAAC,IAA
I,CAAC,KAAK,CAAC,aAAa,CAAC,CAAC;IAElC,MAAM,qBAAqB,GACvB,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,YAAY,CAAC,OAAO,EAAE,gBAAgB,CAAC,CAAC,EAAE,OAAO,EAAE,gBAAgB,CAAC,CAAC;IAAE,MAAM,oBAAoB,GACtH,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,YAAY,CAAC,MAAM,EAAE,eAAe,CAAC,CAAC,EAAE,MAAM,EAAE,eAAe,CAAC,CAAC;IAAE,MAAM,UAAU,GAAG,qBAAqB,CAAC,MAAM,CAAC,oBAAoB,CAAC;IAEnJ,MAAM,SAAS,GAAG,IAAIM,WAAS,CAAC,UAAU,CAAC,MAAM,CAAC;IAClD,KAAK,IAAIC,GAAC,GAAG,CAAC,EAAEA,GAAC,GAAG,UAAU,CAAC,MAAM,EAAEA,GAAC,EAAE,EAAE;MAC1C,SAAS,CAACA,GAAC,CAAC,GAAG,UAAU,CAAC,UAAU,CAACA,GAAC,CAAC;IAC3C;IAED,OAAO,SAAS,CAAC,MAAM;EACzB;;AAED,SAASC,YAAU,CAAC,IAAIC,YAAU,EAAE,IAAIC,YAAU,EAAE,IAAIC,YAAU,EAAE

AAE,KAAK,EAAE,EAAC,GAAG,EAAE,IAAI,EAAC,EAAC,CAAC,CAAC;QAClE,uBAAuB,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC;QACxC,OAAO,SAAS,CAAC;KAClB,CAAC,CAAC;IAEH,MAAM,MAAM,GAAG,MAAM,CAAC,EAAC,MAAM,EAAE,eAAe,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,IAAI,EAAC,EAAC,CAAC,CAAC;IAEzE,uBAAuB,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,,CAAC,CAAC,CAAC;IAEpE,MAAM,MAAM,CAAC,OAAO,,MAAM,CAAC;AAChB,uBAAuB,CAAC,CAAC;AAEzB,MAAM,MAAM,UAAU,GAAG,GAAG,EAAE,IAAI,EAAE,IAAI;IAChB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,IAAI,EAAE,IAAI,wBAAC;CAC1C;;;;;;;;;;;;;;;;AAyBA,IAAI,SAAG6C,CAAC;AAEld,SAASA,OAAK,GAAG,OAAO,CAAC,CAAC,CAAC

AQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,IAAI,CAAC,IAIb;IACC,MAAM,EAAC,O
AAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,IAAI,EAAE,QAAQ,EAA
C,GAAG,KAAK,CAAC;IAC/B,MAAM,EAAC,CAAC,EAAC,GAAG,MAAM,CAAC;IACnB,MAAM,GAAG,GA
AG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,IAAI,
OAAO,GAAG,GAAG,CAAC;IAClB,IAAI,KAAK,GAAG,CAAC,CAAC;IAEd,MAAM,EAAC,UAAU,EAAE,IAA
I,EAAE,YAAY,EAAE,kBAAkB,EAAC,GACtD,uBAAuB,CAAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAA
C;IAE9C,IAAI,aAAa,GAAG,IAAI,CAAC;IACzB,IAAI,kBAAkB,EAAE;QACtB,MAAM,YAAY,GAAG,OAAO,,C
AAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,,KA
AK,GAAG,EAAE;;;YAGxB,KAAK,GAAG,UAAU,CAAC;YACnB,OAAO,GAAG,YAAY,,CAAC;YACvB,aAAa,
GAAG,YAAY,,CAAC,gBAAgB,CACzC,aAAa,CAAC,MAAM,,EAAE,KAAK,,CAAC,KAAK,,CAAC,MAAM,,CAA
C,CAAC;SAC/C;KACF;IAED,YAAY,,CAAC,0BAA0B,CACnC,MAAM,,EAAE,aAAa,,EAAE,KAAK,,CAAC,KAA
K,,CAAC,MAAM,,CAAC,CAAC;IAC/C,MAAM,,CAAC,QAAQ,,EAAE,WAAW,,CAAC,GACzB,YAAY,,CAAC,yB
AAyB,,CAAC,KAAK,,CAAC,KAAK,,EAAE,aAAa,,CAAC,CAAC;IACvE,MAAM,,UAAU,,GAAG,IAAI,,CAAC,aA
Aa,,CAAC,WAAW,,CAAC,CAAC;IAEnD,MAAM,,GAAG,,GAAG,,OAAO,,CAAC,UAAU,,CAAC,QAAQ,,EAAE,K
AAK,,CAAC,KAAK,,CAAC,CAAC;IACtD,IAAI,,IAAI,,CAAC,aAAa,,CAAC,KAAK,,CAAC,KAAK,,CAAC,KAAK,,
CAAC,EAAE;QACzC,MAAM,,KAAK,,GAAG,,OAAO,,CAAC,SAAS,,CAAC,GAAG,,CAAC,GAAG,,CAAC,MAAM
,,CAAC,CAAC,,EAAE,,CAAC;QACnD,QAAQ,,CAAC,OAAO,,EAAE,,UAAU,,EAAE,QAAQ,,CAAC,GAAG,,CAAC,
KAAK,,CAAC,EAAE,,KAAK,,CAAC,CAAC,;KAC3D;IAED,IAAI,kBAAkB,EAAE;;QAEtB,OAAO,,CAAC,WAA
W,,CAAC,UAAU,,CAAC,MAAM,,CAAC,CAAC;KACxC;IAED,IAAI,QAAQ,EAAE;;QAEZ,MAAM,QAAQ,GAA
G,YAAY,,CAAC,oBAAoB,,CAAC,GAAG,,CAAC,KAAK,,EAAE,YAAY,,CAAC,CAAC;QAC5E,GAAG,,CAAC,KA
AK,,GAAG,,QAAQ,,CAAC;KACtB;IAED,OAAO,GAAG,,CAAC;AACb,CAAC;AAEM,MAAM,UAAU,GAAiB;IA
CtC,UAAU,,EAAE,IAAI;IAChB,WAAW,,EAAE,MAAM;IACnB,SAAS,,EAAEA,OAAK;IAChB,UAAU,,EAAE,IA
AwB;CACrC;;ACjGD;;;;;;;;;;;;;;;;AAsBO,MAAM,KAAK,GACd,CAAC,IAA+C,MAAM,,EAAC,OAAO,,E
AAE,KAAK,,EAAC,GAAG,,IAAI,,CAAC;IAC9B,MAAM,,EAAC,KAAK,,EAAE,IAAI,,EAAE,IAAI,,EAAE,KAAK,,
EAAC,GAAG,,KAAK,,CAAC,KAAK,,CAAC;IAC/C,MAAM,,GAAG,,GAAG,,GAAGO,SAAY,,CAAC,UAAU,,CAAC,
MAAM,,CAAC,CAAC,,EAAE,,CAAC;IAC/C,MAAM,,EAAC,KAAK,,EAAE,IAAI,,EAAE,IAAI,,EAAE,KAAK,,E
AAE,KAAK,,EAAC,GAAG,,KAAK,,CAAC,KAAK,,CAAC;IAC/C,MAAM,,GAAG,,GAAG,,GAAGO,SAAY,,CAAC,UAAU,,CAAC,
MAAM,,CAAC,CAAC,,EAAE,,CAAC;IAC/C,MAAM,,EAAC,KAAK,,EAAE,IAAI,,EAAE,IAAI,,EAAE,KAAK,,E
AAE,KAAK,,CAAC,KAAK,,CAAC

AS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,kBAAkB,CACd,GAAG,EAAE,KAAK,EAAE,SAAS,EAAE,QAAQ,EAAE,WAAW,EAAE,SAAS,EAAE,QAAQ,EACjE,YAAY,GAAG,CAAC,GAAG,CAAC,EAAE,gBAAgB,GAAG,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,CAAC;IAE3D,IAAI,UAAU,IAAI,IAAI,EAAE;QACtB,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC;KACxC;IAED,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,oBAAoB,GAAiB;IAChD,UAAU,EAAE,cAAc;IAC1B,WAAW,EAAE,MAAM;IACnB,SAAS,EAAE,EAAE,OAAK;IAChB,UAAU,EAAE,cAAc;CAC/C;;ACxFD;;;;;;;;;;;;;;;;AAwBA,IAAI,WAE8C,CAAC;AAEnD,SAASA,OAAK,CAAC,OAAO,oBAAiC;IACjC,WAAW,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,OAAO,EAAE,IAAI,EAAE;QAAC,OAAO;KAAC,CAAC,CAAC;IAC3E,OAAO,WAAW,CAAC;AACrB;AAEA,SAAS,OAAO,CAAC,OAAO,EAAE,IAAI;IAC5B,IAAI,CAAC,OAAO,GAAG,OAAO,CAAC;IACvB,IAAI,CAAC,IAAI,GAAG,IAAI,CAAC;AACnB;AAEA,SAAS,OAAO,CAAC,GAAG,EAAE,KAAK;IACzB,IAAI,KAAK,KAAK,IAAI,IAAI,KAAK,KAAK,SAAS,EAAE;QACzC,MAAM,IAAI,SAAS,CAAC,GAAG,GAAG,kBAAkB,CAAC,CAAC;KAC/C;AACH;AAEA,SAAS,QAAQ,CAAC,GAAG,EAAE,KAAK;IAC1B,IAAI,KAAK,KAAK,IAAI,IAAI,KAAK,KAAK,SAAS,EAAE;QACzC,MAAM,IAAI,SAAS,CAAC,GAAG,GAAG,mBAAmB,CAAC,CAAC;KAChD

QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,SAAS,CACd,IAC0E;IAE5E,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,OAAO,EAAE,OAAO,EAAC,GAAG,MAAM,CAAC;IAClC,MAAM,EAAC,KAAK,EAAC,GAAG,KAAK,CAAC;IAEtB,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,OAAO,CAAC,KAAK,CAAC,CAAC;IACrD,IAAI,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,EAAE;QACnC,OAAO,GAAG,CAAC;KACZ;IAED,MAAM,EAAC,SAAS,EAAE,UAAU,EAAE,SAAS,EAAE,OAAO,EAAE,UAAU,EAAC,GACzD,YAAY,CAAC,eAAe,CAAC,OAAO,EAAE,OAAO,EAAE,KAAK,CAAC;IAE1D,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,KAAK,EAAE,OAAO,CAAC,KAAK,CAAC,CAAC;IAEpD

CAAC,CAAC,EAAE,CAAC;IACpD,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK
,EAAE,MAAM,CAAC,KAAK,CAAC,CAAC;IAC3D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG
,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,MAAM,QAAQ,GAAG,MAAM,CAAC,KAA
K,CAAC,GAAG,CAAC,CAAC;IACnC,MAAM,KAAK,GAAG,IAAI,CAAC,aAAa,CAAC,MAAM,CAAC,KAAK,
CAAC,GAAG,QAAQ,CAAC;;IAG1D,IAAI,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CA
AC,EAAE;QACvC,OAAO,GAAG,CAAC;KCZ;IAEDA,UAAQ,CAAC,GAAG,EAAE,KAAK,EAAE,QAAQ,EA
AE,KAAK,CAAC,CAAC;IACtC,OAAO,GAAG,CAAC;AACb,CAAC;AAEM,MAAM,aAAa,GAAiB;IACzC,UA
AU,EAAE,OAAO;IACnB,WAAW,EAAE,MAAM;IACnB,SAAS,EAAED,OAAK;IAChB,UAAU,EAAE,OAA2B;
CACxC;;AC1DD;;;;;;;;;;;;;;;AAyBA,SAAS,cAAc,CAAC,IAAIvB;IACC,MAAM,EAAC,MAAM,EAAE,OAAO,,EA
AE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,CAAC,EAAC,GAAG,MAAM,CAAC;IACnB,MAAM,EAAC,UAAU,,EAAE,QAAQ,,EAAC,GAAG,KAAK,CAAC;IAErC,MAAM,EAAC,GAAG,IAAI,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAC,GAAG,IAAI,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC
,CAAC;IAC3D,gBAAgB,CAAC,IAAI,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC;IAEp

ET,SAASJ,OAAK,CAAC,OAAoB;IACjC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,EAAE,IAAI,WAAW;QACjD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,IAAI,CACT,IAAkE;IAEpE,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,KAAK,EAAC,GAAG,CAAC,CAAC,CAAC,EAAC,GAAG,EAAC,GAAG,KAAK,CAAC,CAAC,CAAC

SJ,OAAK,CAAC,OAAoB;IACjC,OAAO,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,EAAE,IAAI,
WAAW;QAC/C,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,
SAAS,GAAG,CAAC,IAAgE;IAE3E,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,C
AAC;IACtC,MAAM,EAAC,IAAI,EAAE,QAAQ,EAAC,GAAG,KAAK,CAAC;IAC/B,MAAM,EAAC,CAAC,EA
AC,GAAG,MAAM,CAAC;IACnB,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CA
AC,MAAM,CAAC,CAAC,EAAE,CAAC;IC/C,IAAI,OAAO,GAAG,GAAG,CAAC;IClB,IAAI,KAAK,GAAG,
CAAC,CAAC;IAEd,MAAM,EAAC,UAAU,EAAE,IAAI,EAAE,YAAY,EAAE,kBAAkB,EAAC,GACtD,uBAAuB,
CAAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;IAE9C,IAAI,aAAa,GAAG,IAAI,CAAC,KAAK,CAAC;IAClB,IAAI,kB
AAkB,EAAE;QACtB,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,
CAAC,CAAC,EAAE,CAAC;QACjE,IAAI,YAAY,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,gBAAgB,CACzC,aAAa,MAAM,EAAE,KAAK,CAAC,CAAC,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC;IAEnE,MAAM,EAAC,IAAI,EAAE,QAAQ,EAAC,GAAG,KAAK,CAAC;IAC/B,MAAM,EAAC,CAAC,EAAE,CAAC,EAAC,GAAG,IAAI,CAAC;IACpB,MAAM,EAAC,CAAC,EAAE,CAAC,EAAC,GAAG,IAAI,CAAC;IAEpB

AG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/C,MAAM,WAAW,GAAG,IAAI,UAAU,CA
AC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC;IACnE,MAAM,WAAW,GA
AG,CAAC,CAAC,KAAK,CAAC,KAAK,EAAE,CAAC;IACpC,WAAW,CAAC,WAAW,CAAC,MAAM,GAAG,C
AAC,CAAC,GAAG,CAAC,CAAC;IACxC,MAAM,SAAS,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,C
AAC,CAAC,KAAK,CAAC,CAAC;IAC3D,MAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,S
AAS,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAC/D,MAAM,UAAU,GAAG,OAAO,CAAC,UAAU,CAAC,W
AAW,EAAE,OAAO,CAAC,CAAC;IAC5D,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,U
AAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEjE,QAAQ,CACJ,CAAC,KAAK,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,EAAE,MAAM,EA
C9D,WAAW,EAAE,YAAY,CAAC,CAAC;IAE/B,OAAO,CAAC,SAAS,EAAE,UAAU,CAAC,CAAC;AACjC,CA
AC,CAAC;AAEH,MAAM,UAAU,GAAiB;IACtC,UAAU,EAAE,IAAI;IAChB,WAAW,EAAE,MAAM;IACnB,SA
AS,EAAEA,OAAK;IAChB,UAAU,EAAE,IAAwB;CACrC;;ACnED;;;;;;;;;;;;;;;AAqBA,IAAI,aAKyC,CAAC;AAE
9C,SAASA,OAAK,CAAC,OAAoB;IACjC,aAAa,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,SAAS,EAAE
,IAAI,WAAW;QAC3D,QAAQ;QACR,QAAQ;QACR,MAAM;QACN,QAAQ;QACR,QAAQ;QACR,QAAQ;QAC
R,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAA
Q;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,SAAS,CACd,IAC0E;IAE5E,MAAM,EAAC,
OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,KAAK,EAAE,UAAU,E
AAC,GAAG,MAAM,CAAC;IACnC,MAAM,EAAC,aAAa,EAAE,QAAQ,EAAE,SAAS,EAAE,WAAW,EAAC,G
AAG,KAAK,CAAC;IAEhE,MAAM,CAAC,KAAK,EAAE,WAAW,EAAE,UAAU,EAAE,WAAW,CAAC,GAAG,
KAAK,CAAC,KAAK,CAAC;IAClE,MAAM,CAAC,SAAS,EAAE,QAAQ,CAAC,GAAG,CAAC,GACvB,IAAI,IAAI,G
AAG,WAAW,GAAG,CAAC,WAAW,EAAE,UAAU,CAAC,CAAC;IAClE,MAAM,QAAQ,GACV,CAAC,KAAK,EAAE,MAAM,QAAQ,GACtB,GACC,CAAC,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,UAAU,CAAC,GAAG,
EAAC,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,UAAU,CAAC,CAAC;IAE1D,MAAM,CAAC,KAAK,EAAE,MAAM,CAAC,GAAG,QAAQ,CAAC,KAAK,CAAC,CAAC;IAExC,MAAM,CAAC,
KAAK,EAAE,MAAM,CAAC,GAAG,QAAQ,CAAC,KAAK,CAAC,CAAC;IAExC,MAAM,CAAC,

AK,EAAE,CAAC;IACjC,IAAI,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC;IACf,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,IAAI,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;QACpC,KAAK,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC;QAChB,IAAI,CAAC,CAAC,CAAC,GAAG,KAAK,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,EAAE,KAAK,EAAE,EAAE,KAAK,EAAE,EAAE,KAAK,EAAE,IAAI,EAAE,EAAE,OAAO,EAAE,CAAC,CAAC,CAAC;KACtE;IACD,OAAO,IAAI,CAAC,GAAG,CAAC,CAAC,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,QAAQ,EAAE,CAAC,CAAC,CAAC;AAC3E,CAAC;AAEM,IAAI,CAAC,GAAG,CAAC,CAAC,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,YAAY,EAAE,GAAG,EAAE,IAAI,CAAC,GAAG,CAAC,CAAC,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK

AAC,CAAC,OAAO,MAAM,CAAC,SAAS,iBAAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,MAAM,CAAC,SAAS,iBAAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,SAAS,iBAAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,IAAI,MAAM,CAAC,OAAO,6BAA6B,GAAG,WAAW,CAAC,6BAA6B,CAAC,EAAE,CAAC,IAAI,mBAAmB,CAAC,kBAAkB,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,mBAAmB,CAAC,OAAO,CAAC,kBAAkB,CAAC,OAAM,CAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,IAAI,GAAG,CAAC,IAAI,GAAG,IAAI,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,CAAC,GAAG,EAAC,CAAC,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,WAAW,CAAC,gBAAgB,CAAC,IAAI,KAAK,CAAC,SAAS,MAAM,CAAC,OAAO,CAAC ,CAAC,MAAM,OAAO,CAAC,CAAC,IAAI,kBAAkB,CAAC,KAAK,CAAC,IAAI,qBAAqB,CAAC,KAAK,CAAC,IAAI,mBAAmB,CAAC,KAAK,CAAC,IAAI,oBAAoB,CAAC,KAAK,CAAC,kBAAkB,CAAC,OAAO,MAAM, GAAG,QAAQ,CAAC,qBAAqB,CAAC,OAAO,aAAa,GAAG,UAAU,CAAC,mBAAmB,CAAC,OAAO,OAAO,GA AG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,CAAC,IAA I,GAAG,QAAQ,CAAC,oBAAoB,CAAC,CAAC,kBAAkB,EAAE,CAAC,mBAAmB,EAAE,CAAC,qBAAqB,CAA C,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,EAAE,KAK,CAAC,GAAG,sBAAsB,CAAC,CAAC, MAAM,CAAC,MAAM,CAAC,QAAQ,EAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,SAAS,UAAU,CAAC,IA AI,CAAC,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,YAAY,CAAC,CA AC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,eAAe,CAAC,IAAI,KAK,KAK,CAAC,SAAS,CAAC,UAAU,CA AgB,IAAI,MAAM,CAAC,IAAI,QAAQ,CAAC,GAAG,mBAAmB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC, eAAe,CAACQ,IAAe,CAAC,OAAO,CAAC,eAAe,CAAC,CAAC,IAAG,CAAC,KAAI,CAAC,eAAe,CAAC,SAAS, CAAC,IAAG,CAAC,KAK,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,IAAI, MAAM,CAAC,MAAM,CAACC,EAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CAAC,QAAQ,CAACD,IAAe,CAAC,QAAQ, CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAAC,CAAC, QAAQ,CAAC,MAAM,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,Q AAQ,CAAC,CAAC,IAAI,GAAG,CAAC,KAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,GAA G,CAAC,MAAM,CAAC,CAAC,GAAG,EAAE,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG ,CAAC,MAAM,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,GAAG,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,MAA M,CAAC,CAAC,CAAC,WAAW,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OA AO,CAAC,KAK,CAAC,GAAG,EAAE,CAAC,UAAU,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,KAK,CA AC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,mBAAmB,CAAC,SAAS,EAAE,CAAC,CAAC,GA AG,EAAE,EAAE,YAAY,UAAU,CAAC,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,CAAC,OAAO,CAA C,IAAI,CAAC,CAAC,oBAAoB,CAAC,KAK,CAAC,KAK,CAAC,SAAS,MAAM,CAAC,CAAC,CAAC,OA O,CAAC,MAAM,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAU,CAA C,OAAM,4BAA4B,CAAC,CAAC,IAAI,iBAAiB,CAAC,GAAG,CAAC,iBAAiB,CAACE,EAAE,MAAM, CAAC,CAAC,CAAC,OAAO,CAAC,KAK,CAAC,yGAAyG,CAAC,CAAC,MAAM,CAAC,CAACF,EAAE,CAAC AC,MAAM,CAAC,iBAAiB,CAAC,OAAM,CAAC,KK,CAAC,GAAG,CAAC,KK,CAAC,MAAM,CAAC,CAAC,GAAG,EAAE,CAAC,IAAI,EAAE,WAAW,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC

,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,QAAQ,CAAA
C,KAAI,CAAC,KAAK,GAAG,OAAO,QAAQ,GAAG,WAAW,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,eAAe,
CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,CAAC,GAAG,OAAO,UAAU,KAAK,WAAW,IAAI,UAAU,CAAC,CA
AC,eAAe,CAAC,WAAU,CAAC,GAAG,eAAe,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC
,eAAe,CAAC,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,eAAe,CAAC,WAAW,CAAC,GAAG,CAAC,CAAC,C
AAC,EAAC,CAAC,KAAI,CAAC,eAAe,CAAC,GAAE,CAAC,GAAG,mBAAmB,CAAC,CAAC,KAK,CAAC,S
AAS,UAAU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAACF,EAAa,
CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CACD,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAW,CAAC,
CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAc,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,IAAI,C
AAC,MAAM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CA
AC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,GAA
G,CAAC,IAAI,UAAU,CAAC,GAAG,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO
,GAAG,EAAC,CAAC,KAAI,CAAC,KAAK,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAc,
CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,IAAI,CAA
C,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,YAAY,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,UAU,CAA
C,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAA
C,GAAG,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,IAAI,CAAC,I
AAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,CAAC,SAS,
GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAc,CAAC,GAAG,CAAC,IAAI
,CAAC,KAK,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CA
AC,MAAM,CAAC,UAU,CAAC,GAAG,GAAG,CAAC,MAAM,EAAE,GAAG,EAAE,GAAG,CAAC,MAAM,E
AAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,M
AAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,IAAI,CA
AC,IAAI,EAAC,EAAC,CAAqD,CAAO,GAAG,mBAAmB,CAAC,CAAC,GAAG,OAAO,WAW,GAAG,WAW
,CAAC,CAACG,cAAM,CAAC,WAW,CAACC,UAAqB,CAAC,YAW,CAAC,CAAC,IAAI,GAAG,CAAC,MA
AM,CAAC,OAAO,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,
CAAC,MAAM,CAAC,UAU,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAA
I,GAAG,IAAI,eAAe,CAAC,CAAC,GAAG,eAAe,CAAC,cAc,CAAC,GAAG,CAAC,CAAC,MAAM,CA
AC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAAG,MAM,
CAAC,WAW,CAAC,CAAC,UAU,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,GAAG,MAM,CAAC,aAA
a,CAAC,CAAC,WAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAM,CAAC,MAM,CAAC,CAA
C,KAK,CAAC,MAM,CAAC,MAM,CAAC,CAAC,SAS,QAAQ,CAAC,IAAI,CAAC,CAAC,GAG,CAAC,
QAAQ,CAAC,KAK,CAAC,QAAQ,CAAC,KAK,CAAC,EAAE,CAAC,GAG,CAAC,QAAQ,CAAC,KAK,C
AAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,KAK,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,GAG,CAAC,
IAAI,EAAC,CAAC,CAAmH,IAAI,UAU,CAAC,GAG,MAM,CAAC,YAY,CAAC,CAAC,UU,CAAC,M
AAM,CAAC,YAY,CAAC,CAAC,IAAI,aAa,CAAC,MAM,CAAC,eAAe,CAAC,EAE,IAAI,CAAC,GAG,
OAO,WAW,GAG,QAQ,CAAC,CAAC,KAK,CAAC,iCAAiC,EAAC,CAAC,IAAI,UU,CAAC,IAAI,U
AU,CAAC,IAAI,KAK,CAAC,KAK,CAAgB,SAS,MAM,CAAC,SAS,CAAC,IAAI,CAAC,CAAC,GAA
G,CAAC,SAS,CAAC,CAAC,KAK,CAAC,oBAAoB,CAAC,IAAI,EAAC,CAAC,CAAC,SAS,QAQ,CAAC,
KAK,CAAC,CAAC,IAAI,IAAI,CAAC,MAM,CAAC,GAG,CAAC,KAK,CAAC,CAAC,MAM,CAAC,IA
AI,CAAC,+BAA+B,CAAC,KAK,CAAC,4BAA4B,CAAC,CAAC,OAO,IAAI,CAAC,SAS,KAK,CAAC,KA
AK,CAAC,UU,CAAC,QQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,GAG,CAAC,CAAC,QQ,C
AAC,SAS,GAG,CAAC,CAAC,IAAI,GAG,CAAC,CAAC,CAAC,GAG,GAG,GAG,IAAI,EAAE,GAG,
GAG,SAS,EAAE,GAG,GAG,CAAC,CAAC,CAAC,IAAI,GAG,CAAC,CAAC,GAG,CAAC,MAM,EA
AE,CAAC,EAAE,CAAC,CAAC,GAG,CAAC,UU,CAAC,GAG,CAAC,CAAC,YAY,CAAC,GAG,CAA
C,GAG,CAAC,GAG,EAAC,CAAC,OAO,GAG,CAAC,CAAC,OAO,CAAC,SAS,GAG,CAAC,CAAC,
IAI,GAG,CAAC,UU,CAAC,GAG,CAAC,MAM,CAAC,CAAC,kBAAkB,CAAC,GAG,CAAC,GAG,
CAAC,CAAC,OAO,GAG,CAAC,CAAC,CAAC,SAS,kBAAkB,CAAC,GAG,CAAC,UU,

GAAG,QAAQ,CAAC,OAAO,YAAY,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,SAAS,CAAC,OAAO,
OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,KAAK,CAAC,CA
AC,IAAI,KAAK,CAAC,EAAE,CAAC,IAAI,KAAK,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,IAAI,IAAI
,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,SAA
S,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,SAAS,CAAC,CAAC,GAAG,KAAK,
GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,IA
AI,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,E
AAC,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,
GAAG,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,YAAY,CAAC,KAA
K,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,
CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAAE,CAAC,IAAI,WAAW,CAAC,QAAQ,CAAC,KAAK,CAAC,S
AAS,IAAI,CAAC,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,UAAU,GAAG,
QAAQ,CAAC,GAAG,UAAU,EAAE,WAAW,EAAE,CAAC,IAAI,CAAC,CAAC,OAAO,QAAQ,CAAC,KAAK,C
AAC,CAAC,OAAO,UAAU,CAAC,OAAO,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,SAAc,CA
AC,CAAC,CAAC,SAAS,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,IAAI,MAAM,CAAC,
GAAG,CAAC,cAAc,CAAC,IAAI,GAAG,CAAC,EAAE,CAAC,MAAM,EAAE,GAAG,EAAE,MAAM,CAAC,CA
AC,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,OAAO,G
AAG,CAAC,GAAG,EAAE,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CA
AC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,C
AAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,C
AAC,CAAC,EAAE,CAAC,EAAE,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC
,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CA
AC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,GAAG,EAAE,CAAC,CAAC,GAAE,
CAAC,KAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,EAAE,CAAC,EAAE,EAAE,EAAE,CAA
C,EAAE,EAAE,CAAC,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,GAAE,CAAC,GAAG,EAAE,CAAC,K
AAK,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,EAAE,EAAC,CAAC,KAAI,CAAC,IAAI,EAA
E,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,KAAK,CAAC,EAAE,EAAE,
EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,YAAY,CA
AC,GAAG,CAAC,cAAc,CAAC,CAAC,OAAO,GAAG,CAAC,iBAAiB,CAAC,gBAAgB,EAAE,CAAC,GAAG,C
AAC,cAAc,CAAC,CAAC,EAAE,CAAC,SAAS,iBAAiB,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,eAAe
,CAAC,CAAC,GAAG,EAAE,eAAe,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,QAAQ,CAAC,MA
AM,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,C
AAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAA
C,UAAU,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC,I
AAI,EAAE,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,EAAE,CAA
C,CAAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,KAAI,CAAC,GAAG,CAAC,EAAE,GAAG,CA
AC,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,EAAC,CA
AC,KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAA
M,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,E
AAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,CA
AC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GA
AG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,
CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,GAAE,CAAC,KAI,
CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,IAAI,MAAM,EAAE,CAAC,CA
AC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,
CAAC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,
CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,GAAE,CAAC,GAE,
CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CAAC,QAAQ,CAAC,SAAS,Y

AAY,CAAC,GAAG,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,OAAO,iBAAiB,CAAC,GAAG,CAAC,gBAAgB,EAAE,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,SAAS,eAAe,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,EAAE,GAAG,CAAC,EAAE,GAAG,CAAC,KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,GAAG,EAAE,CAAC,CAAC,KAAK,GAAG,EAAE,EAAC,CAAC,OAAO,GAAG,CAAC,SAAS,kBAAkB,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,gBAAgB,EAAE,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,GAAG,C,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,CAAC,CAAC,SAAQ,CAAC,OAAO,C,CAAC,CAAC,IAAI,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,OAAO,CAAC,MAAM,C,CAAC,OAAO,CAAC,OAAO,CAAC,OAAO,CAAC,SAAS,0BAA0B,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAAG,EAAE,CAAC,CAAC,IAAI ,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,EAAE,QAAQ,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,QAAQ,EAAE,CAAC,KAAK,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,EAAE,CAAC,KAAK,CAAC,UAAU,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,KAAK,CAAC,UAAU,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,CAAC,GAAG,EAAE,UAAU,CAAC,MAAM,YAAY,iBAAiB,CAAC,CAAC,CAAC,GAAG,CAAC,6NAA6N,CAAC,CAAC,GAAG,CAAC,mBAAmB,CAAC,CAAC,OAAO,CAAC,GAAG,CAAC,mHAAmH,EAAE,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,CAAC,CAAC,MAAM,CAAC,UAAU,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,UAAU,0B,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,aAAa,CAAC,EAAE,CAAC,sBAAsB,GAAG,CAAC,sBAAsB,CAAC,UAAU,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,UAAU,CAAC,kBAAkB,GAAG,CAAC,CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,GAAG,CAAC,sBAAsB,CAAC,OAAO,GAAG,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC ,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,WAAW

G,qBAAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBAAqB,CAAC,qBAAqB,CAAC,IAAI,CAAC,QAAQ,GAAE,CA
AC,CAAC,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,E
AAE,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAA
M,CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,CAAC,KAAK,CAAC,sBAAs
B,CAAC,CAAC,IAAI,KAAK,EAAE,KAAK,CAAC,CAAC,IAAI,EAAE,EAAE,CAAC,GAAG,CAAC,IAAI,CAA
C,CAAC,KAAK,CAAC,IAAI,CAAc,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,8CAA8C,CAAC,IAAI,CAAC,CAA
C,IAAI,WAAW,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,MAAM,CAA
C,CAAC,SAAS,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CAAC,SAAS,CAAC,UAAU
,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,GAA
G,CAAC,CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OAAO,SAAS,C
AAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa,CAAC,SAAS,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,C
AAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,cAAc,CAAC,sCAAsC,CAAC,GAAG,CAA
C,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CAAC,UAAU,CAAC,cAAc,EAAC,CAAC,SAAS,SAAS,CAA
C,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,IAAI,EAAE,cAAc,EAAE,UAAU,CAAC,CAAC,OAAO,IAAI,UAA
U,CAAC,UAAU,CAAC,CAAC,GAAG,UAAU,CAAC,CAAC,OAAO,UAAU,CAAC,IAAI,CAAC,CAAC,KAAI,C
AAC,MAAK,iDAAiD,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,KAAK,CAAC,GAAG,EAAC,CAAC,CAAC,
SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,CAAC,GA
AG,OAAO,KAAK,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC
,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,GAA
G,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,MAAK,sCAAsC,CAAC,cAAc,CAAC,GAAG,CAAC,OAO,
QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,cA
Ac,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,GAAG,SAAS,CAAC,CAAC,OAAO,IAAI,OAAO,CAAC,SAAS,O
AAO,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,SAAS,QAAQ,CAAC,CAAC,OAAO,CAAC,IAAI
,UAAU,CAAC,QAAQ,CAAC,EAAC,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAO,
OAAO,CAAC,OAAO,EAAE,CAAC,IAAI,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,cAAc,CAAC,CAAC,CAA
C,SAAS,UAAU,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,SAAS,eAAe
,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,CAAC,
UAAU,CAAC,MAAM,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,IAAI,gBAAgB,CAAC,OAAO,CAAC,aAA
,CAAC,MAAM,CAAC,OAAO,CAAC,aAAa,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,OAAO,CAAC,s
BAAsB,CAAC,CAAC,CAAC,UAAU,CAAC,GAAG,CAAC,EAAE,gBAAgB,CAAC,mBAAmB,CAAmB,EAAC,
CAAC,EAAC,CAAC,EAAC,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,gBAAgB,CAAmB,EAAC,CA
AC,SAAS,yBAAyB,CAAC,MAAM,CAAC,CAAC,eAAe,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,CAAC,MAAM,C
AAC,QAAQ,CAAC,EAAC,CAAC,SAAS,sBAAsB,CAAC,QAAQ,CAAC,CAAC,OAAO,gBAAgB,EAAE,CAAC,
IAAI,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,IAAI,CAAC,C
AAC,CAAC,IAAI,CAAC,QAAQ,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,yCAAyC,CAAC,M
AAM,CAAC,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,
CAAC,UAAU,EAAE,OAAO,WAAW,CAAC,oBAAoB,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,
EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,OAAO,KAAK,GAAG,UAAU,CAAC,CAAC,OAAO,KAAK,CA
AC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,I
AAI,MAAM,CAAC,WAAW,CAAC,oBAAoB,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,MAAM,CAAC,I
AAI,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,iCAAiC,CAAC,MAAM,CAAC,CAAC,
GAAG,CAAC,2CAA2C,CAAC,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,CA
AC,KAAI,CAAC,OAAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,CAAC,
CAAC,CAAC,GAAG,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,IAAI,CAAC,eAAe,CA
AC,CAAC,OAAO,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,qDAAqD,CAAC,CAAC,CAAC,CAAC,C
AAC,OAAO,KAAK,CAAC,CAAC,gBAAgB,EAAE,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,OAAM,EAA
E,CAAC,IAAI,UAAU,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,MAAK,WAAW,CAAC,CAAC,KAAK,CAAC

,SAAS,EAAE,CAAC,EAAE,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,kCAAkC,CAAC,EAAE,CAAC,EAAE,
EAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,SAAS,cAAc,EAAE,CAAC,OAAO,CAAC,WAAW,GA
AE,CAAC,SAAS,oBAAoB,CAAC,SAAS,CAAC,CAAC,MAAM,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,CA
AC,IAAI,QAAQ,CAAC,SAAS,CAAC,KAAK,EAAE,CAAC,GAAG,OAAO,QAAQ,EAAE,UAAU,CAAC,CAAC,
QAAQ,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,GAAG,OAA
O,IAAI,GAAG,QAAQ,CAAC,CAAC,GAAG,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,CAAC,SAAS,CAAC,G
AAG,CAAC,IAAI,CAAC,GAAE,CAAC,KAAI,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,QAAQ,
CAAC,GAAG,EAAC,CAAC,CAAC,KAAI,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,IAAI
,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,CAAC,KAAK,CAAC,EAAE,C
AAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,GAAG,CAAC,EA
AE,CAAC,KAAK,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,OAAO,CAAC,EAAE,CAAC,KAAK,CAA
C,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,WAW,CAAC,CAAC,CAAC,MA
AM,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CA
AC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EA
AE,CAAC,OAAO,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CA
AC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,KAA
K,CAAC,EAAE,CAAC,MAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAK,CAAC,EAAE,CAAC
,MAM,CAAC,EAAE,CAAC,KAK,CAAC,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,MAM,CAAC,EAAE,C
AAC,MAM,CAAC,EAAE,CAAC,KAK,CAAC,EAAE,CAAC,MAM,CAAC,GAG,CAAC,QAQ,CAAC,G
AG,CAAC,MAM,CAAC,GAG,CAAC,MAM,CAAC,GAG,CAAC,MAM,CAAC,GAG,CAAC,OAO,
CAAC,GAG,CAAC,MAM,CAAC,GAG,CAAC,MAM,CAAC,GAG,CAAC,OAO,CAAC,EAE,CAAC,
MAM,CAAC,EAE,CAAC,KAK,CAAC,GG,CAAC,KAK,CAAC,GG,CAAC,MAM,CAAC,GG,CAAC,
CAAC,MAM,CAAC,GG,CAAC,OAO,CAAC,GG,CAAC,OAO,CAAC,GG,CAAC,SAS,CAAC,
EAE,CAAC,MAM,CAAC,GG,CAAC,MAM,CAAC,GG,CAAC,OAO,CAAC,GG,CAAC,KK,
CAAC,GG,CAAC,KK,CAAC,GG,CAAC,MAM,CAAC,GG,CAAC,MAM,CAAC,GG,CAAC
,OAO,CAAC,GG,CAAC,OAO,CAAC,EE,CAAC,IAI,CAAC,GG,CAAC,MAM,CAAC,GG,C
AAC,KK,CAAC,GG,CAAC,MAM,CAAC,EE,CAAC,SS,CAAC,EE,CAAC,OAO,CAAC,GA
AG,CAAC,OAO,CAAC,CAC,CAAC,QQ,CAAC,GG,CAAC,MAM,CAAC,GG,CAAC,OAO,CA
AC,GG,CAAC,OAO,CAAC,GG,CAAC,OAO,CAAC,GG,CAAC,OA
AO,CAAC,GG,CAAC,QQ,CAAC,GG,CAAC,MAM,CAAC,EE,CAAC,SS,CAAC,EE,CAA
C,YAY,CAAC,EE,CAAC,KK,CAAC,EE,CAAC,UU,CAAC,GG,CAAC,YY,CAAC,GG,
CAAC,UU,CAAC,EE,CAAC,OO,CAAC,EE,CAAC,YY,CAAC,CAC,CAAC,UU,CAAC,E
AE,CAAC,QQ,CAAC,EE,CAAC,WW,CAAC,EE,CAAC,SS,CAAC,GG,CAAC,YY,CA
AC,EE,CAAC,UU,CAAC,CAC,CAAC,YY,CAAC,EE,CAAC,WW,CAAC,EE,CAAC,QAA
Q,CAAC,EE,CAAC,SS,CAAC,EE,CAAC,SS,CAAC,GG,CAAC,YY,CAAC,EE,CAAC,W
AW,CAAC,EE,CAAC,QQ,CAAC,CAC,CAAC,YY,CAAC,EE,CAAC,QQ,CAAC,EE,CA
AC,eAe,CAAC,EE,CAAC,eAe,CAAC,GG,CAAC,aAa,CAAC,CAC,CAAC,SS,CAAC,EE,CA
AC,OO,CAAC,EE,CAAC,QQ,CAAC,EE,CAAC,YY,CAAC,GG,CAAC,MM,CAAC,GA
AG,CAAC,MM,CAAC,EE,CAAC,MM,CAAC,EE,CAAC,OO,CAAC,GG,CAAC,SS,CA
AC,GG,CAAC,MM,CAAC,EE,CAAC,SS,CAAC,EE,CAAC,SS,CAAC,EE,CAAC,eAe,
CAAC,EE,CAAC,UU,CAAC,EE,CAAC,QQ,CAAC,GG,CAAC,CC,SS,sBBAsB,CAAC,I
AI,CAAC,KK,CAAC,CC,GG,II,EE,CAAC,EE,II,CAAC,gBBAgB,EE,CAAC,MA
M,EE,II,CAAC,CC,EE,CAAC,EE,KK,CAAC,CC,CC,OAM,CAAC,EE,CAAC,G
AG,KK,EE,CAAC,CC,OO,CAAC,CC,GG,KK,EE,UU,CAAC,KK,CAAC,QA
AQ,CAAC,II,qBBAqB,CAAC,OO,CAAC,II,CAAC,iBBAiB,EE,CAAC,8BB8B,EE,CAAC,CA
AC,CAAC,II,eAe,CAAC,CAC,CAAC,GG,qBBAqB,EE,II,CAAC,CC,II,UU,CAAC,O
AO,CAAC,eAe,CAAC,iBBAiB,EE,CAAC,8BB8B,EE,CAAC,CC,qBBAqB,CAAC,CAC,CAC,
CAAC,GG,UU,EE,qBBAqB,CAAC,CAC,EE,KK,CAAC,eAe,CAAC,CAC,CAC,GG,

KAAK,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,iB
AAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,GAAG,GAAG,EAAE,CAAC,CAAC,OAA
O,GAAG,CAAC,eAAe,CAAC,MAAK,8CAA8C,CAAC,GAAG,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,s
BAAsB,CAAC,SAAS,UAAU,CAAC,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAK,oFAAoF,CAAC,GA
AG,CAAC,WAAW,CAAC,MAAK,iDAAiD,CAAC,iBAAiB,EAAE,CAAC,WAAW,CAAC,EAAE,EAAE,CAAC,
CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,OAAO,C
AAC,MAAM,CAAC,SAAS,EAAE,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,CAAC,OAAO,CAAC,cAA
c,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC
,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,UAAS,CAAC,SAAS,YAAY,CAAC,WAAW,CAAC,
CAAC,GAAG,sBAAsB,CAAC,MAAK,sFAAsF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAK,mDAAmD,CAAC,
IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,WAW,
CAAC,CAAC,KAAK,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,aAAa,CAAC,WAAW,CAAC,CAAC,GAAG,sB
AAsB,CAAC,MAAK,uFAAuF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAK,oDAAoD,CAAC,IAAI,OAAO,CAA
C,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,GAAG,OAAO,CAAC,CAAC,iBAAiB,EAAE,CAAC,WA
AW,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,MAAM,CAA
C,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CAAC,CAAC,IAAI,OAAO,CAAC,CAAC,aAAa,CAAC,EAAE,
CAAC,cAAc,CAAC,EAAE,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,eAAe,CAAC,CAAC,CAAC,IAAI,IAA
I,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,eAAe,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,oBAAoB,
GAAE,CAAC,CAAC,CAAC,WAW,CAAC,UAAU,CAAC,IAAI,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,C
AAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,i
BAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,E
AAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,EAAE,CAAC,IAAI,OAAO,CAAC,EAAE,CAAC,GAAG,CAAC
,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,SAAS,CAAC,OAAO,CAAC,G
AAG,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,CAAC,i
BAAiB,EAAE,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,C
AAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KA
AK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,wBAAwB,C
AAC,EAAE,CAAC,CAAC,qBAAqB,CAAC,CAAC,CAAC,2CAA2C,CAAC,EAAE,EAAC,CAAC,CAAC,
UAAU,CAAC,UAAU,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,kBAAkB,CAAC,EAAE,CAAC,eAAe,CAAC,U
AAU,EAAE,CAAC,eAAe,CAAC,UAAU,CAAC,MAAM,OAAO,CAAC,kBAAkB,CAAC,MAAM,CAAC,CAAC,
CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,GAAG,EAAE,GAAE,CAAC,GAAG,sBAAsB,EAAE,aAAa,EAAE,
CAAC,wBAAwB,GAAE,CAAC,CAAC,8BAA8B,CAAC,SAAS,EAAE,CAAC,QAAQ,CAAC,CAAC,OAAO,CA
AC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,OAA
O,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,
OAO,CAAC,eAAe,EAAE,CAAC,OAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,E
AAE,CAAC,CAAC,QAAQ,CAAC,CAAC,OAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CA
AC,EAAE,CAAC,CAAC,CAAC,CAAC,sBAAsB,CAAC,EAAE,CAAC,CAAC,UAAU,CAAC,CA
AC,wBAAwB,CAAC,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,UAAU,CAAC,SAAS,QAAQ,C
AAC,CAAC,IAAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,OAO,CAAC,8BAA8B,CAA
C,EAAE,CAAC,QAAQ,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,WAW,CAAC,CAAC,KAAK,CAAC,MA
AM,CAAC,EAAC,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,UAAU,CAAC,OAO,CAAC,8BAA8B,CAAC,aA
Aa,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,WAW,CAAC,CAAC,KAAK,CAAC,YAY,CAAC,EAAC,CAA
C,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,IAAI,CAAC,IAAI,OAO,CAAC,QAAQ,CAAC,CAAC,IAAI,O
AO,CAAC,OAO,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,GAG,OAO,EAAE,OAO,CAAC,MAM,C
AAC,CAAC,OAO,CAAC,kBAAkB,CAAC,OAO,CAAC,MAM,EAAC,CAAC,CAAC,OAO,CAAC,QAAQ,
CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAO,CAAC,aAAa,CAAC,MAA
M,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,MAM,CAAC,OO,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,M
AAM,CAAC,SAS,GAAE,CAAC,OO,CAAC,aAAa,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,C

AAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,MAAM,CAA
C,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,OAAO,C
AAC,cAAc,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,SAAS,GAAE,CAAC,OAAO,CAAC,cAAc,CAAC,GAA
E,CAAC,CAAC,cAAc,CAAC,SAAS,OAAO,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,GAAG,OAAO,
CAAC,gBAAgB,CAAC,CAAC,IAAI,SAAS,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAA
G,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,EAAE,CAAC,CA
AC,CAAC,CAAC,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC,KAAK,CAAC,OAAO,CAAC,gBAAgB,EAAC,CA
AC,OAAO,CAAC,gBAAgB,CAAC,CAAC,CAAC,GAAG,OAAO,CAAC,iBAAiB,EAAE,OAAO,CAAC,SAAS,C
AAC,KAAK,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,OA
AO,CAAC,MAAM,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,KAAI,CAAC,CAAC,kBAAkB,CAAC,S
AAS,MAAM,CAAC,CAAC,OAAO,CAAC,+BAA+B,CAAC,UAAU,CAAC,OAAO,OAAO,CAAC,QAAQ,CAAC,
MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,IAAI,CAAC,MAAM,CAAC,
CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,MAAM,CAAC,C
AAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,O
AAO,CAAC,UAAS,CAAC,EAAC,CAAC,CAAC,+BAA+B,CAAC,SAAS,IAAI,CAAC,CAAC,iBAAiB,EAAE,CA
AC,4CAA4C,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,GAAE,CAAC,OAAO,CAAC,iBA
AiB,EAAE,CAAC,4CAA4C,EAAE,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,qBAAqB,CAAC,SAAS,I
AAI,CAAC,EAAE,CAAC,sBAAsB,CAAC,SAAS,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,SAAS,C
AAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,IAAI,GAAG,CAAC,
CAAC,CAAC,KAAK,CAAC,CAAC,GAAG,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,mCAAmC,CAAC,MA
AM,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,CAAC,CAAC,cAAc,CAAC,EAAE,CAAC,CAAC,cAAc,CAA
C,EAAE,aAAa,EAAE,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,QAAQ,CAAC,CAAC,CAAC,YAAY,C
AAC,CAAC,GAAG,MAAM,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,C
AAC,CAAC,CAAC,cAAc,CAAC,EAAC,CAAC,KAAI,CAAC,OAAO,CAAC,KAAK,CAAC,yCAAyC,CAAC,GA
AG,CAAC,sBAAsB,CAAC,CAAC,CAAC,cAAc,CAAC,CAAC,qCAAqC,EAAC,CAAC,OAAO,CAAC,mCAAmC
,CAAC,SAAS,CAAC,MAAM,CAAC,GAAG,GAAG,GAAG,6BAA6B,CAAC,CAAC,4CAA4C,GAAE,CAAC,KA
AK,GAAG,GAAG,GAAG,aAAa,CAAC,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,KAAK,GAAG
,GAAG,GAAG,eAAe,CAAC,CAAC,aAAa,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,CAAC,KAAK,GAAG,GA
AG,GAAG,YAAY,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,CAAC,KAAK,GAAG,GA
AG,GAAG,cAAc,CAAC,CAAC,YAAY,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAC,CAAC,KAAK,GAAG,GAA
G,GAAG,QAAQ,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,IAAI,CAAC,GAAG,iBAAiB,CAAC,iBAAiB,CA
AC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,UAAU,EAAE,CAAC,O
AAO,MAAM,CAAC,WAAU,CAAC,CAAC,KAAK,GAAG,GAAG,GAAG,OAAO,CAAC,CAAC,GAAG,CAAC,
SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EAAC,CAAC,KA
AK,GAAG,GAAG,GAAG,UAAU,CAAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAA
C,IAAI,CAAC,CAAC,CAAC,MAAM,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,OAAO,CAAC,CAAC,
KAAK,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EA
AC,CAAC,KAAK,GAAG,GAAG,GAAG,MAAM,CAAC,CAAC,IAAI,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,EA
AE,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,EAAE,EA
AE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CAAC,C
AAC,KAAK,GAAG,GAAG,GAAG,aAAa,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,CAAC,YAAY,CAA
C,EAAC,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,YAAY,UAAU,CAAC,OAAO,MAAM,CAAC,CAA
C,CAAC,KAAK,GAAG,GAAG,GAAG,YAAY,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CA
AC,KAAK,GAAG,GAAG,GAAG,gBAAgB,CAAC,CAAC,OAAO,CAAC,qBAAqB,CAAC,CAAC,IAAI,E
AAC,CAAC,KAAK,GAAG,CAAC,CAAC,IAAI,CAAC,MAAM,GAAG,cAAc,CAAC,CAAC,MAAM,CAAC,WA
AW,CAAC,CAAC,IAAI,EAAC,CAAC,KAAI,CAAC,GAAG,CAAC,iCAAiC,CAAC,GAAG,EAAC,CAA
C,OAAO,CAAC,mCAAmC,CAAC,UAAS,CAAC,CAAC,MAM,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CA
AC,GAAG,CAAC,yBAAyB,CAAC,CAAC,CAAC,QAAQ,CAAC,GAAG,CAAC,CAAC,CAAC,MAM,CAAC,I

AAI,CAAC,CAAC,CAAC,OAAO,EAAC,CAAC,CAAC,GAAG,mBAAmB,CAAC,CAAC,MAAM,CAAC,EAAE,
CAAC,SAAS,CAAC,SAAS,IAAI,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,
EAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,SAAS,IAAI,CAAC,CAAC,MAAM,CA
AC,OAAO,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,SAAS,IAAI,
CAAC,EAAE,EAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,WAAW,CAA
C,MAAM,CAAC,qBAAqB,CAAC,EAAE,UAAU,CAAC,YAAY,CAAC,UAAU,CAAC,YAAY,CAAC,UAAU,CA
AC,EAAC,CAAC,CAAC,oBAAoB,CAAC,UAAU,CAAC,IAAI,aAAa,CAAC,UAAU,CAAC,2CAA2C,CAAC,CA
AC,OAAO,CAAC,aAAa,CAAC,IAAI,CAAC,IAAI,MAAM,CAAC,aAAa,CAAC,EAAC,CAAC,CAAC,YAAY,C
AAC,UAAU,CAAC,GAAG,OAAO,CAAC,aAAa,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,oB
AAoB,EAAE,CAAC,OAAO,CAAC,sBAAsB,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC,CAAC,EAAC,CAAC,G
AAG,OAAO,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,OAAO,OAAO,CAAC,aAAa,CAAC,GAAG,EA
AE,CAAC,KAAK,OAAO,IAAI,CAAC,CAAC,YAAY,CAAC,SAAS,KAAK,CAAC,CAAC,IAAI,CAAC,CAAC,
WAAW,CAAC,GAAG,EAAE,CAAC,KAAK,CAAC,MAAM,WAAW,CAAC,GAAG,EAAE,CAAC,CAAC,CAA
C,EAAE,CAAC,CAAC,CAAC,SAAS,mBAAmB,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,4BAA4B,CAAC,Q
AAQ,CAAC,QAAQ,CAAC,CAAC,YAAY,CAAC,QAAQ,EAAC,CAAC,MAAM,CAAC,qBAAqB,CAAC,CAAC,
mBAAmB,CAAC,SAAS,gBAAgB,EAAE,CAAC,OAAO,aAAa,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,g
BAAgB,CAAC,SAAS,gBAAgB,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,OAAO,SAAS,CAAC,GAAG,CAAC
,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,gBAAgB,CAAC,SAAS,cA
Ac,CAAC,SAAS,CAAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,oBAAoB,CAAC,YAAY,
CAAC,SAAS,CAAC,CAAC,QAAQ,CAAC,CAAC,QAAQ,CAAC,YAAY,CAAC,QAAQ,CAAC,CAAC,kBAAkB,
CAAC,IAAI,CAAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,EAAC,CAAC,SAAS,YAA
Y,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,UAAU,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,I
AAI,mBAAmB,CAAC,GAAG,mBAAmB,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,CAAC,CAAC,O
AAO,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CA
AC,CAAC,CAAC,CAAC,GAAG,EAAC,CAAC,KAAK,GAAG,sBAAsB,CAAC,CAAC,mBAAmB,CAAC,UAAU,
CAAC,OAAO,WAAW,CAAC,GAAG,EAAE,CAAC,MAAM,CAAC,+BA+B,CAAC,EAAC,CAAC,KAAK,GA
AG,OAAO,OAAO,GAAG,WAAW,CAAC,CAAC,mBAAmB,CAAC,QAAQ,CAAC,KAAK,mBAAmB,CAAC,UA
AU,CAAC,OAAO,WAAW,CAAC,GAAG,EAAE,CAAC,CAAC,SAAS,QAAQ,CAAC,KAAK,CAAC,CAAC,iBA
AiB,EAAE,CAAC,iBAAiB,EAAE,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,OAAO,KAAK,CAAC,SAAS,OA
AO,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,C
AAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,SAAS,gCAAgC,CAAC,cAAc,CAAC,YAAY,CAAC,CAAC,GA
AG,cAAc,EAAE,YAAY,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,6BA6B,CAAC,EAAC,CAAC,KA
AK,GAAG,sBAAsB,CAAC,CAAC,WAAW,CAAC,CAAC,cAAc,CAAC,cAAc,CAAC,KAAK,CAAC,oBAAoB,C
AAC,EAAC,CAAC,KAAI,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,IAAI,
MAAM,CAAC,OAAO,EAAE,OAAO,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,MAAM,CAA
C,MAAM,CAAC,WAAW,CAAC,CAAC,KAAK,oBAAoB,CAAC,EAAC,CAAC,OAAO,CAAC,CAAC,SAAS,
SAAS,MAAM,EAAE,CAAC,KAAK,GAAE,CAAC,SAAS,yBAAyB,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CA
AC,CAAC,IAAI,IAAI,CAAC,gBAAgB,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,OAAO,UAAU,CAAC,IAA
I,CAAC,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,SAAS,iDAAiD,CAAC,cAAc,CAAC,SAAS,CAA
C,EAAE,SAAS,sBAAsB,CAAC,IAAI,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,IAAI,EAAE,CAAC,E
AAE,IAAI,CAAC,gBAAgB,EAAE,CAAC,MAAM,EAAE,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,OAAM,CA
AC,EAAE,CAAC,GAAG,CAAC,kBAAkB,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,CAAC,IAAI,CAAC,iBAi
B,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,GAAG,GAAG,WAW,
CAAC,OAAM,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,WAW,CAAC,OAAM,CAAC,CAAC,CAAC,GAAG
,GAAG,GAAG,IAAI,CAAC,OAAO,CAAC,CAAC,MAAK,4CA4C,CAAC,GAAG,CAAC,KAAI,CAAC,GAAG,
OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,OAA
M,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,WAW,CAAC,GAAG,EAAE,CAAC,IAAI,IAAI,CAAC,IAAI,CAAC,
OAAO,CAAC,IAAI,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BA8B,EAAE,CAAC,

CAAC,IAAI,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC,GA
AG,IAAI,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8
B,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,OAAM,CAAC,EAAE,CAAC,QAAQ,CAAC,OAAO,CAAC,QAAQ,
CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,QAAQ,EAAE,CAAC
,CAAC,CAAC,KAAK,CAAC,4CAA4C,EAAE,CAAC,GAAG,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,
IAAI,EAAE,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,QAAQ,CAAC,OAAO,CA
AC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,IAAI,EAAC,CAAC,OAAO,CAAC,CA
AC,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,gBAAgB,EAAE,CAAC,UA
AU,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,SAAS,6BAA6B,EAAE,CAAC,GAA
G,mBAAmB,CAAC,OAAOC,EAAa,CAAC,IAAI,EAAE,CAAC,MAAM,CAAC,OAAO,SAAS,CAAC,qBAAqB,C
AAC,CAAC,SAAS,mCAAmC,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,IAAI,WAAW,CAAC,SAAS,CAAC,M
AAM,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,SAAS,EAAE,CAAC,IAAI,qBAAqB,CAAC,WAAW,CAAC,IAA
I,IAAI,CAAC,UAAU,CAAC,qBAAqB,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,IAAI,EAAE,CAAC,CA
AC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,G
AAG,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,CAAC,CAAC,CA
AC,CAAC,IAAG,CAAC,IAAI,GAAG,CAAC,yCAAyC,CAAC,KAAK,CAAC,qBAAqB,CAAC,IAAI,CAAC,IAAI
,CAAC,CAAC,YAAY,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,8CAA8C,CAAC,EAAE,CAAC,I
AAI,qBAAqB,CAAC,EAAE,CAAC,SAAS,gBAAgB,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,qBAAqB,CAA
C,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,GAAG,GAAG,CAAC,CAAC,MAAM,EAAE,CAAC,gBAAg
B,EAAE,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,GAAG,CAAC,GAAG,
MAAM,EAAE,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,CAAC,qBAAqB,CAAC,IAAI,CAAC,MAAM,CAAC,
iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,GAAG,CAAC,CAAC,
CAAC,EAAE,IAAG,CAAC,OAAO,qBAAqB,CAAC,SAAS,qCAAqC,CAAC,KAAK,CAAC,WAAW,CAAC,IAAI
,CAAC,CAAC,8CAA8C,CAAC,MAAM,CAAC,WAAW,CAAC,IAAI,CAAC,CAAC,IAAI,EAAE,CAAC,CAAC,I
AAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,EAAE,CAAC,CAAC,8CAA8C,CA
AC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,IAAI,YAAY,CAAC,KAAK
,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,YAAY,CAAC,oBAAoB,CAAC,KAAK,CAAC,CAAC,UAAU,C
AAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,IAAI,8CAA8C,CA
AC,CAAC,SAAS,yBAAyB,EAAE,CAAC,OAAO,gBAAgB,EAAE,CAAC,MAAM,CAAC,SAAS,yBAAyB,CAAC
,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,UAAU,CAAC,KAA
K,GAAG,EAAE,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC,SAAS,uBAAuB,CAAC,aAAa,CAAC,CAAC,IAAI,OAAO,CAAC,yBAAyB,EA
AE,CAAC,GAAG,aAAa,EAAE,OAAO,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC
,GAAG,aAAa,CAAC,WAAW,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,IAAI,OAAO,CAAC,CAAC,CAAC,OA
AO,EAAE,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,OAAO,EAAE,CAAC,CAAC
,EAAE,CAAC,OAAO,CAAC,CAAC,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,iBAAiB,CAAC,aAAa,CAAC,S
AAS,CAAC,CAAC,IAAI,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,WAAW,CAAC,OAAO,CAAC,IAAI,CAAC,
GAAG,CAAC,aAAa,CAAC,iBAAiB,CAAC,CAAC,KAAK,CAAC,IAAI,CAAC,yBAAyB,CAAC,yBAAyB,CAAC,
OAAO,CAAC,CAAC,GAAG,WAAW,CAAC,IAAI,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,QAAQ,CAAC,I
AAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC,uBAAuB,CAAC,UAAU,CAAC,IAAI,IAAI,CAAC,CAAC
,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,C
AAC,QAAQ,CAAC,cAAc,CAAC,CAAC,EAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,QAAQ,CAA
C,aAAa,CAAC,GAAE,CAAC,CAAC,4BAA4B,CAAC,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,8BAA8B,CA
AC,CAAmD,QAAQ,CAAC,8BAA8B,CAAC,KAAI,CAAC,CAAC,CAAC,aAAa,CAAC,EAAE,CAAC,SAAS,CA
AC,SAAS,cAAc,CAAC,UAAU,CAAC,QAAQ,CAAC,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,IAAI,CAAC,C
AAC,GAAG,IAAI,CAAC,MAAM,EAAE,IAAI,CAAC,MAAM,CAAC,OAAO,KAAK,CAAC,IAAI,IAAI,CAAC,I
AAI,IAAI,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC,CAAC,OAAO,K
AAK,CAAC,OAAO,IAAI,CAAC,IAAI,IAAI,CAAC,IAAI,QAAQ,CAAC,aAAa,CAAC,aAAa,CAAC,IAAI,IAAI,CAAC,

QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,cAAc,EAAE,cAAc,EAAE,sBAAsB,CAAC,IAAI,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,CAAC,cAAc,CAAC,cAAc,CAAC,UAAU,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,UAAU,CAAC,EAAC,CAAC,CAAC,mBAAmB,CAAC,SAAS,cAAc,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,cAAc,EAAE,cAAc,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,8BAA8B,CAAC,UAAU,CAAC,OAAO,QAAQ,CAAC,cAAc,EAAE,QAAQ,CAAC,mBAAmB,CAAC,mBAAmB,CAAC,CAAC,gBAAgB,CAAC,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,8BAA8B,EAAE,CAAC,CAAC,MAAM,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM, CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,QAAQ, CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,cAAc,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,CAAC,QAAQ,EAAC,CAAC,CAAC,CAAC,aAAa,CAAC,EAAE,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC,eAAe,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,EAAE,MAAM,GAAG,CAAC,eAAe,EAAE,eAAe,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,eAAe,CAAC,CAAC,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,CAAC,eAAe,CAAC,CAAC,CAAC,iBAAiB,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,uBAAuB,CAAC,SAAS,YAAY,CAAC,CAAC,IAAI,cAAc,CAAC,SAAS,cAAc,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,cAAc,CAAC,QAAQ,CAAC,mBAAmB,CAAC,YAAY,CAAC,QAAQ,CAAC,gBAAgB,EAAE,CAAC,YAAY,CAAC,WAAW,CAAC,KAAK,CAAC,CAAC,QAAQ,CAAC,gBAAgB,EAAE,CAAC,EAAE,QAAQ,CAAC,eAAe,CAAC,YAAY,CAAC,YAAY,CAAC,CAAC,YAAY, CAAC,iBAAiB,CAAC,cAAc,CAAC,YAAY,CAAC,MAAM,CAAC,gBAAgB,CAAC,YAAY,CAAC,eAAe, cAAc,CAAC,YAAY,CAAC,UAAU,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,YAAY,CAAC,CAAC,QAAQ,CAAC,4BAA4B,EAAE,CAAC,KAAK,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,MAAM,CAAC,eAAe, eAAe,YAAY,CAAC,eAAe,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

,CAAC,CAAC,CAAC,eAAe,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,K
AAK,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,MAAM,CAAC,2BAA2B,
CAAC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,CAAC,eAAe,CAAC,OAAO,CAAC,CAAC,YAAY,CA
AC,QAAQ,EAAC,CAAC,SAAS,qDAAqD,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,MAAM,CAAC,C
AAC,YAAY,CAAC,YAAY,CAAC,YAAY,CAAC,YAAY,CAAC,CAAC,EAAE,CAAC,wDAAwD,CAAC,YAAY,
CAAC,YAAY,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,sBAAsB,CAAC,OAAO,CAAC,CAAC,OAAO
,OAAO,CAAC,CAAC,CAAC,YAAY,CAAC,OAAO,CAAC,CAAC,OAAO,CAAC,IAAI,kBAAkB,CAAC,CAAC,
CAAC,CAAC,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,CAAC,CAAC,CAAC,OAAO,MAAM,GAAG,WAA
W,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,SAAS,eAAe,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,sBAA
sB,CAAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,kBAAkB,CAAC,MAAM,CAAC,GAAG,OAAO,QAAQ,G
AAG,WAAW,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,UAAU,C
AAC,SAAS,qBAAqB,CAAC,MAAM,CAAC,CAAC,OAAO,eAAe,CAAC,MAAM,CAAC,CAAC,SAAS,kDAAkD
,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,CAAC,qBAAqB,CAAC,MAAM,CA
AC,CAAC,GAAG,CAAC,MAAM,CAAC,OAAM,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,eAAe,CAAC,CA
AC,iBAAiB,EAAE,CAAC,MAAM,CAAC,eAAe,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,iBAAiB,EAAE,CA
AC,MAAM,CAAC,eAAe,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAAM,CAAC,GAAG,MAAM,CAAC,eA
e,EAAE,CAAC,MAAM,CAAC,2BAA2B,CAAC,CAAC,GAAG,MAAM,CAAC,eAAe,CAAC,MAAM,CAAC,MA
AM,CAAC,eAAe,CAAC,IAAI,kBAAkB,CAAC,KAAK,CAAC,GAAG,MAAM,CAAC,WAAW,EAAE,MAAM,C
AAC,WAAW,CAAC,KAAK,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,WAAW,CAAC,KAAK,CAAC,Y
AAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,YAAY,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,YAAY,CA
AC,CAAC,CAAC,GAAG,CAAC,EAAE,YAAY,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,KAAK,EAAE,YA
AY,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,OAAM,CAAC,MAAM,CAAC,KAAK,CAAC,KAAK,CAAC,M
AAM,CAAC,MAAM,CAAC,MAAM,CAAC,GAAG,kBAAkB,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,KA
AK,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,CAAC,KAAK,GA
AG,MAAM,CAAC,eAAe,CAAC,CAAC,IAAI,YAAY,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,eAAe,CAAC
,CAAC,EAAE,CAAC,CAAC,CAAC,qDAAqD,CAAC,YAAY,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CA
AC,CAAC,OAAO,CAAC,CAAC,KAAI,CAAC,OAAM,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,+CAA
+C,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAA
C,CAAC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,OAAO,kDAAkD,CAAC,M
AAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,SAAS,mCAAmC,CAAC,MAAM,CAAC,KAAK,CAAC,MAA
M,CAAC,CAAC,IAAI,MAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,OA
AO,kDAAkD,CAAC,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,KAAI,CAAC,OAAO,+CAA+C,CAA
C,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,SAAS,qCAAqC,CAAC,SAAS,CAAC,EAAE,SAA
S,2BAA2B,CAAC,QAAQ,CAAC,IAAI,CAAC,EAAE,SAAS,qCAAqC,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG
,CAAC,GAAG,CAAC,YAAY,CAAC,wBAAwB,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,GAAG,CAAC,qBA
AqB,CAAC,CAAC,SAAS,KAAK,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,0BAA0B,CAAC,CAAC,KAAK,C
AAC,OAAO,EAAC,CAAC,CAAC,GAAG,CAAC,qBAAqB,CAAC,CAAC,SAAS,IAAI,CAAC,KAAK,CAAC,KA
AK,CAAC,SAAS,CAAC,CAAC,GAAG,CAAC,0BAA0B,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,KAAK,CAA
C,SAAS,EAAC,CAAC,CAAC,GAAG,CAAC,uBAAuB,CAAC,CAAC,SAAS,IAAI,CAAC,KAAK,CAAC,IAAI,C
AAC,OAAO,CAAC,SAAS,CAAC,CAAC,GAAG,CAAC,4BAA4B,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,IA
AI,CAAC,OAAO,CAAC,SAAS,EAAC,CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,sCAAsC,CAAC,GAA
G,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,yBAAyB,CAAC,CAAC,GAAG,GAAG,CAAC,CA
AC,GAAG,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAAO,GAAG,CAAC,sBAAsB,CAAC,EAAE,C
AAC,GAAG,CAAC,mBAAmB,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAA
C,GAAG,EAAC,CAAC,CAAC,GAAG,CAAC,iBAAiB,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,GAA
G,CAAC,oBAAoB,CAAC,CAAC,GAAG,EAAC,CAAC,CAAC,GAAG,CAAC,eAAe,CAAC,CAAC,SAAS,GAAG
,CAAC,OAAO,GAAG,CAAC,kBAAkB,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAA
C,SAAS,iCAAiC,CAAC,GAG,CAAC,CAAC,IAAI,GAG,CAAC,GAG,CAAC,YAAY,CAAC,oBAAo

B,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,SAAS,CAAC,CAAC,IAAI,CA
AC,CAAC,GAAG,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,CAAC,CAA
C,CAAC,SAAS,+BAA+B,CAAC,GAAG,CAAC,CAAC,OAAM,CAAC,EAAE,GAAG,CAAC,cAAc,CAAC,GAA
G,CAAC,YAAY,CAAC,kBAAkB,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC
,OAAO,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,aAAa,CAAC,EAAE,CA
AC,QAAQ,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,IAAI,CAAC,EAAE,
CAAC,QAAQ,CAAC,EAAE,CAAC,iBAAiB,CAAC,EAAE,CAAC,eAAe,CAAC,EAAE,CAAC,YAAY,CAAC,EA
AE,CAAC,WAAW,CAAC,EAAE,CAAC,eAAe,CAAC,CAAC,CAAC,WAAW,CAAC,SAAS,WAAW,CAAC,SA
AS,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,SAAS,CAAC,CAAC,EAAE,CAAC,SAAS,CAAC,UAAS,CAAC,
CAAC,CAAC,QAAQ,CAAC,SAAS,KAAK,CAAC,CAAC,IAAI,GAAG,CAAC,EAAE,CAAC,OAAO,EAAE,CA
AC,IAAI,IAAI,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,
CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,GAAG,CAAC,CAAC,SAAS,CAAC,SAAS,MA
AM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,IAAI,IAAI,
CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,MA
AM,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CA
AC,CAAC,MAAM,EAAE,YAAY,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CA
AC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,SAAS,CAAC,GAAG,EAAC,CAAC,OAAO,MAAM,CAAC,CAA
C,aAAa,CAAC,SAAS,MAAM,CAAC,sBAAsB,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC
,OAAO,CAAC,sBAAsB,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,
EAAE,CAAC,eAAe,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,OAAO,MAAM,CAAC,CAAC,eAAe,CAAC,S
AAS,GAAG,CAAC,sBAAsB,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,iBAAiB,E
AAE,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,aAAa,EAAE,CAAC,IAAI,OAAO,CAAC,CAAC
,MAAM,CAAC,MAAM,CAAC,UAAU,CAAC,sBAAsB,CAAC,OAAO,CAAC,sBAAsB,CAAC,YAAY,CAAC,K
AAK,CAAC,GAAG,CAAC,CAAC,GAAG,GAAG,CAAC,MAM,CAAC,GAAG,CAAC,MAM,CAAC,WAW,
CAAC,OAAO,CAAC,EAAE,CAAC,QAAQ,CAAC,MAM,CAAC,CAAC,OAO,CAAC,GAAG,OAAO,sBAAs
B,CAAC,yBAAyB,GAAG,WAW,EAAE,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,EAAE,CAAC,cAAc,CAAC,
OAO,EAAC,CAAC,OAO,MAM,CAAC,CAAC,kBAAkB,CAAC,SAS,aAAa,CAAC,CAAC,EAAE,CAAC,c
AAc,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,MAM,CAAC,GAAG,CAAC,KAK,CAAC,EA
AE,CAAC,cAAc,EAAE,EAAE,CAAC,cAAc,CAAC,KAK,CAAC,OAM,EAAE,aAAa,EAAE,CAAC,KAK,C
AAC,CAAC,CAAC,UAU,CAAC,SAAS,aAAa,CAAC,CAAC,OAO,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC
,CAAC,CAAC,aAAa,CAAC,SAS,aAAa,CAAC,CAAC,GAAG,EAAE,CAAC,cAAc,GAAG,EAAE,CAAC,QAA
Q,CAAC,aAAa,CAAC,CAAC,EAAE,CAAC,cAAc,CAAC,IAAI,CAAC,GAAG,OAO,QAAQ,GAAG,QAAQ,CA
AC,QAAQ,CAAC,yBAAyB,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAK,CAAC,MM,CA
AC,CAAC,GAAG,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,EAAE,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,
CAAC,KAK,CAAC,MM,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAK,CAAC,MM,C
AAC,WW,CAAC,SS,CAAC,KAK,CAAC,EAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,MM,CA
AC,CAAC,EAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAI,CAAC,CAAC,cAc,CAAC,SS,OAO,C
AAC,CAAC,GAG,CAAC,OAO,CAAC,OAO,CAAC,EAE,CAAC,cAC,CAAC,GAG,OAO,CAAC,kBA
AkB,CAAC,OAO,OAO,CAAC,kBAAkB,CAAC,IAI,CAAC,IAI,KAK,CAAC,OAO,CAAC,KAK,CA
AC,qCAAqC,CAAC,KAK,CAAC,CAAC,sCAAsC,CAAC,KAK,CAAC,CAAC,iCAAiC,CAAC,KAK,CAAC,
CAAC,KAK,CAAC,qBAAqB,CAAC,KAK,CAAC,YAY,CAAC,0BAA0B,CAAC,CAAC,+BAA+B,CAAC,K
AAK,CAAC,CAAC,IAI,IAI,CAAC,KAK,CAAC,sBAAsB,EAAE,EAAE,EAAE,CAAC,IAI,CAAC,OAO,
CAAC,SAS,GAG,CAAC,CAAC,GAAG,GAG,CAAC,OAO,CAAC,cAc,CAAC,CAAC,CAAC,EAAE,GA
AG,CAAC,OAO,CAAC,OAO,CAAC,CAAC,CAAC,CAAC,CAAC,KAK,CAAC,YAY,CAAC,GAG,EAA
C,CAAC,CAAC,EAC,CAAC,CAAC,oBAAoB,CAAC,SAS,OAO,CAAC,CAAC,IAI,CAAC,CAAC,EAE,
CAAC,QAQ,CAAC,OAO,CAAC,CAAC,IAI,MAM,CAAC,EAE,CAAC,YAY,CAAC,OAO,CAAC,C
AAC,CAAC,QQ,CAAC,EAE,CAAC,gBAgB,CAAC,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,
yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,IAI,MAM,CAAC,MM,CAAC,QQ,CAAC,IAI,WW,

CAAC,KAAK,CAAC,mBAAmB,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,C
AAC,CAAC,CAAC,WAAW,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,gBAAgB,C
AAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,gBAAg
B,CAAC,IAAI,CAAC,GAAG,CAAC,MAAM,CAAC,gBAAgB,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC
,CAAC,GAAG,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,IAAI,CAAC,IAAI
,CAAC,KAAK,CAAC,CAAC,CAAC,IAAI,CAAC,WAAW,CAAC,GAAG,CAAC,EAAC,CAAC,IAAI,GAAG,CA
AC,KAAK,CAAC,kBAAkB,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,IAAI,EAAE
,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,C
AAC,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,GAAG
,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,
CAAC,IAAI,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,CAA
C,kBAAkB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAA
C,QAAQ,CAAC,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,IAAG,CAAC,CAAC,CAAC,CAAC,C
AAC,CAAC,IAAI,oCAAoC,CAAC,CAAC,SAAS,CAAC,WAAW,CAAC,kBAAkB,CAAC,CAAC,SAAS,mCAA
mC,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,UAAU,EAAE,CAAC,CAAC,IAAI,eAAe,C
AAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,CA
AC,OAAO,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAA
C,OAAO,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,
SAAS,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,W
AAW,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,oB
AAoB,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,uB
AAuB,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,iB
AAiB,CAAC,oCAAoC,CAAC,eAAe,CAAC,CAAC,8BAA8B,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC
,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,E
AAE,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CA
AC,CAAC,CAAC,yBAAyB,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CA
AC,mBAAmB,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,wBAAw
B,CAAC,iBAAiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,4BAA4B,CAAC,iBA
AiB,EAAE,CAAC,CAAC,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,qBAAq
B,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,iBAAiB,CA
AC,mBAAmB,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,EAAE,CAAC,CAAC,aAAa,CAAC,MAAM,CAA
C,iBAAiB,CAAC,CAAC,CAAC,OAAO,aAAa,CAAC,SAAS,gCAAgC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,OAA
O,mCAAmC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,IAAI,QAAQ,CAAC,CAAC,QAAQ,CAAC,EAAE,CAA
C,OAAO,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,IA
AI,CAAC,CAAC,IAAI,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,
CAAC,EAAE,IAAI,GAAG,EAAE,CAAC,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,EA
AE,iBAAiB,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,EAAC,CAAC,K
AAI,CAAC,MAAM,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,
CAAC,UAAU,CAAC,QAAQ,CAAC,OAAO,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAiB,EAAE,CAAC,Q
AAQ,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,MAAM,CAAC,SA
AS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC
,KAAK,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,SAAS,SAAS,CA
AC,EAAE,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,EAAE,
CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,QAAQ,CAAC,EAAE,CAAC,UAAU,CAAC,WAAW,CAAC,MAAM,
CAAC,SAAS,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,EAAA
E,CAAC,UAAU,CAAC,WAAW,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CAAC,
GAAG,CAAC,MAM,CAAC,IAAI,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CA
AC,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CAAC,

CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,
GAAG,CAAC,iBAAiB,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GA
AG,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAA
C,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QA
AQ,CAAC,SAAS,CAAC,EAAE,CAAC,gBAAgB,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,GA
AG,EAAE,IAAG,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,
CAAC,SAAS,oBAAoB,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,kBAAkB,CAAC,GAAG
,EAAE,CAAC,GAAG,OAAO,CAAC,OAAO,GAAE,CAAC,SAAS,qBAAqB,CAAC,OAAO,CAAC,GAAG,CAAC
,CAAC,OAAO,CAAC,kBAAkB,CAAC,IAAI,CAAC,UAAU,CAAC,SAAS,CAAC,GAAG,CAAC,OAAO,CAAC,
CAAC,GAAG,EAAC,CAAC,EAAC,CAAC,SAAS,WAAW,CAAC,YAAY,CAAC,CAAC,GAAG,sBAAsB,CAAC,
MAAK,qFAAqF,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,YAAY,EAAE,CAAC,GAAG,MAAM,CAAC,OAAO
,GAAG,SAAS,CAAC,MAAK,iBAAiB,CAAC,GAAG,CAAC,YAAY,CAAC,WAAW,CAAC,MAAK,iCAAiC,CA
AC,OAAO,CAAC,cAAc,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,IAAI,SAAS,CAAC,OAAO,CAAC,GAAG,C
AAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,
CAAC,CAAC,iBAAiB,EAAE,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,EAAC,C
AAC,IAAI,SAAS,CAAC,YAAY,CAAC,SAAS,CAAC,YAAY,CAAC,SAAS,CAAC,IAAI,OAAO,CAAC,OAO,
CAAC,QAAQ,CAAC,YAAY,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,SAAS,CAAC
,YAAY,CAAC,SAAS,CAAC,SAAS,CAAC,YAAY,CAAC,SAAS,CAAC,iBAAiB,CAAC,YAAY,CAAC,iBAAiB,
CAAC,gBAAgB,CAAC,YAAY,CAAC,WAAW,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,CAAC,gBAAgB,EAA
E,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,
CAAC,YAAY,CAAC,QAAQ,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,
GAAG,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,G
AAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,OAAO,CAAC,KAAK,C
AAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,CA
AC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,SAA
S,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC
,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,
GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,E
AAE,CAAC,GAAG,EAAE,GAAG,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,YAAY,CAAC,QAAQ,CAAC,CA
AC,IAAI,WAAW,CAAC,2BAA2B,EAAE,CAAC,IAAI,aAAa,CAAC,WAAW,CAAC,EAAE,CAAC,OAAO,CAA
C,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC,CAAC,aAAa,CAAC,CAAC,
MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,IAAI,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,eAAe,CA
AC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,YAAY,CAAC,GAAG,CAAC,kBAAkB,CAAC,YAAY,CAAC,W
AAW,CAAC,WAAW,CAAC,YAAY,CAAC,SAAS,CAAC,WAAW,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,
MAAM,CAAC,UAAU,CAAC,UAAU,CAAC,GAAG,CAAC,IAAI,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC,
MAAM,CAAC,WAAW,CAAC,GAAG,CAAC,YAAY,CAAC,YAAY,EAAC,CAAC,CAAC,GAAG,MAAM,CAA
C,MAAM,CAAC,CAAC,MAAM,CAAC,UAAU,EAAE,CAAC,OAAO,MAAM,CAAC,WAAU,CAAC,CAAC,SA
AS,eAAe,CAAC,WAAW,CAAC,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,CAAC,GAAG,OAAO,iBAAiB,GAAG
,WAAW,CAAC,CAAC,GAAG,CAAC,qFAAqF,CAAC,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,WAAW,CA
AC,CAAC,GAAG,CAAC,mDAAmD,CAAC,CAAC,OAAO,EAAE,CAAC,IAAI,YAAY,CAAC,EAAE,CAAC,IA
AI,KAAK,CAAC,CAAC,CAAC,GAAG,sBAAsB,GAAG,YAAY,CAAC,MAAM,GAAG,CAAC,EAAE,KAAK,C
AAC,CAAC,CAAC,OAAO,qCAAqC,CAAC,SAAS,CAAC,WAAW,CAAC,IAAI,CAAC,aAAa,CAAC,GAAG,CA
AC,CAAuB,IAAI,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,CAAC,CA
AC,GAAG,IAAI,EAAE,IAAI,EAAE,CAAC,CAAC,CAAC,SAAS,CAAC,iBAAiB,EAAE,CAAC,IAAI,EA
AE,CAAC,CAAC,CAAC,SAAS,EAAE,KAAK,CAAC,SAAS,CAAC,iBAAiB,EAAE,CAAC,IAAI,CAAC,CAAC,
EAAE,CAAC,CAAC,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,IAAI,CAAC,EAAE,EAAE,CAAC,CAAC,GA
AG,EAAC,CAAC,KAAI,CAAC,SAAS,CAAC,QAAO,CAAC,IAAI,iBAAiB,CAAC,SAAS,EAAE,CAAC,CAAC,
GAAG,iBAAiB,CAAC,CAAC,SAAS,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,CAAC,YAAY,CAAC,SA

AS,EAAE,SAAS,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,EAAC,CAAC,IAAI,gBAAgB,CAAC,OAAO,CAAA
C,GAAG,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,EAAE,CAAC,CAAC,EA
AE,CAAC,CAAC,iBAAiB,EAAE,CAAC,CAAC,gBAAgB,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CA
AC,iBAAiB,EAAE,CAAC,WAAW,EAAE,CAAC,CAAC,CAAC,gBAAgB,CAAC,iBAAiB,EAAE,CAAC,gBAAg
B,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,gBAAgB,CAAC,IAAI,OAAO,CAAC,gBAAgB,CAAC,GAAG,CAA
C,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,CAAC,SAAS,C
AAC,SAAS,CAAC,SAAS,CAAC,SAAS,CAAC,iBAAiB,CAAC,iBAAiB,CAAC,QAAQ,CAAC,QAAQ,CAAC,Y
AAY,CAAC,aAAa,CAAC,WAAW,CAAC,gBAAgB,CAAC,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,YAAY,
CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,YAAY,CAAC,GAAG,CAAC,aAAa,CAAC,WAAW,CAAC,YAAY,
CAAC,YAAY,EAAC,CAAC,KAAI,CAAC,WAAW,CAAC,YAAY,EAAC,CAAC,OAAO,CAAC,CAAC,SAAS,u
BAAuB,EAAE,CAAC,GAAG,CAAC,sBAAsB,CAAC,OAAO,IAAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,C
AAC,EAAE,CAAC,OAAO,IAAI,cAAc,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,
EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,cAAc,CAAC,OAAO,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC
,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,EAAE,CAAC,CAAC,
MAAK,WAAW,CAAC,SAAS,kCAAkC,EAAE,CAAC,GAAG,mBAAmB,CAAC,OAAO,GAAG,qBAAqB,CAAC,
OAAO,QAAQ,CAAC,0IAA0I,EAAC,CAAC,SAAS,4BAA4B,CAAC,MAAM,CAAC,MAAM,CAAC,KAAK,CAA
C,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,kDAAkD,CAAC,CAAC,OAAO,WAAW,CAAC,K
AAK,CAAC,GAAG,sBAAsB,EAAE,aAAa,EAAE,EAAE,MAAM,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,M
AAM,CAAC,mCAAmC,CAAC,CAAC,OAAO,WAAW,CAAC,OAAO,CAAC,KAAK,GAAG,CAAC,sBAAsB,EA
AE,kCAAkC,EAAE,EAAE,MAAM,CAAC,CAAC,GAAG,CAAC,cAAc,CAAC,MAAM,CAAC,mCAAmC,CAAC
,CAAC,OAAO,WAAW,CAAC,OAAO,CAAC,IAAI,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,E
AAE,CAAC,CAAC,CAAC,GAAG,IAAI,GAAG,MAAM,CAAC,CAAC,GAAG,CAAC,mCAAmC,CAAC,MAAM
,CAAC,sEAAsE,CAAC,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,C
AAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,CAAC,G
AAG,CAAC,2BAA2B,CAAC,MAAM,CAAC,+BAA+B,CAAC,CAAC,OAAO,WAAW,CAAC,MAAM,CAAC,G
AAG,KAAK,CAAC,CAAC,kCAAkC,GAAE,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,OAAO,CAAC,IAAI,CA
AC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,YAAY,EAAE,CAAC,CA
AC,CAAC,IAAI,cAAc,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,EAAE,
CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,EAAE,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,cAAc,
CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,
CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,KAAK,WAAW,CAAC,CAAC
,KAAK,CAAC,eAAe,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,
KAAK,CAAC,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,uBAAuB,EAAE,CAAC,GAAG,CAAC,sBAAsB,CA
AC,4CAA4C,EAAE,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,CAAC,YAAY,CAAC,sBAAsB,CAAC,GAA
G,CAAC,CAAC,EAAC,CAAC,CAAC,SAAS,aAAa,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,OAAO,4BAA4
B,CAAC,MAAM,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,s
BAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,EAAE,
KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,OAAO,W
AAW,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,C
AAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CA
AC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAA
C,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,EAAE,CAAC
,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,
KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,K
AAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KA
AK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,MAAM,CAAC,KAA
K,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK
,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,

GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,
GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,
EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,
GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,G
AAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAM,CA
AC,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KA
AK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KA
AK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAA
K,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,
EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,IAAI,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,UAA
U,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,
CAAC,OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,CA
AC,OAAO,OAAO,CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CA
AC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAA
C,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC
,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,KAAK,GAAG,CAAC,
OAAO,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,EAAE,CAAC,K
AAK,CAAC,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,CA
AC,GAAG,OAAO,SAAS,GAAG,QAAQ,CAAC,OAAO,SAAS,CAAC,qBAAqB,CAAC,EAAE,CAAC,CAAC,OA
AO,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,GAAG,CAAC,sBA
AsB,CAAC,OAAO,CAAC,mBAAmB,EAAE,CAAC,IAAI,KAAK,CAAC,IAAI,oBAAoB,CAAC,CAAC,IAAI,CA
AC,OAAO,CAAC,+CAA+C,CAAC,SAAS,CAAC,QAAQ,CAAC,SAAS,CAAC,QAAQ,CAAC,CAAC,IAAI,aAAa
,CAAC,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,gCAAgC,CAAC,GAAG,
CAAC,MAAM,CAAC,GAAG,CAAC,yBAAyB,CAAC,GAAG,CAAC,iDAAiD,CAAC,GAAG,CAAC,sBAAsB,C
AAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,mBAAmB,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CA
AC,6BAA6B,CAAC,GAAG,CAAC,qCAAqC,CAAC,GAAG,CAAC,uBAAuB,CAAC,GAAG,CAAC,mCAAmC,C
AAC,GAAG,CAAC,qCAAqC,CAAC,GAAG,CAAC,2BAA2B,CAAC,GAAG,CAAC,gCAAgC,CAAC,GAAG,CA
AC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,
CAAC,UAAU,EAAE,MAAM,CAAC,YAAY,CAAC,CAAC,GAAG,CAAC,oBAAoB,CAAC,GAAG,CAAC,qBAA
qB,CAAC,GAAG,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,IAAI,G
AAG,CAAC,UAAU,EAAE,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,G
AAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC
,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I
AAI,wBAAwB,CAAC,MAAM,CAAC,0BA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,
MAAM,CAAC,0BA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,gBAAgB,CAAC,MA
AM,CAAC,kBAAkB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC
,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAA
C,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC
,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CA
AC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,G
AAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,

MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM
,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,
MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CA
AC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,M
AAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,
MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GA
AG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,c
AAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC
,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE
,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CA
C,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAA
C,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,M
AAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC
,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CA
AC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAU
,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CA
AC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAA
M,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,
CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,
EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,I
AAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,M
AAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAA

M,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,
MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iBA
AiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,Y
AAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,c
AAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,
CAAC,CAAC,CAAC,IAAI,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,
MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAA
C,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAA
C,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,
IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CA
AC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC
,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,
CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO
,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU
,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAU,
CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,
IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,MAAM,CAA
C,aAAa,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,WAAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CA
C,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAU,CAAC,CAAC,UAU,CAAC,OAAM,CA
AC,QAAQ,CAAC,MAAM,CAAC,UAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAU,CAAC,C
AAC,UAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAU,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,C
AAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UU,CAAC,CAAC,UU,CAAC,OAAM,CAAC,QAAQ,CA
AC,MAAM,CAAC,UU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UU,CAAC,CAAC,UU,CAAC,OAAM,CAAC,QAAQ,CA
AC,MAAM,CAAC,UU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UU,CAAC,OAAM,CAAC,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,S
AAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,U

Y,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CA
AC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SA
AS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,W
AAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,I
AAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KA
AK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CA
AC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CA
AC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBA
sB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,C
AAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,
oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,
MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,
CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAA
C,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,
IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QA
AQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,K
AAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,
OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,
QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC
,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,C
AAM,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,M
AAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mB
AAmB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM
,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAA
C,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,C
AAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,C

AAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW
,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ
,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,
CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,
IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,
UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM
,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,
KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC
,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC
,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KA
AK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CA
AC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,C
AAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,
CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAA
C,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC
,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,C
AAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK
,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU
,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,
C,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I
AAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,C
AAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAA
C,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MA
AM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,UAAU,CA
AC,OAAM,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2BAA2B,CAAC,MAAM,C

AAC,6BAA6B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAA
M,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,I
AAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4CAA4C,CAAC,MAAM,CAA
C,8CA8C,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4CA4C,CAAC,MAAM,CAAC,8CA8C,CAAC,CAA
C,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,+CA+C,CAAC,MAAM,CAAC,iDAAiD,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,+CA+C,CAA
C,MAAM,CAAC,iDAAiD,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2CA2C,CAAC,MAAM,CAAC,6CA6C,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,2CA2C,CAAC,MAAM,CAAC,6CA6C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kCAAkC,CAAC,MAA
M,CAAC,oCAAoC,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAA
C,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,CAAC,IAAI,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kCAk
C,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,yCAAyC,CAA
C,MAAM,CAAC,2CA2C,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,yCAAyC,CAAC,MAAM,CAAC,2CA2C
C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA
AC,CAAC,CAAC,IAAI,2BA2B,CAAC,MAAM,CAAC,6BA6B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,2
BAA2B,CAAC,MAAM,CAAC,6BA6B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAA
C,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAA
wB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CA
AC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAA
C,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,
MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,4BA4B,CAAC,MAAM,CAAC,8BA8B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4BA4B,
CAAC,MAAM,CAAC,8BA8B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UA
AU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,C
AAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4CA4C,CAAC,MAAM
,CAAC,8CA8C,CAAC,CAAC,KAAK,CAAC,IAAI,8BA8B,CAAC,MAAM,CAAC,gCAAgC,CAAC,CAAC,K
AAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,C
AAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,M
AAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,IAAI,SAAS,CAAC,SAAS,UAAU,CAAC,MAAM,CAAC,CAA
C,IAAI,CAAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,OAAO,CAAC,+BA+B,CAAC,MAAM,CAAC,GAAG,
CAAC,IAAI,CAAC,MAAM,CAAC,OAAM,CAAC,qBAAqB,CAAC,SAS,SAAS,EAAE,CAAC,GAAG,CAAC,S

AAS,CAAC,GAAG,EAAE,CAAC,GAAG,CAAC,SAAS,CAAC,qBAAqB,CAAC,UAAS,CAAC,CAAC,SAAS,GA
AG,CAAC,IAAI,CAAC,CAAuB,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,sBAAsB,CA
AC,CAAC,mBAAmB,CAAC,MAAM,CAAC,CAAC,WAAW,EAAE,CAAC,WAAW,CAAC,CAAC,KAAK,CAA
C,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC
,MAAM,CAAC,SAAS,KAAK,EAAE,CAAC,GAAG,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CAAC,MAAM,C
AAC,WAAW,CAAC,CAAC,IAAI,CAAC,GAAG,KAAK,CAAC,OAAO,WAAW,EAAE,CAAC,OAAO,EAAE,CA
AC,mBAAmB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,sBA
AsB,CAAC,EAAE,CAAC,OAAO,GAAE,CAAC,GAAG,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,C
AAC,WAAW,CAAC,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,M
AAM,CAAC,WAAW,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,GAAE,CAAC,C
AAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,GAAE,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GA
AG,CAAC,SAAS,IAAI,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,GAAG,QAAQ,EAAE,aAAa,EAAE,MAAM,
GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAA
C,WAAW,CAAC,CAAC,KAAK,CAAC,aAAa,CAAC,YAAY,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,IAAI
,UAAU,CAAC,MAAM,CAAC,CAAO,CAAC,GAAG,aAAa,CAAC,CAAE,KAI,CAAC,OAAO,CAAC,mBAAm
B,EAAE,CAAiC,GAAG,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CA
AC,CAAC,KAAK,CAAC,KAI,CAAC,KAK,CAAC,MAM,CAAC,IAAI,UAU,CAAC,MAM,CAAC,EAA
C,CAAC,GAAG,MAM,CAAC,SAS,CAAC,CAAC,CAAC,GAAG,OAO,MAM,CAAC,SAS,CAAC,EAAE
,UAU,CAAC,MAM,CAAC,SAS,CAAC,CAAC,CAAC,MAM,CAAC,SAS,CAAC,CAAC,CAAC,MAM,
MAM,CAAC,SAS,CAAC,CAAC,MAM,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,SAS,CAAC,CAAC,
GAAG,EAAE,GAAE,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,aAAa,CAAC,KAK,CAAC,OAO,CAAC,
UAU,GAAE,CAAC,GAG,EAAE,CAAC;AACn5mE;AACA;AACA,EAAE,OAO,6BAA6B,CAAC,KAK;A
AC5C,CAAC;AACD,EAAE;AACF,CAAC,GAAG,CAAC;AAEH,cAAc,GAAG,6BAA6B;;;AChBzC,MAAM,kBA
AkB,GAAG,ikGAAikG;;;ACCnmG,IAAI,iBAAiB,GAAG,CAAC,WAW;AACpC,EAAE,IAAI,UAU,GAAG,O
AAO,QAAQ,KAK,WAW,IAAI,QAAQ,CAAC,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC,GAAG,GAAG,SAA
S,CAAC;AACtH,EAAE,IAAI,OAAO,UAU,KAK,WAW,EAAE,UAU,GAAG,UAU,IAAI,UAU,CAAC;
AAC/E,EAAE;AACF,SAAS,iBAAiB,EAAE;AAC5B,EAAE,iBAAiB,GAAG,iBAAiB,IAAI,EAAE,CAAC;AAC9
C;AACA,IAAI,MAM,CAAC,OAO,iBAAiB,GAAG,WAW,CAAC,iBAAiB,CAAC,EAAE,CAAC,IAAI,mBA
AmB,CAAC,kBAAkB,CAAC,MAM,CAAC,OAO,CAAC,CAAC,IAAI,OAO,CAAC,SAS,OAO,CAAC,M
AM,CAAC,CAAC,mBAAmB,CAAC,OAO,CAAC,kBAAkB,CAAC,OAM,CAAC,CAAC,CAAC,IAAI,eAAe
,CAAC,EAAE,CAAC,IAAI,GAAG,CAAC,IAAI,GAAG,IAAI,MAM,CAAC,CAAC,GAG,MAM,CAAC,cAA
c,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAAC,MAM,CAAC,GAAG,EAAC,CAAC,
CAAC,IAAI,UAU,CAAC,EAAE,CAAC,IAAI,WAW,CAAC,gBAAgB,CAAC,IAAI,KAK,CAAC,SAS,MA
AM,CAAC,OAO,CAAC,CAAC,MAM,OAO,CAAC,CAAC,IAAI,kBAAkB,CAAC,KAK,CAAC,IAAI,qBA
AqB,CAAC,KAK,CAAC,IAAI,mBAAmB,CAAC,KAK,CAAC,IAAI,oBAAoB,CAAC,KAK,CAAC,kBAAk
B,CAAC,OAO,MAM,GAG,QAAQ,CAAC,qBAAqB,CAAC,OAO,aAAa,GAG,UU,CAAC,mBAAmB,
CAAC,OAO,OAO,GAG,QAAQ,EAAE,OAO,OAO,CAAC,QAAQ,GAG,QAAQ,EAAE,OAO,OAO,
CAAC,QAAQ,CAAC,IAAI,GAG,QAAQ,CAAC,oBAAoB,CAAC,CAAC,CAAC,kBAAkB,EAAE,CAAC,mBAAmB,E
AAE,CAAC,qBAAqB,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,SAS,UU,CAAC,IAAI,CAAC,CAAC,GAAG
,MAM,CAAC,YAY,CAAC,CAAC,CAAC,OAO,MAM,CAAC,YAY,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,
CAAC,CAAC,OAO,eAAe,CAAC,IAAI,KAK,KAK,CAAC,SAS,CAAC,UU,CAAgB,IAAI,MAM,CAA
C,IAAI,QAQ,CAAC,GAG,mBAAmB,CAAC,CAAC,GAG,qBAAqB,CAAC,CAAC,eAAe,CAACL,IAAe,CA
AC,OAO,CAAC,eAAe,CAAC,CAAC,IAAG,CAAC,KAI,CAAC,SAS,CAAC,IAAG,CAAC,KAK,CAAC,SAS,UU,CAAC,QAAQ,CAAC,MAM,CAAC,CAAC,GAG,CAAC,MAM,CAAC,MAM,C
AACC,EAAa,CAAC,GAG,CAAC,QAAQ,CAAC,QAAQ,CACD,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,
WAW,CAAC,CAAC,QAAQ,CAAC,CAAC,OAO,MAM,CAAC,cAc,CAAC,CAAC,QAAQ,CAAC,MAM,
CAAC,IAI,CAAC,MAM,CAAC,CAAC,CAAC,UU,CAAC,SAS,UU,CAAC,QAAQ,CAAC,CAAC,IA
AI,GAG,CAAC,KAK,CAAC,QAAQ,CAAC,IAI,CAAC,CAAC,GAG,CAAC,GAG,CAAC,MAM,CAA

C,CAAC,GAAG,CAAC,IAAI,UAAU,CAAC,GAAG,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC
,CAAC,OAAO,GAAG,CAAC,CAAC,GAAG,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC
,CAAC,WAAW,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC
,GAAG,EAAC,CAAC,UAAU,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,
OAAO,CAAC,IAAI,CAAC,CAAC,mBAAmB,CAAC,SAAS,EAAE,CAAC,CAAC,GAAG,EAAE,EAAE,YAAY,
UAAU,CAAC,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,oB
AAoB,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,
CAAC,MAAM,EAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,4BAA4B,EAA
C,CAAC,KAAK,GAAG,oBAAoB,CAAC,CAAC,GAAG,OAAO,IAAI,EAAE,WAAW,CAAC,CAAC,KAAK,CAA
C,SAAS,UAAU,CAAC,CAAC,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,UAAU,CAAC,S
AAS,UAAU,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,GAAG,OAAO,UAAU,GAAG,UAAU,CAAC,CAAC
,OAAO,IAAI,UAAU,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC
,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,GA
AG,OAAO,UAAU,EAAE,WAW,CAAC,CAAC,UAAU,CAAC,WAU,CAAC,KAK,GAAG,OAAO,SAAS,EA
AE,WAW,CAAC,CAAC,UAAU,CAAC,UAAS,CAAC,GAAG,OAAO,IAAI,GAAG,UAAU,CAAC,CAAC,KAA
K,CAAC,SAAS,MAAM,CAAC,CAAC,IAAI,CAAC,MAAM,EAAC,EAAC,CAAC,GAAG,OAAO,KAAK,GAAG,
WAAW,CAAC,CAAC,GAAG,OAAO,OAAO,GAAG,WAAW,CAAC,OAAO,CAAC,EAAE,CAAC,OAAO,CAA
C,GAAG,CAAC,KAK,CAAC,OAAO,CAAC,IAAI,CAAC,OAAO,CAAC,KAK,CAAC,OAAO,QAAQ,GAAG,
WAAW,CAAC,QAAQ,CAAC,MAAK,CAAC,CAAC,KAK,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,G
AAG,qBAAqB,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,QAAQ,CAAC,KAAI,CAAC,KAK,GAAG,OAAO,QA
AQ,GAAG,WAW,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,eAAe,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,
CAAC,GAAG,UAAU,CAAC,CAAC,eAAe,CAAC,WAAU,CAAC,GAAG,eAAe,CAAC,OAAO,CAAC,OAAO,CA
AC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,eAAe,CAAC,MAAM,CAAC,CAAC,CAAC,eAAe,CAAC,WAW
,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,eAAe,CAAC,GAAE,CAAC,CAAC,KAK,CA
AC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CA
AC,GAAG,CAAC,KAK,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,
YAAY,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,UAAU,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,C
AAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,GAAG,CAAC,KAK,CAAC,CAAC,GAAG,
CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,
GAAG,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,CAAC,SAAS,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,C
AAC,IAAI,GAAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,GAAG,CAAC,IAAI,CA
AC,CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAA
G,CAAC,MAAM,EAAE,GAAG,EAAE,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAA
C,CAAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAA
G,CAAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,IAAI,GA
AG,CAAC,MAAM,CAAC,OAAO,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAA
C,IAAI,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,EAAE,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CA
AC,CAAC,IAAI,GAAG,IAAI,eAAe,CAAC,CAAC,GAAG,eAAe,CAAC,cAAc,CAAC,GAAG,CAAC,CAA
AC,MAAM,CAAC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,
GAAG,MAAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,WAW,CAAC,CAAC,GAAG,MA
AM,CAAC,aAAa,CAAC,CAAC,WAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAAM,CAAC,MA
AM,CAAC,CAAC,KAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,GAAG,MAAM,CA
AC,YAAY,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAA
C,eAAe,CAAC,EAAE,IAAI,CAAC,GAAG,OAAO,WAW,GAAG,QAAQ,CAAC,CAAC,KAK,CAAC,iCAAiC,
EAAC,CAAC,IAAI,UAAU,CAAC,IAAI,KAK,CAAC,KAK,CAAgB,SAAS,MAAM,CAAC,SAAS,CAAC,IAA
I,CAAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,KAK,CAAC,oBAAoB,CAAC,IAAI,EAAC,CAAC,CAAC,
SAAS,QAAQ,CAAC,KAK,CAAC,CAAC,IAAI,IAAI,CAAC,MAM,CAAC,GAAG,CAAC,KAK,CAAC,CA
AC,MAAM,CAAC,IAAI,CAAC,+BAA+B,CAAC,CAAC,KAK,CAAC,4BAA4B,CAAC,CAAC,OAAO,IAAI,CAAC,SA

AS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,C
AAC,CAAC,QAAQ,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,GAAG,GAAG,GAA
G,IAAI,EAAE,GAAG,GAAG,SAAS,EAAE,GAAG,GAAG,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,GA
AG,CAAC,MAAM,EAAE,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,YA
AY,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,OAAO,GAAG,CAAC,CAAC,OAAO,CAAC,SAA
S,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,kBAAkB,CAA
C,GAAG,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,kBAAkB,CAAC,GAAG,CAA
C,CAAC,GAAG,UAAU,GAAG,QAAQ,CAAC,OAAO,YAAY,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAA
G,SAAS,CAAC,OAAO,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,C
AAC,KAAK,CAAC,CAAC,IAAI,KAAK,CAAC,EAAE,CAAC,IAAI,KAAK,CAAC,CAAC,CAAC,GAAG,IAAI,C
AAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,EAAE,C
AAC,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,SAAS,CAAC
,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,C
AAC,SAAS,CAAC,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,
IAAI,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,K
AAK,CAAC,CAAC,GAAG,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,
YAAY,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,Q
AAQ,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAAE,CAAC,IAAI,WAAW,CAAC,QAAQ,CAA
C,KAAK,CAAC,SAAS,IAAI,CAAC,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,CAAC,IAAI,UAAU,CAA
C,UAAU,GAAG,QAAQ,CAAC,GAAG,UAAU,EAAE,WAAW,EAAE,CAAC,IAAI,CAAC,CAAC,OAAO,QAAQ,
CAAC,KAAK,CAAC,CAAC,OAAO,UAAU,CAAC,OAAO,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,
CAAC,SAAc,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,OAAO,WAAW,GAAG,WAAW,CAAC,IAAI,WAW,
CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,SAAS,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,cAAc,CAAC,CA
AC,IAAI,MAAM,CAAC,GAAG,CAAC,cAAc,CAAC,IAAI,MAAM,CAAC,GAAG,CAAC,MAAM,IAAI,CAAC,
MAAM,CAAC,EAAE,EAAE,MAAM,EAAE,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,GAAG,MAAM,CAA
C,GAAG,CAAC,EAAE,EAAE,IAAI,CAAC,QAAQ,EAAE,WAAW,CAAC,CAAC,OAAO,WAW,CAAC,MAA
M,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,KAAI,CAAC,IAAI,GAAG,C
AAC,EAAE,CAAC,MAAM,GAAG,CAAC,MAAM,CAAC,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAA
E,CAAC,CAAC,GAAG,EAAE,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY
,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAA
E,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAA
Y,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,C
AAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAA
G,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,GAAG,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,G
AAE,CAAC,KAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,GAAG,EAAE,CAAC,EAAE,EAAE,EAAE
,CAAC,EAAE,EAAE,CAAC,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,GAAE,CAAC,GAAG,EAAE,CA
AC,KAAK,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,EAAE,EAAC,CAAC,KAAI,CAAC,IAI,
EAAE,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,KAAK,CAAC,EAAE,E
AAE,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS
,YAAY,CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,OAAO,GAAG,CAAC,iBAAiB,CAAC,MAAM,CAAC,GAAG,
CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,iBAAiB,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,eA
Ae,CAAC,CAAC,GAAG,EAAE,eAAe,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,QAAQ,CAAC,
MAAM,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,eAAe,CAAC,IAAI,IAAI,CAAC,CAAC,CAA
C,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,
CAAC,UAAU,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,C
AAC,IAAI,EAAE,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,KAAK,EAA
E,CAAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,KAAI,CAAC,GAAG,CAAC,EAAE,GA
AG,CAAC,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,EA

AC,CAAC,KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAA
C,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,M
AAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CA
AC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CA
AC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,
EAAE,CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GA
AE,CAAC,KAAI,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EA
AE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAG,
CAAC,CAAC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CA
AC,EAAE,CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAG,CAAC,CAAC,CAAC,
GAAE,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,QAAQ,CAAC,S
AAS,YAAY,CAAC,GAAG,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,OAAO,iBAAiB,CAAC,GAAG,CAAC,M
AAM,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,SAAS,kBAAkB,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,
KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,QAAQ,
CAAC,CAAC,GAG,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,CAAC,C
AAC,SAAQ,CAAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,O
AAO,CAAC,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,OAAO,CAAC,SAAS,0BAA0B,CAAC,GAAG,CAAC,
CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,G
AAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CA
AC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CA
AC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAA
C,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,
CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,CAAC,IAAI,YA
AY,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,CAAC,IAAI,YAAY,CAAC,GAA
G,EAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,EAAE,QAAQ,CAAC,IAAI,SAAS,CAAC,I
AAI,YAAY,CAAC,EAAE,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,aA
Aa,CAAC,EAAE,CAA8B,UAAU,CAAC,IAAI,CAAC,CAAC,IAAI,CAAC,UAAU,CAAC,kBAAkB,GAAE,CAA
C,CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,GAAG,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,GAA
G,OAO,MAAM,CAAC,QAAQ,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MA
AM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC,W
AAW,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,YAAY,
EAAC,CAAC,SAAS,WAAW,EAAE,CAAyB,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAO,EAAE,CAAC
,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAO,EAAE,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC
,CAAC,GAAG,OAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,
CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC,W
AAW,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,YAAY,
EAAC,CAAC,SAAS,WAAW,EAAE,CAAyB,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAO,EAAE,CAAC
,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAO,EAAE,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC
,CAAC,GAAG,OAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,
CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,
CAAC,YAAY,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,
aAAa,EAAC,CAAC,SAAS,WAAW,CAAC,EAAE,CAAC,CAAC,YAAY,CAAC,OAO,CAAC,EAAE,EAAC,CA
AC,SAAS,YAAY,CAAC,EAAE,CAAC,CAAC,aAAa,CAAC,OAO,CAAC,EAAE,EAAC,CAAC,IAAI,eAAe,CA
AC,CAAC,CAA+B,IAAI,qBAAqB,CAAC,IAAI,CAAC,SAAS,gBAAgB,CAAC,EAAE,CAAC,CAAC,eAAe,EAA
E,CAAC,GAAG,MAAM,CAAC,wBAAwB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,
EAAC,CAAC,CAAC,SAAS,mBAAmB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAAM,CAAC,
wBAAwB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,GAAG,eAAe,EA
AE,CAAC,CAAC,CAA+F,GAAG,qBAAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBAAqB,CAAC,qBAAqB,CAAC
,IAAI,CAAC,QAAQ,GAAE,CAAC,CAAC,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,MAM,
CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CAAC,GAG,MAAM,CAAC,S
AAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC,IAAI,EAAE,EAAE,CAAC,
GAG,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,IAAI,CAAC,CAAc,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,8CAA8C
,CAAC,IAAI,CAAC,CAAC,IAAI,WAAW,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,CAAC,CA

AC,CAAC,MAAM,CAAC,CAAC,SAAS,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CA
AC,SAAS,CAAC,UAAU,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,OAAO,CA
AC,MAAM,CAAC,GAAG,CAAC,CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC,SAAS,SAAS,CAAC,QAAQ,CAA
C,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa,CAAC,SAAS,CAAC,SAAS,SA
S,CAAC,QAAQ,CAAC,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,cAAc,CAAC,wB
AAwB,CAAC,GAAG,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CAAC,UAAU,CAAC,cAAc,EAA
C,CAAC,SAAS,SAAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,IAAI,EAAE,cAAc,EAAE,UAAU,CAA
C,CAAC,OAAO,IAAI,UAAU,CAAC,UAAU,CAAC,CAAC,GAAG,UAAU,CAAC,CAAC,OAAO,UAAU,CAAC,I
AAI,CAAC,CAAC,KAAI,CAAC,MAAK,iDAAiD,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,KAAK,CAAC,G
AAG,EAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,GAAG,kBAAkB,EAAE,qBAAq
B,CAAC,CAAC,CAAC,GAAG,OAAO,KAAK,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,C
AAC,OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,
QAAQ,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,MAAK,sCAAsC,CAAC,cAAc,C
AAC,GAAG,CAAC,OAAO,QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,UAAU,CA
AC,OAAO,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,GAAG,SAAS,CAAC,CAAC,OAO,I
AAI,OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,SAAS,QAAQ,CAA
C,CAAC,OAAO,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,EAAC,CAAC,CAAC,MAAM,EAAC,CAAC,CAAC,
CAAC,CAAC,CAAC,OAAO,OAAO,CAAC,OAAO,EAAE,CAAC,IAAI,CAAC,UAAU,CAAC,OAAO,SAAS,CA
AC,cAAc,CAAC,CAAC,CAAC,CAAC,SAAS,UAAU,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,GAAG,CAAC,aA
Aa,CAAC,CAAC,SAAS,eAAe,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,
OAAO,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK,CAAC
,CAAC,GAAG,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,GAAG,CAAC,CAAC,mBAAmB,CAAmB,EAAC,CAAC,gBAAgB,CAAmB,CAAC,CAA
C,SAAS,yBAAyB,CAAC,MAAM,CAAC,CAAC,eAAe,CAAC,MAAM,CAAC,UAAU,CAAC,EAAC,CAAC,SAA
S,sBAAsB,CAAC,QAAQ,CAAC,CAAC,OAAO,gBAAgB,EAAE,CAAC,IAAI,CAAC,SAAS,MAAM,CAAC,CAA
C,OAAO,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,QAAQ,
CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,yCAAyC,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAA
M,EAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,EAAE,OAAO,WAAW,CA
AC,oBAAoB,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,
EAAE,OAAO,KAAK,GAAG,UAAU,CAAC,CAAC,OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,a
AAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,WAAW,CAAC,oBAA
oB,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,MAAM,CAAC,IAAI,CAAC,yBAAyB,CAAC,SAAS,MAA
M,CAAC,CAAC,GAAG,CAAC,iCAAiC,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,2CAA2C,CAAC,CAAC,O
AAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,sBAAsB,CAA
C,yBAAyB,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,CAAC,CAAC,GAAG,CAAC,IAAI,OA
AO,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,OAAO,CAAC,MAA
M,CAAC,CAAC,CAAC,GAAG,CAAC,qDAAqD,CAAC,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,CAAC,gB
AAgB,EAAE,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,OAAM,EAAE,CAAC,SAAS,oBAAoB,CAAC,SAAS
,CAAC,CAAC,MAAM,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,CAAC,K
AAK,EAAE,CAAC,GAAG,OAAO,QAAQ,EAAE,UAAU,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,Q
AAQ,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,GAAG,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,G
AAG,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,CAAC,SAAS,CAAC,IAAI,CAAC,GAAE,CAAC,KAAI,CAAC,
KAAI,CAAC,SAAS,CAAC,GAAG,IAAI,CAAC,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,CAAC,K
AAI,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,EAAC,
CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,KAAK,GAAE,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,G
AAG,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,UAAU,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,GA
AG,EAAC,CAAC,SAAS,yBAAyB,EAAE,CAAC,OAAO,MAAM,CAAC,MAAM,CAAC,SAS,yBAAyB,CAAC,
IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,UAAU,CAAC,KAA

K,GAAG,EAAE,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC,SAAS,uBAAuB,CAAC,aAAa,CAAC,CAAC,IAAI,OAAO,CAAC,yBAAyB,EA
AE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,GAAG,aAAa,CAAC,WAAW,CAAC,CAAC,OAAO,KAAK,CAA
C,IAAI,IAAI,OAAO,CAAC,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,IA
AI,iBAAiB,CAAC,OAAO,EAAE,CAAC,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,iBAAiB,CAAC,IAAI,CAA
C,GAAG,CAAC,iBAAiB,CAAC,aAAa,CAAC,SAAS,CAAC,CAAC,IAAI,OAAO,CAAC,IAAI,CAAC,GAAG,CA
AC,WAAW,CAAC,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,aAAa,CAAC,iBAAiB,CAAC,CAAC,KAAK,CAA
C,CAAC,CAAC,IAAI,WAAW,CAAC,yBAAyB,CAAC,OAAO,CAAC,CAAC,GAAG,WAAW,CAAC,CAAC,OA
AO,IAAI,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,QAAQ,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,
CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,IAAI,CAAC
,CAAC,IAAI,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,CAAC,E
AAE,IAAI,GAAG,EAAE,CAAC,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,EAAE,iBA
AiB,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,EAAC,CAAC,KAAI,CA
AC,MAAM,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,
UAAU,CAAC,QAAQ,CAAC,OAAO,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,QAAQ,CAAC,O
AAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,MAM,CAAC,SAAS,GAAG,CA
AC,CAAC,IAAI,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,KAAK,CAA
C,SAAS,GAAG,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CA
AC,CAAC,OAAO,CAAC,CAAC,SAAS,QAAQ,CAAC,EAAE,CAAC,UAAU,CAAC,WAAW,CAAC,MAAM,CA
AC,SAAS,CAAC,EAAE,SAAS,SAAS,CAAC,EAAE,CAAC,GAAG,CAAC,MAM,CAAC,IAAI,CAAC,CAAC,I
AAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,CAAC,
EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,MAM,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CA
AC,CAAC,IAAI,GAAG,CAAC,MAM,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE
,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAA
C,CAAC,QAAQ,CAAC,SAAS,CAAC,EAAE,CAAC,MAM,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,
GAAG,EAAE,IAAG,CAAC,MAM,CAAC,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CA
AC,SAAS,eAAe,EAAE,CAAC,OAAO,CAAC,CAAC,SAAS,aAAa,EAAE,CAAC,OAAO,EAAE,CAAC,SAAS,Q
AAQ,CAAC,KAAK,CAAC,CAAC,MAM,CAAC,iBAAiB,EAAE,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,O
AAO,KAAK,CAAC,SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,EAAE,KAAK,EAAE,CAAC,OAAO,
KAAK,CAAC,KAAK,EAAE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,
KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,
KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KA
AK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK
,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,E
AAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,MAAM,CAAC,KAAK,EAAE,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG
,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CA
AC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAM,CAAC,CAAC,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAG
,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,

CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,C
AAC,OAAO,IAAI,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAA
C,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,UAAU,CAAC,KAAK,EAAE,CAAC,
KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,KAA
K,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO
,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,
EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,G
AAG,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,KAAK,GAAG,CAAC,OAAO,EAAE,CAAC,KAAK,EA
AE,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,CAA
C,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,GAAG,OAAO,SAAS,GAAG,
QAAQ,CAAC,OAAO,SAAS,CAAC,qBAAqB,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,
CAAC,EAAE,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,CAAC,GAAG,CAAC,MAAM,CA
AC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,uBAAuB,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,Q
AAQ,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,GAAG,CAA
C,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,EAAE,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAo
B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,
CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAA
C,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAA
G,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,o
BAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
C,IAAI,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,gBAAgB,CAAC,
MAAM,CAAC,kBAAkB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG
,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UA
AU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,I
AAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,M
AAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC
,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,
KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC
,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAA
U,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CA
AC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,Y

AAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,c
AAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,
KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,
KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAA
C,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MA
AM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC
,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,C
AAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,C
AAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAA
M,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,sBAAs
B,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC
,wBAAwB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAA
C,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAA
C,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KA
AK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CA
AC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,
CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MA
AM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC
,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,M
AAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qBAAqB,CAAC,MAAM,CAAC,uB
AAuB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,C
AAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAA

C,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC
,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CA
AC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,C
AAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC
,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,
CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAM,
CAAC,YAY,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,UAU,CAAC,MAM,CAAC,YAY,CAAC,CAAC,
MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CA
AC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UU,CAAC,OAM,CAAC,IAI,CAAC,MAM,
CAAC,MAM,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,II,C
AAC,SS,CAAC,CAAC,CAAC,II,WW,CAAC,MM,CAAC,aa,CAAC,CAAC,UU,CAAC,OA
M,CAAC,WW,CAAC,MM,CAAC,aa,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,CA
AC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,II,CAAC,MM,CAAC,MM,C
AAC,CAAC,UU,CAAC,OM,CAAC,II,CAAC,MM,CAAC,MM,CAAC,CAAC,MM,CAAC,K
AK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,QQ,C
AAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,
CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAA
C,CAAC,CAAC,II,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ
,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,C
AAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,UU
,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,MM,CAAC,KK,CAAC,CAA
C,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,II,CAAC,MM,CAAC
,MM,CAAC,CAAC,UU,CAAC,OM,CAAC,II,CAAC,MM,CAAC,MM,CAAC,CAAC,MA
M,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,IA
II,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CA
AC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,
SS,CAAC,CAAC,CAAC,II,UU,CAAC,MM,CAAC,YY,CAAC,CAAC,UU,CAAC,OM,C
AAC,UU,CAAC,MM,CAAC,YY,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EA
EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,SS,CAAC,MM,CAAC,WW,CAAC,
CAAC,UU,CAAC,OM,CAAC,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KA
K,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,II,CAAC,
MM,CAAC,MM,CAAC,CAAC,UU,CAAC,OM,CAAC,II,CAAC,MM,CAAC,MM,CAAC
,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAA
C,CAAC,II,oBAAoB,CAAC,MM,CAAC,sBAAsB,CAAC,CAAC,UU,CAAC,OM,CAAC,oBAAoB,
CAAC,MM,CAAC,sBAAsB,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,
CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,oBAAoB,CAAC,MM,CAAC,sBAAsB,CAAC,CAAC,
UU,CAAC,OM,CAAC,oBAAoB,CAAC,MM,CAAC,sBAAsB,CAAC,CAAC,MM,CAAC,KK,C
AAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,oBAAoB,CAAC,
MM,CAAC,sBAAsB,CAAC,CAAC,UU,CAAC,OM,CAAC,oBAAoB,CAAC,MM,CAAC,sBAAsB,
CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,CAAC,II,CAAC,SS,CAA
C,CAAC,II,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,SS,
CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,II,CAAC,EE,KK,

CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAM,CA
AC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CA
AC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,MAAM,CAAC,MAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAM,CAAC,OAAO,CAAC
,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAM,CAAC,OAAO,CAAC,CAAC,MAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAA
C,MAM,CAAC,UAU,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAM,CAAC,UAU,CA
AC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,CAAC,IAAI,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,CAAC,KAK,CA
AC,MAM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,UAU,C
AAC,OAM,CAAC,MAM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,
IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,MAM,CAAC,i
BAAiB,CAAC,CAAC,UAU,CAAC,OAM,CAAC,eAAe,CAAC,MAM,CAAC,iBAAiB,CAAC,CAAC,MAA
M,CAAC,KAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,QAQ,CAAC,MAM,CAAC,UAU,CAAC,CAAC,UAU,CAAC,OAM,CAAC,QAQ,CAAC,MAM,CA
AC,UAU,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAAE,KAK,CAAC,IAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAI,iBAAiB,CAAC,MAM,CAAC,mBAAmB,CAAC,CAAC,UAU,CAAC,OAA
M,CAAC,iBAAiB,CAAC,MAM,CAAC,mBAAmB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,C
AAC,EAAE,KAK,CAAC,IAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAI,MAM,CAAC,MAM,CAAC,QAA
Q,CAAC,CAAC,UAU,CAAC,OAM,CAAC,MAM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,MAM,CA
AC,KAK,CAAC,CAAC,IAI,CAAC,EAAE,KAK,CAAC,IAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAI,MA
AM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,UU,CAAC,OM,CAAC,MAM,CAAC,MAM,CAAC,
QAQ,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SAAS
S,CAAC,CAAC,CAAC,IAI,UU,CAAC,MM,CAAC,YY,CAAC,CAAC,UU,CAAC,OM,CAAC,
UU,CAAC,MM,CAAC,YY,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,K
KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAA
C,UU,CAAC,OM,CAAC,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CA
AC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,MA
AM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,C
AAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,
CAAC,IAI,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,UU,CAAC,OM,CAAC,IAI,CAAC,MA
AM,CAAC,MM,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI
,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,O
AM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,C
AAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,KK,CAAC,MM,CAAC,OO
,CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,MM,CAA
C,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OA
O,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OM,CAAC,OO,CAAC,MM,CAAC,SA
S,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CA
AC,CAAC,IAI,kBkB,CAAC,MM,CAAC,oBoB,CAAC,CAAC,UU,CAAC,OM,CAAC,kB
BkB,CAAC,MM,CAAC,oBoB,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EA

E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,M
AAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAA
C,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,
CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC
,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAM,CAAC,YA
AY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAM,CAAC,YAAY,CAAC,CAAC,MAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,U
AAU,CAAC,MAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAM,CAAC,
YAAY,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aA
Aa,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,OAAO,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAM,CAA
C,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAM,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I
AAI,iBAAiB,CAAC,MAM,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MA
AM,CAAC,mBAAmB,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,SAAS,CAAC,MAM,CAAC,WAW,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAM,CAAC,cAAc
,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAM,CAAC,cAAc,CAAC,CAAC,MAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,
CAAC,MAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAM,CAAC,YAAY
,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,MAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,SAAU,CAAC,
MAM,CAAC,MAM,CAAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,YAAY,CAAC,OAAO,CAAC,+BAA+B,CAAC,M
AM,CAAC,GAAG,CAAC,IAAI,CAAC,MAM,CAAC,OAM,CAAC,qBAAqB,CAAC,SAAS,SAAS,EAAE,C
AAC,GAAG,CAAC,SAAS,CAAC,GAAG,EAAE,CAAC,GAAG,CAAC,SAAS,CAAC,qBAAqB,CAAC,UAAS,C
AAC,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAuB,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAM,CAA
C,MAM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,SAAS,KAAK,EAAE,CAAC,
GAAG,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CAAC,MAM,CAAC,WAW,CAAC,CAAC,IAAI,CAAC,GA
AG,KAAK,CAAC,OAAO,WAW,EAAE,CAAC,OAAO,EAAE,CAAC,mBAAmB,CAAC,MAM,CAAC,CAAC,
GAAG,MAM,CAAC,sBAAsB,CAAC,CAAC,MAM,CAAC,sBAAsB,CAAC,EAAE,CAAC,OAAO,GAAE,CA

AC,GAAG,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,GAAE,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,GAAE,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,GAAG,EAAE,GAAE,CAAC,CAAC,GAAG,EAAE,CAAC;AAC334B;AACA;AACA,EAAE,OAAO,iBAAiB,CAAC,KAAK;AAChC,CAAC;AACD,EAAE;AACF,CAAC,GAAG,CAAC;AAEH,cAAc,GAAG,iBAAiB;;;AChBpC;;;;;;;;;;;;;;;MAuCa,WAAY,SAAQ,aAAa;IAK5C,YAAmB,IAAAqD;QACtE,KAAK,EAAE,CAAC;QADS,SAAI,GAAJ,IAAI,CAAiD;;QAHhE,UAAK,GAAG,CAAC,CAAC;QAIjB,IAAI,CAAC,KAAK,GAAG,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC

CAAC,CAAC,YAAY,CAAC;KAChD;IAED,OAAO;QACL,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,EAAE
,CAAC;QACzB,IAAI,SAAS,IAAI,IAAI,CAAC,IAAI,EAAE;YAC1B,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,m
BAAmB,EAAE,CAAC;SACzC;QACD,IAAI,CAAC,IAAI,GAAG,IAAI,CAAC;KAClB;IAED,MAAM;QACJ,OA
AO,EAAC,UAAU,EAAE,KAAK,EAAC,CAAC;KAC5B;;;;;;;IAQD,UAAU,CAAC,KAAe,EAAE,KAAe,EAAE,Y
AAqB;QAEhE,IAAI,MAAU,CAAC;QACf,IAAI,YAAY,IAAI,IAAI,EAAE;YACxB,MAAM,GAAG,IAAI,CAAC,
KAAK,CAAC,IAAI,eAAe,KAAK,EAAE,KAAK,CAAC,CAAC;SACtD;aAAM;YACL,MAAM,EAAE,GAAG,IA
AI,CAAC,gBAAgB,EAAE,CAAC;YACnC,MAAM,GAAG,EAAC,EAAE,EAAC,CAAC;YACd,IAAI,CAAC,SAAS
,CAAC,GAAG,CAAC,MAAM,EAAE,EAAC,EAAE,EAAE,YAAY,EAAE,KAAK,EAAE,KAAK,EAAE,QAAQ,
EAAE,CAAC,EAAC,CAAC,CAAC;YAC1E,MAAM,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAA
C;YACvC,IAAI,CAAC,IAAI,CAAC,cAAc,CAAC,EAAE,EAAE,IAAI,EAAE,YAAY,CAAC,CAAC;
SACvD;QACD,OAAO,EAAC,MAAM,EAAE,KAAK,EAAE,KAAK,EAAC,CAAC;KAC/B;IAED,kBAAkB,CAA
C,EAAC,KAAK,EAAE,KAAK,EAAE,MAAM,EAAEa;QAEnD,MAAM,MAAM,GAAG,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,
MAAM,CAAC,MAAM,CAAC;QACvC,MAAM,EAAC,YAAY,EAAC,GAAG,IAAI,CAAC,SAAS,CAAC,SAAS,CAAC,GAAG,
CAAC,MAAM,CAAC,CAAC;QAClD,MAAM,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC;QACvC,QA
CvC,QAAQ,KAAK;YACX,KAAK,SAAS;gBACZ,OAAO,IAAI,YAAY,CAAC,MAAM,EAAE,YAAY,EAAE,IAA
I,CAAC,CAAC;YACtD,KAAK,OAAO;gBACV,OAAO,IAAI,UAAU,CAAC,MAAM,EAAE,YAAY,EAAE,IAAI,
CAAC,CAAC;YACpD,KAAK,MAAM;gBACT,OAAO,IAAI,UAAU,CAAC,MAAM,EAAE,YAAY,EAAE,IAAI,
CAAC,CAAC;YACpD;gBACE,MAAM,IAAI,KAAK,CAAC,iBAAiB,KAAK,EAAE,CAAC,CAAC;SAC7C;KAC
F;CACF;AAED,SAAS,yBAAyB,CAAC,IAAY;;;;IAI7C,OAAO,CAAC,OAAY,EAAE,QAAa;QACjC,IAAI,CAAC
,KAAK,CAAC,IAAI,EAAE,EAAC,WAAW,EAAE,aAAa,EAAC,CAAC,CAAC,IAAI,CAAC,CAAC,QAAQ;YAC
3D,IAAI,CAAC,QAAQ,CAAC,IAAI,EAAE;gBACnB,OAAO,CAAC,GAAG,CAAC,uCAA
uC,IAAI,GAAG,CAAC,CAAC;aAC/D;YACD,IAAI,CAAC,WAAW,EAAE,CAAC,IAAI,CAAC,MAAM;gBAC
hC,WAAW,CAAC,WAAW,CAAC,MAAM,EAAE,OAAO,CAAC,CAAC,IAAI,CAAC,MAAM;oBAClD,QAAQ,C
AAC,MAAM,CAAC,QAAQ,EAAE,MAAM,CAAC,MAAM,CAAC,CAAC;iBAC1C,CAAC,CAAC;aACJ,CAAC,
CAAC;SACJ,CAAC,CAAC;QACH,OAAO,EAAE,CAAC;KACX;IAED,MAAM,SAAS,mBAAmB,CAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,
mBAAmB,CACxB,aAAsB,EAAE,gBAAyB,EAAE,gBAAyB,EAAE,gBAAyB;IAC1B,IAAI,QAAQ,IAAI,IAAI,EAAE;;;QAGpB,
OAAO,QAAQ,CAAC;KACjB;IAED,IAAI,IAAI,GAAG,IAAI,CAAC,GAAG,mBAAmB,wBAAwB,CAAC;IACpD,IAAI,aAAa,IAAI,gBAAgB,E
AAE;QACrC,IAAI,GAAG,sCAAsC,CAAC;KAC/C;SAAM,IAAI,aAAa,EAAE;QACxB,IAAI,GAAG,6BAA6B,C
AAC;KACtC;IAED,IAAI,WAAW,IAAI,IAAI,EAAE;QACvB,IAAI,WAAW,CAAC,IAAI,IAAI,IAAI,IAAI,IAAI,EAAE
E;YAC7B,OAAO,WAAW,CAAC,IAAI,CAAC,CAAC,SAC1B;KACF;IAED,OAAO,gBAAgB,GAAG,IAAI,CAA
C;AACjC,CAAC;AAED;;;;;;;AAOO,eAAe,IAAI;IACxB,MAAM,CAAC,aAAa,EAAE,gBAAgB,CAAC,CAAC,QAAQ,EAAE,MAAM,EAAE,MAAM,CAAC,CAAC,IAAI,CAAC,
MAAM,OAAO,CAAC,GAAG,CAAC;QAC1D,MAAM,KAAK,GAAG,IAAI,CAAC,KAAK,CAAC,QAAQ,CAAC,CAAC;QACnC,MAAM,KAAK,GAAG,IAAI,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;QACj

AGC,eAAW,CAAC,aAAa,CAAC,CAAC;SACnC;;;QAID,IAAI,CAAC,IAAI,CAAC,CAAC,MAAM;YACf,WAAA
W,GAAG,IAAI,CAAC;YACnB,WAAW,GAAG,KAAK,CAAC;YAEpB,MAAM,cAAc,GAAW,IAAI,CAAC;;YA
EpC,MAAM,CAAC,IAAI,GAAG;gBACZ,IAAI,EAAE,MAAM,CAAC,KAAK,CAAC,MAAM,EAAE,IAAI,EAA
E,EAAE,CAAC;gBACpC,oBAAoB,EAChB,MAAM,CAAC,KAAK,CAAC,yBAAyB,EAAE,IAAI,EAAE,CAAC,
QAAQ,CAAC,CAAC;gBAC7D,eAAe,EAAE,MAAM,CAAC,KAAK,CAAC,mBAAmB,EAAE,QAAQ,EAAE,EA
AE,CAAC;gBAChE,cAAc,EAAE,MAAM,CAAC,KAAK,CACxB,iBAAiB,EAAE,IAAI,EACvB;oBACE,QAAQ;o
BACR,QAAQ;oBACR,QAAQ;iBACT,CAAC;gBACN,WAAW,EAAE,MAAM,CAAC,KAAK,CAAC,cAAc,EAA
E,cAAc,EAAE,CAAC,QAAQ,CAAC,CAAC;gBACrE,OAAO,EAAE,MAAM,CAAC,KAAK,CAAC,SAAS,EAAE
,cAAc,EAAE,EAAE,CAAC;aACrD,CAAC;YAEF,OAAO,CAAC,EAAC,IAAI,EAAE,MAAM,CAAC,KAAK,CAAC,CAA
C;SACzB,CAAC,CAAC;KACJ,CAAC,CAAC;AACL,CAAC;AAED,SAAS,oBAAoB,CACzB,mBAAmB,EAAE,eAAe,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,K
AAe;IACtC,QAAQ,KAAK;QACX,KAAK,SAAS;YACZ,OAAO,IAAI,YAAY,CAAC,MAAM,CAAC,CAAC;QAC
lC,KAAK,OAAO;YACV,OAAO,IAAI,UAAU,CAAC,MAAM,CAAC,CAAC;QAChC,KAAK,MAAM;YACT,OA
AO,IAAI,UAAU,CAAC,MAAM,CAAC,CAAC;QAChC;YACE,MAAM,IAAI,KAAK,CAAC,iBAAiB,KAAK,EA
AE,CAAC,CAAC;KAC7C;AACH,CAAC;AAED,MAAM,eAAe,GAAW,IAAI,CAAC,wBAAwB,EAAE,6BAA6B;IACv
D,sCAAsC;CAC9B,CAAE;AAGZ,IAAI,QAAQ,GAAW,IAAI,CAAC;AAC5B,IAAI,cAAc,GAAW,IAAI,CAAC;A
AClC,IAAI,WAAW,GAAuC,EAAE,CAAC;AACzD,IAAI,WAAW,GAAG,KAAK,CAAC;AACxB,IAAI,WAAW,
GAAG,KAAK,CAAC;AAExB;;;;;;;;;;;SAYgB,WAAW,CAAC,IAAY,EAAE,gBAAgB,GAAG,KAAK;IAChE,eA
Ae,CACX,8DAA8D;QAC9D,uCAAuC,CAAC,CAAC;IAC7C,IAAI,WAAW,EAAE;QACf,MAAM,IAAI,KAAK,C
ACX,+DAA+D;YAC/D,mEAAmE,CAAC,CAAC;KAC1E;IACD,QAAQ,GAAG,IAAI,CAAC;IAChB,WAAW,GA
AG,gBAAgB,CAAC;AACjC,CAAC;AAED;;;;;;;;;;;

cpu/dist/kernels/Concat_impl.js","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/Max.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/MaxPool.ts","../src/kernels/Maximum.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/MirrorPad.ts","../src/kernels/Minimum.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/OneHot.ts","../src/kernels/NotEqual.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Prelu.ts","../src/kernels/Pow.ts","../src/kernels/Prod.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Range.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Range_impl.js","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/ScatterNd.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Softmax.ts","../src/kernels/Sin.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Step.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sum.ts","../src/kernels/Sub.ts","../src/kernels/Tile.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/Unpack.ts","../src/register_all_kernels.ts","../src/kernels/ZerosLike.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../src/base.ts","../src/version.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n *
 distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n   (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n   transposeB: boolean, activation: number, biasId: number,\n   preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n

void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n   'number',
  // a_id\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number', // b_shape.length\n   'number', // transpose_a\n   'number', // transpose_b\n   'number', // activation\n   'number', // biasId\n   'number', // preluActivationWeightsId\n   'number', // leakyreluAlpha\n   'number'   // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n`_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null) {\n   const biasData = backend.dataIdMap.get(bias.dataId);\n   if (biasData.shape.length !== 1) {\n   throw new Error(\n   `_FusedMatMul only supports rank-1 bias but got ` +\n   `rank ${biasData.shape.length}.`);\n   }\n   biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n   backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n   FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n   throw new Error(\n   `${activation} activation not yet supported for FusedConv2D ` +\n   `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] :\n   b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n   aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n   transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n   leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n   kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n   wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n   'number', // out_id\n   ]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n   TensorInfo {\n   const {backend, inputs: {x}} = args;\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const out = backend.makeOutput(x.shape, outType || x.dtype);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n\n   // Short-circuit zero-sized tensors.\n   if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n   }\n\n   wasmFunc(xId, CppDType[x.dtype], outId);\n   return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n
 * limitations under the License.\n *
==========\n
*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
 /\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n   kernelName: string, supportsFullBroadcast: boolean,\n   dtype?: DataType): KernelConfig {\n let wasmFunc:\n   (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n   bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n   void;\n\n function setupFunc(backend: BackendWasm): void {\n   wasmFunc = backend.wasm.cwrap(kernelName, null / void */, [\n   'number', // a_id,\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number', // b_shape.length\n   'number', // dtype\n   'number'   // out_id\n   ]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n   TensorInfo {\n   const {backend, inputs} = args;\n   const {a, b} = inputs;\n   const aId = backend.dataIdMap.get(a.dataId).id;\n   const bId = backend.dataIdMap.get(b.dataId).id;\n\n   const outputType = dtype != null ? dtype : a.dtype;\n   const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n   const out = backend.makeOutput(newShape, outputType);\n\n   // Short-circuit zero-sized tensors.\n   if (util.sizeFromShape(newShape) === 0) {\n   return out;\n   }\n\n   const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n   const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   const kernelFunc = () => wasmFunc(\n   aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n   CppDType[a.dtype], outId);\n\n   // Currently only some float operations support full broadcast.\n   if (supportsFullBroadcast && a.dtype === 'float32') {\n   kernelFunc();\n   return out;\n   }\n\n   const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n   const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n   const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n   const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n   if (loopsOverAllOfA && loopsOverAllOfB) {\n   kernelFunc();\n   return out;\n   } else {\n   throw new Error(\n   `Broadcasting along outer dims is not yet ` +\n   `supported for ${a.dtype} ${kernelName}.`);\n   }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
 by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All

Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const {inputs, backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType} from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // dtype\n 'number', // outId\n 'array', // perm\n

'number', // perm.length\n]);\n}\n\nexport function transpose(\n   args:\n   {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n   if (perm[i] !== i) {\n   permIsNoOp = false;\n   }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n   dataId: inputs.x.dataId,\n   shape: reducedShape,\n   dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n   const cloned = identity({inputs, backend});\n   cloned.shape = outShape;\n   return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n   perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n   outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction removeOneSizeDims(\n   shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n   if (shape[i] !== 1) {\n   newShape.push(shape[i]);\n   }\n   if (shape[perm[i]] !== 1) {\n   newPerm.push(perm[i]);\n   }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n   let minValIdx = -1;\n   for (let j = 0; j < newPerm.length; ++j) {\n   if (newPerm[j] >= i &&\n   (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n   minValIdx = j;\n   }\n   }\n   newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   input = transposed;\n   inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmAll(inputId,\n reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape =

backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
 or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n   x: TensorInfo, axis: number|number[], backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes,
 xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n   const newShape: number[] = new Array(xRank);\n   for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = xShape[permutedAxes[i]];\n   }\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n   xTransposed =\n   transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n   if (transposedId !== xId) {\n   inputWasTransposed = true;\n   }\n }\n\n return {transposed: xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n   TensorInfo {\n const {backend, inputs,
 attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   input = transposed;\n   inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if

(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n

}\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n

* ===\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, outerSize: number, innerSize: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // outer_size\n 'number', // inner_size\n 'number' // out_id\n]);\n}\n\nfunction argmax(\n args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId

= xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n

kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

* ===\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, strideHeight: number,\n strideWidth: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n

'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // channels\n 'number', // outId\n]);\n}\n\nfunction avgPool(\n args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n throw new Error(\n `was backend only supports average pooling with dilation = [1, 1], ` +\n `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n `shape must have the same number of elements.`);\n\n // Backend needs to track refCount for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape:

```
Uint8Array, bShapeSize: number, transposeA: boolean,\n    transposeB: boolean, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm) {\n  wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul,
null /* void */, [\n    'number',  // a_id\n    'array',   // a_shape\n    'number',  // a_shape.length\n    'number',  // b_id\n
'array',   // b_shape\n    'number',  // b_shape.length\n    'number',  // transpose_a\n    'number',  // transpose_b\n
'number'   // out_id\n  ]);\n}\n\nfunction batchMatMul(args: {\n  inputs: BatchMatMulInputs,\n  backend:
BackendWasm,\n  attrs: BatchMatMulAttrs\n}) {\n  const {inputs, backend, attrs} = args;\n  const {a, b} = inputs;\n
const
 {transposeA, transposeB} = attrs;\n\n  if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n    throw new Error(\n
`BatchMatMul for non non-float32 tensors not yet supported.`);\n  }\n\n  const aRank = a.shape.length;\n  const
bRank = b.shape.length;\n\n  const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n  const
innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n  const outerShapeA = transposeA ?
a.shape[aRank - 1] : a.shape[aRank - 2];\n  const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank -
1];\n\n  const outerDimsA = a.shape.slice(0, -2);\n  const outerDimsB = b.shape.slice(0, -2);\n\n  const batchDimA =
util.sizeFromShape(outerDimsA);\n  const batchDimB = util.sizeFromShape(outerDimsB);\n\n  const
batchDimsCompatible =\n      batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n
util.assert(\n      aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n      () => `Error in matMul: the input
batch dimensions
 must either be the ` +\n          `same or at least one input batch dimension must be 1. Got input ` +\n          `batch
dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n  const outShapeOuterDims =\n      batchDimA >
batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n  const outShape =
outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n  util.assert(\n      innerShapeA === innerShapeB,\n
() => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n          `${innerShapeB}) of Tensors with shapes
${a.shape} and ` +\n          `${b.shape} and transposeA=${transposeA}` +\n          ` and transposeB=${transposeB}
must match.`);\n\n  const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n
[batchDimA, outerShapeA, innerShapeA];\n  const b3dShape = transposeB ? [batchDimB, outerShapeB,
innerShapeB] :\n                                  [batchDimB, innerShapeB, outerShapeB];\n\n  // The rest of the
implementation is
 designed to operate on rank-3 tensors\n  const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n
const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n  const a3dId =
backend.dataIdMap.get(a3d.dataId).id;\n  const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n  const leftDim =
transposeA ? a3d.shape[2] : a3d.shape[1];\n  const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n  const
batchDim = Math.max(batchDimA, batchDimB);\n\n  const out = backend.makeOutput([batchDim, leftDim,
rightDim], a3d.dtype);\n  const outId = backend.dataIdMap.get(out.dataId).id;\n\n  const aShapeBytes = new
Uint8Array(new Int32Array(a3d.shape).buffer);\n  const bShapeBytes = new Uint8Array(new
Int32Array(b3d.shape).buffer);\n\n  wasmBatchMatMul(\n      a3dId, aShapeBytes, a3d.shape.length, b3dId,
bShapeBytes,\n      b3d.shape.length, transposeA, transposeB, outId);\n\n  backend.disposeData(a3d.dataId);\n
backend.disposeData(b3d.dataId);\n\n  out.shape = outShape;\n
 return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n  kernelName: BatchMatMul,\n
backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\nimport { backend_util, buffer, Slice, slice_util, util } from '@tensorflow/tfjs-core';\nimport
```

{ assertNotComplex } from '../cpu_util';\nexport function sliceImpl(vals, begin, size, shape, dtype) {\n const isContinous = slice_util.isSliceContinous(shape, begin, size);\n const length = util.sizeFromShape(size);\n const xStrides = util.computeStrides(shape);\n if (isContinous) {\n const flatOffset = slice_util.computeFlatOffset(begin, xStrides);\n if (dtype === 'string') {\n return vals.slice(flatOffset, flatOffset + length);\n }\n return vals.subarray(flatOffset, flatOffset + length);\n }\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(vals) :\n vals;\n const inBuf = buffer(shape, dtype, decodedData);\n const outBuf = buffer(size, dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n const outLoc = outBuf.indexToLoc(i);\n const inLoc = outLoc.map((idx, j) => idx + begin[j]);\n outBuf.set(inBuf.get(...inLoc), ...outLoc);\n }\n if (dtype === 'string') {\n return backend_util.fromStringArrayToUint8(outBuf.values);\n }\n return outBuf.values;\n}\nexport function slice(args) {\n const { inputs, backend, attrs } = args;\n const { x } = inputs;\n const { begin, size } = attrs;\n assertNotComplex(x, 'slice');\n const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n const vals = backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n kernelName: Slice,\n backendName: 'cpu',\n kernelFunc: slice\n};\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQU8sRUFBQyxZQUFZLENBQUM7QUFDZCxPQUFPLEVBQUUsa0JBQWtCLEVBQUUsTUFBTSxlQUFlLENBQUM7QUFDbkQsT0FBTyxLQUFLLFVBQVUsTUFBTSxlQUFlLENBQUM7QUFDNUMsT0FBTyxLQUFLLGFBQWEsTUFBTSxrQkFBa0IsQ0FBQztBQUNsRCxPQUFPLEtBQUssSUFBSSxNQUFNLFNBQVMsQ0FBQztBQUNoQyxPQUFPLEVBQUUsTUFBTSxFQUFFLE1BQU0sZUFBZSxDQUFDO0FBQ3ZDLE9BQU8sRUFBRSxVQUFVLEVBQUUsTUFBTSxlQUFlLENBQUM7QUFDM0MsT0FBTyxFQUFFLFVBQVUsRUFBRSxNQUFNLGVBQWUsQ0FBQztBQUMzQyxPQUFPLEVBQUUsVUFBVSxFQUFFLE1BQU0sZUFBZSxDQUFDO0FBQzN

QyxnQkFBZ0IsQ0FBQyxDQUFDLEVBQUUsS0FBSyxFQUFFLElBQUksQ0FBQyxDQUFDO0lBQ3BFLFVBQ
VUsQ0FBQyxpQkFBaUIsQ0FBQyxDQUFDLEVBQUUsTUFBTSxFQUFFLEtBQUssQ0FBQyxDQUFDO0lBRS
9DLE1BQU0sSUFBSSxHQUFHLE9BQU8sQ0FBQyxJQUFJLENBQUMsR0FBRyxDQUFDLENBQUMsQ0FBQ
yxNQUFNLENBQUMsQ0FBQyxNQUFNLENBQUM7SUFDL0MsMsR0FBRyxDQUFDLENBQUMsQ0FBQyxDQUFDO
DLElBQUksRUFBRSxNQUFNLEVBQUUsS0FBSyxFQUFFLENBQUMsQ0FBQyxLQUFLLEVBQUUsQ0FBQy
xDQUFDLEtBQUssRUFBRSxDQUFDLENBQUMsQ0FBQztIQ2pFLE9BQU8sTTBTyxDQUFDLENBQ
VBQUUsQ0FBQyxDQUFDLEtBQUssRUFBRSxPQUFPLENBQUMsQ0FBQztBQUNuRCxDQUFDO
bIi8qKlxuICogQGxpY2Vuc2VcbiAqIENvcHlyaWdodCAyMDIwIEdvb2dsZSBMTEMuIEFsbCBSaWdodHMgUm
VzZXJ2ZWQuXG4gKiBMaWNlbnNlZCB1bmRlciB0aGUgQXBhY2hlIExpY2Vuc2UsIFZlcnNpb24gMi4wICh0a
GUgXCJMaWNlbnNlXCIpO1xuICogeW91IG1heSBub3QgdXNlIHRoaXMgZmlsZSBleGNlcHQgaW4gY29tcGxp
YW5jZSB3aXRoIHRoZSBMaWNlbnNlLlxuICogWW91IG1heSBvYnRhaW4gYSBjb3B5IG9mIHRoZSBMaWNlbnNlIG
nNlIGF0XG4gKlxuICogaHR0cDovL3d3dy5hcGFjaGUub3JnL2xpY2Vuc2VzL0xJQ0VOU0UtMi4wXG4gKlxuIC
ogVW5sZXNzIHJlcXVpcmVkIGJ5IGFwcGxpcGF3IG9yIGFncmVlZCB0byBpbiB3cml0aW5nLCBzb2
Z0d2FyZVxuICogZGlzdHJpYnV0ZWQgdW5kZXIgdGhlIExpY2Vuc2UgaXMgZGlzdHJpYnV0ZWQgb24gYW4g
XCJBUyBJU1wiIEJBU0lTLFxuICogV0lUSE9VVCBXQVJSQU5USUVTIE9SIENPTkRJVElPTlMgT0YgQU5ZI
EtJTkQsIGVpdGhlciBleHByZXNzIG9yIGltcGxpZWQuXG4gKiBiBTZWUgdGhlIExpY2Vuc2UgZm9yIHRoZSBzc
GVjaWZpYyBsYW5ndWFnZSBnb3Zlcm5pbmcgcGVybWlzc2lvbnMgYW5kXG4gKiBiBsaW1pdGF0aW9uc
JhY2tlbmRWYWx1ZXMsIGJ1ZmZlciwgRGF0YVR5cGUsIEtlcm5lbENvbmZpZywgS2VybmVsRnVuYywgU2xp
Y2UsIHNsaWNlX3V0aWwsIFNsaWNlQXR0cnMsIFNsaWNlSW5wdXRzLCBUZW5zb3JJbmZvLCBUeXBlZEF
ycmF5LCB1dGlsSBmcm9tICdAdGVuc29yZmxvdy90ZmpzLWNvcmUnO1xuXG5pbXBvcnQge01hdGhCYWNr
ZW5kQ1BVfSBmcm9tICcuLi9iYWNrZW5kX2NwdSc7XG5pbXBvcnQge2Fzc2VydE5vdENvbXBsZXh9IGZyb2
0gJy4uL2NwdV91dGlsJztcblxuZXhwb3J0IGZ1bmN0aW9uIHNsaWNlSW1wbChcbiAgICB2YWxzOiBCYWNrZ
W5kVmFsdWVzLCBiZWdpbjogbnVtYmVyW10sIHNpemU6IG51bWJlcltdLCBzaGFwZTogbnVtYmVyW10sXG
4gICAgZHR5cGU6IERhdGFUeXBlKTogQmFja2VuZFZhbHVlcyB7XG4gICAgcmV0dXJuIGNvbnN0IG91dCA9IG
xpY2VfdXRpbC5pc1NsaWNlQ29udGlub3VzKHNoYXBlLCBiZWdpbiwgc2l6ZSk7XG4gICAgcmV0dXJuIG
hJpZGVzKHNoYXBlKTtcblxuICBpZiAoaXNDb250aW5vdXMpIHtcbiAgICBjb25zdCBmbGF0T2Zmc2V0ID0gc
2xpY2VfdXRpbC5jb21wdXRlRmxhdE9mZnNldChiZWdpbiwgeFN0cmlkZXMpO1xuXG4gICAgaWYgKGR0eX
BlID09PSAnc3RyaW5nJykge1xuICAgICAgcmV0dXJuICh2YWxzIGFzIVpbnQ4QXJyYXlbXSkuc2xpY2UoZmx
hdE9mZnNldCwgZmxhdE9mZnNldCArIHN0cmlkZXMpO1xuICAgIH1cblxuICAgIHJldHVybiAodmFsc
R5cGVkQXJyYXkpLnN1YmFycmF5KGZsZXQsIGZsZXQgKyBsZW5ndGgpO1xuICB9XG5cbiAgY29uc3QgZGVjb2RlZERhdGEgPSBkHlwZSA9PT0gJ3N0cmluZycgP1pbnQ4QXJyYXlbXSkuc2xpY2UoZmx
hdE9mZnNldCwgZmxhdE9mZnNldCArIHN0cmlkZXMpO1xuXG4gICAgaWYgKGR0eX
BlID09PSAnc3RyaW5nJykge1xuICAgICAgcmV0dXJuICh2YWxzIGFzIF

0gYXR0cnM7XG5cbiAgYXNzZXJ0Tm90Q29tcGxleCh4LCAnc2xpY2UnKTtcblxuICBjb25zdCBbJGJlZ2luLCAkc2l6ZV0gPSBzbGljZV91dGlsLnBhcnNlU2xpY2VQYXJhbXMoeCwgYmVnaW4sIHNpemUpO1xuICBzbGljZV91dGlsLmFzc2VydFBhcmFtc1ZhbGlkKHgsICRiZWdpbiwgJHNpemUpO1xuXG4gIGNvbnN0IGlzQ29udGlub3VzID0gc2xpY2VfdXRpbC5pc1NsaWNlQ29udGlub3VzKHguc2hhcGUsIGJlZ2luLCBzaXplKTtcbiAgY29uc3QgeFZhbHMgPSBiYWNrZW5kLnJlYWRTeW5jKHguZGF0YUlkKTtcbiAgY29uc3Qgb3V0ID0gYmFja2VuZC5tYWtlT3V0cHV0KHNpemUsIHguZHR5cGUpO1xuICBjb25zdCB4U3RyaWRlcyA9IHV0aWwuY29tcHV0ZVN0cmlkZXMoeC5zaGFwZSk7XG4gIGNvbnN0IG91dERhdGEgPSBiYWNrZW5kLmRhdGFJZE1hcC5nZXQob3V0LmRhdGFJZCk7XG5cbiAgaWYgKGlzQ29udGlub3VzKSB7XG4gICAgY29uc3QgZmxhdE9mZnNldCA9IHNsaWNlX3V0aWwuY29tcHV0ZUZsYXRPZmZzZXQoJGJlZ2luLCB4U3RyaWRlcyk7XG5cbiAgICBpZiAoeC5kdHlwZSA9PT0gJ3N0cmluZycpIHtcbiAgICAgIG91dERhdGEuc3RyaW5nQnl0ZXMgPVxuICAgICAgICAgICh4VmFscyBhcyBVaW50OEFycmF5W10pXG4gICAgICAgICAgICAgIC5zbGljZShmbGF0T2Zmc2V0LCBmbGF0T2Zmc2V0ICsgdXRpbC5zaXplRnJvbVNoYXBlKHNpemUpKTtcbiAgICB9IGVsc2Uge1xuICAgICAgY29uc3Qgb3V0VmFscyA9IGJhY2tlbmQudHlwZWRBcnJheUZyb21IZWFwKG91dCk7XG4gICAgICBvdXRWYWxzLnNldChcbiAgICAgICAgICAoeFZhbHMgYXMgVHlwZWRBcnJheSlcbiAgICAgICAgICAgICAgLnN1YmFycmF5KGZsYXRPZmZzZXQsIGZsYXRPZmZzZXQgKyB1dGlsLnNpemVGcm9tU2hhcGUoc2l6ZSkpKTtcbiAgICB9XG5cbiAgICByZXR1cm4gb3V0O1xuICB9XG5cbiAgaWYgKHguZHR5cGUgPT09ICdzdHJpbmcnKSB7XG4gICAgY29uc3QgcmVzID0gc2xpY2VJbXBsQ1BVKHhWYWxzLCAkYmVnaW4sIHNpemUsIHguc2hhcGUsIHguZHR5cGUpO1xuICAgIG91dERhdGEuc3RyaW5nQnl0ZXMgPSByZXMgYXMgVWludDhBcnJheVtdO1xuICAgIHJldHVybiBvdXQ7XG4gIH1cblxuICBjb25zdCBvdXRWYWxzID0gYmFja2VuZC50eXBlZEFycmF5RnJvbUhlYXAob3V0KTtcbiAgY29uc3QgcmFuayA9IHguc2hhcGUubGVuZ3RoO1xuICBpZiAocmFuayA9PT0gMikge1xuICAgIHNsaWNlMmQoXG4gICAgICAgIHhWYWxzIGFzIFR5cGVkQXJyYXksIHhTdHJpZGVzWzBdLCBvdXRWYWxzLCAkYmVnaW4gYXNcbiAgICAgICAgW251bWJlciwgbnVtYmVyXSxcbiAgICAgICAgc2l6ZSBhcyBbbnVtYmVyLCBudW1iZXJdKTtcbiAgfSBlbHNlIGlmIChyYW5rID09PSAzKSB7XG4gICAgc2xpY2UzZChcbiAgICAgICAgeFZhbHMgYXMgVHlwZWRBcnJheSwgeFN0cmlkZXNbMF0sIHhTdHJpZGVzWzFdLCBvdXRWYWxzLFxuICAgICAgICAkYmVnaW4gYXMgW251bWJlciwgbnVtYmVyLCBudW1iZXJdLCBzaXplIGFzIFtudW1iZXIsXG4gICAgICAgIG51bWJlciwgbnVtYmVyXSk7XG4gIH0gZWxzZSBpZiAocmFuayA9PT0gNCkge1xuICAgIHNsaWNlNGQoXG4gICAgICAgIHhWYWxzIGFzIFR5cGVkQXJyYXksIHhTdHJpZGVzWzBdLCB4U3RyaWRlc1sxXSxcbiAgICAgICAgeFN0cmlkZXNbMl0sIG91dFZhbHMsXG4gICAgICAgICRiZWdpbiBhcyBbbnVtYmVyLCBudW1iZXIsIG51bWJlciwgbnVtYmVyXSxcbiAgICAgICAgc2l6ZSBhcyBbbnVtYmVyLCBudW1iZXIsIG51bWJlcixcbiAgICAgICAgbnVtYmVyXSk7XG4gIH0gZWxzZSB7XG4gICAgY29uc3QgcmVzID1cbiAgICAgICAgc2xpY2VJbXBsQ1BVKHhWYWxzLCAkYmVnaW4sIHNpemUsIHguc2hhcGUsIHguZHR5cGUpIGFzIFR5cGVkQXJyYXk7XG4gICAgb3V0VmFscy5zZXQocmVzKTtcbiAgfVxuXG4gIHJldHVybiBvdXQ7XG59XG5cbmZ1bmN0aW9uIHNsaWNlMmQoXG4gICAgeFZhbHM6IGJhY2tlbmRfdXRpbC5UeXBlZEFycmF5LCB4U3RyaWRlOiBudW1iZXIsXG4gICAgb3V0VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksICRiZWdpbjogW251bWJlciwgbnVtYmVyXSxcbiAgICBzaXplOiBbbnVtYmVyLCBudW1iZXJdKTogdm9pZCB7XG4gIGxldCBvdXRPZmZzZXQgPSAwO1xuICBjb25zdCBiZWdpbkkgPSAkYmVnaW5bMF07XG4gIGNvbnN0IGJlZ2luSiA9ICRiZWdpblsxXTtcbiAgY29uc3QgZW5kSSA9IGJlZ2luSSArIHNpemVbMF07XG4gIGZvciAobGV0IGkgPSBiZWdpbkk7IGkgPCBlbmRJOyBpKyspIHtcbiAgICBjb25zdCB4T2Zmc2V0ID0gaSAqIHhTdHJpZGUgKyBiZWdpbko7XG4gICAgb3V0VmFscy5zZXQoeFZhbHMuc3ViYXJyYXkoeE9mZnNldCwgeE9mZnNldCArIHNpemVbMV0pLCBvdXRPZmZzZXQpO1xuICAgIG91dE9mZnNldCArPSBzaXplWzFdO1xuICB9XG59XG5cbmZ1bmN0aW9uIHNsaWNlM2QoXG4gICAgeFZhbHM6IGJhY2tlbmRfdXRpbC5UeXBlZEFycmF5LCB4U3RyaWRlMTogbnVtYmVyLCB4U3RyaWRlMjogbnVtYmVyLFxuICAgIG91dFZhbHM6IGJhY2tlbmRfdXRpbC5UeXBlZEFycmF5LCAkYmVnaW46IFtudW1iZXIsIG51bWJlciwgbnVtYmVyXSxcbiAgICBzaXplOiBbbnVtYmVyLCBudW1iZXIsIG51bWJlcl0pOiB2b2lkIHtcbiAgbGV0IG91dE9mZnNldCA9IDA7XG4gIGNvbnN0IGJlZ2luSSA9ICRiZWdpblswXTtcbiAgY29uc3QgYmVnaW5KID0gJGJlZ2luWzFdO1xuICBjb25zdCBiZWdpbksgPSAkYmVnaW5bMl07XG4gIGNvbnN0IGVuZEkgPSBiZWdpbkkgKyBzaXplWzBdO1xuICBjb25zdCBlbmRKID0gYmVnaW5KICsgc2l6ZVsxXTtcbiAgZm9yIChsZXQgaSA9IGJlZ2luSTsgaSA8IGVuZEk7IGkrKykge1xuICAgIGZvciAobGV0IGogPSBiZWdpbko7IGogPCBlbmRKOyBqKyspIHtcbiAgICAgIGNvbnN0IHhPZmZzZXQgPSBpICogeFN0cmlkZTEgKyBqICogeFN0cmlkZTIgKyBiZWdpbks7XG4gICAgICBvdXRWYWxzLnNldCh4VmFscy5zdWJhcnJheSh4T2Zmc2V0LCB4T2Zmc2V0ICsgc2l6ZVsyXSksIG91dE9mZnNldCk7XG4gICAgICBvdXRPZmZzZXQgKz0gc2l6ZVsyXTtcbiAgICB9XG4gIH1cbn1cblxuZnVuY3Rpb24gc2xpY2U0ZChcbiAgICB4VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksIHhTdHJpZGUxOiBudW1iZXIsIHhTdHJpZGUyOiBudW1iZXIsXG4gICAgeFN0cmlkZTM6IG51bWJlciwgb3V0VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksXG4=","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==*/\n\nimport {backend_util, KernelConfig, KernelFunc, Slice, slice_util, SliceAttrs, SliceInputs, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {sliceImplCPU} from '../kernel_utils/shared';\n\nexport function slice(\n   args: {inputs: SliceInputs, attrs: SliceAttrs, backend: BackendWasm}) {\n const {inputs: {x}, attrs: {begin, size}, backend} = args;\n\n const [begin_, size_] = slice_util.parseSliceParams(x, begin, size);\n\n const isContinous = slice_util.isSliceContinous(x.shape, begin_, size_);\n const xVals = backend.readSync(x.dataId);\n const out = backend.makeOutput(size_, x.dtype);\n const xStrides = util.computeStrides(x.shape);\n const outData = backend.dataIdMap.get(out.dataId);\n\n if (isContinous) {\n   const flatOffset = slice_util.computeFlatOffset(begin_, xStrides);\n\n   if (x.dtype === 'string') {\n   outData.stringBytes =\n   (xVals as Uint8Array[])\n   .slice(flatOffset, flatOffset + util.sizeFromShape(size_));\n   } else {\n   const outVals = backend.typedArrayFromHeap(out);\n   outVals.set(\n   (xVals as TypedArray)\n   .subarray(flatOffset, flatOffset + util.sizeFromShape(size_)));\n   }\n\n   return out;\n }\n\n if (x.dtype === 'string') {\n   const res = sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype);\n   outData.stringBytes = res as Uint8Array[];\n   return out;\n }\n\n const outVals = backend.typedArrayFromHeap(out);\n const rank = x.shape.length;\n if (rank === 2) {\n   slice2d(\n   xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n   size_ as [number, number]);\n } else if (rank === 3) {\n   slice3d(\n   xVals as TypedArray, xStrides[0], xStrides[1], outVals,\n   begin_ as [number, number, number], size_ as [number, number, number]);\n } else if (rank === 4) {\n   slice4d(\n   xVals as TypedArray, xStrides[0], xStrides[1], xStrides[2], outVals,\n   begin_ as [number, number, number, number],\n   size_ as [number, number, number, number]);\n } else {\n   const res =\n   sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n   outVals.set(res);\n }\n\n return out;\n}\n\nfunction slice2d(\n   xVals: backend_util.TypedArray, xStride: number,\n   outVals: backend_util.TypedArray, begin: [number, number],\n   size: [number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const endI = beginI + size[0];\n for (let i = beginI; i < endI; i++) {\n   const xOffset = i * xStride + beginJ;\n   outVals.set(xVals.subarray(xOffset, xOffset + size[1]), outOffset);\n   outOffset += size[1];\n }\n}\n\nfunction slice3d(\n   xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n   outVals: backend_util.TypedArray, begin: [number, number, number],\n   size: [number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n for (let i = beginI; i < endI; i++) {\n   for (let j = beginJ; j < endJ; j++) {\n   const xOffset = i * xStride1 + j * xStride2 + beginK;\n   outVals.set(xVals.subarray(xOffset, xOffset + size[2]), outOffset);\n   outOffset += size[2];\n   }\n }\n}\n\nfunction slice4d(\n   xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n   xStride3: number, outVals: backend_util.TypedArray,\n

begin: [number, number, number, number],\n size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n for (let k = beginK; k < endK; k++) {\n const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n inputs: {x: xTransposedReshaped},\n backend,\n attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function cast(\n args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights

Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain
a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null /* void */, [\n 'number', // x_id\n 'number', // min\n 'number', // max\n 'number' // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND,
either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1)
{\n return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n return out;\n }\n\n const shapes = $inputs.map(t => t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n // Any concat of n-dimensional tensors across any axis can be reduced to\n // a concatenation of two-dimensional tensors across the axis 1 by first\n // partitioning the axes of the original tensors into those less than

the\n   // axis to be concatenated and the rest. Then reshape the tensors\n   // into a two-dimensional tensor by collapsing these two sets of axes and\n   // concatenate the resulting matrices across the axis 1, finally reshaping\n// the result to have the proper shape.\n   const inputs2D = $inputs.map(t => {\n   const innerSize = util.sizeFromShape(t.shape.slice(axis));\n   const shape = [-1, innerSize];\n   return reshape({inputs: {x: t}, backend, attrs: {shape}});\n   });\n\n   const inputsValShapes = inputs2D.map(t => {\n   return {vals: backend.readSync(t.dataId), shape: t.shape};\n   });\n\n   // Concats 2d tensors along axis=1.\n   outShape =\n   backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n   const simplyConcat = inputs2D[0].shape[0] === 1;\n   const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n   simplyConcat) as string[];\n\n   const finalOutShape =\n   backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n   out.shape = finalOutShape;\n const outData = backend.dataIdMap.get(out.dataId);\n   outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n   inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n return out;\n }\n\n const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n
  const innerDims = $inputs.map(input => {\n   const innerDim = util.sizeFromShape(input.shape.slice(axis));\n sumInnerDims += innerDim;\n   return innerDim;\n });\n const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n   let outOffset = b * sumInnerDims;\n   for (let i = 0; i < inVals.length; i++) {\n   const innerDim = innerDims[i];\n   const inOffset = b * innerDim;\n   const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n   outVals.set(vals, outOffset);\n   outOffset += innerDim;\n   }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
 with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function concatImpl(inputs, outShape, dtype, simplyConcat) {\n   const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n   if (simplyConcat && dtype !== 'string') {\n   // Use built-in TypedArray.set() method for speed.\n   let offset = 0;\n   inputs.forEach(input => {\n   const size = util.sizeFromShape(input.shape);\n outVals.set(input.vals,
 offset);\n   offset += size;\n   });\n   }\n   else {\n   let colOffset = 0;\n   inputs.forEach(input => {\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(input.vals) :\n   input.vals;\n   let tIdx = 0;\n   for (let row = 0; row < input.shape[0]; ++row) {\n   const resIdx = row * outShape[1] + colOffset;\n   for (let col = 0; col < input.shape[1]; ++col) {\n outVals[resIdx + col] = decodedData[tIdx++];\n   }\n   }\n   colOffset += input.shape[1];\n   });\n   }\n   return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Oz

sWUFBWSxJQUFJLEtBQUssS0FBSyxRQUFRLEVBQUU7UUFDdEMsa0RBQWtEO1FBQ2xELElBQUksTUFB
TSxHQUFHLENBQUMsQ0FBQztRQUNmLE1BQU0sQ0FBQyxPQUFPLENBQUMsS0FBSyxDQUFDLEVBQU
U7WUFDckIsTUFBTSxJQUFJLEdBQUcsSUFBSSxDQUFDLGFBQWEsQ0FBQyxyLQUFLLENBQUMsS0FBSy
xDQUFDLENBQUM7WUFFNUMsT0Bc0IsQ0FBQyxHQUFHLENBQUMsS0FBSyxDQUFDLElBQUksTUFBTSxCLElBQUksTUFBTSxCLElBQUksTUFBTSxC

gICAgIH1cblxuICAgICAgY29sT2Zmc2V0ICs9IGlucHV0LnNoYXBlWzFdO1xuICAgIH0pO1xuICB9XG5cbiAgcmV0dXJuIG91dFZhbHM7XG59\n","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util,
 Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n strideWidth: number, inputChannels: number, outputChannels: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n
  'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction conv2d(\n args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n   pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n
  const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n   `wasm backend Conv2D does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth,
 strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
{backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number, xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n 'number',
// batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n 'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode,
inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast ?
dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize, filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport
const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc,
TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast}
from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest
= 1\n}\n\nlet wasmCropAndResize: (\n imagesId: number, boxesId: number, boxIndId: number, numBoxes:
number,\n imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n method: number,
extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n
wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n 'number', // imagesId\n
'number', // boxesId\n 'number', // boxIndId\n 'number', // numBoxes\n 'array', // images shape\n 'number',
// cropHeight\n 'number', // cropWidth\n 'number', // method\n 'number', // extrapolation value\n 'number'
// out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n
attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method,
extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes =
boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape =
[numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData =
backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData =
cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData =
backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const
out = backend.makeOutput(outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const
imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n
imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n cropWidth,\n
InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n extrapolationValue, outId);\n\n if
(castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const
cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc:
setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n
* Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions
and\n * limitations under the License.\n *
==========\n
*/\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version

2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n 'number', // x_id\n 'number', // exclusive\n 'number', // reverse\n 'number', // final_dim\n 'number', // out_id\n 'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n out = transpose(\n {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n 'number', // xId\n 'number', // blockSize\n 'number', // channelsLast\n 'array', // xStrides\n 'number', // xStridesLength\n 'array', // outputShape\n 'array', // outputStrides\n 'number', // outSize\n 'number', // outId\n]);\n}\n\nexport\n function depthToSpace(args: {\n backend: BackendWasm,\n inputs: DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n const

{blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n   [batchSize, outputHeight, outputWidth, outputDepth] :\n   [batchSize, outputDepth, outputHeight, outputWidth];\n\n const out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const xId = xData.id;\n const xStridesBytes
 =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n wasmDepthToSpace(\n   xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n   outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n
 *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n   dilationHeight: number, dilationWidth: number,
 strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n   'number', // outId\n   ]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n
 backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n   ($dilations as number | [number, number]), pad, dimRoundingMode,\n   true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n

const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright
 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright
 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
 Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from

'./Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input}
 = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape =
input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n
util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n
  inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs:
{x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n
kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n
* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
 by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs:
FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape, value, dtype}, backend} = args;\n const out =
backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as
number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName:
'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n *
 @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n   xId: number, batch:
number, imageHeight: number, imageWidth: number,\n   numChannels: number,
 outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight =
backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', //
imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // outId\n]);\n}\n\nexport
function flipLeftRight(\n   args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const
{inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape,
image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId =
backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] =
image.shape;\n\n wasmFlipLeftRight(\n   imageId, batch, imageHeight, imageWidth, numChannels, outId);\n
return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n
backendName: 'wasm',\n kernelFunc: flipLeftRight as {}
 as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc,
TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet
wasmBatchNorm: (\n    xId: number, meanId:
 number, varianceId: number, offsetId: number,\n    scaleId: number, varianceEpsilon: number, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmBatchNorm = backend.wasm.cwrap(\n
FusedBatchNorm, null /* void */,\n      ['number', 'number', 'number', 'number', 'number', 'number',
'number']);\n}\n\nfunction fusedBatchNorm(args: {\n  backend: BackendWasm,\n  inputs:
FusedBatchNormInputs,\n  attrs: FusedBatchNormAttrs\n}): TensorInfo {\n  const {backend, inputs, attrs} = args;\n
const {varianceEpsilon} = attrs;\n  const {x, mean, variance, offset, scale} = inputs;\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const meanId = backend.dataIdMap.get(mean.dataId).id;\n  const varianceId
= backend.dataIdMap.get(variance.dataId).id;\n  const offsetId = offset != null ?
backend.dataIdMap.get(offset.dataId).id : 0;\n  const scaleId = scale != null ?
backend.dataIdMap.get(scale.dataId).id : 0;\n\n  const out = backend.makeOutput(x.shape, x.dtype);\n  //
 Short-circuit zero-sized tensors.\n  if (util.sizeFromShape(x.shape) === 0) {\n    return out;\n  }\n\n  const outId =
backend.dataIdMap.get(out.dataId).id;\n\n  wasmBatchNorm(\n      xId, meanId, varianceId, offsetId, scaleId,
varianceEpsilon, outId);\n  return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n  kernelName:
FusedBatchNorm,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: fusedBatchNorm as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the
 License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under
 the License.\n *
==========================================================================\n
*/\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n
createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under
 the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc,
```

```
Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n    (xId: number, batchSize: number, inputHeight:
number, inputWidth: number,\n     filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number,
padTop: number, padRight: number, padBottom: number,\n     padLeft: number, isSamePad: number,
dilationHeight: number,\n     dilationWidth: number, strideHeight: number, strideWidth: number,\n
inputChannels: number, outputChannels: number, activation: number,\n     preluActivationWeightsId: number,
leakyreluAlpha: number, outId: number) =>\n         void;\n\nfunction setup(backend: BackendWasm) {\n
wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void
 */, [\n    'number',  // xId\n    'number',  // batchSize\n    'number',  // inputHeight\n    'number',  // inputWidth\n
'number',  // filterId\n    'number',  // filterHeight\n    'number',  // filterWidth\n    'number',  // biasId\n    'number',  //
padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // isSamePad\n
 'number',  // dilationHeight\n    'number',  // dilationWidth\n    'number',  // strideHeight\n    'number',  //
strideWidth\n    'number',  // inputChannels\n    'number',  // outputChannels\n    'number',  // activation\n    'number',
// preluActivationWeightsId\n    'number',  // leakyreluAlpha\n    'number',  // outId\n  ]);\n}\n\nfunction
fusedConv2d(args: {\n  inputs: FusedConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedConv2DAttrs\n})
{\n  const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n
strides,\n    pad,\n    dilations,\n    dataFormat,\n
    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo =
backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n
pad, dimRoundingMode);\n\n  const fusedActivation =\n      FusableActivation[activation as {} as keyof typeof
FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation} activation not yet
supported for FusedConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const
outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData =
backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n
`FusedConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n    if
(biasData.shape[0] !== outputChannels)
 {\n      throw new Error(\n          `FusedConv2D bias shape (${biasData.shape}) does not ` +\n          `match the
number of output channels (${outputChannels})`);\n    }\n    biasId = biasData.id;\n  }\n\n  const filterHeight =
convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const
padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft =
convInfo.padInfo.left;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth =
convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth =
convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type
=== 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const
inWidth = convInfo.inWidth;\n\n  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend
FusedConv2D does not support
 dataFormat:'` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out =
backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const
preluActivationWeightsId = preluActivationWeights == null ?\n      0 :\n
backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n  wasmFusedConv2d(\n      xId, batchSize, inHeight,
inWidth, filterId, filterHeight, filterWidth,\n      biasId, padTop, padRight, padBottom, padLeft, isSamePad,
dilationHeight,\n      dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n      fusedActivation,
preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n  return out;\n}\n\nexport const fusedConv2DConfig:
KernelConfig = {\n  kernelName: FusedConv2D,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc:
fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the
```

```
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n    (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight:
 number, filterWidth: number,\n     biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n     dilationWidth: number, strideHeight: number, strideWidth: number,\n     inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n        void;\n\nfunction setup(backend: BackendWasm) {\n  wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n        'number',  // xId\n        'number',  // batchSize\n        'number',  // inputHeight\n        'number',  // inputWidth\n        'number',  // filterId\n        'number',  // filterHeight\n        'number',  // filterWidth\n        'number',  // biasId\n        'number',  // padTop\n        'number',  // padRight\n        'number',  // padBottom\n        'number',  // padLeft\n        'number',  // isSamePad\n        'number',  // dilationHeight\n        'number',  // dilationWidth\n        'number',  // strideHeight\n        'number',  // strideWidth\n        'number',  // inputChannels\n        'number',  // outputChannels\n        'number',  // activation\n        'number',  // preluActivationWeightsId\n        'number',  // leakyreluAlpha\n        'number',  // outId\n      ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n  inputs: FusedDepthwiseConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedDepthwiseConv2DAttrs\n}) {\n  const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n    strides,\n    pad,\n    dilations,\n    dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation
 as {} as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData = backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n    if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n    biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const
 filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight =
 convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth = convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth = convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const inWidth = convInfo.inWidth;\n\n  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend FusedDepthwiseConv2D does not support dataFormat:` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const preluActivationWeightsId = preluActivationWeights == null
```

?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'number', // indicesId\n 'number', // numSlices\n 'number', // sliceRank\n 'number', // sliceSize\n 'array', // strides\n 'number' // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n indicesId: number, batchSize: number, outStrides: Uint8Array,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'array', // xStrides\n 'number', // stridesSize\n 'number', // indicesId\n 'number', // batchSize\n 'array', // outStrides\n 'number' // outId\n]);\n}\n\nfunction gatherV2(\n args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x,

indices} = inputs;\n const {axis, batchDims} = attrs;\n\n // Throw error when any index is out of bound.\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n const axisDim = x.shape[parsedAxis];\n for (let i = 0; i < indicesVals.length; ++i) {\n   const index = indicesVals[i];\n   util.assert(\n   index <= axisDim - 1 && index >= 0,\n   () =>\n   `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n }\n\n const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n   x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n const flattenX = reshape({\n   inputs: {x},\n   attrs: {\n   shape: [\n   shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n   shapeInfo.sliceSize\n   ]\n   },\n   backend\n });\n const indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n   inputs: {x: indices},\n   attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n   backend\n });\n const flattenOutputShape = [\n   shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n   shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape, x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n   return out;\n }\n const stridesSize = flattenX.shape.length - 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n const outStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n   xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n   shapeInfo.batchSize, outStridesBytes, outId);\n\n backend.disposeData(flattenX.dataId);\n backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n   xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n   'number', // leakyrelu_alpha\n   'number', // out_id\n]);\n}\n\nexport function leakyRelu(\n   args:\n   {inputs: LeakyReluInputs, attrs: LeakyReluAttrs, backend: BackendWasm}):\n   TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape) !== 0)\n {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed}
=\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport
const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet

wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs,

```
TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmMean =\n    backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n    args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {axis, keepDims} = attrs;\n  const {x} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  let inputId = xId;\n  let input = x;\n\n  const {transposed, axes, originalAxes, inputWasTransposed} =\n      permuteAxesAndTranspose(x, axis, backend);\n\n  let reductionAxes = axes;\n  if (inputWasTransposed) {\n    const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n    if (transposedId !== xId) {\n      //
  transpose was not a no-op. We will need to dispose of this\n      // once we are done.\n      input = transposed;\n      inputId = transposedId;\n      reductionAxes = backend_util.getInnerMostAxes(\n          reductionAxes.length, input.shape.length);\n    }\n  }\n\n  backend_util.assertAxesAreInnerMostDims(\n      'mean', reductionAxes, input.shape.length);\n  const [outShape, reduceShape] =\n      backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n  const reduceSize = util.sizeFromShape(reduceShape);\n  let castedInput = input;\n  if (input.dtype !== 'float32') {\n    castedInput =\n        cast({backend, inputs: {x: input}, attrs: {dtype: 'float32'}});\n    inputId = backend.dataIdMap.get(castedInput.dataId).id;\n  }\n\n  const out = backend.makeOutput(outShape, 'float32');\n  if (util.sizeFromShape(input.shape) !== 0) {\n    const outId = backend.dataIdMap.get(out.dataId).id;\n    wasmMean(inputId, reduceSize, outId);\n  }\n\n  if (inputWasTransposed) {\n    //
  dispose of the transposed tensor.\n    backend.disposeData(transposed.dataId);\n  }\n\n  if (keepDims) {\n    //
  reshape\n    const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n    out.shape =
  newShape;\n  }\n\n  if (input.dtype !== 'float32') {\n    backend.disposeData(castedInput.dataId);\n  }\n\n  return
  out;\n}\n\nexport const meanConfig: KernelConfig = {\n  kernelName: Mean,\n  backendName: 'wasm',\n
  setupFunc: setup,\n  kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google
  LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
  use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
  http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
  software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
  OR CONDITIONS OF ANY KIND,
  either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
  under the License.\n *
  ==========================================================================\n
  */\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from
  '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
  {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId:
  number, dtype: number, reduceSize: number, outId: number) =>\n    void;\n\nfunction setup(backend:
  BackendWasm): void {\n  wasmMin = backend.wasm.cwrap(Min, null /*void*/, [\n    'number',  // x_id\n
  'number',  // dtype\n    'number',  // reduce_size\n    'number',  // out_id\n  ]);\n}\n\nfunction min(args: {backend:
  BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n
  const {axis, keepDims} = attrs;\n  const {x} = inputs;\n
    const xId = backend.dataIdMap.get(x.dataId).id;\n  let inputId = xId;\n  let input = x;\n\n  const {transposed, axes,
  originalAxes, inputWasTransposed} =\n      permuteAxesAndTranspose(x, axis, backend);\n\n  if
  (inputWasTransposed) {\n    const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n    if (transposedId
  !== xId) {\n      // transpose was not a no-op. We will need to dispose of this\n      // once we are done.\n      input =
  transposed;\n      inputId = transposedId;\n    }\n  }\n\n  const inputRank = input.shape.length;\n\n
  backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n  const [outShape, reduceShape] =\n
  backend_util.computeOutAndReduceShapes(input.shape, axes);\n  const reduceSize =
```

util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMin(inputId, CppDType[x.dtype], reduceSize,
 outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
 the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null / void */, [\n 'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', //
 mode\n   'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes,
 MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport
 {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n   createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a

copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3,
NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV3,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in `non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices
= result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number,\n padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV4,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'bool', // padToMaxOutputSize\n]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[]
{\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the

License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs,
NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet
wasmFunc:\n (boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number,
scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm):
void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n
'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', //
iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction
kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs:
NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold,
maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n
const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId,
scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices,
selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are
not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n
const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const
selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n return
[selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig =
{\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc
as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth:
number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend:
BackendWasm) {\n wasmOneHot = backend.wasm.cwrap(OneHot,
null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n 'number', // onValue\n 'number', //
offValue\n 'number' // out_id\n]);\n}\n\nfunction oneHot(\n args: {inputs: OneHotInputs, attrs: OneHotAttrs,
backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices} = inputs;\n const {depth,
onValue, offValue} = attrs;\n\n const out = backend.makeOutput([...indices.shape, depth], 'int32');\n const outId =
backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const
indicesId = indicesData.id;\n\n wasmOneHot(indicesId, depth, onValue, offValue, outId);\n\n return
out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n kernelName: OneHot,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n
*/\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n
createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0
 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy
of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend:
BackendWasm}) {\n  const {inputs: {x}, backend} = args;\n  const out = backend.makeOutput(x.shape, x.dtype);\n
const outVals = backend.typedArrayFromHeap(out);\n  outVals.fill(1);\n  return out;\n}\n\nexport
 const onesLikeConfig: KernelConfig = {\n  kernelName: OnesLike,\n  backendName: 'wasm',\n  kernelFunc:
onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-
core';\nimport {BackendWasm}
 from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from
'./ExpandDims';\n\nexport function pack(\n    args: {inputs: PackInputs, backend: BackendWasm, attrs:
PackAttrs}):\n    TensorInfo {\n  const {inputs, backend, attrs} = args;\n  const {axis} = attrs;\n\n  if (inputs.length
=== 1) {\n    return expandDims(\n        {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n  }\n\n  const
shape = inputs[0].shape;\n  const dtype = inputs[0].dtype;\n\n  inputs.forEach(t => {\n    util.assertShapesMatch(\n
   shape, t.shape,\n        'All tensors passed to stack must have matching shapes');\n    util.assert(\n        dtype ===
t.dtype,\n        () => 'All tensors passed to stack must have matching dtypes');\n  });\n\n  const
intermediateTensorInfos: TensorInfo[] = [];\n  const expandedTensors = inputs.map(t => {\n    const expandedT =\n
     expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n    intermediateTensorInfos.push(expandedT);\n
    return expandedT;\n  });\n\n  const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n
intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n  return result;\n}\n\nexport const
packConfig: KernelConfig = {\n  kernelName: Pack,\n  backendName: 'wasm',\n  kernelFunc: pack as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
 */\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType}
```

from './types';\n\nlet wasmPadV2: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n   constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', // constantValue\n   'number', // outId\n]);\n}\n\nfunction pad(\n   args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend, attrs:
 {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n   // Short-circuit the computation, since x doesn't have value, only\n   // the shape is used to compute output shape to pad.\n   return fill({\n backend,\n   attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n   });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n
  wasmPadV2(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 /\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu = backend.wasm.cwrap(Prelu, null / void */, [\n   'number', // x_id\n   'number', // weights_id\n   'number'   // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n
  }\n\n const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n
  backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n
createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions
and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n
xId: number, reduceSize: number,\n dtype: number, outId: number) => void;\n\nfunction setup(backend:
BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n 'number',\n 'number',\n
'number',\n 'number'\n]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs:
ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x}
= inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const
{transposed,
axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let
reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId =
backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We
will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n
reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n
backend_util.assertAxesAreInnerMostDims(\n 'prod', reductionAxes, input.shape.length);\n const [outShape,
reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize
= util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmProd(inputId, reduceSize,
CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n
backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape =
backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return
out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc:
setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express
or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from
'./Cast';\n\nlet wasmResizeBilinear: (\n xId: number, batch: number, oldHeight: number, oldWidth: number,\n

numChannels: number, newHeight: number, newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n 'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number',
// alignCorners\n 'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
wasmResizeBilinear(\n xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} = args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step, dtype);\n\n const out = backend.makeOutput([values.length], dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(values);\n return out;\n };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport { util } from '@tensorflow/tfjs-core';\nexport function rangeImpl(start, stop, step, dtype) {\n const sameStartStop = start === stop;\n const increasingRangeNegativeStep = start < stop && step < 0;\n const decreasingRangePositiveStep = stop < start && step > 1;\n if (sameStartStop || increasingRangeNegativeStep ||\n decreasingRangePositiveStep) {\n return util.makeZerosTypedArray(0, dtype);\n }\n const numElements = Math.abs(Math.ceil((stop - start) / step));\n const values = util.makeZerosTypedArray(numElements, dtype);\n if (stop < start && step === 1) {\n // Auto adjust the

step's sign if it hasn't been set\n // (or was set to 1)\n step = -1;\n }\n values[0] = start;\n for (let i = 1; i < values.length; i++) {\n values[i] = values[i - 1] + step;\n }\n return values;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiUmFuZ2VfaW1wbC5qcyIsInNvdXJjZVJvb3QiOiIiLCJzb3VyY2VzIjpbIi4uLy4uLy4uLy4uLy4uLy4uL3RmanMtYmFja2VuZC1jcHUvc3JjL2tlcm5lbHMvUmFuZ2VfaW1wbC50cyJdLCJuYW1lcyI6W10sIm1hcHBpbmdzIjoiQUFBQTs7Ozs7Ozs7Ozs7O0dBZUc7QUFFSCxPQUFPLEVBQWMsRUFBRSxFQUFFLFNBQVMsRUFBRSxNQUFNLGlCQUFpQixDQUFDO0FBRTVELE9BQU8sRUFBRSxnQkFBZ0IsRUFBRSxNQUFNLHlCQUF5QixDQUFDO0FBRTN

,"/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport
 {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n
createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport
 {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig}
 from './unary_kernel';\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
 {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n   xId: number, axes:
Uint8Array, axesLength: number, outShape: Uint8Array,\n   outShapeLength: number, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n
'number', // x_id\n   'array',   // axes\n   'number', // axes_length\n   'array',   // out_shape\n   'number', //
out_shape_length\n   'number'   // out_id\n]);\n}\n\nexport function reverse(\n   args: {inputs: ReverseInputs,
backend: BackendWasm, attrs: ReverseAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const
{x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length
=== 0) {\n   return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n

const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n   xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n const reshaped =\n   reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n   xId: number, batch: number, imageHeight: number, imageWidth: number,\n   numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // radians\n   'number', // centerX\n   'number', // centerY\n   'array',   // fillBytes\n   'number', // fillLength\n   'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n   [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n   [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n   imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n   centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n   indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n   numUpdates: number, sliceSize: number, strides: Uint8Array,\n   outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd,

null /*void*/, [\n 'number', // indicesId\n 'number', // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs: ScatterNdInputs, attrs: ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport\n const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number, eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId =

backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n   1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig:
KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n   TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number, channels: number, batch: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n   'number', // xId\n   'number', // outId\n 'number', // channels\n
    'number'   // batch\n]);\n}\n\nfunction softmax(\n   args: {backend: BackendWasm, inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n   TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except

in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n   inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n    args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n  const {inputs,
 attrs, backend} = args;\n  const {x} = inputs;\n  const {numOrSizeSplits, axis} = attrs;\n\n  const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n  const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n  const begin = new Array(x.shape.length).fill(0);\n  const size = x.shape.slice();\n  return splitSizes.map(s => {\n    const xSliceSize = [...size];\n    xSliceSize[$axis] = s;\n    const xSlice =\n        slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n    begin[$axis] += s;\n    return xSlice;\n  });\n}\n\nexport const splitVConfig: KernelConfig = {\n  kernelName: SplitV,\n  backendName: 'wasm',\n  kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n    void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n    'number',  // x_id\n    'number',  // alpha\n    'number',  // dtype\n    'number',  // out_id\n  ]);\n}\n\nfunction step(\n    args: {backend: BackendWasm, inputs: StepInputs, attrs:
 StepAttrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {alpha} = attrs;\n  const {x} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n\n  const out = backend.makeOutput(x.shape, x.dtype);\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  wasmStep(xId, alpha, CppDType[x.dtype], outId);\n  return out;\n}\n\nexport const stepConfig: KernelConfig = {\n  kernelName: Step,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
==========\n
```

```
*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
 */\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig}
from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig
=\n    createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright
2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n *
you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n
 * ==========================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from
'./Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n    xId: number, xStridesBytes: Uint8Array,
xRank: number,\n    beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n    outShapeBytes:
Uint8Array, outStridesBytes: Uint8Array,\n    outShapeLength: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n  wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n
 'number',  // xId\n    'array',   // xStrides\n    'number',  // xRank\n    'array',   // beginBytes\n    'array',   // endBytes\n
'array',   // stridesBytes\n    'array',   // outShapeBytes\n    'array',   // outStridesBytes\n    'number',
  // outShapeLength\n    'number',  // outId\n  ]);\n}\n\nexport function stridedSlice(args: {\n  backend:
BackendWasm,\n  inputs: StridedSliceInputs,\n  attrs: StridedSliceAttrs\n}): TensorInfo {\n  const {backend, inputs,
attrs} = args;\n  const {x} = inputs;\n\n  const {\n    begin,\n    end,\n    strides,\n    beginMask,\n    endMask,\n
ellipsisMask,\n    newAxisMask,\n    shrinkAxisMask\n  } = attrs;\n\n  const {\n    finalShapeSparse,\n
finalShape,\n    isIdentity,\n    sliceDim0,\n    isSimpleSlice,\n    begin: $begin,\n    end: $end,\n    strides: $strides\n
} =\n      slice_util.sliceInfo(\n          x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n
newAxisMask, shrinkAxisMask);\n\n  let result;\n\n  if (isIdentity) {\n    // Optimization #1, slice is a no-op plus
reshape\n    result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n  } else if (sliceDim0 ||
isSimpleSlice) {\n    // Optimization #2, slice is memory contiguous
 (only occurs in dim 0)\n    util.assert(\n        x.shape.length >= 1,\n        () => `Input must have rank at least 1, got:
${x.shape.length}`);\n\n    const size = slice_util.computeOutShape($begin, $end, $strides);\n    // To tolerate
begin[0] > end[0] (a 0-output slice), we min(begin, end).\n    const sliced = slice({inputs: {x}, backend, attrs:
{begin: $begin, size}});\n    result =\n        reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n
backend.disposeData(sliced.dataId);\n  } else {\n    const out = backend.makeOutput(finalShapeSparse,
'float32');\n\n    const xId = backend.dataIdMap.get(x.dataId).id;\n    const xStridesBytes =\n        new
Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n    const beginBytes = new Uint8Array(new
Int32Array($begin).buffer);\n    const endBytes = new Uint8Array(new Int32Array($end).buffer);\n    const
stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n    const outputShapeBytes =\n
    new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n    const outStridesBytes = new Uint8Array(\n
new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n    const outId =
backend.dataIdMap.get(out.dataId).id;\n\n    wasmStridedSlice(\n        xId, xStridesBytes, x.shape.length,
```

beginBytes, endBytes, stridesBytes,\n outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License

at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId: number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n 'number', // input_id\n 'number', // reduce_size\n

'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs: SumAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'sum', reductionAxes, input.shape.length);\n

const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except

in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null /* void */, [\n 'number',
// x_id\n 'array', // x_shape\n 'number', // x_shape.length\n 'array', // new_shape\n 'number', // new_shape.length\n 'number' // out_id\n]);\n}\n\nfunction tile(\n args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig
= {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanConfig: KernelConfig =
createUnaryKernelConfig(Tan);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n xDtype: CppDType, k: number, sorted: boolean, outValuesId:
number,\n outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'number', // k\n 'bool', // sorted\n 'number', // outValuesId\n 'number', // outIndicesId\n]);\n}\n\nexport const topk:\n (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n const {x} = inputs;\n const {k, sorted} = attrs;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const outputShape = x.shape.slice();\n outputShape[outputShape.length - 1] = k;\n const outValues = backend.makeOutput(outputShape, x.dtype);\n const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n
const outIndices = backend.makeOutput(outputShape, 'int32');\n const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n wasmTopK(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n outValuesId, outIndicesId);\n\n return [outValues, outIndices];\n};\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength: number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n 'number', // imageId\n 'number', // transformsId\n 'bool', // isBatchTransform\n 'number', // batch\n 'number', // outHeight\n 'number', // outWidth\n 'number', // numChannels\n 'number', // imageWidth\n 'number', // imageHeight\n 'array', // strides\n 'number', // stridesLength\n 'number', // interpolationModeId\n 'number', // fillModeId\n 'number', // fillValue\n 'number' // outId\n]);\n}\n\nfunction transform(\n args:\n {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n const [outHeight, outWidth] =\n outputShape != null ? outputShape : [imageHeight, imageWidth];\n const outShape =\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n
const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const

transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n   case 'constant':\n   fillModeId = 1;\n   break;\n   case 'reflect':\n   fillModeId = 2;\n   break;\n   case 'wrap':\n   fillModeId = 3;\n   break;\n   case 'nearest':\n   fillModeId = 4;\n   break;\n   default:\n   fillModeId = 1;\n   break;\n }\n\n wasmTransform(\n   imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n   outWidth, numChannels, imageWidth, imageHeight, strides,\n   image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n   outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nfunction unpack(\n   args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n   TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n   axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank = value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank; i++) {\n   if (i !== axis) {\n   outShape[outIndex++] = value.shape[i];\n   }\n }\n const outs: TensorInfo[] = new Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n for (let i = 0; i < outs.length; i++) {\n   begin[axis] = i;\n   outs[i] = slice({inputs: {x: value}, attrs: {begin, size}, backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype, shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the library. A modular build would replace\n// the contents of this file and import only the kernels that are needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig} from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from './kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport {anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig} from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport {batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from

'./kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from
'./kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from
'./kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from
'./kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from
'./kernels/FloorDiv';\nimport {fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport
{fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from
'./kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport
{gatherV2Config} from
'./kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from
'./kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {leakyReluConfig} from
'./kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from
'./kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport {logicalAndConfig} from
'./kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from
'./kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {meanConfig} from
'./kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from
'./kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from
'./kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from
'./kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from
'./kernels/NonMaxSuppressionV4';\nimport
{nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from
'./kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from
'./kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from
'./kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport
{prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from
'./kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from
'./kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from
'./kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig}
from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from
'./kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport
{selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {sinConfig}
from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from
'./kernels/Softmax';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport {splitVConfig}
from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport {squareConfig} from
'./kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig}
from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from
'./kernels/Sub';\nimport {sumConfig} from './kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport
{tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from './kernels/Tile';\nimport {topKConfig} from
'./kernels/TopK';\nimport {transformConfig} from './kernels/Transform';\nimport {transposeConfig} from
'./kernels/Transpose';\nimport
{unpackConfig} from './kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all
kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n
allConfig,\n anyConfig,\n argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n
castConfig,\n ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n
conv2DBackpropInputConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n
depthToSpaceConfig,\n depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n
expandDimsConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n
fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n
gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n

leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n

var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof

scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof
arguments!=\"undefined\"){arguments_=arguments}if(typeof
quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof
console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof
printErr!==\"undefined\"?printErr:print}}else
if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDire
ctory=self.location.href}else if(typeof
document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof
_scriptDir !== \"undefined\" &&
_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.s
ubstr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=fun
ction
shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=n
odePath[\"normalize\"](filename);return
nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var
ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return
ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return
xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new
XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new
Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new
XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status
==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}
}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof
performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var
out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key
in
moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverr
ides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=
Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function
warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;er
r(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var
Atomics_compareExchange=Atomics.compareExchange;var
wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var
noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no
native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var
EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function
getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure
it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var
toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var
len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var
ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function
convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return
Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var
i=0;i<args.length;i++){var
converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i
]=args[i]}}}var
ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function
cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var

numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function

preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function

receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}var ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,EBADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EBUSY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,ENOTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERANGE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNATCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOANO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:128,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFUSED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOSTDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,EPROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,ENOTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:148,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:135};function _emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)return-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var mainThreadWoken=0;if(mainThreadWaitAddress==addr){var loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainThreadWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return 1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value \"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var

pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}function cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cancelThread!\";var pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var pthreadPoolSize=8;for(var i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var tb=_malloc(228);for(var i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRONMENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},threadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.length>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.store(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscripten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthread_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in PThread.pthreads){var pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThread.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeThreadData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(function(){delete PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=undefined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runtime_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,onFinishedLoading){worker.onmessage=function(e){var

d=e[\"data\"];var cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{console.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that thread no longer exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThreadWork\"){_emscripten_main_thread_process_queued_calls()}else if(cmd===\"spawnThread\"){spawnThread(e.data)}else if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else if(cmd===\"killThread\"){killThread(d[\"thread\"])}else if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\": \"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var t=performance.now()+msecs;while(performance.now()<t){}}};function establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function getNoExitRuntime(){return noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function ___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var _emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return

_emscripten_proxy_to_main_thread_js(1,1,func,arg)}function
__emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessag
e({\"cmd\":\"processQueuedMainThreadWork\"})}else
if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueu
e\"})}else{var pthread=PThread.pthreads[targetThreadId];var
worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}ret
urn 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var
args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function
_emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function
_emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-
28;if(!ENVIRONMENT_IS_WEB){var
ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-
73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return
0;throw\"Atomics.wait returned an unexpected value
\"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var
tNow=performance.now();var tEnd=tNow+timeout;var
lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNo
w=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_mai
n_thread_futex>>2,0);return-
73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==
0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!
=val){return-
6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return
0}}function
_emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function
_emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return
navigator[\"hardwareConcurrency\"]}function
_emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var
stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var
b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var
ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);retur
n ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function
readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var
ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var
double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf
++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function
_emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callA
rgs.length=numCallArgs;var b=args>>3;for(var
i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}v
ar
isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-
1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function
_emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function
emscripten_realloc_buffer(size){try{wasmMemory.grow(size-
buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return
1}catch(e){}}function _emscripten_resize_heap(requestedSize){var
oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var
maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var

cutDown=1;cutDown<=4;cutDown*=2){var
overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize
+100663296);var
newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var
replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var
JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var
i=JSEvents.eventHandlers.length-1;i>=0;--
i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListen
ers:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListene
rs);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence
,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in
arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var
call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,args
List)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList
});JSEvents.deferredCalls.sort(function(x,y){return
x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var
i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.d
eferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return
JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!J
SEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var
call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--
i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,event
TypeString){for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||event
TypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--
)}}},_removeHandler:function(i){var
h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);J
SEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var
jsEventHandler=function
jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDef
erredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--
JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventH
andler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.e
ventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var
i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.e
ventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--
)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData)
{var stackTop=stackSave();var
varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs
+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThr
ead,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:f
unction(targetThread){switch(targetThread){case
1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return
targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";
if(target==screen)return\"#screen\";return
target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return
document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var
length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return

cString}function
_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var
stackTop=stackSave();var varargs=stackAlloc(12);var
targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32(
)[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[var
args+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestor
e(stackTop)}function
_emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=tar
getCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThr
ead,targetCanvas,width,height)}function maybeCStringToJsString(cString){return
cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof
document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function
findEventTarget(target){target=maybeCStringToJsString(target);var
domElement=specialHTMLTargets[target]||(typeof
document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function
findCanvasEventTarget(target){return findEventTarget(target)}function
_emscripten_set_canvas_element_size_calling_thread(target,width,height){var
canvas=findCanvasEventTarget(target);if(!canvas)return-
4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA
P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if
(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var
autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var
prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prev
Viewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;
canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else
if(canvas.canvasSharedPtr){var
targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_o
n_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function
_emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)retur
n
_emscripten_proxy_to_main_thread_js(2,1,target,width,height);return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}function
_emscripten_set_canvas_element_size(target,width,height){var
canvas=findCanvasEventTarget(target);if(canvas){return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return
_emscripten_set_canvas_element_size_main_thread(target,width,height)}}function
_emscripten_set_current_thread_status(newStatus){}function
_emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var
ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ex
t[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcou
nt){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(
mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};
return
1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var

ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers WEBGL\"](n,bufs)};return 1}}function __webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_draw\"))}var GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],contexts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:function recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return source},createContext:function(canvas,webGLContextAttributes){var ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var handle=GL.registerContext(ctx,webGLContextAttributes);return handle},registerContext:function(ctx,webGLContextAttributes){var handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensionsByDefault){GL.initExtensions(context)}return handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(contextHandle){return GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[contextHandle])GL.currentContext=null;if(typeof JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.contexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GLctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:function(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtensionsDone=true;var GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_object(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.indexOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var p=GL.programs[program];var ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var u=GLctx.getActiveUniform(p,i);var name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var j=1;j<u.size;++j){var n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function _emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var

powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var
contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4
>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"p
remultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_
I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerf
ormanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],
minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(
40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_
HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var
canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return
0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function
_emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var
SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var
buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));
buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var
ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var
ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function
_fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return
0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function
_fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var
ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var
j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32
()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var
routine=PThread.threadExitHandlers.pop();if(execute)routine()}function
_pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}f
unction spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread()
can only ever be called from main application thread!\";var
worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal
error!\";if(!threadParams.pthread_ptr)throw\"Internal
error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var
i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var
stackHigh=threadParams.stackBase+threadParams.stackSize;var
pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize
:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthrea
d_ptr};var
tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);A
tomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis
+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSiz
e);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),t
is+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atom
ics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var
global_libc=_emscripten_get_global_libc();var
global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthr
ead=pthread;var
msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":thre
adParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthre

ad=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded
){worker.runPthread();delete worker.runPthread}}function
_pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current
environment does not support SharedArrayBuffer, pthreads are not available!\");return
6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var
error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return
_emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return
error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-
1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+
8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var
allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-
=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var
i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_p
tr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var
headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var
threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached
,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_P
THREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(thread
Params)}return
0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var
tb=_pthread_self();if(!tb)return;var
cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var
canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function
_emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKE
R)return;warnOnce(\"Blocking on the main thread is very dangerous, see
https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function
__emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread
pointer!\");return
ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread
\"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else
if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main
thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var
self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread
\"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return
ERRNO_CODES.ESRCH}var
detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread
\"+thread+\", which was already detached!\");return
ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var
threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var
threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[sta
tus>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PT
HREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return
0}if(!block){return
ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thre
ad_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1
)}}function
_pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function
_sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return

_emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_canvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var _Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var _AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var _All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var

```
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).ap
ply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"Q\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,argument
s)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\
"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).app
ly(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Modul
e[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments
)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,argu
ments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]
=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).a
pply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=M
odule[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=M
odule[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)}
;var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,ar
guments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,argument
s)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Modul
e[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arg
uments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).
apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchN
orm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Mod
ule[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=M
odule[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(nul
l,arguments)};var
```

_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var

_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var

_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Mod

ule[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).apply(null,arguments)};var stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var _emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var _memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb\"]).apply(null,arguments)};var __emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var __emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromiseResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){return}function doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw new ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRuntime();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new ExitStatus(status))}if(Module[\"preInit\"]){if(typeof Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"] = WasmBackendModuleThreadedSimd;\n","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n WasmBackendModule = WasmBackendModule || {};\n\n\nvar Module=typeof WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var

ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var

```
func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return
func}function ccall(ident,returnType,argTypes,args,opts){var
 toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var
len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var
ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function
convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return
Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var
i=0;i<args.length;i++){var
converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i
]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return
ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var
numericArgs=argTypes.every(function(type){return type===\"number\"});var
numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return
 function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof
TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function
UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var
endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-
idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var
str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var
u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var
u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[id
x++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-
65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function
UTF8ToString(ptr,maxBytesToRead){return
ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function
stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return
 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var
u=str.charCodeAt(i);if(u>=55296&&u<=57343){var
u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]
=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else
if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx
++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[
outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function
stringToUTF8(str,outPtr,maxBytesToWrite){return
stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function
writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function
alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var
buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function
 updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new
Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new
Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new
Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new
Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new
Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var
INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var
__ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var
runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function
preRun(){if(Module[\"preRun\"]){if(typeof
```

Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return

instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function _emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function _emscripten_get_heap_size(){return HEAPU8.length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var

_init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};
var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Mod
ule[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads
_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=M
odule[\"asm\"][\"o\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"
asm\"][\"p\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(n
ull,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments
)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,argument
s)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,ar
guments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};
var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).app
ly(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,argument
s)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\
"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).ap
ply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Modul
e[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments
)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,argu
ments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]
=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).a
pply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=M
odule[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=M
odule[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var

_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)}
;var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arg
uments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,argument
s)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Modul
e[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,argu
ments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).
apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchN
orm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Mod
ule[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=M
odule[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null
,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"
]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(
null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\
"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\
"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,argume
nts)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"
Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments
)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm
\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,argume
nts)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).
apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,ar
guments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,argumen
ts)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\
"]).apply(null,arguments)};var

_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var

_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun(

)}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}run();\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors, storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object; // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n super();\n this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs = util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values: backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id = this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size * util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n memoryOffset);\n }\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset, dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n }\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset + util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n }\n\n /**\n * Dispose the memory if the dataId has

```
 0 refCount. Return true if the memory\n   * is released, false otherwise.\n   * @param dataId\n   * @oaram force
Optional, remove the data regardless of refCount\n   */\n  disposeData(dataId: DataId, force = false): boolean {\n    if
(this.dataIdMap.has(dataId)) {\n      const data = this.dataIdMap.get(dataId);\n      data.refCount--;\n      if (!force
&& data.refCount > 0) {\n        return false;\n      }\n\n      this.wasm._free(data.memoryOffset);\n
this.wasm.tfjs.disposeData(data.id);\n      this.dataIdMap.delete(dataId);\n    }\n    return true;\n  }\n\n  /** Return
refCount of a `TensorData`. */\n  refCount(dataId: DataId): number {\n    if (this.dataIdMap.has(dataId)) {\n
const tensorData = this.dataIdMap.get(dataId);\n      return tensorData.refCount;\n    }\n    return 0;\n  }\n\n
incRef(dataId: DataId) {\n    const data = this.dataIdMap.get(dataId);\n    if (data != null) {\n      data.refCount++;\n
}\n  }\n\n  floatPrecision(): 32 {\n    return 32;\n  }\n\n
  // Returns the memory offset of a tensor. Useful for debugging and unit\n  // testing.\n  getMemoryOffset(dataId:
DataId): number {\n    return this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n  dispose() {\n
this.wasm.tfjs.dispose();\n    if ('PThread' in this.wasm) {\n      this.wasm.PThread.terminateAllThreads();\n    }\n
this.wasm = null;\n  }\n\n  memory() {\n    return {unreliable: false};\n  }\n\n  /**\n   * Make a tensor info for the
output of an op. If `memoryOffset` is not\n   * present, this method allocates memory on the WASM heap. If
`memoryOffset`\n   * is present, the memory was allocated elsewhere (in c++) and we just record\n   * the pointer
where that memory lives.\n   */\n  makeOutput(shape: number[], dtype: DataType, memoryOffset?: number):\n
TensorInfo {\n    let dataId: {};\n    if (memoryOffset == null) {\n      dataId = this.write(null /* values */, shape,
dtype);\n    } else {\n      const id = this.dataIdNextNumber++;\n      dataId = {id};\n      this.dataIdMap.set(dataId,
{id, memoryOffset, shape, dtype, refCount: 1});\n      const size = util.sizeFromShape(shape);\n
this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n    }\n    return {dataId, shape, dtype};\n  }\n\n
typedArrayFromHeap({shape, dtype, dataId}: TensorInfo):\n      backend_util.TypedArray {\n    const buffer =
this.wasm.HEAPU8.buffer;\n    const {memoryOffset} = this.dataIdMap.get(dataId);\n    const size =
util.sizeFromShape(shape);\n    switch (dtype) {\n      case 'float32':\n        return new Float32Array(buffer,
memoryOffset, size);\n      case 'int32':\n        return new Int32Array(buffer, memoryOffset, size);\n      case 'bool':\n
    return new Uint8Array(buffer, memoryOffset, size);\n      default:\n        throw new Error(`Unknown dtype
${dtype}`);\n    }\n  }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n  // this will be replace by rollup
plugin patchWechatWebAssembly in\n  // minprogram's output.\n  // tslint:disable-next-line:no-any\n
  return (imports: any, callback: any) => {\n    util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n
if (!response['ok']) {\n        imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n
response.arrayBuffer().then(binary => {\n        WebAssembly.instantiate(binary, imports).then(output => {\n
callback(output.instance, output.module);\n        });\n      });\n    });\n    return {};\n  };\n}\n\n/**\n * Returns the
path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported
whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM
binaries.\n */\nfunction getPathToWasmBinary(\n    simdSupported: boolean, threadsSupported: boolean,\n
wasmModuleFolder: string) {\n  if (wasmPath != null) {\n    // If wasmPath is defined, the user has supplied a full
path to\n    // the vanilla .wasm binary.\n    return wasmPath;\n  }\n\n  let path: WasmBinaryName
 = 'tfjs-backend-wasm.wasm';\n  if (simdSupported && threadsSupported) {\n    path = 'tfjs-backend-wasm-
threaded-simd.wasm';\n  } else if (simdSupported) {\n    path = 'tfjs-backend-wasm-simd.wasm';\n  }\n\n  if
(wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n      return wasmFileMap[path];\n    }\n  }\n\n
return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm bridge.\n
*\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning
Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async
function init(): Promise<{wasm: BackendWasmModule}> {\n  const [simdSupported, threadsSupported] = await
Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n
env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) =>
{\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function overrides
 the Emscripten module locateFile utility.\n     * @param path The relative path to the file that needs to be loaded.\n
  * @param prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile = (path,
```

prefix) => {\n if (path.endsWith('.worker.js')) {\n const response = wasmWorkerContents;\n const blob = new Blob([response], {type: 'application/javascript'});\n return URL.createObjectURL(blob);\n }\n\n if (path.endsWith('.wasm')) {\n return getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : prefix);\n }\n return prefix + path;\n };\n\n // Use the instantiateWasm override when system fetch is not available.\n // Reference:\n // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n if (customFetch) {\n factoryConfig.instantiateWasm =\n createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : ''));\n }\n\n let initialized = false;\n factoryConfig.onAbort = () => {\n if (initialized) {\n // Emscripten already called console.warn so no need to double log.\n return;\n }\n if (initAborted) {\n // Emscripten calls `onAbort` twice, resulting in double error\n // messages.\n return;\n }\n initAborted = true;\n const rejectMsg =\n 'Make sure the server can serve the `.wasm` file relative to the ' +\n 'bundled js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n reject({message: rejectMsg});\n };\n\n let wasm: Promise<BackendWasmModule>;\n // If `wasmPath` has been defined we must initialize the vanilla module.\n if (threadsSupported && simdSupported && wasmPath == null) {\n factoryConfig.mainScriptUrlOrBlob = new Blob(\n [`var WasmBackendModuleThreadedSimd = ` +\n wasmFactoryThreadedSimd.toString()],\n {type: 'text/javascript'});\n wasm = wasmFactoryThreadedSimd(factoryConfig);\n } else {\n // The wasmFactory works for both vanilla and SIMD binaries.\n wasm = wasmFactory(factoryConfig);\n }\n\n // The WASM module has been successfully created by the factory.\n // Any error will be caught by the onAbort callback defined above.\n wasm.then((module) => {\n initialized = true;\n initAborted = false;\n\n const voidReturnType: string = null;\n // Using the tfjs namespace to avoid conflict with emscripten's API.\n module.tfjs = {\n init: module.cwrap('init', null, []),\n initWithThreadsCount:\n module.cwrap('init_with_threads_count', null, ['number']),\n getThreadsCount:\n module.cwrap('get_threads_count', 'number', []),\n registerTensor: module.cwrap(\n 'register_tensor', null,\n [\n 'number', // id\n 'number', // size\n 'number', // memoryOffset\n]),\n disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n };\n\n resolve({wasm: module});\n });\n });\n}\n\nfunction typedArrayFromBuffer(\n buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer);\n case 'int32':\n return new Int32Array(buffer);\n case 'bool':\n return new Uint8Array(buffer);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n\nconst wasmBinaryNames = [\n 'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string, usePlatformFetch = false): void {\n deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n ' will be removed in a future release.');\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n }\n wasmPath = path;\n customFetch = usePlatformFetch;\n}\n\n/**\n *

Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n * 'tfjs-backend-wasm.wasm': 'renamed.wasm',\n * 'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n * 'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n * - (string) The path to the directory where the WASM binaries are located.\n * Note that this prefix will be used to load each binary (vanilla,\n * SIMD-enabled, threading-enabled, etc.).\n * - (object) Mapping from names of WASM binaries to custom\n * full paths specifying the locations of those binaries. This is useful if\n * your WASM binaries are not all located in the same directory, or
if your\n * WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n usePlatformFetch = false): void {\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n wasmPathPrefix = prefixOrFileMap;\n } else {\n wasmFileMap = prefixOrFileMap;\n const missingPaths =\n wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n if (missingPaths.length > 0) {\n throw new Error(\n `There were no entries found for the following binaries: ` +\n `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","export const wasmWorkerContents = 'var Module={};function threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function threadAlert(){var text=Array.prototype.slice.call(arguments).join(\" \");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var instance=new WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"]();Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self\"](),1);try{var result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\

"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else if(ex!=\"unwind\"){if(ex instanceof Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}else{Module[\"PThread\"].threadExit(-2);throw ex}}}}else if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else if(e.data.target===\"setimmediate\"){}else if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_process_queued_calls\"]()}}else{err(\"worker.js received unknown command \"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception: \"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n}, WASM_PRIORITY);\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n"],"names":["CppDType","FusableActivation","wasmFusedMatMul","fusedMatMulConfig","kernelName","_FusedMatMul","backendName","setupFunc","backend","wasm","cwrap","kernelFunc","args","inputs","attrs","a","b","bias","preluActivationWeights","dtype","Error","transposeA","transposeB","activation","leakyreluAlpha","aId","dataIdMap","get","dataId","id","bId","biasId","biasData","shape","length","preluActivationWeightsId","fusedActivation","leftDim","rightDim","batchDim","out","makeOutput","outId","aShapeBytes","Uint8Array","Int32Array","buffer","bShapeBytes","createUnaryKernelConfig","outType","wasmFunc","x","xId","util","sizeFromShape","absConfig","Abs","createBinaryKernelConfig","supportsFullBroadcast","outputType","newShape","backend_util","assertAndGetBroadcastShape","aBroadcastDims","getBroadcastDims","bBroadcastDims","loopsOverAllOfA","every","v","i","loopsOverAllOfB","addConfig","Add","addNConfig","AddN","inputIds","map","inputIdsBytes","identity","inVals","typedArrayFromHeap","set","wasmTranspose","identityConfig","Identity","transpose","_a","perm","newPerm","push","minValIdx","j","reducedShape","permIsNoOp","outShape","inShape","Array","computeOutShape","cloned","permBytes","xShapeBytes","wasmAll","transposeConfig","Transpose","permuteAxesAndTranspose","axis","xShape","xRank","originalAxes","parseAxisParam","axes","permutedAxes","getAxesPermutation","xTransposed","inputWasTransposed","getInnerMostAxes","transposed","wasmAny","allConfig","All","keepDims","inputId","input","inputRank","assertAxesAreInnerMostDims","_b","reduceShape","reduceSize","disposeData","expandSha

peToKeepDim","anyConfig","Any","wasmAvgPool","argMaxConfig","ArgMax","transposedId","slice","outerSize","innerSize","avgPoolConfig","AvgPool","filterSize","strides","pad","dimRoundingMode","convInfo","computePool2DInfo","filterHeight","filterWidth","padTop","padInfo","top","padRight","right","padBottom","bottom","padLeft","left","strideHeight","strideWidth","channels","inChannels","dataFormat","dilationWidth","dilationHeight","reshape","xSize","$shape","inferFromImplicitShape","assert","incRef","wasmBatchMatMul","reshapeConfig","Reshape","batchMatMulConfig","BatchMatMul","aRank","bRank","innerShapeA","innerShapeB","outerShapeA","outerShapeB","outerDimsA","outerDimsB","batchDimA","batchDimB","batchDimsCompatible","concat","b3dShape","a3d","b3d","a3dId","b3dId","Math","max","sliceImpl","vals","begin","size","isContinous","slice_util","isSliceContinous","xStrides","computeStrides","flatOffset","computeFlatOffset","subarray","decodedData","fromUint8ToStringArray","inBuf","outBuf","outLoc","indexToLoc","inLoc","idx","fromStringArrayToUint8","values","begin_","size_","xVals","readSync","outData","stringBytes","res","sliceImplCPU","outVals","rank","xStride","outOffset","beginI","beginJ","endI","xOffset","slice2d","xStride1","xStride2","beginK","endJ","slice3d","xStride3","endK","beginL","k","slice4d","sliceConfig","Slice","batchToSpaceNDConfig","BatchToSpaceND","blockShape","crops","prod","reduce","reshaped","getReshaped","permuted","getPermuted","reshapedPermuted","getReshapedPermuted","sliceBeginCoords","getSliceBeginCoords","sliceSize","getSliceSize","xReshaped","result","cast","wasmClip","castConfig","Cast","ceilConfig","Ceil","clipByValueConfig","ClipByValue","clipValueMin","clipValueMax","t","$inputs","filter","shapes","assertParamsConsistent","inputs2D","inputsValShapes","simplyConcat","outVals_1","getArrayFromDType","offset","forEach","colOffset","tIdx","row","resIdx","col","concatImplCPU","finalOutShape","sumInnerDims","innerDims","innerDim","inOffset","wasmConv2d","concatConfig","Concat","wasmConv2DBackpropInput","conv2DConfig","Conv2D","filterId","dilations","$dataFormat","convertConv2DDataFormat","computeConv2DInfo","inputChannels","outputChannels","outChannels","isSamePad","type","InterpolationMethod","wasmCropAndResize","conv2DBackpropInputConfig","Conv2DBackpropInput","dy","inputShape","batchSize","inHeight","inWidth","outHeight","outWidth","topPad","leftPad","isChannelsLast","dxStrides","dyStrides","fltS0","fltS1","fltS2","xBatchStride","xRowStride","xColStride","xChannelStride","yBatchStride","yRowStride","yColStride","yChannelStride","dyId","cosConfig","Cos","coshConfig","Cosh","wasmCumsum","cropAndResizeConfig","CropAndResize","castedData","method","extrapolationValue","cropSize","image","boxes","boxInd","numBoxes","cropHeight","cropWidth","imagesData","imagesId","boxesId","boxIndId","imagesShapeBytes","wasmDepthToSpace","cumsumConfig","Cumsum","exclusive","reverse","permutation","permutedX","permutedAxis","permutedOut","finalDim","permutedXId","permutedOutId","getUndoAxesPermutation","wasmDepthwiseConv2d","depthToSpaceConfig","DepthToSpace","blockSize","outputHeight","outputWidth","outputDepth","outputShape","xStridesBytes","outputShapeBytes","outStridesBytes","depthwiseConv2dNativeConfig","DepthwiseConv2dNative","$dilations","eluConfig","Elu","equalConfig","Equal","expConfig","Exp","expandDims","dim","$dim","splice","expandDimsConfig","ExpandDims","fill","value","wasmFlipLeftRight","fillConfig","Fill","wasmBatchNorm","flipLeftRightConfig","FlipLeftRight","imageId","batch","imageHeight","imageWidth","numChannels","floorConfig","Floor","floorDivConfig","FloorDiv","wasmFusedConv2d","fusedBatchNormConfig","FusedBatchNorm","varianceEpsilon","mean","variance","scale","meanId","varianceId","offsetId","scaleId","wasmFusedDepthwiseConv2d","fusedConv2DConfig","FusedConv2D","wasmGatherNd","fusedDepthwiseConv2DConfig","FusedDepthwiseConv2D","wasmGather","gatherNdConfig","GatherNd","params","indices","resultShape","numSlices","indicesShape","sliceRank","indicesId","stridesBytes","gatherV2Config","GatherV2","batchDims","parsedAxis","indicesVals","axisDim","index","shapeInfo","segment_util","collectGatherOpShapeInfo","flattenX","dimSize","indicesSize","flattenIndex","flattenOutputShape","stridesSize","greaterConfig","Greater","greaterEqualConfig","GreaterEqual","wasmMax","leakyReluConfig","LeakyRelu","alpha","lessConfig","Less","lessEqualConfig","LessEqual","logConfig","Log","logicalAndConfig","LogicalAnd","wasmMaxPool","maxConfig","Max","maximumConfig","Maximum","wasmMean","maxPoolConfig","MaxPool","wasmMin","meanConfig","Mean","reductionAxes","castedInput","MirrorPaddingMode","wasmMirrorPad","minConfig","Min","minimumConfig","Minimum","mirrorPadConfig","MirrorPad","paddings","mode","p","prePaddingsFlat","padTuple","postPaddingsFlat","prePaddingsBytes","postPaddingsBytes","multiplyConfig","Multiply","negConfig","Neg","parseResultStruct","resOffset","HEAPU8","pSelectedIndices","selectedSize","pSelectedScores","pValidOutputs","_free","nonMaxSuppressionV3Config","NonMaxSuppressionV3","iouThreshold","maxOutputSize","scoreThreshold","sco

res","scoresId","nonMaxSuppressionV4Config","NonMaxSuppressionV4","padToMaxOutputSize","wasmOneHot","nonMaxSuppressionV5Config","NonMaxSuppressionV5","softNmsSigma","notEqualConfig","NotEqual","oneHotConfig","OneHot","depth","onValue","offValue","onesLikeConfig","OnesLike","wasmPadV2","packConfig","Pack","assertShapesMatch","intermediateTensorInfos","expandedT","wasmPrelu","padV2Config","PadV2","constantValue","powConfig","Pow","wasmProd","preluConfig","Prelu","weightsId","wasmResizeBilinear","prodConfig","Prod","rangeConfig","Range","start","stop","step","makeZerosTypedArray","numElements","abs","ceil","rangeImplCPU","realDivConfig","RealDiv","reluConfig","Relu","relu6Config","Relu6","wasmReverse","resizeBilinearConfig","ResizeBilinear","images","alignCorners","halfPixelCenters","newHeight","newWidth","oldHeight","oldWidth","xData","wasmRotate","reverseConfig","Reverse","dims","axesBytes","outShapeBytes","wasmScatterNd","rotateWithOffsetConfig","RotateWithOffset","radians","fillValue","center","centerX","centerY","fillValues","fillBytes","roundConfig","Round","rsqrtConfig","Rsqrt","wasmSelect","scatterNdConfig","ScatterNd","updates","numUpdates","outputSize","updatesId","selectConfig","Select","condition","e","conditionId","tId","eId","cRank","tRank","sigmoidConfig","Sigmoid","sinConfig","Sin","softmaxConfig","Softmax","logits","spaceToBatchNDConfig","SpaceToBatchND","completePaddings","paddedX","reshapedPaddedShape","permutedReshapedPaddedPermutation","flattenShape","paddedXReshaped","paddedXT","wasmStep","splitVConfig","SplitV","numOrSizeSplits","$axis","splitSizes","prepareSplitSize","s","xSliceSize","xSlice","sqrtConfig","Sqrt","squareConfig","Square","squaredDifferenceConfig","SquaredDifference","wasmStridedSlice","stepConfig","Step","wasmSum","stridedSliceConfig","StridedSlice","end","beginMask","endMask","ellipsisMask","newAxisMask","shrinkAxisMask","finalShapeSparse","finalShape","isIdentity","sliceDim0","isSimpleSlice","$begin","$end","$strides","sliced","beginBytes","endBytes","subConfig","Sub","wasmTile","sumConfig","Sum","tanConfig","Tan","tanhConfig","Tanh","wasmTopK","tileConfig","Tile","reps","newShapeBytes","wasmTransform","topKConfig","TopK","sorted","outValues","outValuesId","outIndices","outIndicesId","transformConfig","Transform","fillModeId","transforms","interpolation","fillMode","transformsId","interpolationModeId","unpackConfig","Unpack","numOutputs","outIndex","outs","zerosLikeConfig","ZerosLike","kernelConfigs_1","_i","kernelConfig","registerKernel","ENV","env","registerFlag","WebAssembly","validate","MessageChannel","port1","postMessage","SharedArrayBuffer","_scriptDir","WasmBackendModuleThreadedSimd","document","currentScript","src","undefined","__filename","GROWABLE_HEAP_I8","wasmMemory","updateGlobalBufferAndViews","HEAP8","GROWABLE_HEAP_U8","GROWABLE_HEAP_I32","HEAP32","GROWABLE_HEAP_U32","HEAPU32","GROWABLE_HEAP_F64","HEAPF64","readyPromiseResolve","readyPromiseReject","Module","Promise","resolve","reject","key","moduleOverrides","hasOwnProperty","quit_","status","toThrow","ENVIRONMENT_IS_WEB","ENVIRONMENT_IS_WORKER","ENVIRONMENT_IS_NODE","ENVIRONMENT_IS_SHELL","window","importScripts","process","versions","node","ENVIRONMENT_IS_PTHREAD","read_","readAsync","readBinary","nodeFS","nodePath","scriptDirectory","locateFile","path","nodeWorkerThreads","require$$0","dirname","__dirname","filename","binary","require$$1","ret","replace","ex","ExitStatus","abort","require$$2","console","error","global","Worker","read","f","data","readbuffer","scriptArgs","quit","print","log","warn","printErr","self","location","href","indexOf","substr","lastIndexOf","url","xhr","XMLHttpRequest","open","send","responseText","responseType","response","onload","onerror","performance","require$$3","wasmBinary","bind","err","warnOnce","text","shown","wasmModule","noExitRuntime","ABORT","getCFunc","ident","func","ccall","returnType","argTypes","opts","toC","string","str","len","stringToUTF8","stackAlloc","array","arr","writeArrayToMemory","cArgs","stack","converter","stackSave","apply","UTF8ToString","Boolean","convertReturnValue","stackRestore","numericArgs","arguments","UTF8ArrayToString","heap","maxBytesToRead","endIdx","u0","u1","u2","String","fromCharCode","ch","ptr","stringToUTF8Array","outIdx","maxBytesToWrite","startIdx","u","charCodeAt","outPtr","lengthBytesUTF8","alignUp","multiple","buf","Int8Array","Int16Array","Uint16Array","Uint32Array","Float32Array","Float64Array","wasmTable","INITIAL_MEMORY","Memory","initial","maximum","shared","byteLength","__ATPRERUN__","__ATINIT__","__ATMAIN__","__ATPOSTRUN__","preRun","addOnPreRun","shift","callRuntimeCallbacks","initRuntime","preMain","postRun","addOnPostRun","cb","unshift","___wasm_call_ctors","runDependencies","dependenciesFulfilled","addRunDependency","removeRunDependency","callback","what","RuntimeError","hasPrefix","prefix","prototype","startsWith","dataURIPrefix","isDataURI","fileURIPrefix","isFileURI","wasmBinaryFile","getBinary","file","getBinaryPromise","fetch","credentials","then","catch","createWasm","info","asmLi

braryArg","receiveInstance","instance","module","exports","numWorkersToLoad","PThread","unusedWorkers","w","loadWasmModuleToWorker","receiveInstantiatedSource","output","instantiateArrayBuffer","receiver","instantiate","reason","instantiateStreaming","ASM_CONSTS","10520","10538","$0","$1","setTimeout","__emscripten_do_dispatch_to_thread","initPthreadsJS","callbacks","arg","ERRNO_CODES","EPERM","ENOENT","ESRCH","EINTR","EIO","ENXIO","E2BIG","ENOEXEC","EBADF","ECHILD","EAGAIN","EWOULDBLOCK","ENOMEM","EACCES","EFAULT","ENOTBLK","EBUSY","EEXIST","EXDEV","ENODEV","ENOTDIR","EISDIR","EINVAL","ENFILE","EMFILE","ENOTTY","ETXTBSY","EFBIG","ENOSPC","ESPIPE","EROFS","EMLINK","EPIPE","EDOM","ERANGE","ENOMSG","EIDRM","ECHRNG","EL2NSYNC","EL3HLT","EL3RST","ELNRNG","EUNATCH","ENOCSI","EL2HLT","EDEADLK","ENOLCK","EBADE","EBADR","EXFULL","ENOANO","EBADRQC","EBADSLT","EDEADLOCK","EBFONT","ENOSTR","ENODATA","ETIME","ENOSR","ENONET","ENOPKG","EREMOTE","ENOLINK","EADV","ESRMNT","ECOMM","EPROTO","EMULTIHOP","EDOTDOT","EBADMSG","ENOTUNIQ","EBADFD","EREMCHG","ELIBACC","ELIBBAD","ELIBSCN","ELIBMAX","ELIBEXEC","ENOSYS","ENOTEMPTY","ENAMETOOLONG","ELOOP","EOPNOTSUPP","EPFNOSUPPORT","ECONNRESET","ENOBUFS","EAFNOSUPPORT","EPROTOTYPE","ENOTSOCK","ENOPROTOOPT","ESHUTDOWN","ECONNREFUSED","EADDRINUSE","ECONNABORTED","ENETUNREACH","ENETDOWN","ETIMEDOUT","EHOSTDOWN","EHOSTUNREACH","EINPROGRESS","EALREADY","EDESTADDRREQ","EMSGSIZE","EPROTONOSUPPORT","ESOCKTNOSUPPORT","EADDRNOTAVAIL","ENETRESET","EISCONN","ENOTCONN","ETOOMANYREFS","EUSERS","EDQUOT","ESTALE","ENOTSUP","ENOMEDIUM","EILSEQ","EOVERFLOW","ECANCELED","ENOTRECOVERABLE","EOWNERDEAD","ESTRPIPE","_emscripten_futex_wake","addr","count","Infinity","mainThreadWaitAddress","Atomics","load","__emscripten_main_thread_futex","mainThreadWoken","compareExchange","notify","killThread","pthread_ptr","pthread","pthreads","worker","terminate","freeThreadData","runningWorkers","cancelThread","cmd","cleanupThread","returnWorkerToPool","_emscripten_get_now","initMainThreadBlock","allocateUnusedWorker","tb","_malloc","headPtr","tlsMemory","store","__emscripten_thread_init","_emscripten_register_main_browser_thread_id","initWorker","threadExitHandlers","setThreadStatus","runExitHandlers","pop","_pthread_self","___pthread_tsd_run_dtors","runExitHandlersAndDeinitThread","exitCode","threadExit","threadCancel","terminateAllThreads","threadInfoStruct","allocatedOwnStack","stackBase","runWithoutMainThreadQueuedCalls","__emscripten_allow_main_runtime_queued_calls","receiveObjectTransfer","onFinishedLoading","onmessage","d","currentProxiedOperationCallerThread","thread","targetThread","_emscripten_main_thread_process_queued_calls","spawnThread","loaded","runPthread","alert","exit","target","lineno","message","on","urlOrBlob","pthreadMainJs","getNewWorker","busySpinWait","msecs","now","establishStackSpace","stackTop","stackMax","_emscripten_stack_set_limits","getNoExitRuntime","invokeEntryPoint","___assert_fail","line","___call_main","argc","argv","_main","setErrNo","___errno_location","_atexit","_emscripten_proxy_to_main_thread_js","__emscripten_notify_thread_queue","targetThreadId","mainThreadId","_abort","_emscripten_asm_const_int","code","sigPtr","argbuf","readAsmConstArgs","_emscripten_conditional_set_current_thread_status","expectedStatus","newStatus","_emscripten_futex_wait","val","timeout","tNow","tEnd","exchange","wait","_emscripten_memcpy_big","dest","num","copyWithin","_emscripten_num_logical_cores","require$$4","cpus","navigator","sync","numCallArgs","serializedNumCallArgs","_emscripten_run_in_main_runtime_thread_js","dateNow","_emscripten_receive_on_main_thread_js_callArgs","readAsmConstArgsArray","double","_emscripten_receive_on_main_thread_js","proxiedFunctionTable","_emscripten_get_heap_size","emscripten_realloc_buffer","grow","_emscripten_resize_heap","requestedSize","oldSize","maxHeapSize","cutDown","overGrownHeapSize","min","JSEvents","inEventHandler","removeAllEventListeners","eventHandlers","_removeHandler","deferredCalls","registerRemoveEventListeners","removeEventListenersRegistered","deferCall","targetFunction","precedence","argsList","arraysHaveEqualContent","arrA","arrB","call","sort","y","removeDeferredCalls","canPerformEventHandlerRequests","currentEventHandler","allowsDeferredCalls","runDeferredCalls","removeAllHandlersOnTarget","eventTypeString","h","removeEventListener","eventListenerFunc","useCapture","registerOrRemoveHandler","eventHandler","jsEventHandler","event","handlerFunc","callbackfunc","addEventListener","queueEventHandlerOnThread_iiii","eventHandlerFunc","eventTypeId","eventData","userData","varargs","__emscripten_call_on_thread","getTargetThreadForEventCallback","getNodeNameForTarget","screen","nodeName","fullscreenEnabled","webkitFullscreenEnabled","string

ToNewUTF8","jsString","cString","_emscripten_set_offscreencanvas_size_on_target_thread_js","targetCanvas","width","height","targetCanvasPtr","_emscripten_set_offscreencanvas_size_on_target_thread","maybeCStringToJsString","specialHTMLTargets","findEventTarget","querySelector","findCanvasEventTarget","_emscripten_set_canvas_element_size_calling_thread","canvas","canvasSharedPtr","offscreenCanvas","controlTransferredOffscreen","autoResizeViewport","GLctxObject","GLctx","prevViewport","getParameter","viewport","_emscripten_set_canvas_element_size_main_thread","_emscripten_set_canvas_element_size","_emscripten_set_current_thread_status","_emscripten_set_thread_name","threadId","name","__webgl_enable_ANGLE_instanced_arrays","ctx","ext","getExtension","divisor","first","primcount","__webgl_enable_OES_vertex_array_object","vao","__webgl_enable_WEBGL_draw_buffers","n","bufs","__webgl_enable_WEBGL_multi_draw","multiDrawWebgl","GL","counter","buffers","programs","framebuffers","renderbuffers","textures","uniforms","shaders","vaos","contexts","offscreenCanvases","timerQueriesEXT","programInfos","stringCache","unpackAlignment","recordError","errorCode","lastError","getNewId","table","getSource","shader","source","createContext","webGLContextAttributes","getContext","registerContext","handle","context","attributes","version","majorVersion","enableExtensionsByDefault","initExtensions","makeContextCurrent","contextHandle","currentContext","deleteContext","initExtensionsDone","disjointTimerQueryExt","getSupportedExtensions","populateUniformTable","program","ptable","maxUniformLength","maxAttributeLength","maxUniformBlockNameLength","utable","numUniforms","getProgramParameter","getActiveUniform","loc","getUniformLocation","__emscripten_webgl_power_preferences","_emscripten_webgl_do_create_context","powerPreference","contextAttributes","stencil","antialias","premultipliedAlpha","preserveDrawingBuffer","failIfMajorPerformanceCaveat","minorVersion","explicitSwapControl","proxyContextToMainThread","renderViaOffscreenBackBuffer","_emscripten_webgl_create_context","a0","a1","SYSCALLS","mappings","printChar","stream","curr","getStr","get64","low","high","_fd_close","fd","_fd_seek","offset_low","offset_high","whence","newOffset","_fd_write","iov","iovcnt","pnum","_pthread_cleanup_pop","execute","routine","_pthread_cleanup_push","threadParams","stackHigh","stackSize","tis","detached","global_locale","_emscripten_get_global_libc","msg","start_routine","startRoutine","time","transferList","_pthread_create","attr","_emscripten_sync_run_in_main_thread_4","_memalign","__pthread_testcancel_js","_emscripten_check_blocking_allowed","__emscripten_do_pthread_join","block","_emscripten_main_browser_thread_id","threadStatus","threadExitCode","_pthread_join","_sysconf","calledRun","r","c","A","q","l","g","o","z","m","this","run","doRun","implicit","returnCode","runCaller","ready","WasmBackendModule","UTF8Decoder","TextDecoder","endPtr","decode","_super","_this","tfjs","initWithThreadsCount","threadsCount","actualThreadsCount","getThreadsCount","DataStorage","engine","tslib_1.__extends","BackendWasm","dataIdNextNumber","move","numDataIds","kernelMs","refCount","numBytes","bytesPerElement","memoryOffset","registerTensor","byteOffset","typedArrayFromBuffer","force","has","delete","dispose","unreliable","write","KernelBackend","getPathToWasmBinary","simdSupported","threadsSupported","wasmModuleFolder","wasmPath","wasmFileMap","init","all","getAsync","factoryConfig","endsWith","blob","Blob","URL","createObjectURL","wasmPathPrefix","customFetch","instantiateWasm","imports","arrayBuffer","createInstantiateWasmFunc","initialized","onAbort","initAborted","mainScriptUrlOrBlob","wasmFactoryThreadedSimd","toString","wasmFactory","wasmBinaryNames","numThreads","usePlatformFetch","deprecationWarn","prefixOrFileMap","missingPaths","join"],"mappings":";;;;;;;;;;;;;;;;oeAkBA,IAAAYA,EASAC,EAAcC,iVDLjBC,EAAAC,EAAAC,EAAA

EkB,MAAM,GAC5CK,EAAWhB,EAAaN,EAAEiB,MAAM,GAAKjB,EAAEiB,MAAM,GAC7CM,EAAWxB,EA
AEkB,MAAM,GAEnBO,EAAMhC,EAAQiC,WAAW,CAACF,EAAUF,EAASC,GAAAWvB,EAAEI,OAC1DuB,E
AAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAAQC,GAE1Cc,EAAc,IAAIC,WAAW,IAAIC,WAAW9B,EAAEkB,
OAAOa,QACrDC,EAAc,IAAIH,WAAW,IAAIC,WAAW7B,EAAEiB,OAAOa,QAO3D,OALA5C,EACIuB,EAAK
kB,EAAa5B,EAAEkB,MAAMC,OAAQJ,EAAKiB,EAAa/B,EAAEiB,MAAMC,OAC5Db,EAAYC,EAAYc,EAAi
BL,EAAQI,EACjDX,GAAkB,EAAGkB,EAAGAElBF,aC9EOQ,EACZ5C,EAAoB6C,GACtB,IAAIC,WAAW,IAAIC,WAAW,IAAIC,WAAW

AAUC,IAAIa,EAAIZ,QAAQC,GAC1CsE,EAAY,IAAIvD,WAAW,IAAIC,WAAW0C,GAAMzC,QAChDsD,EAAc,IAAIxD,WAAW,IAAIC,WAAWM,EAAElB,OAAOa,QAK3D,OAHAoC,EACCI9B,EAAKgD,EAAAajD,EAAElB,MAAMC,OAAQlC,EAASmD,EAAEhC,OAAQuB,EAAOyD,EAC5DZ,EAAKrD,QACFM,EAAoCF,IC1FH6D,ED0FSC,EAAgC,CAC3ClG,WAAYmG,YACjCC,EAAGjD,OAAOkD,KAAKC,WAAWC,EAAGpD,OAAOkD,KAAKG,WAAWC,EAAGtD,OAAOkD,KAAKK,WAAWC,EAAGxD,OAAOkD,KAAKO,WAAWC,EAAG1D,OAAOkD,KAAKS,WAAWC,EAAG5D,OAAOkD,KAAKW,WAAWC,EAAG9D,OAAOkD,KAAKa,WAAWC,EAAGhE,OAAOkD,KAAKe,WAAWC,EAAGlE,OAAOkD,KAAKiB,WAAWC,EAAGpE,OAAOkD,KAAKmB,WAAWC,EAAGtE,OAAOkD,KAAKqB,WAAWC,EAAGxE,OAAOkD,KAAKuB,WAAWC,EAAG1E,OAAOkD,KAAKyB,WAAWC,EAAG5E,OAAOkD,KAAK2B,WAAWC,EAAG9E,OAAOkD,KAAK6B,WAAWC,EAAGhF,OAAOkD,KAAK+B,WAAWC,EAAGlF,OAAOkD,KAAKiC,WAAWC,EAAGpF,OAAOkD,KAAKmC,WAAWC,EAAGtF,OAAOkD,KAAKqC,WAAWC,EAAGxF,OAAOkD,KAAKuC,WAAWC,EAAG1F,OAAOkD,KAAKyC,WAAWC,EAAG5F,OAAOkD,KAAK2C,WAAWC,EAAG9F,OAAOkD,KAAK6C,WAAWC,EAAGhG,OAAOkD,KAAK+C,WAAWC,EAAGlG,OAAOkD,KAAKiD,WAAWC,EAAGpG,OAAOkD,KAAKmD,WAAWC,EAAGtG,OAAOkD,KAAKqD,WAAWC,EAAGxG,OAAOkD,KAAKuD,WAAWC,EAAG1G,OAAOkD,KAAKyD,WAAWC,EAAG5G,OAAOkD,KAAK2D,WAAWC,EAAG9G,OAAOkD,KAAK6D,WAAWC,EAAGhH,OAAOkD,KAAK+D,WAAWC,EAAGlH,OAAOkD,KAAKiE,WAAWC,EAAGpH,OAAOkD,KAAKmE,WAAWC,EAAGtH,OAAOkD,KAAKqE,WAAWC,EAAGxH,OAAOkD,KAAKuE,WAAWC,EAAG1H,OAAOkD,KAAKyE,WAAWC,EAAG5H,OAAOkD,KAAK2E,WAAWC,EAAG9H,OAAOkD,KAAK6E,WAAWC,EAAGhI,OAAOkD,KAAK+E,WAAWC,EAAGlI,OAAOkD,KAAKiF,WAAWC,EAAGpI,OAAOkD,KAAKmF,WAAWC,EAAGtI,OAAOkD,KAAKqF,WAAWC,EAAGxI,OAAOkD,KAAKuF,WAAWC,EAAG1I,OAAOkD,KAAKyF,WAAWC,EAAG5I,OAAOkD,KAAK2F,WAAWC,EAAG9I,OAAOkD,KAAK6F,WAAWC,EAAGhJ,OAAOkD,KAAK+F,WAAWC,EAAGlJ,OAAOkD,KAAKiG,WAAWC,EAAGpJ,OAAOkD,KAAKmG,WAAWC,EAAGtJ,OAAOkD,KAAKqG,WAAWC,EAAGxJ,OAAOkD,KAAKuG,WAAWC,EAAG1J,OAAOkD,KAAKyG,WAAWC,EAAG5J,OAAOkD,KAAK2G,WAAWC,EAAG9J,OAAOkD,KAAK6G,WAAWC,EAAGhK,OAAOkD,KAAK+G,WAAWC,EAAGlK,OAAOkD,KAAKiH,WAAWC,EAAGpK,OAAOkD,KAAKmH,WAAWC,EAAGtK,OAAOkD,KAAKqH,WAAWC,EAAGxK,OAAOkD,KAAKuH,WAAWC,EAAG1K,OAAOkD,KAAKyH,WAAWC,EAAG5K,OAAOkD,KAAK2H,WAAWC,EAAG9K,OAAOkD,KAAK6H,WAAWC,EAAGhL,OAAOkD,KAAK+H,WAAWC,EAAGlL,OAAOkD,KAAKiI,WAAWC,EAAGpL,OAAOkD,KAAKmI,WAAWC,EAAGtL,OAAOkD,KAAKqI,WAAWC,EAAGxL,OAAOkD,KAAKuI,WAAWC,EAAG1L,OAAOkD,KAAKyI,WAAWC,EAAG5L,OAAOkD,KAAK2I,WAAWC,EAAG9L,OAAOkD,KAAK6I,WAAWC,EAAGhM,OAAOkD,KAAK+I,WAAWC,EAAGlM,OAAOkD,KAAKiJ,WAAWC,EAAGpM,OAAOkD,KAAKmJ,WAAWC,EAAGtM,OAAOkD,KAAKqJ,WAAWC,EAAGxM,OAAOkD,KAAKuJ,WAAWC,EAAG1M,OAAOkD,KAAKyJ,WAAWC,EAAG5M,OAAOkD,KAAK2J,WAAWC,EAAG9M,OAAOkD,KAAK6J,WAAWC,EAAGhN,OAAOkD,KAAK+J,WAAWC,EAAGlN,OAAOkD,KAAKiK,WAAWC,EAAGpN,OAAOkD,KAAKmK,WAAWC,EAAGtN,OAAOkD,KAAKqK,WAAWC,EAAGxN,OAAOkD,KAAKuK,WAAWC,EAAG1N,OAAOkD,KAAKyK,WAAWC,EAAG5N,OAAOkD,KAAK2K,WAAWC,EAAG9N,OAAOkD,KAAK6K,WAAWC,EAAGhO,OAAOkD,KAAK+K,WAAWC,EAAGlO,OAAOkD,KAAKiL,WAAWC,EAAGpO,OAAOkD,KAAKmL,WAAWC,EAAGtO,OAAOkD,KAAKqL,WAAWC,EAAGxO,OAAOkD,KAAKuL,WAAWC,EAAG1O,OAAOkD,KAAKyL,WAAWC,EAAG5O,OAAOkD,KAAK2L,WAAWC,EAAG9O,OAAOkD,KAAK6L,WAAWC,EAAGhP,OAAOkD,KAAK+L,WAAWC,EAAGlP,OAAOkD,KAAKiM,WAAWC,EAAGpP,OAAOkD,KAAKmM,WAAWC,EAAGtP,OAAOkD,KAAKqM,WAAWC,EAAGxP,OAAOkD,KAAKuM,WAAWC,EAAG1P,OAAOkD,KAAKyM,WAAWC,EAAG5P,OAAOkD,KAAK2M,WAAWC,EAAG9P,OAAOkD,KAAK6M,WAAWC,EAAGhQ,OAAOkD,KAAK+M,WAAWC,EAAGlQ,OAAOkD,KAAKiN,WAAWC,EAAGpQ,OAAOkD,KAAKmN,WAAWC,EAAGtQ,OAAOkD,KAAKqN,WAAWC,EAAGxQ,OAAOkD,KAAKuN,WAAWC,EAAG1Q,OAAOkD,KAAKyN,WAAWC,EAAG5Q,OAAOkD,KAAK2N,WAAWC,EAAG9Q,OAAOkD,KAAK6N,WAAWC,EAAGhR,OAAOkD,KAAK+N,WAAWC,EAAGlR,OAAOkD,KAAKiO,WAAWC,EAAGpR,OAAOkD,KAAKmO,WAAWC,EAAGtR,OAAOkD,KAAKqO,WAAWC,EAAGxR,OAAOkD,KAAKuO,WAAWC,EAAG1R,OAAOkD,KAAKyO,WAAWC,EAAG5R,OAAOkD,KAAK2O,WAAWC,EAAG9R,OAAOkD,KAAK6O,WAAWC,EAAGhS,OAAOkD,KAAK+O,WAAWC,EAAGlS,OAAOkD,KAAKiP,WAAWC,EAAGpS,OAAOkD,KAAKmP,WAAWC,EAAGtS,OAAOkD,KAAKqP,WAAWC,EAAGxS,OAAOkD,KAAKuP,WAAWC,EAAG1S,OAAOkD,KAAKyP,WAAWC,EAAG5S,OAAOkD,KAAK2P,WAAWC,EAAG9S,OAAOkD,KAAK6P,WAAWC,EAAGhT,OAAOkD,KAAK+P,WAAWC,EAAGlT,OAAOkD,KAAKiQ,WAAWC,EAAGpT,OAAOkD,KAAKmQ,WAAWC,EAAGtT,OAAOkD,KAAKqQ,WAAWC,EAAGxT,OAAOkD,KAAKuQ,WAAWC,EAAG1T,OAAOkD,KAAKyQ,WAAWC,EAAG5T,OAAOkD,KAAK2Q,WAAWC,EAAG9T,OAAOkD,KAAK6Q,WAAWC,EAAGhU,OAAOkD,KAAK+Q,WAAWC,EAAGlU,OAAOkD,KAAKiR,WAAWC,EAAGpU,OAAOkD,KAAKmR,WAAWC,EAAGtU,OAAOkD,KAAKqR,WAAWC,EAAGxU,OAAOkD,KAAKuR,WAAWC,EAAG1U,OAAOkD,KAAKyR,WAAWC,EAAG5U,OAAOkD,KAAK2R,WAAWC,EAAG9U,OAAOkD,KAAK6R,WAAWC,EAAGhV,OAAOkD,KAAK+R,WAAWC,EAAGlV,OAAOkD,KAAKiS,WAAWC,EAAGpV,OAAOkD,KAAKmS,WAAWC,EAAGtV,OAAOkD,KAAKqS,WAAWC,EAAGxV,OAAOkD,KAAKuS,WAAWC,EAAG1V,OAAOkD,KAAKyS,WAAWC,EAAG5V,OAAOkD,KAAK2S,WAAWC,EAAG9V,OAAOkD,KAAK6S,WAAWC,EAAGhW,OAAOkD,KAAK+S,WAAWC,EAAGlW,OAAOkD,KAAKiT,WAAWC,EAAGpW,OAAOkD,KAAKmT,WAAWC,EAAGtW,OAAOkD,KAAKqT,WAAWC,EAAGxW,OAAOkD,KAAKuT,WAAWC,EAAG1W,OAAOkD,KAAKyT,WAAWC,EAAG5W,OAAOkD,KAAK2T,WAAWC,EAAG9W,OAAOkD,KAAK6T,WAAWC,EAAGhX,OAAOkD,KAAK+T,WAAWC,EAAGlX,OAAOkD,KAAKiU,WAAWC,EAAGpX,OAAOkD,KAAKmU,WAAWC,EAAGtX,OAAOkD,KAAKqU,WAAWC,EAAGxX,OAAOkD,KAAKuU,WAAWC,EAAG1X,OAAOkD,KAAKyU,WAAWC,EAAG5X,OAAOkD,KAAK2U,WAAWC,EAAG9X,OAAOkD,KAAK6U,WAAWC,EAAGhY,OAAOkD,KAAK+U,WAAWC,EAAGlY,OAAOkD,KAAKiV,WAAWC,EAAGpY,OAAOkD,KAAKmV,WAAWC,EAAGtY,OAAOkD,KAAKqV,WAAWC,EAAGxY,OAAOkD,KAAKuV,WAAWC,EAAG1Y,OAAOkD,KAAKyV,WAAWC,EAAG5Y,OAAOkD,KAAK2V,WAAWC,EAAG9Y,OAAOkD,KAAK6V,WAAWC,EAAGhZ,OAAOkD,KAAK+V,WAAWC,EAAGlZ,OAAOkD,KAAKiW,WAAWC,EAAGpZ,OAAOkD,KAAKmW,WAAWC,EAAGtZ,OAAOkD,KAAKqW,WAAWC,EAAGxZ,OAAOkD,KAAKuW,WAAWC,EAAG1Z,OAAOkD,KAAKyW,WAAWC,EAAG5Z,OAAOkD,KAAK2W,WAAWC,EAAG9Z,OAAOkD,KAAK6W,WAAWC,EAAGha,OAAOkD,KAAK+W,WAAWC,EAAGla,OAAOkD,KAAKiX,WAAWC,EAAGpa,OAAOkD,KAAKmX,WAAWC,EAAGta,OAAOkD,KAAKqX,WAAWC,EAAGxa,OAAOkD,KAAKuX,WAAWC,EAAG1a,OAAOkD,KAAKyX,WAAWC,EAAG5a,OAAOkD,KAAK2X,WAAWC,EAAG9a,OAAOkD,KAAK6X,WAAWC,EAAGhb,OAAOkD,KAAK+X,WAAWC,EAAGlb,OAAOkD,KAAKiY,WAAWC,EAAGpb,OAAOkD,KAAKmY,WAAWC,EAAGtb,OAAOkD,KAAKqY,WAAWC,EAAGxb,OAAOkD,KAAKuY,WAAWC,EAAG1b,OAAOkD,KAAKyY,WAAWC,EAAG5b,OAAOkD,KAAK2Y,WAAWC,EAAG9b,OAAOkD,KAAK6Y,WAAWC,EAAGhc,OAAOkD,KAAK+Y,WAAWC,EAAGlc,OAAOkD,KAAKiZ,WAAWC,EAAGpc,OAAOkD,KAAKmZ,WAAWC,EAAGtc,OAAOkD,KAAKqZ,WAAWC,EAAGxc,OAAOkD,KAAKuZ,WAAWC,EAAG1c,OAAOkD,KAAKyZ,WAAWC,EAAG5c,OAAOkD,KAAK2Z,WAAWC,EAAG9c,OAAOkD,KAAK6Z,WAAWC,EAAGhd,OAAOkD,KAAK+Z,WAAWC,EAAGld,OAAOkD,KAAKia,WAAWC,EAAGpd,OAAOkD,KAAKma,WAAWC,EAAGtd,OAAOkD,KAAKqa,WAAWC,EAAGxd,OAAOkD,KAAKua,WAAWC,EAAG1d,OAAOkD,KAAKya,WAAWC,EAAG5d,OAAOkD,KAAK2a,WAAWC,EAAG9d,OAAOkD,KAAK6a,WAAWC,EAAGhe,OAAOkD,KAAK+a,WAAWC,EAAGle,OAAOkD,KAAKib,WAAWC,EAAGpe,OAAOkD,KAAKmb,WAAWC,EAAGte,OAAOkD,KAAKqb,WAAWC,EAAGxe,OAAOkD,KAAKub,WAAWC,EAAG1e,OAAOkD,KAAKyb,WAAWC,EAAG5e,OAAOkD,KAAK2b,WAAWC,EAAG9e,OAAOkD,KAAK6b,WAAWC,EAAGhf,OAAOkD,KAAK+b,WAAWC,EAAGlf,OAAOkD,KAAKic,WAAWC,EAAGpf,OAAOkD,KAAKmc,WAAWC,EAAGtf,OAAOkD,KAAKqc,WAAWC,EAAGxf,OAAOkD,KAAKuc,WAAWC,EAAG1f,OAAOkD,KAAKyc,WAAWC,EAAG5f,OAAOkD,KAAK2c,WAAWC,EAAG9f,OAAOkD,KAAK6c,WAAWC,EAAGhgB,OAAOkD,KAAK+c,WAAWC,EAAGlgB,OAAOkD,KAAKid,WAAWC,EAAGpgB,OAAOkD,KAAKmd,WAAWC,EAAGtgB,OAAOkD,KAAKqd,WAAWC,EAAGxgB,OAAOkD,KAAKud,WAAWC,EAAG1gB,OAAOkD,KAAKyd,WAAWC,EAAG5gB,OAAOkD,KAAK2d,WAAWC,EAAG9gB,OAAOkD,KAAK6d,WAAWC,EAAGhhB,OAAOkD,KAAK+d,WAAWC,EAAGlhB,OAAOkD,KAAKie,WAAWC,EAAGphB,OAAOkD,KAAKme,WAAWC,EAAGthB,OAAOkD,KAAKqe,WAAWC,EAAGxhB,OAAOkD,KAAKue,WAAWC,EAAG1hB,OAAOkD,KAAKye,WAAWC,EAAG5hB,OAAOkD,KAAK2e,WAAWC,EAAG9hB,OAAOkD,KAAK6e,WAAWC,EAAGhiB,OAAOkD,KAAK+e,WAAWC,EAAGliB,OAAOkD,KAAKif,WAAWC,EAAGpiB,OAAOkD,KAAKmf,WAAWC,EAAGtiB,OAAOkD,KAAKqf,WAAWC,EAAGxiB,OAAOkD,KAAKuf,WAAWC,EAAG1iB,OAAOkD,KAAKyf,WAAWC,EAAG5iB,OAAOkD,KAAK2f,WAAWC,EAAG9iB,OAAOkD,KAAK6f,WAAWC,EAAGhjB,OAAOkD,KAAK+f,WAAWC,EAAGljB,OAAOkD,KAAKigB,WAAWC,EAAGpjB,OAAOkD,KAAKmgB,WAAWC,EAAGtjB,OAAOkD,KAAKqgB,WAAWC,EAAGxjB,OAAOkD,KAAKugB,WAAWC,EAAG1jB,OAAOkD,KAAKygB,WAAWC,EAAG5jB,OAAOkD,KAAK2gB,WAAWC,EAAG9jB,OAAOkD,KAAK6gB,WAAWC,EAAGhkB,OAAOkD,KAAK+gB,WAAWC,EAAGlkB,OAAOkD,KAAKihB,WAAWC,EAAGpkB,OAAOkD,KAAKmhB,WAAWC,EAAGtkB,OAAOkD,KAAKqhB,WAAWC,EAAGxkB,OAAOkD,KAAKuhB,WAAWC,EAAG1kB,OAAOkD,KAAKyhB,WAAWC,EAAG5kB,OAAOkD,KAAK2hB,WAAWC,EAAG9kB,OAAOkD,KAAK6hB,WAAWC,EAAGhlB,OAAOkD,KAAK+hB,WAAWC,EAAGllB,OAAOkD,KAAKiiB,WAAWC,EAAGplB,OAAOkD,KAAKmiB,WAAWC,EAAGtlB,OAAOkD,KAAKqiB,WAAWC,EAAGxlB,OAAOkD,KAAKuiB,WAAWC,EAAG1lB,OAAOkD,KAAKyiB,WAAWC,EAAG5lB,OAAOkD,KAAK2iB,WAAWC,EAAG9lB,OAAOkD,KAAK6iB,WAAWC,EAAGhmB,OAAOkD,KAAK+iB,WAAWC,EAAGlmB,OAAOkD,KAAKijB,WAAWC,EAAGpmB,OAAOkD,KAAKmjB,WAAWC,EAAGtmB,OAAOkD,KAAKqjB,WAAWC,EAAGxmB,OAAOkD,KAAKujB,WAAWC,EAAG1mB,OAAOkD,KAAKyjB,WAAWC,EAAG5mB,OAAOkD,KAAK2jB,WAAWC,EAAG9mB,OAAOkD,KAAK6jB,WAAWC,EAAGhnB,OAAOkD,KAAK+jB,WAAWC,EAAGlnB,OAAOkD,KAAKikB,WAAWC,EAAGpnB,OAAOkD,KAAKmkB,WAAWC,EAAGtnB,OAAOkD,KAAKqkB,WAAWC,EAAGxnB,OAAOkD,KAAKukB,WAAWC,EAAG1nB,OAAOkD,KAAKykB,WAAWC,EAAG5nB,OAAOkD,KAAK2kB,WAAWC,EAAG9nB,OAAOkD,KAAK6kB,WAAWC,EAAGhoB,OAAOkD,KAAK+kB,WAAWC,EAAGloB,OAAOkD,KAAKilB,WAAWC,EAAGpoB,OAAOkD,KAAKmlB,WAAWC,EAAGtoB,OAAOkD,KAAKqlB,WAAWC,EAAGxoB,OAAOkD,KAAKulB,WAAWC,EAAG1oB,OAAOkD,KAAKylB,WAAWC,EAAG5oB,OAAOkD,KAAK2lB,WAAWC,EAAG9oB,OAAOkD,KAAK6lB,WAAWC,EAAGhpB,OAAOkD,KAAK+lB,WAAWC,EAAGlpB,OAAOkD,KAAKimB,WAAWC,EAAGppB,OAAOkD,KAAKmmB,WAAWC,EAAGtpB,OAAOkD,KAAKqmB,WAAWC,EAAGxpB,OAAOkD,KAAKumB,WAAWC,EAAG1pB,OAAOkD,KAAKymB,WAAWC,EAAG5pB,OAAOkD,KAAK2mB,WAAWC,EAAG9pB,OAAOkD,KAAK6mB,WAAWC,EAAGhqB,OAAOkD,KAAK+mB,WAAWC,EAAGlqB,OAAOkD,KAAKinB,WAAWC,EAAGpqB,OAAOkD,KAAKmnB,WAAWC,EAAGtqB,OAAOkD,KAAKqnB,WAAWC,EAAGxqB,OAAOkD,KAAKunB,WAAWC,EAAG1qB,OAAOkD,KAAKynB,WAAWC,EAAG5qB,OAAOkD,KAAK2nB,WAAWC,EAAG9qB,OAAOkD,KAAK6nB,WAAWC,EAAGhrB,OAAOkD,KAAK+nB,WAAWC,EAAGlrB,OAAOkD,KAAKioB,WAAWC,EAAGprB,OAAOkD,KAAKmoB,WAAWC,EAAGtrB,OAAOkD,KAAKqoB,WAAWC,EAAGxrB,OAAOkD,KAAKuoB,WAAWC,EAAG1rB,OAAOkD,KAAKyoB,WAAWC,EAAG5rB,OAAOkD,KAAK2oB,WAAWC,EAAG9rB,OAAOkD,KAAK6oB,WAAWC,EAAGhsB,OAAOkD,KAAK+oB,WAAWC,EAAGlsB,OAAOkD,KAAKipB,WAAWC,EAAGpsB,OAAOkD,KAAKmpB,WAAWC,EAAGtsB,OAAOkD,KAAKqpB,WAAWC,EAAGxsB,OAAOkD,KAAKupB,WAAWC,EAAG1sB,OAAOkD,KAAKypB,WAAWC,EAAG5sB,OAAOkD,KAAK2pB,WAAWC,EAAG9sB,OAAOkD,KAAK6pB,WAAWC,EAAGhtB,OAAOkD,KAAK+pB,WAAWC,EAAGltB,OAAOkD,KAAKiqB,WAAWC,EAAGptB,OAAOkD,KAAKmqB,WAAWC,EAAGttB,OAAOkD,KAAKqqB,WAAWC,EAAGxtB,OAAOkD,KAAKuqB,WAAWC,EAAG1tB,OAAOkD,KAAKyqB,WAAWC,EAAG5tB,OAAOkD,KAAK2qB,WAAWC,EAAG9tB,OAAOkD,KAAK6qB,WAAWC,EAAGhuB,OAAOkD,KAAK+qB,WAAWC,EAAGluB,OAAOkD,KAAKirB,WAAWC,EAAGpuB,OAAOkD,KAAKmrB,WAAWC,EAAGtuB,OAAOkD,KAAKqrB,WAAWC,EAAGxuB,OAAOkD,KAAKurB,WAAWC,EAAG1uB,OAAOkD,KAAKyrB,WAAWC,EAAG5uB,OAAOkD,KAAK2rB,WAAWC,EAAG9uB,OAAOkD,KAAK6rB,WAAWC,EAAGhvB,OAAOkD,KAAK+rB,WAAWC,EAAGlvB,OAAOkD,KAAKisB,WAAWC,EAAGpvB,OAAOkD,KAAKmsB,WAAWC,EAAGtvB,OAAOkD,KAAKqsB,WAAWC,EAAGxvB,OAAOkD,KAAKusB,WAAWC,EAAG1vB,OAAOkD,KAAKysB,WAAWC,EAAG5vB,OAAOkD,KAAK2sB,WAAWC,EAAG9vB,OAAOkD,KAAK6sB,WAAWC,EAAGhwB,OAAOkD,KAAK+sB,WAAWC,EAAGlwB,OAAOkD,KAAKitB,WAAWC,EAAGpwB,OAAOkD,KAAKmtB,WAAWC,EAAGtwB,OAAOkD,KAAKqtB,WAAWC,EAAGxwB,OAAOkD,KAAKutB,WAAWC,EAAG1wB,OAAOkD,KAAKytB,WAAWC,EAAG5wB,OAAOkD,KAAK2tB,WAAWC,EAAG9wB,OAAOkD,KAAK6tB,WAAWC,EAAGhxB,OAAOkD,KAAK+tB,WAAWC,EAAGlxB,OAAOkD,KAAKiuB,WAAWC,EAAGpxB,OAAOkD,KAAKmuB,WAAWC,EAAGtxB,OAAOkD,KAAKquB,WAAWC,EAAGxxB,OAAOkD,KAAKuuB,WAAWC,EAAG1xB,OAAOkD,KAAKyuB,WAAWC,EAAG5xB,OAAOkD,KAAK2uB,WAAWC,EAAG9xB,OAAOkD,KAAK6uB,WAAWC,EAAGhyB,OAAOkD,KAAK+uB,WAAWC,EAAGlyB,OAAOkD,KAAKivB,WAAWC,EAAGpyB,OAAOkD,KAAKmvB,WAAWC,EAAGtyB,OAAOkD,KAAKqvB,WAAWC,EAAGxyB,OAAOkD,KAAKuvB,WAAWC,EAAG1yB,OAAOkD,KAAKyvB,WAAWC,EAAG5yB,OAAOkD,KAAK2vB,WAAWC,EAAG9yB,OAAOkD,KAAK6vB,WAAWC,EAAGhzB,OAAOkD,KAAK+vB,WAAWC,EAAGlzB,OAAOkD,KAAKiwB,WAAWC,EAAGpzB,OAAOkD,KAAKmwB,WAAWC,EAAGtzB,OAAOkD,KAAKqwB,WAAWC,EAAGxzB,OAAOkD,KAAKuwB,WAAWC,EAAG1zB,OAAOkD,KAAKywB,WAAWC,EAAG5zB,OAAOkD,KAAK2wB,WAAWC,EAAG9zB,OAAOkD,KAAK6wB,WAAWC,EAAGh0B,OAAOkD,KAAK+wB,WAAWC,EAAGl0B,OAAOkD,KAAKixB,WAAWC,EAAGp0B,OAAOkD,KAAKmxB,WAAWC,EAAGt0B,OAAOkD,KAAKqxB,WAAWC,EAAGx0B,OAAOkD,KAAKuxB,WAAWC,EAAG10B,OAAOkD,KAAKyxB,WAAWC,EAAG50B,OAAOkD,KAAK2xB,WAAWC,EAAG90B,OAAOkD,KAAK6xB,WAAWC,EAAGh1B,OAAOkD,KAAK+xB,WAAWC,EAAGl1B,OAAOkD,KAAKiyB,WAAWC,EAAGp1B,OAAOkD,KAAKmyB,WAAWC,EAAGt1B,OAAOkD,KAAKqyB,WAAWC,EAAGx1B,OAAOkD,KAAKuyB,WAAWC,EAAG11B,OAAOkD,KAAKyyB,WAAWC,EAAG51B,OAAOkD,KAAK2yB,WAAWC,EAAG91B,OAAOkD,KAAK6yB,WAAWC,EAAGh2B,OAAOkD,KAAK+yB,WAAWC,EAAGl2B,OAAOkD,KAAKizB,WAAWC,EAAGp2B,OAAOkD,KAAKmzB,WAAWC,EAAGt2B,OAAOkD,KAAKqzB,WAAWC,EAAGx2B,OAAOkD,KAAKuzB,WAAWC,EAAG12B,OAAOkD,KAAKyzB,WAAWC,EAAG52B,OAAOkD,KAAK2zB,WAAWC,EAAG92B,OAAOkD,KAAK6zB,WAAWC,EAAGh3B,OAAOkD,KAAK+zB,WAAWC,EAAGl3B,OAAOkD,KAAKi0B,WAAWC,EAAGp3B,OAAOkD,KAAKm0B,WAAWC,EAAGt3B,OAAOkD,KAAKq0B,WAAWC,EAAGx3B,OAAOkD,KAAKu0B,WAAWC,EAAG13B,OAAOkD,KAAKy0B,WAAWC,EAAG53B,OAAOkD,KAAK20B,WAAWC,EAAG93B,OAAOkD,KAAK60B,WAAWC,EAAGh4B,OAAOkD,KAAK+0B,WAAWC,EAAGl4B,OAAOkD,KAAKi1B,WAAWC,EAAGp4B,OAAOkD,KAAKm1B,WAAWC,EAAGt4B,OAAOkD,KAAKq1B,WAAWC,EAAGx4B,OAAOkD,KAAKu1B,WAAWC,EAAG14B,OAAOkD,KAAKy1B,WAAWC,EAAG54B,OAAOkD,KAAK21B,WAAWC,EAAG94B,OAAOkD,KAAK61B,WAAWC,EAAGh5B,OAAOkD,KAAK+1B,WAAWC,EAAGl5B,OAAOkD,KAAKi2B,WAAWC,EAAGp5B,OAAOkD,KAAKm2B,WAAWC,EAAGt5B,OAAOkD,KAAKq2B,WAAWC,EAAGx5B,OAAOkD,KAAKu2B,WAAWC,EAAG15B,OAAOkD,KAAKy2B,WAAWC,EAAG55B,OAAOkD,KAAK22B,WAAWC,EAAG95B,OAAOkD,KAAK62B,WAAWC,EAAGh6B,OAAOkD,KAAK+2B,WAAWC,EAAGl6B,OAAOkD,KAAKi3B,WAAWC,EAAGp6B,OAAOkD,KAAKm3B,WAAWC,EAAGt6B,OAAOkD,KAAKq3B,WAAWC,EAAGx6B,OAAOkD,KAAKu3B,WAAWC,EAAG16B,OAAOkD,KAAKy3B,WAAWC,EAAG56B,OAAOkD,KAAK23B,WAAWC,EAAG96B,OAAOkD,KAAK63B,WAAWC,EAAGh7B,OAAOkD,KAAK+3B,WAAWC,EAAGl7B,OAAOkD,KAAKi4B,WAAWC,EAAGp7B,OAAOkD,KAAKm4B,WAAWC,EAAGt7B,OAAOkD,KAAKq4B,WAAWC,EAAGx7B,OAAOkD,KAAKu4B,WAAWC,EAAG17B,OAAOkD,KAAKy4B,WAAWC,EAAG57B,OAAOkD,KAAK24B,WAAWC,EAAG97B,OAAOkD,KAAK64B,WAAWC,EAAGh8B,OAAOkD,KAAK+4B,WAAWC,EAAGl8B,OAAOkD,KAAKi5B,WAAWC,EAAGp8B,OAAOkD,KAAKm5B,WAAWC,EAAGt8B,OAAOkD,KAAKq5B,WAAWC,EAAGx8B,OAAOkD,KAAKu5B,WAAWC,EAAG18B,OAAOkD,KAAKy5B,WAAWC,EAAG58B,OAAOkD,KAAK25B,WAAWC,EAAG98B,OAAOkD,KAAK65B,WAAWC,EAAGh9B,OAAOkD,KAAK+5B,WAAWC,EAAGl9B,OAAOkD,KAAKi6B,WAAWC,EAAGp9B,OAAOkD,KAAKm6B,WAAWC,EAAGt9B,OAAOkD,KAAKq6B,WAAWC,EAAGx9B,OAAOkD,KAAKu6B,WAAWC,EAAG19B,OAAOkD,KAAKy6B,WAAWC,EAAG59B,OAAOkD,KAAK26B,WAAWC,EAAG99B,OAAOkD,KAAK66B,WAAWC,EAAGh+B,OAAOkD,KAAK+6B,WAAWC,EAAGl+B,OAAOkD,KAAKi7B,WAAWC,EAAGp+B,OAAOkD,KAAKm7B,WAAWC,EAAGt+B,OAAOkD,KAAKq7B,WAAWC,EAAGx+B,OAAOkD,KAAKu7B,WAAWC,EAAG1+B,OAAOkD,KAAKy7B,WAAWC,EAAG5+B,OAAOkD,KAAK27B,WAAWC,EAAG9+B,OAAOkD,KAAK67B,WAAWC,EAAGh/B,OAAOkD,KAAK+7B,WAAWC,EAAGl/B,OAAOkD,KAAKi8B,WAAWC,EAAGp/B,OAAOkD,KAAKm8B,WAAWC,EAAGt/B,OAAOkD,KAAKq8B,WAAWC,EAAGx/B,OAAOkD,KAAKu8B,WAAWC,EAAG1/B,OAAOkD,KAAKy8B,WAAWC,EAAG5/B,OAAOkD,KAAK28B,WAAWC,EAAG9/B,OAAOkD,KAAK68B,WAAWC,EAAGhgC,OAAOkD,KAAK+8B,WAAWC,EAAGlgC,OAAOkD,KAAKi9B,WAAWC,EAAGpgC,OAAOkD,KAAKm9B,WAAWC,EAAGtgC,OAAOkD,KAAKq9B,WAAWC,EAAGxgC,OAAOkD,KAAKu9B,WAAWC,EAAG1gC,OAAOkD,KAAKy9B,WAAWC,EAAG5gC,OAAOkD,KAAK29B,WAAWC,EAAG9gC,OAAOkD,KAAK69B,WAAWC,EAAGhhC,OAAOkD,KAAK+9B,WAAWC,EAAGlhC,OAAOkD,KAAKi+B,WAAWC,EAAGphC,OAAOkD,KAAKm+B,WAAWC,EAAGthC,OAAOkD,KAAKq+B,WAAWC,EAAGxhC,OAAOkD,KAAKu+B,WAAWC,EAAG1hC,OAAOkD,KAAKy+B,WAAWC,EAAG5hC,OAAOkD,KAAK2+B,WAAWC,EAAG9hC,OAAOkD,KAAK6+B,WAAWC,EAAGhiC,OAAOkD,KAAK++B,WAAWC,EAAGliC,OAAOkD,KAAKi/B,WAAWC,EAAGpiC,OAAOkD,KAAKm/B,WAAWC,EAAGtiC,OAAOkD,KAAKq/B,WAAWC,EAAGxiC,OAAOkD,KAAKu/B,WAAWC,EAAG1iC,OAAOkD,KAAKy/B,WAAWC,EAAG5iC,OAAOkD,KAAK2/B,WAAWC,EAAG9iC,OAAOkD,KAAK6/B,WAAWC,EAAGhjC,OAAOkD,KAAK+/B,WAAWC,EAAGljC,OAAOkD,KAAKigC,WAAWC,EAAGpjC,OAAOkD,KAAKmgC,WAAWC,EAAGtjC,OAAOkD,KAAKqgC,WAAWC,EAAGxjC,OAAOkD,KAAKugC,WAAWC,EAAG1jC,OAAOkD,KAAKygC,WAAWC,EAAG5jC,OAAOkD,KAAK2gC,WAAWC,EAAG9jC,OAAOkD,KAAK6gC,WAAWC,EAAGhkC,OAAOkD,KAAK+gC,WAAWC,EAAGlkC,OAAOkD,KAAKihC,WAAWC,EAAGpkC,OAAOkD,KAAKmhC,WAAWC,EAAGtkC,OAAOkD,KAAKqhC,WAAWC,EAAGxkC,OAAOkD,KAAKuhC,WAAWC,EAAG1kC,OAAOkD,KAAKyhC,WAAWC,EAAG5kC,OAAOkD,KAAK2hC,WAAWC,EAAG9kC,OAAOkD,KAAK6hC,WAAWC,EAAGhlC,OAAOkD,KAAK+hC,WAAWC,EAAGllC,OAAOkD,KAAKiiC,WAAWC,EAAGplC,OAAOkD,KAAKmiC,WAAWC,EAAGtlC,OAAOkD,KAAKqiC,WAAWC,EAAGxlC,OAAOkD,KAAKuiC,WAAWC,EAAG1lC,OAAOkD,KAAKyiC,WAAWC,EAAG5lC,OAAOkD,KAAK2iC,WAAWC,EAAG9lC,OAAOkD,KAAK6iC,WAAWC,EAAGhmC,OAAOkD,KAAK+iC,WAAWC,EAAGlmC,OAAOkD,KAAKijC,WAAWC,EAAGpmC,OAAOkD,KAAKmjC,WAAWC,EAAGtmC,OAAOkD,KAAKqjC,WAAWC,EAAGxmC,OAAOkD,KAAKujC,WAAWC,EAAG1mC,OAAOkD,KAAKyjC,WAAWC,EAAG5mC,OAAOkD,KAAK2jC,WAAWC,EAAG9mC,OAAOkD,KAAK6jC,WAAWC,EAAGhnC,OAAOkD,KAAK+jC,WAAWC,EAAGlnC,OAAOkD,KAAKikC,WAAWC,EAAGpnC,OAAOkD,KAAKmkC,WAAWC,EAAGtnC,OAAOkD,KAAKqkC,WAAWC,EAAGxnC,OAAOkD,KAAKukC,WAAWC,EAAG1nC,OAAOkD,KAAKykC,WAAWC,EAAG5nC,OAAOkD,KAAK2kC,WAAWC,EAAG9nC,OAAOkD,KAAK6kC,WAAWC,EAAGhoC,OAAOkD,KAAK+kC,WAAWC,EAAGloC,OAAOkD,KAAKilC,WAAWC,EAAGpoC,OAAOkD,KAAKmlC,WAAWC,EAAGtoC,OAAOkD,KAAKqlC,WAAWC,EAAGxoC,OAAOkD,KAAKulC,WAAWC,EAAG1oC,OAAOkD,KAAKylC,WAAWC,EAAG5oC,OAAOkD,KAAK2lC,WAAWC,EAAG9oC,OAAOkD,KAAK6lC,WAAWC,EAAGhpC,OAAOkD,KAAK+lC,WAAWC,EAAGlpC,OAAOkD,KAAKimC,WAAWC,EAAGppC,OAAOkD,KAAKmmC,WAAWC,EAAGtpC,OA

1B,GAA4B,iBAAxBhB,EAASiB,WACX,MAAM,IAAI9I,MACN,6CACG6H,EAASiB,4CAGlB,GAA+B,IAA3Bj
B,EAASkB,eAAmD,IAA5BlB,EAASmB,eAC3C,MAAM,IAAIhJ,MACN,0EACQ6H,EAASmB,oBAAmBnB,EAA
SkB,oBAGnD,IAAM3H,EAAMhC,EAAQiC,WAAWwG,EAASnD,SAAU,WAC5CpD,EAAQlC,EAAQkB,UAAU
C,IAAIa,EAAIZ,QAAQC,GAMhD,OAJAuG,EACIhF,EAAKD,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAA
IkB,EAAElB,MAAM,GAAIkH,EAAcC,EACvDC,EAAQG,EAAUE,EAAWE,EAASE,EAAcC,EAAaC,EACjEtH,
GACGF,aCjEO6H,EACZzJ,GACK,IAAAC,WAAQC,UACRqC,MACAlB,UAEDqI,EAAQjH,OAAKC,cAACH,
EAAElB,OAC7BsI,EAASlH,OAAKmH,uBAAuBvI,EAAOqI,GASlD,OAPAjH,OAAKoH,OACDH,
,cAAciH,IAC7B,WAAM,MAAA,cAAcA,kBAAsBElB,MAAtC,sEAIVrB,EAAKJ,QAAQkK,OAAOvH,E
AAEvB,QACf,CAAA,CAAA,OAAQuB,EAAEvB,OAAQK,MAAOsI,EAAQpJ,MAAOgC,EAAEhC,OAG7C,ICjBHwJ,
EDiBSC,EAA8B,CACzCxK,WAAYyK,UACZvK,YAAa,OACbK,WAAY0J,GACiFP,IAAMS,EAAkC,CAC7C1K,
WAAY2K,cACZzK,YAAa,OACbC,UAAnGF,SAAAeC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,YA0FpK,WAAtFF,EAAKJ,QAAQkK,OAAOvH,EAAEvB,OAAQK,MAAOsI,EAAQpJ,MAAOgC,EAAEhC,OAG7C,WAAYyK,UACZvK,YAAa,OACbC,UAAWF,SAAAeC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,YAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,SAAAC,GAAAC,S

AAcoK,SAE3ClN,EAAQwE,mBAAmBxC,GACnCyC,IACH0I,EACIb,SAASF,EAAYA,EAAavJ,OAAKC,cAAco
K,KAGhE,OAAOlL,EAGT,GAAgB,WAAZW,EAAEhC,MAAoB,CACxB,IAAM4M,EAAMC,EAAAaL,EAAOF,E
AAQC,EAAOvK,EAAElB,MAAOkB,EAAEhC,OAE1D,OADA0M,EAAQC,YAAcC,EACfvL,EAGT,IAAMyL,E
AAUzN,EAAQwE,mBAAmBxC,GACrC0L,EAAO/K,EAAElB,MAAMC,OACrB,GAAa,IAATgM,GAsBN,SACIP
,EAAgCQ,EAChCF,EAAkC5B,EAClCC,GAKF,IAJA,IAAI8B,EAAY,EACVC,EAAShC,EAAM,GACfiC,EAASj
C,EAAM,GACfkC,EAAOF,EAAS/B,EAAK,GAClBjI,EAAIgK,EAAQhK,EAAIkK,EAAMlK,IAAK,CAClC,IAA
MmK,EAAUnK,EAAI8J,EAAUG,EAC9BL,EAAQhJ,EAAI0I,EAAMb,SAAS0B,EAASA,EAAUlC,EAAK,IAAK8
B,GACxDA,,GAAa9B,EAAK,IAhClBmC,CACId,EAAqBjB,EAAS,GAAAIuB,EAASR,EAC3C3CC,,QACC,GAAAa,IA
TQ,GAiCb,SACIP,EAAgCe,EAAkBC,EAClDV,EAAkC5B,EAClCC,GAOF,IANA,IANA,IAAI8B,EAAY,EACVC,EAAShC,EAAM,GACfiC,EAASjC,EAAM,GACfkC,EAAOF,EAAS/B,EAAK,GAClBjI,EAAIgK,EAAQhK,EAAIkK,EAAMlK,IAAK,CAClC,IAAMmK,EAAUnK,EAAI8J,EAAUG,EAC9BL,EAAQhJ,EAAI0I,EAAMb,SAAS0B,EAASA,EAAUlC,EAAK,IAAK8B,EAAQ,GAAAC,EAAS,GAAAC,EAAS,GAAAC,EAAS

AAMoQ,EAAWJ,EAAQvM,KAAI,SAAAsM,GAC3B,IAAMxI,EAAYrF,OAAKC,cAAc4N,EAAEjP,MAAMuG,MAAM/B,IAEnD,OAAO4D,EAAQ,CAACxJ,OAAQ,CAACsC,EAAG+N,GAAI1Q,UAASM,MAAO,CAACmB,MADnC,EAAE,EAAGyG,SAIf8I,EAAkBD,EAAS3M,KAAI,SAAAsM,GAACnC,MAAO,CAACmB,EAAQoN,SASsD,EAAEtP,QAASK,MAAOiP,EAAEjP,UAIrD6D,EACIjC,eAAAaoC,gBsL,EAAS3M,KAAI,SAAAsM,GAAAsM,GAAK,OAAAA,EAAAsM,GAAAsM,GAAAsM,G

AU,GACzBM,EAAaP,EAAiBC,EAAU,GAAKA,EAAU,GACvDO,EAAaR,EAAiBC,EAAU,GAAK,EAC7CQ,EA
AiBT,EAAiB,EAAIC,EAAU,GAChDS,EAAeR,EAAU,GACzBS,EAAaX,EAAiBE,EAAU,GAAKA,EAAU,GACv
DU,EAAaZ,EAAiBE,EAAU,GAAK,EAC7CW,EAAiBb,EAAiB,EAAIE,EAAU,GAEhDhS,EAAMhC,EAAAMhC,
AAWwG,EAASlD,QAAS,WAC3CrD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAC1CuT,EAAO5U,
EAAQkB,UAAUC,IAAIkS,EAAGjS,QAAQC,GACxCkR,EAAWvS,EAAQkB,UAAUC,IAAIyP,EAAOxP,QAAQ
C,GAQtD,OANA+Q,EACIwC,EAAMrC,EAAUgB,EAAW5K,EAAcC,EAAa4K,EAAUC,EAChEhK,EAAYiK,EA
AWC,EAAUb,EAAaxJ,EAAcC,EAC5CDqK,EAAQC,EAASI,EAAOC,EAAOC,EAAOC,EAAcC,EACpDC,EAAY
C,EAAgBC,EAAcC,EAAYC,EACtDC,EAAgBzS,GACbF,IElGI6S,EAA0BrS,EAAwBsS,OCDlDC,EAA2BvS,EA
AwBwS,SFIhE,SAAK/B,GACHA,,2BACAA,,yBAFF,CAAKA,IAAAA,,OAoEE,IGnEHgC,GHmESC,GAAoC,CAC
/CtV,WAAYuV,gBACZrV,YAAa,OACbC,UA7DF,SAAeC,GACbkT,EAAQlT,EAAOmT,EAAOlT,QAAQC,GAAQ,EAAQC,KAAKC,MAAMiV,gBA
Ae,KAAe,CACnE,SACA,SACA,SACA,SACA,QACA,SACA,SACA,SACA,SACA,YAmDFhV,WA/CF,SAAuBC,
GAKd,IAUHgV,EAVGpV,YAASK,WAAQC,UAAU+U,WAAQC,UAAUC,uBAAoBC,aAC5BC,UAAOC,UAAOC,WAEf
C,EAAWF,EAAMhU,MAAM,GAEvBqD,IAAC8Q,OAAOC,OACbvQ,EAAQwQ,EAAOC,EAAOC,EAAOC,EAAcC,EAAaC,EAAUC,EAAUC,EAAU

CA,SACA,SACA,YA0DNzX,WAtDF,SAAyBC,GAKhB,IAAAC,WAAQC,UAAON,YAEf2C,MAAGiO,WACJhO
,EAAM5C,EAAQkB,UAAUC,IAAIwB,EAAEvB,QAAQC,GACtCkR,EAAWvS,EAAQkB,UAAUC,IAAIyP,EAA
OxP,QAAQC,GAE/CiH,YAASkK,cAAWjK,QAAKC,oBAE1BqP,EAA0B,MAAbrF,EAAoB,CAAC,EAAG,GAA
KA,EAE1C/J,EAAWpF,eAAasP,kBACzBhQ,EAAelB,MAAQmP,EAAoBnP,MAAO6G,EAClDuP,EAA0CtP,EAA
KC,GAChD,GAEEG,EAAeF,EAASE,aACxBC,EAAcH,EAASG,YACvBC,EAASJ,EAASK,QAAQC,IAC1BC,EA
AWP,EAASK,QAAQG,MAC5BC,EAAYT,EAASK,QAAQK,OAC7BC,EAAUX,EAASK,QAAQO,KAC3BO,EA
AiBnB,EAASmB,eAC1BD,EAAgBlB,EAASkB,cACzBL,EAAeb,EAASa,aACxBC,EAAcd,EAASc,YACvBC,EA
AgBnK,EAASgB,WACzBoJ,EAAiBpK,EAASqK,YAC1BC,EAAsC,EAASsC,SAA1BtK,QAAQkK,KAAkB,EAAI,
EAEzD,GAA4B,iBAAxBvK,EAASiB,WACX,MAAM,IAAI9I,MACN,mEACG6H,EAASiB,4CAGlB,IAAM1H,E
AAMhC,EAAQiC,WAAWwG,EAASnD,SAAU,WAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,
GAMhD,OALA2V,GACIpU,EAAKD,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,G
AAI8Q,EAAU5J,EACnDC,EAAaC,EAAQG,EAAUE,EAAWE,EAAS2J,EACnDC,EAAaC,EAAQC,EAAUC,EAAWC,EAAS,EA
AaqJ,EAC1DC,EAAgB3Q,GACbF,EAAI8V,BuV,OCClDC,GACT/U,U,EAAyBgV,SAFC,EAAE6B,
QCF9CC,GAA0B1V,EAAwB2V,oBCEpDC,WhY,GAAKlB,IAAAAC,,WAAAQC,UAAAON,YACfkH,UA
CAmR,QAEDlR,EAAYD,EAAMzF,MAAMC,OACxB0B,EAAW8D,EAAMzF,MAAMuG,QACzBsO,EAAOD,EA
AWX,OAVIA,EAAM,IAERxV,OAAKoH,SACC9C,EAAY,IAAMkR,GACpBWAM,MAAA,mCAAoClR,EAAA
Y,QAClDA,SACRmR,EAAOnR,EAAYkR,EAAM,GAE3BjV,GE3BjV,EAASmV,OAAOD,EAAM,EAAG,GAElBzO,EAA
Q,CAACxJ,OAAQ,CAACsC,EAAGuE,GAAQlH,UASM,MAAO,CAACmB,MAAO2B,IAAAMoV,GAAAi
C,CAC5C5Y,WAAY6Y,aCZ3Y,YAAa,OACbK,WAAYiY,aC5BEM,GAAKtY,GACZ,IAAA0E0E,WAAA
OkX,UAAOhY,UAAQX,YAAC/BgC,EAAAmC,WAAWR,EAAOd,QAAQ,GAAGtC,OAAFgBX,EAAAQwE,mBAAAm
BxC,GACnC0W,KAAKC,GACN3W,SAAA,EAAAF,GAAA,GAAA,EAAAF,GAAA,GAAA,EAAAF,GAAA,G

BC,EAASJ,EAASK,QAAQC,IAC1BC,EAAWP,EAASK,QAAQG,MAC5BC,EAAYT,EAASK,QAAQK,OAC7BC
,EAAUX,EAASK,QAAQO,KAC3BO,EAAiBnB,EAASmB,eAC1BD,EAAgBlB,EAASkB,cACzBL,EAAeb,EAAS
a,aACxBC,EAAcd,EAASc,YACvBqJ,EAAgBnK,EAASgB,WACzBsJ,EAAsC,SAA1BtK,EAASK,QAAQkK,KAA
kB,EAAI,EACnDO,EAAY9K,EAAS8K,UACrBC,EAAW/K,EAAS+K,SACpBC,EAAUhL,EAASgL,QAEzB,GAA
mB,SAAf/J,EACF,MAAM,IAAI9I,MACN,yDACG8I,2BAGT,IAAM1H,EAAMhC,EAAQiC,WAAWwG,EAASn
D,SAAU,WAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAC1CM,EAAqD,MAA1BjB,EAC7B
,EACAV,EAAQkB,UAAUC,IAAIT,EAAuBU,QAAQC,GAAQzD,OANAsY,GACI/W,EAAWC,EAASC,EAAWC,
EAASlB,EAAU5J,EAAcC,EAC3DrH,EAAQsH,EAAQG,EAAUE,EAAWE,EAAS2J,EAAWnJ,EAAcoJ,EAAWC,DD,EAAeL,
EAAcC,EAAaqJ,EAAeC,EACzDjR,EAAiBkR,EAAWC,EAAWC,EAAWC

EAAqB,CACzBP,EAAUvI,UAAWuI,EAAU7T,UAAWkU,EAAcL,EAAUvI,UAClEuI,EAAUlM,WAGN5N,EAAAMhC,EAAAQiC,WAAWoa,EAAAoB1Z,EAAAEhC,OACrD,GAAAoC,IAAAhCkC,OAAAKC,cAAcH,EAAAElB,OACvB,OAAAOO,EAAET,IAAAMsa,EAAAcL,EAAASxa,MAAAMC,OAAAS,EAAGtCkB,EADQ5C,EAAAQkB,UAAAUC,IAAAI8a,EAAAS7a,QAC3BC,GAGZga,EADcrb,EAAAQkB,UAAAUC,IAAAIib,EAAAahb,QAAzBC,GAAAEa,EAAAlC,EAAAQkB,UAAAUC,IAAAIa,EAAAIZ,EAAAQAAQC,GAAE1CmW,EAAAgB,IAAAIpV,WACtB,IAAAIC,WAAWQ,OAAAKsJ,eAAe8P,EAAASxa,QAAAQa,QAAAClDoV,EAAAkB,IAAAItV,WACxB,IAAAIC,WAAWQ,OAAAKsJ,eAAAekQ,IAAAqB/Z,QAAW5D,OATAsY,GACIhY,EAAAKpD,EAAASmD,EAAAEhC,OAAAQ6W,EAAAe8E,EAAAajB,EACpDS,EAAAUvI,UAAWmE,EAAAiBxV,GAE1ClC,EAAAQwH,YAAAYyU,EAAS7a,QAAC7BpB,EAAAQwH,YAAAY4U,EAAAahb,QAAGjCY,EAAAIP,MAAAQqa,EAAAUvE,YACfvV,IE5FIua,GACTtZ,EAAAyBuZ,WAFC,EAAE+B,QCDhDC,GACTxZ,EAAAyByZ,gBAAAoF,QCGjC3D,IG9BHC,GH8BSC,GAAAgC,CAC3Chd,WAAAYid,YACZ/c/c,YACAC,OACbC,UA/BA,UAAAC,WAAAC,YAAAC,YAAAC,YAAAC,YA2BA,EAAAC,QAAAC,QAAAC,Q

,GAAQ5G,MAAO,CAACK,MAAO,aACtDsG,EAAUjH,EAAQkB,UAAUC,IAAIgd,EAAY/c,QAAQC,IAGtD,IAAMW,EAAMhC,EAAQiC,WAAWqD,EAAU,WACzC,GAAwC,IAApCzC,OAAKC,cAAcoE,EAAMzF,OAAc,CACzC,IAAMS,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAChDuc,GAAS3W,EAAQC,GAAhBwW,GAAqBC,GAAhBC,GAAqBC,GAAhBC,GAAqBC,GAAhBC

ASsK,EAAUH,EAAeD,EAAcE,EAChDS,IAEGlB,qBAAkBC,iBAAcC,oBAAiBC,kBAYxD,OAPA9f,EAAQC,KAAK8f,MAAMD,GAOZ,CAJH9f,EAAQiC,WAAW,CAAC2d,GAAe,QAASD,GAE5C3f,EAAQiC,WAAW,CAAC2d,GAAe,UAAWC,MEhDvCiB,GACT7d,EAAyB8d,YAFC,EAEgC,QD+BvD,IAAMC,GAAA6B,CxCphB,WAAYqhB,SACZnhB,YAAa,OACbC,UA9BF,SAAAA,EAAAC,GAAAA,EAAAC,GAAAA,EAAAC,G

EAASM,EAAY/H,EAASwC,EAAIrB,OAAQuB,GAQrD,GALIwE,GAEF1G,EAAQwH,YAAYZ,EAAWxF,QAG7B4F,EAAU,CAEZ,IAAM5D,EAAWC,eAAaoE,qBAAqBzF,EAAIP,MAAO2E,GAC9DpE,EAAIP,MAAQ2B,EAAGd,OAAOpB,IEvDI0gB,GAA4B,CACvC7iB,QACZ7iB,YAAa,KAAMC,SAAU,KAAMC,SAAU,KAAMC,SAAU

CItJ,EAAW0K,EAAWvmB,EAASomB,EAAQjlB,OAAQya,EAAWyK,EAC1DjW,EAAW0L,EAAcwK,EAAY5jB
,GAElCF,IGfF,ICnCHU,GDmCSsjB,GAA6B,CACxCpmB,WAAYqmB,SACZnmB,YAAa,OACbK,WAxBF,SAAg
BC,GACP,IAAAC,WAAQL,YACRkmB,cAAWxV,MAAGyV,MAEfC,EAAcpmB,EAAQkB,UAAUC,IAAI+kB,E
AAU9kB,QAAQC,GACtDglB,EAAMrmB,EAAQkB,UAAUC,IAAIuP,EAAEtP,QAAQC,GACtCilB,EAAMtmB,E
AAQkB,UAAUC,IAAIglB,EAAE/kB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWyO,EAAEjP,MAAOiP,EAAA
E/P,OACpCuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAE1CklB,EAAQL,EAAUzkB,MAAMC,O
ACxB8kB,EAAQ9V,EAAEjP,MAAMC,OAEhB0P,EAAmB,IAAVmV,GAAeA,EAAQ,GAAe,IAAVC,EAACvC,EA
CA3jB,OAAKC,cAAc4N,EAAEjP,MAAMuG,MAAM,IAGrC,OADAyd,GAAWW,EAAAaC,,EAAKC,EAAKlV,EA
AQlP,GACnCF,GAOPjC,UAnCF,SAAeC,GAbylB,GAA8B,CACz

B,qBACAC,eACAC,eACAC,cACAC,kBACAC,UACAC,QACAC,YAQF,GAAIL,EAEFxZ,EAASlG,EAAQ,CAA
CxJ,OAAQ,CAACsC,KAAI3C,UAASM,MAAO,CAACmB,MAAO6nB,UAClD,GAAIE,GAAaC,EAAe,CAErC5
mB,OAAKoH,OACDtH,EAAElB,MAAMC,QAAU,GAClB,WAAM,MAAA,yCAAyCiB,EAAElB,MAAMC,UAE
3D,IAAMoK,EAAOE,aAAWvG,gBAAgBikB,EAAQC,EAAMC,GAEhDC,EAAS7hB,EAAM,CAAC3H,OAAQ,C
AACsC,KAAI3C,UASM,MAAO,CAACuL,MAAO6d,EAAQ5d,EAAQ,CAACllG,EAAQ,CAACxJ,OAAQ,CA
ACsC,EAAGknB,GAAS7pB,UASM,MAAO,CAACmB,MAAO6nB,6nB,KAC1DtpB,EAAQwH,YAAYqiB,EAAOzo
B,YACtB,CACL,IAAMY,EAAMhC,EAAQiC,WAAWonB,EAAkB,WAE3CzmB,EAAM5C,EAAQkB,UAAUC,I
AAIwB,EAAEvB,QAAQC,GACtCmW,EACF,IAAIpV,WAAWQ,OAAKsJ,eAAexJ,EAAElB,QA
AQa,QAC1DwnB,EAAa,IAAI1nB,WAAW,IAAIC,WAAWqnB,GAAQpnB,QAAnDynB,EAAW,IAAI3nB,WAA
W,IAAIC,WAAWsnB,GAAMrnB,QAC/CgZ,EAAe,IAAIlZ,WAAW,IAAIC,WAAWunB,GAAUtnB,QAAEvDmV,E
ACF,IAAIrV,WAAW,IAAIC,WAAWgnB,GAAkB/mB,QAC9CoV,EAAkB,IAAItV,WACxB,IAAIC,WAAWQ,O
AAKsJ,eAAekd,IAAmB/mB,QACpDJ,EAAQlC,EAAQmC,UAAUC,IAAIa,EAAIZ,QAAQC,GAEhDonB,GACI7l
B,EAAK4U,EAAe7U,EAAElB,MAAMC,QAAUooB,EAAYC,EAAUzO,EAC1D7D,EAAkBC,EAAiB2R,EAAiB3
nB,OAAQQ,GAEhE6N,EAASlG,EAAQ,CAACxJ,OAAQ,CACACsC,KAAI3C,UASM,MAAO,CAACmB,MAAO6nB,
mB,MAAO6nB,KAE5DtpB,EAAQwH,YAAYxF,EAAIZ,QAG1B,OAAO2O,IEpGia,GACT/mB,EAAYyB,gB,UA/DF,SAAAC,
FC,GDqEvB,IEhEHC,GFgESC,GAA0B,CACrCvqB,YAAYwqB,MACZtqB,OAAOC,QAAQ,YAAa,OACbC,UA/DF,SAAAC,
b4oB,GAAU5oB,EAAQC,KAAKC,MAAMkqB,MAAK,KAAe,CAC/C/pB,OAAO,YA2DF,SAAAC,
SAAaC,GAEJ,IAAAJ,YASK,WAAQC,UACjB2F,SAAMe,aCNrE,MACDC,EAAM5C,EAAQkB,UAAUC,IAA
IwB,EAAEvB,QAAQC,GACxCC,EAAQ,IAAIpB,WAAWQ,OAAKsJ,eAAexJ,EAAElB,QAAUa,EAAEZ,QAAQC,GAEnE
,QAAQC,GAC1D0G,IAAiBnF,IAGnBsE,EAAQN,EACRK,EAAQ,IAAIpB,WAAWQ,OAAKsJ,eAAexJ,EAAElB,QAAUa,EAAEZ,QAAQC,GAEnE
Acxc,OAAQwF,EAAMzF,MAAMC,QAAU,SAI1C2B,eAAAA+D,2BACT,MAAO8W,EAAAehX,EAAAMzF,MAAMC,QAAC
hC,IAAA2F,sDAAC/B,OAAUgC,OAEXC,EAAa1E,OAAAKC,cAAAwE,WAAqBC,EAAAC,EAAAC,EAAA

UAAOiW,eACPC,kBAAeC,aAAU5G,cAAWxN,gBAErCzS,UAACqU,OAAOC,OAAaC,OAAYC,OACjCjS,kBA
ACqM,OAAWC,OAEZrO,EACF,CAAC6T,EAAOzF,EAAWC,EAClB2F,GACChR,EACF,IAAIlG,WAAW,IAAI
C,WAAWQ,OAAKsJ,eAAeqJ,EAAM/T,QAAQa,QAE9DN,EAAMhC,EAAQiC,WAAWqD,EAAUkQ,EAAM7U,
OACzCuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAG1C6X,EADYlZ,EAAQkB,UAAUC,IAAIqU,
EAAMpU,QACpBC,GAGpBuqB,EADiB5rB,EAAQkB,UAAUC,IAAIsqB,EAAWrB,QACpBC,GAE9BwqB,EA
AwC,YAAlBH,EAA8B,EAAI,EAE9D,OAAQC,GACN,IAAK,WACHH,EAAa,EACb,MACF,IAAK,UACHA,
Aa,EACb,MACF,IAAK,OACHA,EAAa,EACb,MACF,IAAK,UACHA,EAAa,EACb,MACF,QACEA,EAAa,EAUj
B,OANAV,GACI5R,EAAS0S,EAAeH,EAAWhqB,MAAM,GAAK,EAAOzF,EAAOyF,EAAOzF,EAAOyF,EAAOzF,EAAOyF

AASmB,IAAwBntB,EAAOgsB,EAAe,QAAE,IAA4JoB,EAAMC,EAAUC,EAA8BC,EAAWC,EAAjNC,EAAgB,GAAG,SAASC,EAAWC,,GAAM,OAAG3B,EAAmB,WAAUA,,EAAmB,WAAE2B,EAAKF,,GAAAwBA,,EAAgBE,EAA2E,GAAGf,EAAAoB,,CAAAu0B,IAAIgB,EAAAhzBH,EAAAvBd,,EAAAuCkB,EAAgBC,,QAAAQL,,GAAAiB,IAAAyBM,,UAAAU,IAAAIX,,EAAAM,,SAAAoBY,,EAAASC,,GAAAuH,,OAA3GV,,IAAAOA,,EAAAOW,,GAAAkBV,,EAAAkBW,,GAAAiBX,,EAAAkBY,,GAAAgBG,,EAAASR,,EAAAoB,,UAAAEQ,,GAAAiBT,,EAAAqB,aAAAES,,EAAASC,,EAAAO,,KAAAK,,SAAAsX,,EAAAW,,GAAAuBU,,SAAAoBV,,GAAAuBI,,EAAAC,,IAAAG,,EAAAM,,EAAAyB,,GAAAiBC

,OAAOE,EAAMF,EAAMG,EAAWC,EAASqB,YAAiB,SAASC,EAAkBC,EAAKtoB,EAAIuoB,GAAyD,IAAzC,IAAIC,EAAOxoB,EAAIuoB,EAAImBpB,EAAI,KAAWnnB,GAAKwoB,IAAQ,CAAC,IAAIC,EAAGH

wB,gBAAE,GAA6b,IAAI0K,GAAc,wCAAwC,SAASC,GAAU3I,GAAU,OAAOsI,GAAUtI,EAAS0I,IAAe,IAAIE,GAAc,UAAU,SAASC,GAAU7I,GAAU,OAAOsI,GAAUtI,EAAS4I,IAAe,IAAIE,GAAe,uCAAgH,SAASC,GAAUC,GAAM,IAAI,GAAGA,GAAMF,GAAM,WAAWG,GAAGD,GAAMC,GAAGC,GAAGF,GAAMF,GAAMK,GAAGH,GAAMG,GAAGC,GAAGJ,GAAMI,GAAGC,GAAGL,GAAMK,GAAGC,GAAGN,GAAMM,GAAGC,GAAGP,GAAMO,GAAGC,GAAGR,GAAMQ,GAAGC,GAAGT,GAAMS,GAAGC,GAAGV,GAAMU,GAAGC,GAAGX,GAAMW,GAAGC,GAAGZ,GAAMY,GAAGC,GAAGb,GAAMa,GAAGC,GAAGd,GAAMc,GAAGC,GAAGf,GAAMe,GAAGC,GAAGhB,GAAMgB,GAAGC,GAAGjB,GAAMiB,GAAGC,GAAGlB,GAAMkB,GAAGC,GAAGnB,GAAMmB,GAAGC,GAAGpB,GAAMoB,GAAGC,GAAGrB,GAAMqB,GAAGC,GAAGtB,GAAMsB,GAAGC,GAAGvB,GAAMuB,GAAGC,GAAGxB,GAAMwB,GAAGC,GAAGzB,GAAMyB,GAAGC,GAAG1B,GAAM0B,GAAGC,GAAG3B,GAAM2B,GAAGC,GAAG5B,GAAM4B,GAAGC,GAAG7B,GAAM6B,GAAGC,GAAG9B,GAAM8B,GAAGC,GAAG/B,GAAM+B,GAAGC,GAAGhC,GAAMgC,GAAGC,GAAGjC,GAAMiC,GAAGC,GAAGlC,GAAMkC,GAAGC,GAAGnC,GAAMmC,GAAGC,GAAGpC,GAAMoC,GAAGC,GAAGrC,GAAMqC,GAAGC,GAAGtC,GAAMsC,GAAGC,GAAGvC,GAAMuC,GAAGC,GAAGxC,GAAMwC,GAAGC,GAAGzC,GAAMyC,GAAGC,GAAG1C,GAAM0C,GAAGC,GAAG3C,GAAM2C,GAAGC,GAAG5C,GAAM4C,GAAGC,GAAG7C,GAAM6C,GAAGC,GAAG9C,GAAM8C,GAAGC,GAAG/C,GAAM+C,GAAGC,GAAGhD,GAAMgD,GAAGC,GAAGjD,GAAMiD,GAAGC,GAAGlD,GAAMkD,GAAGC,GAAGnD,GAAMmD,GAAGC,GAAGpD,GAAMoD,GAAGC,GAAGrD,GAAMqD,GAAGC,GAAGtD,GAAMsD,GAAGC,GAAGvD,GAAMuD,GAAGC,GAAGxD,GAAMwD,GAAGC,GAAGzD,GAAMyD,GAAGC,GAAG1D,GAAM0D,GAAGC,GAAG3D,GAAM2D,GAAGC,GAAG5D,GAAM4D,GAAGC,GAAG7D,GAAM6D,GAAGC,GAAG9D,GAAM8D,GAAGC,GAAG/D,GAAM+D,GAAGC,GAAGhE,GAAMgE,GAAGC,GAAGjE,GAAMiE,GAAGC,GAAGlE,GAAMkE,GAAGC,GAAGnE,GAAMmE,GAAGC,GAAGpE,GAAMoE,GAAGC,GAAGrE,GAAMqE,GAAGC,GAAGtE,GAAMsE,GAAGC,GAAGvE,GAAMuE,GAAGC,GAAGxE,GAAMwE,GAAGC,GAAGzE,GAAMyE,GAAGC,GAAG1E,GAAM0E,GAAGC,GAAG3E,GAAM2E,GAAGC,GAAG5E,GAAM4E,GAAGC,GAAG7E,GAAM6E,GAAGC,GAAG9E,GAAM8E,GAAGC,GAAG/E,GAAM+E,GAAGC,GAAGhF,GAAMgF,GAAGC,GAAGjF,GAAMiF,GAAGC,GAAGlF,GAAMkF,GAAGC,GAAGnF,GAAMmF,GAAGC,GAAGpF,GAAMoF,GAAGC,GAAGrF,GAAMqF,GAAGC,GAAGtF,GAAMsF,GAAGC,GAAGvF,GAAMuF,GAAGC,GAAGxF,GAAMwF,GAAGC,GAAGzF,GAAMyF,GAAGC,GAAG1F,GAAM0F,GAAGC,GAAG3F,GAAM2F,GAAGC,GAAG5F,GAAM4F,GAAGC,GAAG7F,GAAM6F,GAAGC,GAAG9F,GAAM8F,GAAGC,GAAG/F,GAAM+F,GAAGC,GAAGhG,GAAMgG,GAAGC,GAAGjG,GAAMiG,GAAGC,GAAGlG,GAAMkG,GAAGC,GAAGnG,GAAMmG,GAAGC,GAAGpG,GAAMoG,GAAGC,GAAGrG,GAAMqG,GAAGC,GAAGtG,GAAMsG,GAAGC,GAAGvG,GAAMuG,GAAGC,GAAGxG,GAAMwG,GAAGC,GAAGzG,GAAMyG,GAAGC,GAAG1G,GAAM0G,GAAGC,GAAG3G,GAAM2G,GAAGC,GAAG5G,GAAM4G,GAAGC,GAAG7G,GAAM6G,GAAGC,GAAG9G,GAAM8G,GAAGC,GAAG/G,GAAM+G,GAAGC,GAAGhH,GAAMgH,GAAGC,GAAGjH,GAAMiH,GAAGC,GAAGlH,GAAMkH,GAAGC,GAAGnH,GAAMmH,GAAGC,GAAGpH,GAAMoH,GAAGC,GAAGrH,GAAMqH,GAAGC,GAAGtH,GAAMsH,GAAGC,GAAGvH,GAAMuH,GAAGC,GAAGxH,GAAMwH,GAAGC,GAAGzH,GAAMyH,GAAGC,GAAG1H,GAAM0H,GAAGC,GAAG3H,GAAM2H,GAAGC,GAAG5H,GAAM4H,GAAGC,GAAG7H,GAAM6H,GAAGC,GAAG9H,GAAM8H,GAAGC,GAAG/H,GAAM+H,GAAGC,GAAGhI,GAAMgI,GAAGC,GAAGjI,GAAMiI,GAAGC,GAAGlI,GAAMkI,GAAGC,GAAGnI,GAAMmI,GAAGC,GAAGpI,GAAMoI,GAAGC,GAAGrI,GAAMqI,GAAGC,GAAGtI,GAAMsI,GAAGC,GAAGvI,GAAMuI,GAAGC,GAAGxI,GAAMwI,GAAGC,GAAGzI,GAAMyI,GAAGC,GAAG1I,GAAM0I,GAAGC,GAAG3I,GAAM2I,GAAGC,GAAG5I,GAAM4I,GAAGC,GAAG7I,GAAM6I,GAAGC,GAAG9I,GAAM8I,GAAGC,GAAG/I,GAAM+I,GAAGC,GAAGhJ,GAAMgJ,GAAGC,GAAGjJ,GAAMiJ,GAAGC,GAAGlJ,GAAMkJ,GAAGC,GAAGnJ,GAAMmJ,GAAGC,GAAGpJ,GAAMoJ,GAAGC,GAAGrJ,GAAMqJ,GAAGC,GAAGtJ,GAAMsJ,GAAGC,GAAGvJ,GAAMuJ,GAAGC,GAAGxJ,GAAMwJ,GAAGC,GAAGzJ,GAAMyJ,GAAGC,GAAG1J,GAAM0J,GAAGC,GAAG3J,GAAM2J,GAAGC,GAAG5J,GAAM4J,GAAGC,GAAG7J,GAAM6J,GAAGC,GAAG9J,GAAM8J,GAAGC,GAAG/J,GAAM+J,GAAGC,GAAGhK,GAAMgK,GAAGC,GAAGjK,GAAMiK,GAAGC,GAAGlK,GAAMkK,GAAGC,GAAGnK,GAAMmK,GAAGC,GAAGpK,GAAMoK,GAAGC,GAAGrK,GAAMqK,GAAGC,GAAGtK,GAAMsK,GAAGC,GAAGvK,GAAMuK,GAAGC,GAAGxK,GAAMwK,GAAGC,GAAGzK,GAAMyK,GAAGC,GAAG1K,GAAM0K,GAAGC,GAAG3K,GAAM2K,GAAGC,GAAG5K,GAAM4K,GAAGC,GAAG7K,GAAM6K,GAAGC,GAAG9K,GAAM8K,GAAGC,GAAG/K,GAAM+K,GAAGC,GAAGhL,GAAMgL,GAAGC,GAAGjL,GAAMiL,GAAGC,GAAGlL,GAAMkL,GAAGC,GAAGnL,GAAMmL,GAAGC,GAAGpL,GAAMoL,GAAGC,GAAGrL,GAAMqL,GAAGC,GAAGtL,GAAMsL,GAAGC,GAAGvL,GAAMuL,GAAGC,GAAGxL,GAAMwL,GAAGC,GAAGzL,GAAMyL,GAAGC,GAAG1L,GAAM0L,GAAGC,GAAG3L,GAAM2L,GAAGC,GAAG5L,GAAM4L,GAAGC,GAAG7L,GAAM6L,GAAGC,GAAG9L,GAAM8L,GAAGC,GAAG/L,GAAM+L,GAAGC,GAAGhM,GAAMgM,GAAGC,GAAGjM,GAAMiM,GAAGC,GAAGlM,GAAMkM,GAAGC,GAAGnM,GAAMmM,GAAGC,GAAGpM,GAAMoM,GAAGC,GAAGrM,GAAMqM,GAAGC,GAAGtM,GAAMsM,GAAGC,GAAGvM,GAAMuM,GAAGC,GAAGxM,GAAMwM,GAAGC,GAAGzM,GAAMyM,GAAGC,GAAG1M,GAAM0M,GAAGC,GAAG3M,GAAM2M,GAAGC,GAAG5M,GAAM4M,GAAGC,GAAG7M,GAAM6M,GAAGC,GAAG9M,GAAM8M,GAAGC,GAAG/M,GAAM+M,GAAGC,GAAGhN,GAAMgN,GAAGC,GAAGjN,GAAMiN,GAAGC,GAAGlN,GAAMkN,GAAGC,GAAGnN,GAAMmN,GAAGC,GAAGpN,GAAMoN,GAAGC,GAAGrN,GAAMqN,GAAGC,GAAGtN,GAAMsN,GAAGC,GAAGvN,GAAMuN,GAAGC,GAAGxN,GAAMwN,GAAGC,GAAGzN,GAAMyN,GAAGC,GAAG1N,GAAM0N,GAAGC,GAAG3N,GAAM2N,GAAGC,GAAG5N,GAAM4N,GAAGC,GAAG7N,GAAM6N,GAAGC,GAAG9N,GAAM8N,GAAGC,GAAG/N,GAAM+N,GAAGC,GAAGhO,GAAMgO,GAAGC,GAAGjO,GAAMiO,GAAGC,GAAGlO,GAAMkO,GAAGC,GAAGnO,GAAMmO,GAAGC,GAAGpO,GAAMoO,GAAGC,GAAGrO,GAAMqO,GAAGC,GAAGtO,GAAMsO,GAAGC,GAAGvO,GAAMuO,GAAGC,GAAGxO,GAAMwO,GAAGC,GAAGzO,GAAMyO,GAAGC,GAAG1O,GAAM0O,GAAGC,GAAG3O,GAAM2O,GAAGC,GAAG5O,GAAM4O,GAAGC,GAAG7O,GAAM6O,GAAGC,GAAG9O,GAAM8O,GAAGC,GAAG/O,GAAM+O,GAAGC,GAAGhP,GAAMgP,GAAGC,GAAGjP,GAAMiP,GAAGC,GAAGlP,GAAMkP,GAAGC,GAAGnP,GAAMmP,GAAGC,GAAGpP,GAAMoP,GAAGC,GAAGrP,GAAMqP,GAAGC,GAAGtP,GAAMsP,GAAGC,GAAGvP,GAAMuP,GAAGC,GAAGxP,GAAMwP,GAAGC,GAAGzP,GAAMyP,GAAGC,GAAG1P,GAAM0P,GAAGC,GAAG3P,GAAM2P,GAAGC,GAAG5P,GAAM4P,GAAGC,GAAG7P,GAAM6P,GAAGC,GAAG9P,GAAM8P,GAAGC,GAAG/P,GAAM+P,GAAGC,GAAGhQ,GAAMgQ,GAAGC,GAAGjQ,GAAMiQ,GAAGC,GAAGlQ,GAAMkQ,GAAGC,GAAGnQ,GAAMmQ,GAAGC,GAAGpQ,GAAMoQ,GAAGC,GAAGrQ,GAAMqQ,GAAGC,GAAGtQ,GAAMsQ,GAAGC,GAAGvQ,GAAMuQ,GAAGC,GAAGxQ,GAAMwQ,GAAGC,GAAGzQ,GAAMyQ,GAAGC,GAAG1Q,GAAM0Q,GAAGC,GAAG3Q,GAAM2Q,GAAGC,GAAG5Q,GAAM4Q,GAAGC,GAAG7Q,GAAM6Q,GAAGC,GAAG9Q,GAAM8Q,GAAGC,GAAG/Q,GAAM+Q,GAAGC,GAAGhR,GAAMgR,GAAGC,GAAGjR,GAAMiR,GAAGC,GAAGlR,GAAMkR,GAAGC,GAAGnR,GAAMmR,GAAGC,GAAGpR,GAAMoR,GAAGC,GAAGrR,GAAMqR,GAAGC,GAAGtR,GAAMsR,GAAGC,GAAGvR,GAAMuR,GAAGC,GAAGxR,GAAMwR,GAAGC,GAAGzR,GAAMyR,GAAGC,GAAG1R,GAAM0R,GAAGC,GAAG3R,GAAM2R,GAAGC,GAAG5R,GAAM4R,GAAGC,GAAG7R,GAAM6R,GAAGC,GAAG9R,GAAM8R,GAAGC,GAAG/R,GAAM+R,GAAGC,GAAGhS,GAAMgS,GAAGC,GAAGjS,GAAMiS,GAAGC,GAAGlS,GAAMkS,GAAGC,GAAGnS,GAAMmS,GAAGC,GAAGpS,GAAMoS,GAAGC,GAAGrS,GAAMqS,GAAGC,GAAGtS,GAAMsS,GAAGC,GAAGvS,GAAMuS,GAAGC,GAAGxS,GAAMwS,GAAGC,GAAGzS,GAAMyS,GAAGC,GAAG1S,GAAM0S,GAAGC,GAAG3S,GAAM2S,GAAGC,GAAG5S,GAAM4S,GAAGC,GAAG7S,GAAM6S,GAAGC,GAAG9S,GAAM8S,GAAGC,GAAG/S,GAAM+S,GAAGC,GAAGhT,GAAMgT,GAAGC,GAAGjT,GAAMiT,GAAGC,GAAGlT,GAAMkT,GAAGC,GAAGnT,GAAMmT,GAAGC,GAAGpT,GAAMoT,GAAGC,GAAGrT,GAAMqT,GAAGC,GAAGtT,GAAMsT,GAAGC,GAAGvT,GAAMuT,GAAGC,GAAGxT,GAAMwT,GAAGC,GAAGzT,GAAMyT,GAAGC,GAAG1T,GAAM0T,GAAGC,GAAG3T,GAAM2T,GAAGC,GAAG5T,GAAM4T,GAAGC,GAAG7T,GAAM6T,GAAGC,GAAG9T,GAAM8T,GAAGC,GAAG/T,GAAM+T,GAAGC,GAAGhU,GAAMgU,GAAGC,GAAGjU,GAAMiU,GAAGC,GAAGlU,GAAMkU,GAAGC,GAAGnU,GAAMmU,GAAGC,GAAGpU,GAAMoU,GAAGC,GAAGrU,GAAMqU,GAAGC,GAAGtU,GAAMsU,GAAGC,GAAGvU,GAAMuU,GAAGC,GAAGxU,GAAMwU,GAAGC,GAAGzU,GAAMyU,GAAGC,GAAG1U,GAAM0U,GAAGC,GAAG3U,GAAM2U,GAAGC,GAAG5U,GAAM4U,GAAGC,GAAG7U,GAAM6U,GAAGC,GAAG9U,GAAM8U,GAAGC,GAAG/U,GAAM+U,GAAGC,GAAGhV,GAAMgV,GAAGC,GAAGjV,GAAMiV,GAAGC,GAAGlV,GAAMkV,GAAGC,GAAGnV,GAAMmV,GAAGC,GAAGpV,GAAMoV,GAAGC,GAAGrV,GAAMqV,GAAGC,GAAGtV,GAAMsV,GAAGC,GAAGvV,GAAMuV,GAAGC,GAAGxV,GAAMwV,GAAGC,GAAGzV,GAAMyV,GAAGC,GAAG1V,GAAM0V,GAAGC,GAAG3V,GAAM2V,GAAGC,GAAG5V,GAAM4V,GAAGC,GAAG7V,GAAM6V,GAAGC,GAAG9V,GAAM8V,GAAGC,GAAG/V,GAAM+V,GAAGC,GAAGhW,GAAMgW,GAAGC,GAAGjW,GAAMiW,GAAGC,GAAGlW,GAAMkW,GAAGC,GAAGnW,GAAMmW,GAAGC,GAAGpW,GAAMoW,GAAGC,GAAGrW,GAAMqW,GAAGC,GAAGtW,GAAMsW,GAAGC,GAAGvW,GAAMuW,GAAGC,GAAGxW,GAAMwW,GAAGC,GAAGzW,GAAMyW,GAAGC,GAAG1W,GAAM0W,GAAGC,GAAG3W,GAAM2W,GAAGC,GAAG5W,GAAM4W,GAAGC,GAAG7W,GAAM6W,GAAGC,GAAG9W,GAAM8W,GAAGC,GAAG/W,GAAM+W,GAAGC,GAAGhX,GAAMgX,GAAGC,GAAGjX,GAAMiX,GAAGC,GAAGlX,GAAMkX,GAAGC,GAAGnX,GAAMmX,GAAGC,GAAGpX,GAAMoX,GAAGC,GAAGrX,GAAMqX,GAAGC,GAAGtX,GAAMsX,GAAGC,GAAGvX,GAAMuX,GAAGC,GAAGxX,GAAMwX,GAAGC,GAAGzX,GAAMyX,GAAGC,GAAG1X,GAAM0X,GAAGC,GAAG3X,GAAM2X,GAAGC,GAAG5X,GAAM4X,GAAGC,GAAG7X,GAAM6X,GAAGC,GAAG9X,GAAM8X,GAAGC,GAAG/X,GAAM+X,GAAGC,GAAGhY,GAAMgY,GAAGC,GAAGjY,GAAMiY,GAAGC,GAAGlY,GAAMkY,GAAGC,GAAGnY,GAAMmY,GAAGC,GAAGpY,GAAMoY,GAAGC,GAAGrY,GAAMqY,GAAGC,GAAGtY,GAAMsY,GAAGC,GAAGvY,GAAMuY,GAAGC,GAAGxY,GAAMwY,GAAGC,GAAGzY,GAAMyY,GAAGC,GAAG1Y,GAAM0Y,GAAGC,GAAG3Y,GAAM2Y,GAAGC,GAAG5Y,GAAM4Y,GAAGC,GAAG7Y,GAAM6Y,GAAGC,GAAG9Y,GAAM8Y,GAAGC,GAAG/Y,GAAM+Y,GAAGC,GAAGhZ,GAAMgZ,GAAGC,GAAGjZ,GAAMiZ,GAAGC,GAAGlZ,GAAMkZ,GAAGC,GAAGnZ,GAAMmZ,GAAGC,GAAGpZ,GAAMoZ,GAAGC,GAAGrZ,GAAMqZ,GAAGC,GAAGtZ,GAAMsZ,GAAGC,GAAGvZ,GAAMuZ,GAAGC,GAAGxZ,GAAMwZ,GAAGC,GAAGzZ,GAAMyZ,GAAGC,GAAG1Z,GAAM0Z,GAAGC,GAAG3Z,GAAM2Z,GAAGC,GAAG5Z,GAAM4Z,GAAGC,GAAG7Z,GAAM6Z,GAAGC,GAAG9Z,GAAM8Z,GAAGC,GAAG/Z,GAAM+Z,GAAGC,GAAGha,GAAMga,GAAGC,GAAGja,GAAMia,GAAGC,GAAGla,GAAMka,GAAGC,GAAGna,GAAMma,GAAGC,GAAGpa,GAAMoa,GAAGC,GAAGra,GAAMqa,GAAGC,GAAGta,GAAMsa,GAAGC,GAAGva,GAAMua,GAAGC,GAAGxa,GAAMwa,GAAGC,GAAGza,GAAMya,GAAGC,GAAG1a,GAAM0a,GAAGC,GAAG3a,GAAM2a,GAAGC,GAAG5a,GAAM4a,GAAGC,GAAG7a,GAAM6a,GAAGC,GAAG9a,GAAM8a,GAAGC,GAAG/a,GAAM+a,GAAGC,GAAGhb,GAAMgb,GAAGC,GAAGjb,GAAMib,GAAGC,GAAGlb,GAAMkb,GAAGC,GAAGnb,GAAMmb,GAAGC,GAAGpb,GAAMob,GAAGC,GAAGrb,GAAMqb,GAAGC,GAAGtb,GAAMsb,GAAGC,GAAGvb,GAAMub,GAAGC,GAAGxb,GAAMwb,GAAGC,GAAGzb,GAAMyb,GAAGC,GAAG1b,GAAM0b,GAAGC,GAAG3b,GAAM2b,GAAGC,GAAG5b,GAAM4b,GAAGC,GAAG7b,GAAM6b,GAAGC,GAAG9b,GAAM8b,GAAGC,GAAG/b,GAAM+b,GAAGC,GAAGhc,GAAMgc,GAAGC,GAAGjc,GAAMic,GAAGC,GAAGlc,GAAMkc,GAAGC,GAAGnc,GAAMmc,GAAGC,GAAGpc,GAAMoc,GAAGC,GAAGrc,GAAMqc,GAAGC,GAAGtc,GAAMsc,GAAGC,GAAGvc,GAAMuc,GAAGC,GAAGxc,GAAMwc,GAAGC,GAAGzc,GAAMyc,GAAGC,GAAG1c,GAAM0c,GAAGC,GAAG3c,GAAM2c,GAAGC,GAAG5c,GAAM4c,GAAGC,GAAG7c,GAAM6c,GAAGC,GAAG9c,GAAM8c,GAAGC,GAAG/c,GAAM+c,GAAGC,GAAGhd,GAAMgd,GAAGC,GAAGjd,GAAMid,GAAGC,GAAGld,GAAMkd,GAAGC,GAAGnd,GAAMmd,GAAGC,GAAGpd,GAAMod,GAAGC,GAAGrd,GAAMqd,GAAGC,GAAGtd,GAAMsd,GAAGC,GAAGvd,GAAMud,GAAGC,GAAGxd,GAAMwd,GAAGC,GAAGzd,GAAMyd,GAAGC,GAAG1d,GAAM0d,GAAGC,GAAG3d,GAAM2d,GAAGC,GAAG5d,GAAM4d,GAAGC,GAAG7d,GAAM6d,GAAGC,GAAG9d,GAAM8d,GAAGC,GAAG/d,GAAM+d,GAAGC,GAAGhe,GAAMge,GAAGC,GAAGje,GAAMie,GAAGC,GAAGle,GAAMke,GAAGC,GAAGne,GAAMme,GAAGC,GAAGpe,GAAMoe,GAAGC,GAAGre,GAAMqe,GAAGC,GAAGte,GAAMse,GAAGC,GAAGve,GAAMue,GAAGC,GAAGxe,GAAMwe,GAAGC,GAAGze,GAAMye,GAAGC,GAAG1e,GAAM0e,GAAGC,GAAG3e,GAAM2e,GAAGC,GAAG5e,GAAM4e,GAAGC,GAAG7e,GAAM6e,GAAGC,GAAG9e,GAAM8e,GAAGC,GAAG/e,GAAM+e,GAAGC,GAAGhf,GAAMgf,GAAGC,GAAGjf,GAAMif,GAAGC,GAAGlf,GAAMkf,GAAGC,GAAGnf,GAAMmf,GAAGC,GAAGpf,GAAMof,GAAGC,GAAGrf,GAAMqf,GAAGC,GAAGtf,GAAMsf,GAAGC,GAAGvf,GAAMuf,GAAGC,GAAGxf,GAAMwf,GAAGC,GAAGzf,GAAMyf,GAAGC,GAAG1f,GAAM0f,GAAGC,GAAG3f,GAAM2f,GAAGC,GAAG5f,GAAM4f,GAAGC,GAAG7f,GAAM6f,GAAGC,GAAG9f,GAAM8f,GAAGC,GAAG/f,GAAM+f,GAAGC,GAAGhg,GAAMgg,GAAGC,GAAGjg,GAAMig,GAAGC,GAAGlg,GAAMkg,GAAGC,GAAGng,GAAMmg,GAAGC,GAAGpg,GAAMog,GAAGC,GAAGrg,GAAMqg,GAAGC,GAAGtg,GAAMsg,GAAGC,GAAGvg,GAAMug,GAAGC,GAAGxg,GAAMwg,GAAGC,GAAGzg,GAAMyg,GAAGC,GAAG1g,GAAM0g,GAAGC,GAAG3g,GAAM2g,GAAGC,GAAG5g,GAAM4g,GAAGC,GAAG7g,GAAM6g,GAAGC,GAAG9g,GAAM8g,GAAGC,GAAG/g,GAAM+g,GAAGC,GAAGhh,GAAMgh,GAAGC,GAAGjh,GAAMih,GAAGC,GAAGlh,GAAMkh,GAAGC,GAAGnh,GAAMmh,GAAGC,GAAGph,GAAMoh,GAAGC,GAAGrh,GAAMqh,GAAGC,GAAGth,GAAMsh,GAAGC,GAAGvh,GAAMuh,GAAGC,GAAGxh,GAAMwh,GAAGC,GAAGzh,GAAMyh,GAAGC,GAAG1h,GAAM0h,GAAGC,GAAG3h,GAAM2h,GAAGC,GAAG5h,GAAM4h,GAAGC,GAAG7h,GAAM6h,GAAGC,GAAG9h,GAAM8h,GAAGC,GAAG/h,GAAM+h,GAAGC,GAAGhi,GAAMgi,GAAGC,GAAGji,GAAMii,GAAGC,GAAGli,GAAMkiAAA

AIkT,EAAgB,KAAK,+CAA+ClT,EAA4D,SAASqT,GAAWC,GAAa,GAAGtU,EAAuB,KAAK,qFAAqF,IAAIsU,EAAY,KAAK,kDAAkDjW,IAAoBiW,EAAY,IAAI,GAAG,EAAE,IAAIC,EAAQ5J,GAAQ6J,SAASF,GAAaC,EAAQE,OAAOC,YAAY/J,GAAQgK,eAAeJ,GAAS5J,GAAQiK,eAAe9rB,OAAO6hB,GAAQiK,eAAeS,QAAQgS,EAAQE,QAAQ,GAAGF,EAAQE,OAAOF,EAAQE,OAAOC,aAAQzW,EAAU,SAAS+W,GAAWC,EAAQ,GAAGC,EAAQ,GAAGC,EAAQ,GAAG

oe,EAAoBnK,GAAQqK,mBAAmBP,GAAsB,mBAANK,EAAwBnK,GAAQiM,sBAAsBlgB,EAAEkL,MAA8B,iBAAhBlL,EAAEkL,KAAK6V,OAAyBhD,EAAOlX,YAAY7G,EAAEkL,MAAW4B,EAAI,kCAAkCsR,GAAKnK,GAAQqM,yCAAoClZ,GAAW2W,EAAOtR,QAAQ,SASzM,GAAG8M,EAAI,0BAA0B9M,EAAEmK,SAAS,IAAInK,EAAEghB,OAAO,KAAKhhB,EAAEihB,UAAalY,IAAqBgV,EAAOmD,GAAG,WAAU,SAAShW,S,EAAOqC,UAAU,CAAClV,KAAKA,OAAS6S,EAAOmD,GAAG,SAAQ,WAAShW,S,EAAOqC,UAAU,CAAClV,KAAKA,OAAS6S,EAAOtR,QAAQvB,B,MAAQ6Q,EAAOtR,QAAQ,QAAS,WAAShW,S,EAAOqC,UAAU,CAAClV,KAAKA,OAAS6S,EAAOlX,YAAY,CAACuE

AeC,EAAS,OAAO,EAAM,IAAIC,EAAY,WAAW,GAAGF,EAAcE,EAAa,OAAO,EAAM,IAAI,IAAIC,EAAQ,EA
AEA,GAAS,EAAEA,GAAAS,EAAE,CAAC,IAAIC,EAAkBH,GAAAS,EAAE,GAAGE,GAA6N,GAApNC,EAAkBh
gC,KAAKigC,IAAID,EAAkBJ,EAAc,WAAsHH,GAA/Fz/B,KAAKigC,IAAIH,EAAYjV,GAAAQ7qB,KAAKC,IA
AI2/B,EAAcI,GAAAmB,SAA2E,OAAO,EAAM,OAAO,EAAM,IAAIE,GAAAS,CAACC,eAAe,EAAEC,wBAAwB,
WAAW,IAAI,IAAIhoC,EAAE8nC,GAASG,cAAcpqC,OAAO,EAAEmC,GAAG,IAAIA,EAAG8nC,GAASI,eAAe
loC,GAAG8nC,GAASG,cAAc,GAAGH,GAASK,cAAc,IAAIC,6BAA6B,WAAeN,GAASO,iCAAkFP,GAASO,gC
AA+B,IAAOF,cAAc,GAAGG,UAAU,SAASC,EAAeC,EAAWC,GAAU,SAASC,EAAuBC,EAAKC,GAAM,GAA
GD,EAAK9qC,QAAQ+qC,EAAK/qC,OAAO,OAAO,EAAM,IAAI,IAAImC,KAAK2oC,EAAM,GAAGA,EAAK3oC
oC,IAAI4oC,EAAK5oC,GAAG,OAAO,EAAM,OAAO,EAAK,IAAI,IAAIA,KAAK8nC,GAASK,cAAc,CAAC,IA
AIU,EAAKf,GAASK,cAAcnoC,GAAG,GAAG6oC,EAAKN,gBAAgBG,GAAgBG,EAAuBG,EAAKJ,SASA,GA
AW,OAAQX,GAASK,cAAc/mC,KAAK,CAACmnC,eAAeA,EAAeC,WAAWA,EAAWC,SASA,IAAWX,GAAAS
K,cAAcW,MAAK,SAAShqC,EAAEiqC,GAAG,OAAOjqC,EAAE0pC,WAAWO,EAAEP,WAAWO,EAAEP,WAAWO,EAAEP

AAYC,MAAME,aAAa,MAAMJ,EAAqC,IAAlBG,EAAa,IAA0B,IAAlBA,EAAa,IAAQA,EAAa,KAAKP,EAAOV
,OAAOiB,EAAa,KAAKP,EAAOT,OAA4U,OAArUS,EAAOV,MAAMA,EAAMU,EAAOT,OAAOA,EAAUa,GA
AoBJ,EAAOK,YAAYC,MAAMG,SAAS,EAAE,EAAEnB,EAAMC,GAAiO,EAAE,SASmB,GAAgDnJ,EAAO+
H,EAAMC,GAAQ,OAAGzf,EAA8BkZ,GAAoC,EAAE,EAAEzB,EAAO+H,EAAMC,GAAeQ,GAAmDxI,EAAO
+H,EAAMC,GAAQ,SASoB,GAAoCpJ,EAAO+H,EAAMC,GAAiD,OA9BO,GAAsBvI,GA0BwI,GAAmDxI,
EAAO+H,EAAMC,GAAoBmB,GAAgDnJ,EAAO+H,EAAMC,GAAS,SASqB,GAAsChH,IAAY,SASiH,GA4
BC,EAASC,IAAO,SASC,GAAsCC,GAAK,IAAIC,EAAID,EAAIE,aAAa,0BAA0B,GAAGD,EAAoX,OAA/WD,
EAAyB,oBAAE,SAAS/0B,EAAMMk1B,GAAS,EAAMk1B,EAAA8B,yBAAEh3B,EAAMk1B,GAAS,EAAMk1B,EAAA
xB,EAAKmyB,EAAM3N,EAAM4N,GAAWJ,EAA8B,yBAAEhyB,EAAKmyB,EAAM3N,EAAM4N,IAAYL,EAA
2B,sBAAE,SAAS/0B,EAAMwB,EAAKwB,EAAMrwB,EAAKgI,EAAQi2B,GAAWJ,EAAgC,2BAAEhyB,EAAKwB,EAA
MrwB,EAAKgI,EAAQi2B,IAAmB,EAAG,SASC,GAAuCN,GAAK,IAAIC,EAAID,EAAIE,aAAa,2BA2B,GA
AGD,EAAqS,OAAhSD,EAAuB,kBAAE,WAAW,OAAOC,EA0B,wBAAKD,EAAuB,kBAAE,SASO,GAAKN,
EA0B,qBAAEM,IAAMP,EAAqB,gBAAE,SASO,GAAKN,EAAwB,mBAAEM,IAAMP,EAAmB,cAAE,SAAS
O,GAAK,OAAON,EAAsB,iBAAEM,IAAa,EAAG,SASC,GAAkCR,GAAK,IAAIC,EAAID,EAAIE,aAAa,sBAA
sB,GAAGD,EA0E,OAArED,EAAiB,YAAE,SASS,EAAEC,GAAMT,EAAsB,iBAAEQ,EAAEC,IAAc,EAAG,S
ASC,GAAgCX,GAAK,IAAIC,EAAID,EAAIE,aAAa,qBAAqB,IAAIW,GAAG,CAACC,,QAAQ,EAAE
C,QAAQ,GAAGC,,SAAS,GAAGC,,aAAa,GAAGC,,cAAc,GAAGC,,SAAS,GAAGC,,SAAS,GAAGC,,QAAQ,GAAG
C,KAAK,GAAGC,,SAAS,GAAGC,,kBAAkB,GAAGC,,gBAAgB,GAAGC,,aAAa,GAAGC,,YAAY,GAAGC,,gBAAg
B,EAAEC,,YAAY,SAAqBC,,GAAGC,,jB,GAAGC,,kB,GAAGC,,YAAYC,,lB,GAAGC,,kB,UAAUD,,IAAYE,,SAAS,SASC,GAA4B,IA
ArB,IAAIpiB,EAAIghB,GAAGC,,UAAkB7tC,EAAEgvC,EAAMnxC,,OAAOmC,EAAE4sB,EAAI5sB,IAAKgvC,,E
AAMhvC,,GAAG,KAAK,OAAO4sB,GAAKqiB,UAAU,SASC,EAAO1P,EAAMrP,EAAOtyB,GAAsB,IAAd,IA
AIsxC,EAAO,GAAWnvC,EAAE,EAAEA,EAAEw/B,IAAQx/B,EAAE,CAAC,IAAIqwB,EAAIoB,GAAKqiB,UAAU,IA
AoBpsB,EAAS,EAAFmC,GAAK,IAAI,EAAEmvC,GAAQne,EAAa/G,IAAoBkG,EAAS,EAAFnwB,GAAK,GAA
GqwB,EAAI,OAAE3G,EAAU2G,GAAK,OAAO8e,EAAQC,,cAAc,SASStD,EAAOuD,,GAAwB,IAAItC,EAAIjB,
EAAOwD,,WAAW,QAAQD,,GAAwB,OAAItC,EAAwBa,GAAG2B,gB,GAAGC,,GAAxBxC,EAAIsC,,GAAGA,gB,GA
AgB,SASxC,EAAIsC,,GAAwB,IAAIG,EAAOvO,,GAAQ,GAAGC,,GAAGhX,IAAoBulB,EAAO,GAAG,GAAG5N,KAAg
B,IAAI6N,EAAQ,CAACD,,OAAOA,EAAOE,,WAAWL,,EAAuBM,,QAAQN,,aAAaxD,,MAAMW,GAAqq
O,OA7NA,EAAIjB,SAAS,OAAIiB,EAAIjB,SAAS,OAAOK,YAAYsD,,GAAQ7B,GAAGU,SASkB,GAAKqB,,oB
nDJ,EAAuBQ,2B,AAAyCR,,uBQ,4B,AAA2BA,,GAAGkC,eAAeL,,GAAgBD,,GAAQO,mBAAmB,SASC,GAAw
H,OAAzGpC,GAAqCqC,,GAAGC,qC,eAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,qC,eAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
BE,cAAc,SASF,GAAkBpC,GAAGC,qC,iBAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
nI,IAAoBA,GAASuB,,0BAA0BuE,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
GAAUxN,GAAM0xB,,GAAGC,,SAAS0B,GAAeR,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
A+C,GAAgCA,,IAAIA,GAAQ7B,GAAGkC,qC,iBAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
AI/D,EAAMqD,EAAQrD,,MAAMU,GAAsCV,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
AsBhE,EAAMa,aAAa,4BAA4BS,GAAgCtB,,IAAIgB,GAAQA,,IAAIiE,,0BAA0BuE,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
EAAI7e,EAAQ,gBAAgB,gBAAgB,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAAMwB,,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
GAA0O,IAAIjB,EAAIt0B,EAAIu0B,aAAa,yBAAyB,IAAIC,GAAG,CAACC,,QAAQ,EAAE
C,QAAQ,GAAGC,,SAAS,GAAGC,,aAAa,GAAGC,,cAAc,GAAGC,,SAAS,GAAGC,,SAAS,GAAGC,,QAAQ,GAAG
C,KAAK,GAAGC,,SAAS,GAAGC,,kBAAkB,GAAGC,,gBAAgB,GAAGC,,aAAa,GAAGC,,YAAY,GAAGC,,gBAAg
B,EAAEC,,YAAY,SAAqBC,,GAAGC,,jB,GAAGC,,kB,GAAGC,,YAAYC,,lB,GAAGC,,kB,UAAUD,,IAAYE,,SAAS,SASC,GAA4B,IA
ArB,IAAIpiB,EAAIghB,GAAGC,,UAAkB7tC,EAAEgvC,EAAMnxC,,OAAOmC,EAAE4sB,EAAI5sB,IAAKgvC,,E
AAMhvC,,GAAG,KAAK,OAAO4sB,GAAKqiB,UAAU,SASC,EAAO1P,EAAMrP,EAAOtyB,GAAsB,IAAd,IA
AIsxC,EAAO,GAAWnvC,EAAE,EAAEA,EAAEw/B,IAAQx/B,EAAE,CAAC,IAAIqwB,EAAIoB,GAAKqiB,UAAU,IA
AoBpsB,EAAS,EAAFmC,GAAK,IAAI,EAAEmvC,GAAQne,EAAa/G,IAAoBkG,EAAS,EAAFnwB,GAAK,GA
GqwB,EAAI,OAAE3G,EAAU2G,GAAK,OAAO8e,EAAQC,,cAAc,SASStD,EAAOuD,,GAAwB,IAAItC,EAAIjB,
EAAOwD,,WAAW,QAAQD,,GAAwB,OAAItC,EAAwBa,GAAG2B,gB,GAAGC,,GAAxBxC,EAAIsC,,GAAGA,gB,GA
AgB,SASxC,EAAIsC,,GAAwB,IAAIG,EAAOvO,,GAAQ,GAAGC,,GAAGhX,IAAoBulB,EAAO,GAAG,GAAG5N,KAAg
B,IAAI6N,EAAQ,CAACD,,OAAOA,EAAOE,,WAAWL,,EAAuBM,,QAAQN,,aAAaxD,,MAAMW,GAAqq
O,OA7NA,EAAIjB,SAAS,OAAIiB,EAAIjB,SAS,OAAOK,YAAYsD,,GAAQ7B,GAAGU,SASkB,GAAKqB,,oB
nDJ,EAAuBQ,2B,AAAyCR,,uBQ,4B,AAA2BA,,GAAGkC,eAAeL,,GAAgBD,,GAAQO,mBAAmB,SASC,GAAw
H,OAAzGpC,GAAqCqC,,GAAGC,qC,eAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,qC,eAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
BE,cAAc,SASF,GAAkBpC,GAAGC,qC,iBAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
nI,IAAoBA,GAASuB,,0BAA0BuE,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
GAUxN,GAAM0xB,,GAAGC,,SAAS0B,GAAeR,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
A+C,GAAgCA,,IAAIA,GAAQ7B,GAAGkC,qC,iBAAwCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
AI/D,EAAMqD,EAAQrD,,MAAMU,GAAsCV,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
AsBhE,EAAMa,aAAa,4BAA4BS,GAAgCtB,,IAAIgB,GAAQA,,IAAIiE,,0BAA0BuE,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
EAAI7e,EAAQ,gBAAgB,gBAAgB,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
C,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS0B,GAAevlB,IAAIX,GAMwB,GAAGC,qC,gBAAyCC,,GAAGC,,SAAS
GA0O,IAAIjB,EAAIt0B,EAAIu0B,aAAa,yBAAyB,IAAIC,GAAG,CAACC,,QAAQ,EAAE
C,QAAQ,GAAGC,,SAAS,GAAGC,,aAAa,GAAGC,,cAAc,GAAGC,,SAAS,GAAGC,,SAAS,GAAGC,,QAAQ,GAAG
C,KAAK,GAAGC,,SAAS,GAAGC,,kBAAkB,GAAGC,,gBAAgB,GAAGC,,aAAa,GAAGC,,YAAY,GAAGC,,gBAAg
B,EAAEC,,YAAY,SAAqBC,,GAAGC,,jB,GAAGC,,kB,GAAGC,,YAAYC,,lB,GAAGC,,kB,UAAUD,,IAAYE,,SAAS,SASC,GAA4B,IA
ArB,IAAIpiB,EAAIghB,GAAGC,,UAAkB7tC,EAAEgvC,EAAMnxC,,OAAOmC,EAAE4sB,EAAI5sB,IAAKgvC,,E
AAMhvC,,GAAG,KAAK,OAAO4sB,GAAKqiB,UAAU,SASC,EAAO1P,EAAMrP,EAAOtyB,GAAsB,IAAd,IA
AIsxC,EAAO,GAAWnvC,EAAE,EAAEA,EAAEw/B,IAAQx/B,EAAE,CAAC,IAAIqwB,EAAIoB,GAAKqiB,UAAU,IA
AoBpsB,EAAS,EAAFmC,GAAK,IAAI,EAAEmvC,GAAQne,EAAa/G,IAAoBkG,EAAS,EAAFnwB,GAAK,GA
GqwB,EAAI,OAAE3G,EAAU2G,GAAK,OAAO8e,EAAQC,,cAAc,SASStD,EAAOuD,,GAAwB,IAAItC,EAAIjB,
EAAOwD,,WAAW,QAAQD,,GAAwB,OAAItC,EAAwBa,GAAG2B,gB,GAAGC,,GAAxBxC,EAAIsC,,GAAGA,gB,GA
AgB,SASxC,EAAIsC,,GAAwB,IAAIG,EAAOvO,,GAAQ,GAAGC,,GAAGhX,IAAoBulB,EAAO,GAAG,GAAG5N,KAAg
B,IAAI6N,EAAQ,CAACD,,OAAOA,EAAOE,,WAAWL,,EAAuBM,,QAAQN,,aAAaxD,,MAAMW,GAAqq
O,OA7NA,EAAIjB,S

B,EAAEuyB,GAAGhwC,EAAGowC,GAAGmB,SAASnB,GAAGO,UAAUP,GAAGO,SAAS3wC,GAAIwzC,OA
AaE,GAAqC,CAAC,UAAU,YAAY,oBAAoB,SAASC,GAAoC9N,EAAOqM,GAAY,IAAIhzC,EAAEgzC,GAAY,
EAAM0B,EAAgBnnB,IAAoBvtB,KAAe20C,EAAkB,CAACp4B,QAAAUgR,IAAoBvtB,KAAU2gB,QAAU4M,IA
AoBvtB,KAAU40C,UAAYrnB,IAAoBvtB,KAAU60C,YAActnB,IAAoBvtB,KAAW80C,qBAAuBvnB,IAAoBvtB,
KAAW+0C,wBAA0BxnB,IAAoBvtB,KAAW00C,gBAAkBF,GAAqCE,GAAiBM,+BAAiCznB,IAAoBvtB,KAA
WkzC,aAAa3lB,IAAoBvtB,KAAWi1C,aAAa1nB,IAAoBvtB,KAAWmzC,0BAA0B5lB,IAAoBvtB,MAAWk1C,o
BAAoB3nB,IAAoBvtB,MAAWm1C,yBAAyB5nB,IAAoBvtB,MAAWo1C,6BAA6B7nB,IAAoBvtB,OAAgBovC,
EAAOF,GAAsBvI,GAAQ,OAAIyI,EAAoBuF,EAAkBO,oBAA4B,EAAoBhE,GAAGwB,cAActD,EAAOuF,GAA/
F,EAAuI,SASU,GAAiCC,EAAGC,GAAI,OAAOd,GAAoCa,EAAGC,GAAI,IAA4sQ7F,GAAxsQ8F,GAAS,CA
ACC,SAAS,GAAGrE,QAAQ,CAAC,KAAK,GAAG,IAAIsE,UAAU,SAASC,EAAOC,GAAM,IAAI7zC,EAAOyz
C,GAASpE,QAAQuE,GAAkB,IAAPC,GAAiB,KAAPA,IAAqB,IAAqB,EAAAWl0C,EAAIixB,GAAKkC,EAAkB7
yB,EAAO,IAAIA,EAAOZ,OAAO,GAAOY,EAAO2C,KAAKkxC,IAAQ/H,aAAQ7gB,EAAUpsB,IAAI,WAAkF,O
AAvE40C,GAAS3H,SAAS,EAAUtgB,IAAoBioB,GAAS3H,QAAQ,GAAG,IAAegI,OAAO,SASvgB,GAA+B,O
AAlBhB,EAAagB,IAAiBwgB,MAAM,SASC,EAAIC,GAAM,OAAOD,IAAM,SASE,GAAUC,GAAI,OAAGhn
B,EAA8BkZ,GAAoC,EAAE,EAAE8N,GAAW,EAAE,SASC,GAASD,EAAGE,GAAWC,GAAOC,GAAOC,GAAA
W,GAAGrnB,EAAuB,OAAOkZ,GAAoC,EAAE,EAAE8N,GAAW,EAAE,SASC,GAAW,SASC,GAAS
AAUN,EAAGO,EAAIC,EAAOC,GAAM,GAAGznB,EAAuB,OAAOkZ,GAAoC,EAAE,EAAE8N,GAAW,EAAI
C,EAAOC,GAAgB,IAAV,IAAIjN,EAAI,EAAUpmC,EAAE,EAAEA,EAAEozC,EAAOpzC,IAAI,CAAqF,
IAAIgyB,EAAI/H,IAAoBkpB,EAAM,EAAFnzC,GAAKkwB,EAAIpG,IAAoBkpB,GAAO,EAAFnzC,EAAnzC,EAA
I,IAAI,GAAWsB,EAAE,EAAEA,EAAE+uB,EAAI/uB,IAAK4wC,GAASE,UAAUQ,EAAG5oB,IAAmBgI,EAAI1
wB,IAAI8kC,GAAK/V,EAAqC,OAAjCpG,IAAoBopB,GAAM,GAAGjN,EAAW,EAAE,SASkN,GAAqBC,GAA
S,IAAIC,EAAQjd,GAAQiL,mBAAmBG,MAAS4R,GAAQC,IAAU,SASC,GAAsBD,EAAQ7b,GAAKpB,IAAQ
iL,mBAAmBpgC,MAAK,WAAW8xB,GAAU51B,IAAIk2C,EAAdtgB,CAAuByE,MAAO,SASqL,GAAY0Q,GA
Ac,GAAG9nB,EAAuB,KAAK,sFAAsF,IAAIyU,EAAO9J,GAAQoN,eAAe,QAAoBja,IAAjB2W,EAAOF,QAAoB,
KAAK,kBAAkB,IAAIuT,EAAaxT,YAAY,KAAK,kCAAkC3J,GAAQiK,eAAep/B,KAAKi/B,GAAqC,IAA7B,IAA
Ic,EAAUF,GAAQ,KAAejhC,EAAE,EAAEA,EAAE,MAAMA,EAAGiqB,IAAoBkX,EAAY,EAAFnhC,GAAKgG,GA
AG,EAAE,IAAI2zC,EAAUD,EAAarR,UAAqR,EAAaE,UAAczT,EAAQ5J,GAAQ6J,GAAQ6J,SAASsT,EAAaxT,aAAa,C
AACG,OAAOA,EAAOgC,UAAUqR,EAAarR,UAAUuR,UAAUF,EAAaE,UAAUxR,kBAAkBsR,EAAatR,kBAAk
BD,iBAAiBuR,EAAaxT,aAAiB2T,EAAI1T,EAAQgC,kBAAkBB,EAAExC,QAAQyB,MAAMjX,IAAoB0pB,KAA
YH,EAAaI,UAAUnU,QAAQyB,MAAMjX,IAAoB0pB,KAAa1S,GAAWxB,QAAQyB,MAAMjX,IAAoB0pB,KA
AY1T,EAAQgC,kBAAkBxC,QAAQyB,MAAMjX,IAAoB0pB,KAAYH,EAAaE,WAAWjU,QAAQyB,MAAMjX,I
AAoB0pB,KAAYF,GAAWhU,QAAQyB,MAAMjX,IAAoB0pB,KAAaH,EAAaE,WAAWjU,QAAQyB,MAAMjX,
IAAoB0pB,KAAeF,GAAWhU,QAAQyB,MAAMjX,IAAoB0pB,KAAgBH,EAAaI,UAAU,IAAkDC,EAAlCC,KA
A4D,GAAGrU,QAAQyB,MAAMjX,IAAoB0pB,KAAaE,GAAe1T,EAAOF,QAAQA,EAAQ,IAAI8T,EAAI,CAA
CvT,IAAM,MAAMwT,cAAgBR,EAAaS,aAAaxc,IAAM+b,EAAa/b,IAAIwK,iBAAmBuR,EAAaxT,YAAYmC,U
AAYqR,EAAarR,UAAUuR,UAAYF,EAAaE,WAAWvT,EAAO6C,KAAKplB,IAAIwiB,EAAO8C,KAAKplB,IAAIwiB,
Y8U,MAAMzD,EAAOlX,YAAY8qB,EAAIP,WAAeW,EAAkBhW,eAAkBiW,EAAO4C,SAAQ5C,EAAO6C,oBAAoB7C,EA
AO6C,YAAY,SASoR,GAAgBpU,EAAYqU,EAAKL,EAAcvc,IAAK,GAA8B,oBAAoBvO,EAAO,kBAA4H,OAA3Fg
GAAI,uFAA8F,EAAAE,IAAI8Q,EAAAsE,OAAAzD9Q,EAAAI,qDAA4D,GAAG,IAAIilB,EAAAa,GAAAe,GAAAzU,GAAAzU,GAAAzU

W,IAAmBrR,GAAY0Q,GAAqB,EAAE,SAASgB,KAA0B,GAAI9oB,EAAJ,CAAkC,IAAIoV,EAAGY,KAAgB,GAAIZ,IAA6BrB,QAAQC,KAAKzV,IAAoB6W,EAAG,IAAI,IAAgG,GAAvDrB,QAAQC,KAAKzV,IAAoB6W,EAAG,GAAG,GAAkB,KAAK,aAAY,SAAS2T,KAAwCtpB,GAA8BD,,GAA6BiE,,EAAS,4IAA4I,SASulB,GAA6B/R,EAAAO5X,,EAAAO4pB,GAAO,IAAIhS,EAAgE,OAAxDzT,EAAI,oDAA2DwI,GAAAYG,,MAAM,GAAAGnM,GAAAwBgW,MAAAiBiB,EAAAmE,OAA3DzT,EAAI,WAAWyT,EAAO,qCAA4CjL,GAAAY8C,QAAAa,IAAAI9O,GAAAwBkpB,MAAAsjS,EAAAuE,OAA/DzT,EAAI,eAAAeyT,EAAO,qCAA4CjL,GAAAY8C,QAAAmD,GAAAlCzQ,IAAAoB4Y,EAAAO,IAAI,KAAAaA,EAAA+H,OAAAvHzT,EAAI,oCAAAoCyT,EAAO,wEAA+EjL,GAAAYG,,MAAAkE,QAAAQ,KAAAzV,IAAAoB0Y,EAAAO,IAAI,GAAAwF,OAAAxEzT,EAAI,4BAA4ByT,EAAO,iCAAAwCjL,GAAAYuB,OAAAsD,IAA5C0b,GAAAOF,,OAA4C,CAAC,IAAAII,EAAAapV,QAAAQ,KAAAzV,IAAAoB0Y,EAAAO,IAAI,GAAAG,GAAAG,GAAAiB,GAAAdkS,EAAAgB,CAAC,IAAAIC,EAAAerV,QAAAQ,KAAAzV,IAAAoB0Y,EAAAO,IAAI,GAAAG,GAAAwN,OAAAlN5X,IAAAOhB,IAAAoBgB,GAAAQ,GAAAG+pB,GAAAerV,QAAAQyB,MAAAMjX,IAAAoB0Y,EAAAO,IAAI,EAAAE,GAAAOjX,IAAAkDzC,YAAAY,CAAAuX,IAAAM,gBmC,OAASA,IAAAvElC,GAAAckC,GAAAyE,EAAAE,IAAAgS,EAAAO,OAAAOjd,GAAAYiB,MAAAM6b,KAA8B9oB,C4C,GAAAuB5pC,EAAAO,IAAAoB0Y,EAAAO,IAAI,SASqpB,GAAAcpS,EAAAO5X,,GAAAcpS,EAAAO,IAAI,GAAAG,GAAAiB,GAAAiS,EAAAO,IAAI,GAAAG,GAAAwN,OAAAlN5X,IAAAOhB,IAAAoBgB,GAAAQ,GAAAG+pB,GAAAerV,QAAAQyB,MAAAMjX,IAAAoB0Y,EAAAO,IAAI,EAAAE,GAAAOjX,IAAAkDzC,YAAAY,CAAAuX,IAAAM,gBmC,OAASA,IAAAvElC,GAAAckC,GAAAyE,EAAAE,IAAAgS,EAAAO,OAAAOjd,GAAAYiB,MAAAM6b,KAA8B9oB,C4C,GAAAuB5pC,EAAAO,IAAAoB0Y,EAAAO,IAAI,SASqpB,GAAAcpS,EAAAO5X,,GAAAcpS,EAAAO,IAAI,GAAAG,GAAAiB,GAAAiS,EAAAO,IAAI,GAAAG,GAAAwN,OAAAlN5X,IAAAOhB,IAAAoBgB,GAAAQ,GAAAG+pB,GAAAerV,QAAAQyB,MAAAMjX,IAAAoB0Y,EAAAO,IAAI,EAAAE,GAAAOjX,IAAAkDzC,YAAAY,CAAAuX,IAAAM,gBmC,OAASA,IAAAvElC,GAAAckC,GAAAyE,EAAAE,IAAAgS,EAAAO,OAAAOjd,GAAAYiB,MAAAM6b,K

EA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,
IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GA
AGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MA
AM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAK
M,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB
5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB5G,EAA
iB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAA
E,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAA
W,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAAE,WAAW,OAAo
BA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EA
AgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OA4BA,EA6B,
qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,
EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAA
K,GAAGsG,MAAM,KAAKM,YA+B5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EAAY,IAAK,GAA
GsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,M
AAM,KAAKM,YA48B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,K
AAKM,YAAuC5G,EA+B,uBAAE,WAAW,OA48BA,EA+B,uBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAA
KM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAu
B5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,
KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAAE,W
AAW,OAAsBA,EAAqB,aAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OA
AcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA4B0G,EAAkB,UAAE,WAAW,OAAiBA,EA
AkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgC5G,EAAwB,gBAAE,WAAW,OAAuBA,EAAwB,
gBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA6B6G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAE
A,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsC5G,EA48B,sBAAE,WAAW,OA46BA,EA48B,sBAAEA,EA
AY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAA
M,IAAGsG,MAAM,KAAKM,YA4B0G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAA
GsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MA
AM,KAAKM,YA48B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KA
AKM,YA42B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAK
M,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA42B5
G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,E
AAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA4B4G,EAAoB,oB,E
AAoB,YAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAE
AW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAg
BA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAA
iB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAA
M,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAG
sG,MAAM,KAAKM,YAAuC5G,EA48B,sBAAE,WAAW,OA46BA,EA48B,sBAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YA4B0G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM
,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YAAqC5G,EA6B,qBAAE,WAAW,OA4BA,EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC
5G,EA6B,qBAAE,WAAW,OA4BA,EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC5G,EA6B,
qBAAE,WAAW,OA4BA,EA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA4B0G,EAAkB,UAAE,
AAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,
QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WA
AW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAA

YA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,O
AAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EA
AY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAA
M,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KA
AKM,YAAgC5G,EAAwB,gBAAE,WAAW,OAAuBA,EAAwB,gBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAK
M,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAk
C5G,EAA0B,kBAAE,WAAW,OAAyBA,EAA0B,kBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,
EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAA
E,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAA
W,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,O
AAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,
EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KA
AEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EA
AY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,I
AAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB,QAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YAAmC5G,EAA2B,mBAAE,WAAW,OAA0BA,EAA2B,mBAAEA,EAAY,IAAM,IAAGsG,M
AAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAA
KM,YAA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA
AqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EA
Aa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,
WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,O
AAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc
,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IA
AM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAG
sG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,
KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,
EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAA
E,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,
OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkB
A,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB
,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB,QAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB,QAAEA,EAAY,IA
AM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAA
KM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,
EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,
WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAwB5G,EAAgB,UAAE,W
AAW,OAAeA,EAAgB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAwB5G,EAAgB,UAAE,WAAW,OAA
eA,EAAgB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAo
B,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB,QAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,
IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAA
M,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,
EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,
cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAwB5G,EAAgB,UAAE,WA
AW,OAAeA,EAAgB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAwB5G,EAAgB,UAAE,WAAW,OAAe
A,EAAgB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAoB,QAAE,WAAW,OAAeA,EAAoB

GAAW9F,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgB6S,GAA6BzZ,EAAqC,6BAAE,WAAW,OAAOyZ,GAA6BzZ,EAAqC,6BAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBojB,GAAUhqB,EAAkB,UAAE,WAAW,OAAOgqB,GAAUhqB,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBkR,GAA6C9X,EAAqD,6CAAE,MAAUoV,GAA+BpV,EAAuC,+BAAE,MAA8J,SAASsC,GAAW9B,GAAQ4qBB,KAAKhJ,KAAK,aAAagJ,KAAKtS,QAAQ,gCAAgCtY,EAAO,IAAI4qBB,KAAK5qBB,OAAOA,EAAqH,SAAS6qBB,GAAUv5C,EAAA4qBB,GAAUv5C,EAAA,GAAA4qBB,GAAUv5C,EAAA,GAAA4qBB,GAAUv5C,EAAA,G

AAa,MAAQA,EAAa,KAAoBA,EAAmB,aAAEyE,EAAWzE,EAAmB,YAAoBA,EAAsB,cAAgC,iBAAd1B,aAAwBiE,GAAAM,mCAAkD,IAAAI0C,GAAAM,EAAqB,SAAStpB,EAAAOic,EAAAUiN,GAAAUjN,GAAAW2K,GAAAM,qBAAqBsC,GAAAO,SAASK,EAASC,GAAAO,IAAAIC,EAAKpF,EAAAO,IAAAImF,GAAAuF,OAAAhFxpB,EAAAOypB,EAAAK,gCAAAgCD,EAAAM,8BAAAqCC,EAAAK,SAASC,EAAAMF,EAAAMG,EAAAWC,EAAAASzzB,EAAAK0zB,GAAAM,IAAAIC,EAAAI,EAAAI,CAACC,OAAAS,SAASC,GAAAK,IAAAIxD,EAAAI,EAAAE,GAAAGwD,MAAAAA,GAAAmC,IAAANA,EAAAQ,CAAAC,IAAAIC,EAAAoB,QAAAQ,GAAAyByB,QAAAwEAAfD,GAAAK,OAAAS,EAAA

AI,SAASD,EAAaC,GAAIT,EAAcU,QAAQD,GAA9tBX,EAAWtyB,KAAK,CAACyuB,KAAK,WAAW0E,QAAis
B,IAAIC,EAAgB,EAAoCC,EAAsB,KAAK,SAASC,GAAiBl3B,GAAIg3B,IAAqB/J,EAA+B,wBAAGA,EAA+B,u
BAAE+J,GAAkB,SAASG,GAAoBn3B,GA6G,GAAzGg3B,IAAqB/J,EAA+B,wBAAGA,EAA+B,uBAAE+J,GA
AqC,GAAjBA,GAAqHC,EAAsB,CAAC,IAAIG,EAASH,EAAsBA,EAAsB,KAAKG,KAAuE,SAAS5H,GAAM6H
,GAASpK,EAAgB,SAAGA,GAAgB,QAAEoK,GAAezF,EAATyF,GAAM,IAAanF,GAAM,EAAkBmF,EAAK,SA
ASA,EAAK,+CAA+C,IAAIvS,EAAE,IAAIyG,YAAY+L,aAAaD,GA4B,MAAtBrK,EAAmBlI,GAASA,EAAE,S
ASyS,GAAU3E,EAAI4E,GAAQ,OAAOnD,OAAOoD,UAAUC,WAAW9E,EAAI8E,WAAWF,GA8B,IAAtB5
E,EAAIjC,QAAQ6G,GAAtZvK,EAAwB,gBAAE,GAAGA,EAAwB,gBAAE,GA2W,IAAI0K,GAAc,wCAAwC,
SAASC,GAAU3I,GAAU,OAAOsI,GAAUtI,EAAS0I,IAAe,IAAIE,GAAe,GAAc,UAAU,SAASC,GAAU7I,GAAU,OAAO
sI,GAAUtI,EAAS4I,IAAIe,IAAIE,GAAe,yBAAkG,SAASC,GAAU,GAAG,EAAE,GAAG,GAAG,IAAI,GAAGA,GAAGMF,,IAAgBrG,,E
AAY,OAAO,IAAI3wB,WAAW2wB,GAAY,GAAGnD,EAAY,OAAOA,EAAW0J,GAAW,KAAK,kDAAmD,MA
AMrG,GAAKpC,GAAMoC,IAAM,SASsG,KAAmB,IAAIxG,IAAa/D,GAAoBC,GAAuB,CAAC,GAAkB,mBAA
RuK,QAAqBL,GAAUC,IAAiB,OAAOI,MAAMJ,GAAe,CAACK,YAAY,gBAAgBC,MAAK,SAAShH,GAAU,IA
AIA,EAAa,GAAG,KAAK,uCAAuC0G,GAAe,IAAI,OAAO1G,EAAsB,iBAAMiH,OAAM,WAAW,OAAON,GAA
UD,OAAuB,GAAGzJ,EAAW,OAAO,IAAIpB,SAAQ,EAAQC,GAAQkB,EAAUyJ,IAAe,SAAS1G,GAA
UlE,EAAQ,IAAIpsB,WAAWswB,MAAYjE,MAAY,OAAOF,QAAQC,UAAUkL,MAAK,WAAW,OAAOL,GAA
UD,OAAkB,SAASQ,KAAa,IAAIC,EAAK,CAACt5B,EAAIu5B,EAAIC,EAAe,SAASC,GAAgBC,GAAgBC,GAAgB

AAM,SAASogC,GAASrI,GAAM,OAAOA,GAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAA8B,OAAOnF,OA
AkB,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,IAAI,KAAK,GA
AG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KA
AK,IAAI,KAAK,IAAI,KAAK,EAAE,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,K
AAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GA
AG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,O
AAO,OAAO,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,
KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAA
K,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,
IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,
GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,EAAE,KAAK,IAAI,KAAK,IAAI,KAAK,EAAE,KA
AK,IAAI,KAAK,EAAE,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KA
AK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,OAAO,EAAE,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG
,KAAK,GAAG,KAAK,EAAE,OAAO,KAAK,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,GAAG,KAA
K,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,WAAW,KAAK,GAAG,KAAK,EAAE,OAAO,MAAM,KAAK,G
AAG,KAAK,GAAG,OAAO,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,KAAK,KAAK,EAAE,OAAO,QAAQ,
KAAK,EAAE,OAAO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OA
AO,MAAM,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,
OAAO,IAAI,KAAK,EAAE,OAAO,IAAI,KAAK,IAAI,OAAO,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,EAA
E,OAAO,GAAG,KAAK,EAAE,OAAO,EAAE,KAAK,GAAG,OAAO,EAAE,KAAK,GAAI,MAAsB,iBAAZjB,W
AA4BA,UAA+B,qBAAY,EAAgB,OAAb9B,GAAS,KAAW,EAAE,IAA0zXwQ,GAAtzXlf,GAAc,CAAC5v5B,EA
AIwoC,GAAOvC,EAAIuD,GAAuB5jB,EAAIilB,GAAwBha,EAAIolB,GAAU0C,EAAIxC,GAASl2C,EAAIu2C,G
AAU3J,EAAI+K,GAAgBmB,EAAIR,GAAcj1C,EAAIk1C,IAAmC3gB,IAAjBwB,KAAoCtL,EAA2B,mBAAE,W
AAW,OAAO8J,GAAmB9J,EAA2B,mBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,aAAg6VuT,IAA14Vna,
EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyC5G,EAAiC,yB
AAE,WAAW,OAAgCA,EAAiC,yBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAmC5G,EA2B,mBAA
E,WAAW,OAA0BA,EA2B,mBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAiC5G,EAAyB,iBAAE,W
AAW,OAAwBA,EAAyB,iBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,
OAAqBA,EAAsB,cAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgB
A,EAAiB,SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,
KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,E
AAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAA
K,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGs
G,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,
KAAKM,YAAwB5G,EAAiB,QAAE,WAAW,OAAeA,EAAiB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM
,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAA
6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,E
AAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aA
AE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAiB,QAAE,W
AAW,OAAeA,EAAiB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EA6B,qBAAE,WAAW,
OAA4BA,EA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA
A,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,M
AAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA+B5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,
EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAiB,QAAE,WAAW,OAAeA,EAAiB,QAAEA,EAAY,I
AAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK,G
AAGsG,MAAM,KAAKM,YAAuC5G,EA+B,uBAAE,WAAW,OA8BA,EA+B,uBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,
KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM

,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAA+B5
G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe
,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,W
AAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAgC5G,EAAwB,gBAAE,WAAW
,OAAuBA,EAAwB,gBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA6B5G,EAAqB,aAAE,WAAW,OAA
oBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsC5G,EAA8B,sBAAE,WAAW,OAA6BA,E
A8B,sBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,
QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAE
A,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAA
Y,IAAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAK
,GAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAK,GA
AGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MA
AM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAK,GAAGsG,MAAM,
KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,Y
AA4B5G,EAAoB,YAAE,WAAW,OAAmBA,EAAoB,YAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAq
B5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAi
B,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,
WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,
OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,E
AAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SA
AEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA
,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,
IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAA
GsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAM,IAAGsG,
MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAM,IAAGsG,MA
AM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAM,IAAGsG,MAAM,
KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAK
M,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA
uB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa
,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WA
AW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAa
A,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB
,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,E
AAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM
,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IA
AGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,M
AAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,
KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,
YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA2B5G,
EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA0B5G,EAAkB
,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAA
E,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW
,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,
EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MA
AEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,E
AAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyC5G,EAAiC,mBAAE,WAAW,OAAgCA,EAAiC,mBAAEA,EA
AY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,I
AAGsG,MAAM,KAAKM,YA8B5G,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,

MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAAaA,EAAAc,MAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAAaA,EAAAc,MAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAAaA,EAAAc,MAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAA2B5G,EAAAmB,WAAE,WAAW,OAAAkBA,EAAAmB,WAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAA2B5G,EAAAmB,WAAE,WAAW,OAAAkBA,EAAAmB,WAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAA4B8G,EAAAsB,cAAE,WAAW,OAAAqBA,EAAAsB,cAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAAwB5G,EAAAmB,WAAE,WAAW,OAAAoBA,EAAAmB,WAAAEA,EAAAY,IAAAM,IAAAGsG,MAAM,KAAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAAaA,EAAAc,M

AAUC,IAAIC,GAAQo6C,cAGpCR,oBAAA,WACEtB,KAAKz5C,KAAKu6C,KAAKuB,UACX,YAAarC,KAAKz5C,MACpBy5C,KAAKz5C,KAAKm6B,QAAQ2L,sBAEpB2T,KAAKz5C,KAAAO,MAGd+6C,mBAAA,WACE,MAAO,CAACgB,YAAY,IAStBhB,uBAAA,SAAWv5C,EAAiBd,EAAiB66C,GAE3C,IAAIp6C,EACJ,GAAoB,MAAhBo6C,EAAuB,CAAA,IAAAp6C,EAAAo6C,EAAAC,EAAAr6C,EAAAs6C,EAAAt6C,EAAAu6C,EAAAv6C,EAAAw6C,EAAAx6C,EAAAy6C,EAAAz6C,EAAA06C,EAAA16C,EAAA26C,EAAA36C,EAAA46C,EAAA56C,EAAA66C,EAAA76C,EAAA86C,EAAA96C,EAAA+6C,EAAA/6C,EAAAg7C,EAAAh7C,EAAAi7C,EAAAj7C,EAAAk7C,EAAAl7C,EAAAm7C,EAAAn7C,EAAAo7C,EAAAp7C,EAAAq7C,EAAAr7C,EAAAs7C,EAAAt7C,EAAAu7C,EAAAv7C,EAAAw7C,EAAAx7C,EAAAy7C,EAAAz7C,EAAA07C,EAAA17C,EAAA27C,EAAA37C,EAAA47C,EAAA57C,EAAA67C,EAAA77C,EAAA87C,EAAA97C,EAAA+7C,EAAA/7C,EAAAg8C,EAAAh8C,EAAAi8C,EAAAj8C,EAAAk8C,EAAAl8C,EAAAm8C,EAAAn8C,EAAAo8C,EAAAp8C,EAAAq8C,EAAAr8C,EAAAs8C,EAAAt8C,EAAAu8C,EAAAv8C,EAAAw8C,EAAAx8C,EAAAy8C,EAAAz8C,EAAA08C,EAAA18C,EAAA28C,EAAA38C,EAAA48C,EAAA58C,EAAA68C,EAAA78C,EAAA88C,EAAA98C,EAAA+8C,EAAA/8C,EAAAg9C,EAAAh9C,EAAAi9C,EAAAj9C,EAAAk9C,EAAAl9C,EAAAm9C,EAAAn9C,EAAAo9C,EAAAp9C,EAAAq9C,EAAAr9C,EAAAs9C,EAAAt9C,EAAAu9C,EAAAv9C,EAAAw9C,EAAAx9C,EAAAy9C,EAAAz9C,EAAA09C,EAAA19C,EAAA29C,EAAA39C,EAAA49C,EAAA59C,EAAA69C,EAAA79C,EAAA89C,EAAA99C,EAAA+9C,EAAA/9C,EAAAg+C,EAAAh+C,EAAAi+C,EAAAj+C,EAAAk+C,EAAAl+C,EAAAm+C,EAAAn+C,EAAAo+C,EAAAp+C,EAAAq+C,EAAAr+C,EAAAs+C,EAAAt+C,EAAAu+C,EAAAv+C,EAAAw+C,EAAAx+C,EAAAy+C,EAAAz+C,EAAA0+C,EAAA1+C,EAAA2+C,EAAA3+C,EAAA4+C,EAAA5+C,EAAA6+C,EAAA7+C,EAAA8+C,EAAA9+C,EAAA++C,EAAA/+C,EAAAg/C,EAAAh/C,EAAAi/C,EAAAj/C,EAAAk/C,EAAAl/C,EAAAm/C,EAAAn/C,EAAAo/C,EAAAp/C,EAAAq/C,EAAAr/C,EAAAs/C,EAAAt/C,EAAAu/C,EAAAv/C,EAAAw/C,EAAAx/C,EAAAy/C,EAAAz/C,EAAA0/C,EAAA1/C,EAAA2/C,EAAA3/C,EAAA4/C,EAAA5/C,EAAA6/C,EAAA7/C,EAAA8/C,EAAA9/C,EAAA+/C,EAAA//C,EAAAggD,EAAAhgD,EAAAigD,EAAAjgD,EAAAkgD,EAAAlgD,EAAAmgD,EAAAngD,EAAAogD,EAAApgD,EAAAqgD,EAAArgD,EAAAsgD,EAAAtgD,EAAAugD,EAAAvgD,EAAAwgD,EAAAxgD,EAAAygD,EAAAzgD,EAAA0gD,EAAA1gD,EAAA2gD,EAAA3gD,EAAA4gD,EAAA5gD,EAAA6gD,EAAA7gD,EAAA8gD,EAAA9gD,EAAA+gD,EAAA/gD,EAAAghD,EAAAhhD,EAAAihD,EAAAjhD,EAAAkhD,EAAAlhD,EAAAmhD,EAAAnhD,EAAAohD,EAAAphD,EAAAqhD,EAAArhD,EAAAshD,EAAAthD,EAAAuhD,EAAAvhD,EAAAwhD,EAAAxhD,EAAAyhD,EAAAzhD,EAAA0hD,EAAA1hD,EAAA2hD,EAAA3hD,EAAA4hD,EAAA5hD,EAAA6hD,EAAA7hD,EAAA8hD,EAAA9hD,EAAA+hD,EAAA/hD,EAAAgiD,EAAAhiD,EAAAiiD,EAAAjiD,EAAAkiD,EAAAliD,EAAAmiD,EAAAniD,EAAAoiD,EAAApiD,EAAAqiD,EAAAriD,EAAAsiD,EAAAtiD,EAAAuiD,EAAAviD,EAAAwiD,EAAAxiD,EAAAyiD,EAAAziD,EAAA0iD,EAAA1iD,EAAA2iD,EAAA3iD,EAAA4iD,EAAA5iD,EAAA6iD,EAAA7iD,EAAA8iD,EAAA9iD,EAAA+iD,EAAA/iD,EAAAgjD,EAAAhjD,EAAAijD,EAAAjjD,EAAAkjD,EAAAljD,EAAAmjD,EAAAnjD,EAAAojD,EAAApjD,EAAAqjD,EAAArjD,EAAAsjD,EAAAtjD,EAAAujD,EAAAvjD,EAAAwjD,EAAAxjD,EAAAyjD,EAAAzjD,EAAA0jD,EAAA1jD,EAAA2jD,EAAA3jD,EAAA4jD,EAAA5jD,EAAA6jD,EAAA7jD,EAAA8jD,EAAA9jD,EAAA+jD,EAAA/jD,EAAAgkD,EAAAhkD,EAAAikD,EAAAjkD,EAAAkkD,EAAAlkD,EAAAmkD,EAAAnkD,EAAAokD,EAAApkD,EAAAqkD,EAAArkD,EAAAskD,EAAAtkD,EAAAukD,EAAAvkD,EAAAwkD,EAAAxkD,EAAAykD,EAAAzkD,EAAA0kD,EAAA1kD,EAAA2kD,EAAA3kD,EAAA4kD,EAAA5kD,EAAA6kD,EAAA7kD,EAAA8kD,EAAA9kD,EAAA+kD,EAAA/kD,EAAAglD,EAAAhlD,EAAAilD,EAAAjlD,EAAAklD,EAAAllD,EAAAmlD,EAAAnlD,EAAAolD,EAAAplD,EAAAqlD,EAAArlD,EAAAslD,EAAAtlD,EAAAulD,EAAAvlD,EAAAwlD,EAAAxlD,EAAAylD,EAAAzlD,EAAA0lD,EAAA1lD,EAAA2lD,EAAA3lD,EAAA4lD,EAAA5lD,EAAA6lD,EAAA7lD,EAAA8lD,EAAA9lD,EAAA+lD,EAAA/lD,EAAAgmD,EAAAhmD,EAAAimD,EAAAjmD,EAAAkmD,EAAAlmD,EAAAmmD,EAAAnmD,EAAAomD,EAAApmD,EAAAqmD,EAAArmD,EAAAsmD,EAAAtmD,EAAAumD,EAAAvmD,EAAAwmD,EAAAxmD,EAAAymD,EAAAzmD,EAAA0mD,EAAA1mD,EAAA2mD,EAAA3mD,EAAA4mD,EAAA5mD,EAAA6mD,EAAA7mD,EAAA8mD,EAAA9mD,EAAA+mD,EAAA/mD,EAAAgnD,EAAAhnD,EAAAinD,EAAAjnD,EAAAknD,EAAAlnD,EAAAmnD,EAAAnnD,EAAAonD,EAAApnD,EAAAqnD,EAAArnD,EAAAsnD,EAAAtnD,EAAAunD,EAAAvnD,EAAAwnD,EAAAxnD,EAAAynD,EAAAznD,EAAA0nD,EAAA1nD,EAAA2nD,EAAA3nD,EAAA4nD,EAAA5nD,EAAA6nD,EAAA7nD,EAAA8nD,EAAA9nD,EAAA+nD,EAAA/nD,EAAAgoD,EAAAhoD,EAAAioD,EAAAjoD,EAAAkoD,EAAAloD,EAAAmoD,EAAAnoD,EAAAooD,EAAApoD,EAAAqoD,EAAAroD,EAAAsoD,EAAAtoD,EAAAuoD,EAAAvoD,EAAAwoD,EAAAxoD,EAAAyoD,EAAAzoD,EAAA0oD,EAAA1oD,EAAA2oD,EAAA3oD,EAAA4oD,EAAA5oD,EAAA6oD,EAAA7oD,EAAA8oD,EAAA9oD,EAAA+oD,EAAA/oD,EAAAgpD,EAAAhpD,EAAAipD,EAAAjpD,EAAAkpD,EAAAlpD,EAAAmpD,EAAAnpD,EAAAopD,EAAAppD,EAAAqpD,EAAArpD,EAAAspD,EAAAtpD,EAAAupD,EAAAvpD,EAAAwpD,EAAAxpD,EAAAypD,EAAAzpD,EAAA0pD,EAAA1pD,EAAA2pD,EAAA3pD,EAAA4pD,EAAA5pD,EAAA6pD,EAAA7pD,EAAA8pD,EAAA9pD,EAAA+pD,EAAA/pD,EAAAgqD,EAAAhqD,EAAAiqD,EAAAjqD,EAAAkqD,EAAAlqD,EAAAmqD,EAAAnqD,EAAAoqD,EAAApqD,EAAAqqD,EAAArqD,EAAAsqD,EAAAtqD,EAAAuqD,EAAAvqD,EAAAwqD,EAAAxqD,EAAAyqD,EAAAzqD,EAAA0qD,EAAA1qD,EAAA2qD,EAAA3qD,EAAA4qD,EAAA5qD,EAAA6qD,EAAA7qD,EAAA8qD,EAAA9qD,EAAA+qD,EAAA/qD,EAAAgrD,EAAAhrD,EAAAirD,EAAAjrD,EAAAkrD,EAAAlrD,EAAAmrD,EAAAnrD,EAAAorD,EAAAprD,EAAAqrD,EAAArrD,EAAAsrD,EAAAtrD,EAAAurD,EAAAvrD,EAAAwrD,EAAAxrD,EAAAyrD,EAAAzrD,EAAA0rD,EAAA1rD,EAAA2rD,EAAA3rD,EAAA4rD,EAAA5rD,EAAA6rD,EAAA7rD,EAAA8rD,EAAA9rD,EAAA+rD,EAAA/rD,EAAAgsD,EAAAhsD,EAAAisD,EAAAjsD,EAAAksD,EAAAlsD,EAAAmsD,EAAAnsD,EAAAosD,EAAApsD,EAAAqsD,EAAArsD,EAAAssD,EAAAtsD,EAAAusD,EAAAvsD,EAAAwsD,EAAAxsD,EAAAysD,EAAAzsD,EAAA0sD,EAAA1sD,EAAA2sD,EAAA3sD,EAAA4sD,EAAA5sD,EAAA6sD,EAAA7sD,EAAA8sD,EAAA9sD,EAAA+sD,EAAA/sD,EAAAgtD,EAAAhtD,EAAAitD,EAAAjtD,EAAAktD,EAAAltD,EAAAmtD,EAAAntD,EAAAotD,EAAAptD,EAAAqtD,EAAArtD,EAAAstD,EAAAttD,EAAAutD,EAAAvtD,EAAAwtD,EAAAxtD,EAAAytD,EAAAztD,EAAA0tD,EAAA1tD,EAAA2tD,EAAA3tD,EAAA4tD,EAAA5tD,EAAA6tD,EAAA7tD,EAAA8tD,EAAA9tD,EAAA+tD,EAAA/tD,EAAAguD,EAAAhuD,EAAAiuD,EAAAjuD,EAAAkuD,EAAAluD,EAAAmuD,EAAAnuD,EAAAouD,EAAApuD,EAAAquD,EAAAruD,EAAAsuD,EAAAtuD,EAAAuuD,EAAAvuD,EAAAwuD,EAAAxuD,EAAAyuD,EAAAzuD,EAAA0uD,EAAA1uD,EAAA2uD,EAAA3uD,EAAA4uD,EAAA5uD,EAAA6uD,EAAA7uD,EAAA8uD,EAAA9uD,EAAA+uD,EAAA/uD,EAAAgvD,EAAAhvD,EAAAivD,EAAAjvD,EAAAkvD,EAAAlvD,EAAAmvD,EAAAnvD,EAAAovD,EAAApvD,EAAAqvD,EAAArvD,EAAAsvD,EAAAtvD,EAAAuvD,EAAAvvD,EAAAwvD,EAAAxvD,EAAAyvD,EAAAzvD,EAAA0vD,EAAA1vD,EAAA2vD,EAAA3vD,EAAA4vD,EAAA5vD,EAAA6vD,EAAA7vD,EAAA8vD,EAAA9vD,EAAA+vD,EAAA/vD,EAAAgwD,EAAAhwD,EAAAiwD,EAAAjwD,EAAAkwD,EAAAlwD,EAAAmwD,EAAAnwD,EAAAowD,EAAApwD,EAAAqwD,EAAArwD,EAAAswD,EAAAtwD,EAAAuwD,EAAAvwD,EAAAwwD,EAAAxwD,EAAAywD,EAAAzwD,EAAA0wD,EAAA1wD,EAAA2wD,EAAA3wD,EAAA4wD,EAAA5wD,EAAA6wD,EAAA7wD,EAAA8wD,EAAA9wD,EAAA+wD,EAAA/wD,EAAAgxD,EAAAhxD,EAAAixD,EAAAjxD,EAAAkxD,EAAAlxD,EAAAmxD,EAAAnxD,EAAAoxD,EAAApxD,EAAAqxD,EAAArxD,EAAAsxD,EAAAtxD,EAAAuxD,EAAAvxD,EAAAwxD,EAAAxxD,EAAAyxD,EAAAzxD,EAAA0xD,EAAA1xD,EAAA2xD,EAAA3xD,EAAA4xD,EAAA5xD,EAAA6xD,EAAA7xD,EAAA8xD,EAAA9xD,EAAA+xD,EAAA/xD,EAAAgyD,EAAAhyD,EAAAiyD,EAAAjyD,EAAAkyD,EAAAlyD,EAAAmyD,EAAAnyD,EAAAoyD,EAAApyD,EAAAqyD,EAAAryD,EAAAsyD,EAAAtyD,EAAAuyD,EAAAvyD,EAAAwyD,EAAAxyD,EAAAyyD,EAAAzyD,EAAA0yD,EAAA1yD,EAAA2yD,EAAA3yD,EAAA4yD,EAAA5yD,EAAA6yD,EAAA7yD,EAAA8yD,EAAA9yD,EAAA+yD,EAAA/yD,EAAAgzD,EAAAhzD,EAAAizD,EAAAjzD,EAAAkzD,EAAAlzD,EAAAmzD,EAAAnzD,EAAAozD,EAAApzD,EAAAqzD,EAAArzD,EAAAszD,EAAAtzD,EAAAuzD,EAAAvzD,EAAAwzD,EAAAxzD,EAAAyzD,EAAAzzD,EAAA0zD,EAAA1zD,EAAA2zD,EAAA3zD,EAAA4zD,EAAA5zD,EAAA6zD,EAAA7zD,EAAA8zD,EAAA9zD,EAAA+zD,EAAA/zD,EAAAg0D,EAAAh0D,EAAAi0D,EAAAj0D,EAAAk0D,EAAAl0D,EAAAm0D,EAAAn0D,EAAAo0D,EAAAp0D,EAAAq0D,EAAAr0D,EAAAs0D,EAAAt0D,EAAAu0D,EAAAv0D,EAAAw0D,EAAAx0D,EAAAy0D,EAAAz0D,EAAA00D,EAAA10D,EAAA20D,EAAA30D,EAAA40D,EAAA50D,EAAA60D,EAAA70D,EAAA80D,EAAA90D,EAAA+0D,EAAA/0D,EAAAg1D,EAAAh1D,EAAAi1D,EAAAj1D,EAAAk1D,EAAAl1D,EAAAm1D,EAAAn1D,EAAAo1D,EAAAp1D,EAAAq1D,EAAAr1D,EAAAs1D,EAAAt1D,EAAAu1D,EAAAv1D,EAAAw1D,EAAAx1D,EAAAy1D,EAAAz1D,EAAA01D,EAAA11D,EAAA21D,EAAA31D,EAAA41D,EAAA51D,EAAA61D,EAAA71D,EAAA81D,EAAA91D,EAAA+1D,EAAA/1D,EAAAg2D,EAAAh2D,EAAAi2D,EAAAj2D,EAAAk2D,EAAAl2D,EAAAm2D,EAAAn2D,EAAAo2D,EAAAp2D,EAAAq2D,EAAAr2D,EAAAs2D,EAAAt2D,EAAAu2D,EAAAv2D,EAAAw2D,EAAAx2D,EAAAy2D,EAAAz2D,EAAA02D,EAAA12D,EAAA22D,EAAA32D,EAAA42D,EAAA52D,EAAA62D,EAAA72D,EAAA82D,EAAA92D,EAAA+2D,EAAA/2D,EAAAg3D,EAAAh3D,EAAAi3D,EAAAj3D,EAAAk3D,EAAAl3D,EAAAm3D,EAAAn3D,EAAAo3D,EAAAp3D,EAAAq3D,EAAAr3D,EAAAs3D,EAAAt3D,EAAAu3D,EAAAv3D,EAAAw3D,EAAAx3D,EAAAy3D,EAAAz3D,EAAA03D,EAAA13D,EAAA23D,EAAA33D,EAAA43D,EAAA53D,EAAA63D,EAAA73D,EAAA83D,EAAA93D,EAAA+3D,EAAA/3D,EAAAg4D,EAAAh4D,EAAAi4D,EAAAj4D,EAAAk4D,EAAAl4D,EAAAm4D,EAAAn4D,EAAAo4D,EAAAp4D,EAAAq4D,EAAAr4D,EAAAs4D,EAAAt4D,EAAAu4D,EAAAv4D,EAAAw4D,EAAAx4D,EAAAy4D,EAAAz4D,EAAA04D,EAAA14D,EAAA24D,EAAA34D,EAAA44D,EAAA54D,EAAA64D,EAAA74D,EAAA84D,EAAA94D,EAAA+4D,EAAA/4D,EAAAg5D,EAAAh5D,EAAAi5D,EAAAj5D,EAAAk5D,EAAAl5D,EAAAm5D,EAAAn5D,EAAAo5D,EAAAp5D,EAAAq5D,EAAAr5D,EAAAs5D,EAAAt5D,EAAAu5D,EAAAv5D,EAAAw5D,EAAAx5D,EAAAy5D,EAAAz5D,EAAA05D,EAAA15D,EAAA25D,EAAA35D,EAAA45D,EAAA55D,EAAA65D,EAAA75D,EAAA85D,EAAA95D,EAAA+5D,EAAA/5D,EAAAg6D,EAAAh6D,EAAAi6D,EAAAj6D,EAAAk6D,EAAAl6D,EAAAm6D,EAAAn6D,EAAAo6D,EAAAp6D,EAAAq6D,EAAAr6D,EAAAs6D,EAAAt6D,EAAAu6D,EAAAv6D,EAAAw6D,EAAAx6D,EAAAy6D,EAAAz6D,EAAA06D,EAAA16D,EAAA26D,EAAA36D,EAAA46D,EAAA56D,EAAA66D,EAAA76D,EAAA86D,EAAA96D,EAAA+6D,EAAA/6D,EAAAg7D,EAAAh7D,EAAAi7D,EAAAj7D,EAAAk7D,EAAAl7D,EAAAm7D,EAAAn7D,EAAAo7D,EAAAp7D,EAAAq7D,EAAAr7D,EAAAs7D,EAAAt7D,EAAAu7D,EAAAv7D,EAAAw7D,EAAAx7D,EAAAy7D,EAAAz7D,EAAA07D,EAAA17D,EAAA27D,EAAA37D,EAAA47D,EAAA57D,EAAA67D,EAAA77D,EAAA87D,EAAA97D,EAAA+7D,EAAA/7D,EAAAg8D,EAAAh8D,EAAAi8D,EAAAj8D,EAAAk8D,EAAAl8D,EAAAm8D,EAAAn8D,EAAAo8D,EAAAp8D,EAAAq8D,EAAAr8D,EAAAs8D,EAAAt8D,EAAAu8D,EAAAv8D,EAAAw8D,EAAAx8D,EAAAy8D,EAAAz8D,EAAA08D,EAAA18D,EAAA28D,EAAA38D,EAAA48D,EAAA58D,EAAA68D,EAAA78D,EAAA88D,EAAA98D,EAAA+8D,EAAA/8D,EAAAg9D,EAAAh9D,EAAAi9D,EAAAj9D,EAAAk9D,EAAAl9D,EAAAm9D,EAAAn9D,EAAAo9D,EAAAp9D,EAAAq9D,EAAAr9D,EAAAs9D,EAAAt9D,EAAAu9D,EAAAv9D,EAAAw9D,EAAAx9D,EAAAy9D,EAAAz9D,EAAA09D,EAAA19D,EAAA29D,EAAA39D,EAAA49D,EAAA59D,EAAA69D,EAAA79D,EAAA89D,EAAA99D,EAAA+9D,EAAA/9D,EAAAg+D,EAAAh+D,EAAAi+D,EAAAj+D,EAAAk+D,EAAAl+D,EAAAm+D,EAAAn+D,EAAAo+D,EAAAp+D,EAAAq+D,EAAAr+D,EAAAs+D,EAAAt+D,EAAAu+D,EAAAv+D,EAAAw+D,EAAAx+D,EAAAy+D,EAAAz+D,EAAA0+D,EAAA1+D,EAAA2+D,EAAA3+D,EAAA4+D,EAAA5+D,EAAA6+D,EAAA7+D,EAAA8+D,EAAA9+D,EAAA++D,EAAA/+D,EAAAg/D,EAAAh/D,EAAAi/D,EAAAj/D,EAAAk/D,EAAAl/D,EAAAm/D,EAAAn/D,EAAAo/D,EAAAp/D,EAAAq/D,EAAAr/D,EAAAs/D,EAAAt/D,EAAAu/D,EAAAv/D,EAAAw/D,EAAAx/D,EAAAy/D,EAAAz/D,EAAA0/D,EAAA1/D,EAAA2/D,EAAA3/D,EAAA4/D,EAAA5/D,EAAA6/D,EAAA7/D,EAAA8/D,EAAA9/D,EAAA+/D,EAAA//D,EAAAggE,EAAAhgE,EAAAigE,EAAAjgE,EAAAkgE,EAAAlgE,EAAAmgE,EAAAngE,EAAAogE,EAAApgE,EAAAqgE,EAAArgE,EAAAsgE,EAAAtgE,EAAAugE,EAAAvgE,EAAAwgE,EAAAxgE,EAAAygE,EAAAzgE,EAAA0gE,EAAA1gE,EAAA2gE,EAAA3gE,EAAA4gE,EAAA5gE,EAAA6gE,EAAA7gE,EAAA8gE,EAAA9gE,EAAA+gE,EAAA/gE,EAAAghE,EAAAhhE,EAAAihE,EAAAjhE,EAAAkhE,EAAAlhE,EAAAmhE,EAAAnhE,EAAAohE,EAAAphE,EAAAqhE,EAAArhE,EAAAshE,EAAAthE,EAAAuhE,EAAAvhE,EAAAwhE,EAAAxhE,EAAAyhE,EAAAzhE,EAAA0hE,EAAA1hE,EAAA2hE,EAAA3hE,EAAA4hE,EAAA5hE,EAAA6hE,EAAA7hE,EAAA8hE,EAAA9hE,EAAA+hE,EAAA/hE,EAAAgiE,EAAAhiE,EAAAiiE,EAAAjiE,EAAAkiE,EAAAliE,EAAAmiE,EAAAniE,EAAAoiE,EAAApiE,EAAAqiE,EAAAriE,EAAAsiE,EAAAtiE,EAAAuiE,EAAAviE,EAAAwiE,EAAAxiE,EAAAyiE,EAAAziE,EAAA0iE,EAAA1iE,EAAA2iE,EAAA3iE,EAAA4iE,EAAA5iE,EAAA6iE,EAAA7iE,EAAA8iE,EAAA9iE,EAAA+iE,EAAA/iE,EAAAgjE,EAAAhjE,EAAAijE,EAAAjjE,EAAAkjE,EAAAljE,EAAAmjE,EAAAnjE,EAAAojE,EAAApjE,EAAAqjE,EAAArjE,EAAAsjE,EAAAtjE,EAAAujE,EAAAvjE,EAAAwjE,EAAAxjE,EAAAyjE,EAAAzjE,EAAA0jE,EAAA1jE,EAAA2jE,EAAA3jE,EAAA4jE,EAAA5jE,EAAA6jE,EAAA7jE,EAAA8jE,EAAA9jE,EAAA+jE,EAAA/jE,EAAAgkE,EAAAhkE,EAAAikE,EAAAjkE,EAAAkkE,EAAAlkE,EAAAmkE,EAAAnkE,EAAAokE,EAAApkE,EAAAqkE,EAAArkE,EAAAskE,EAAAtkE,EAAAukE,EAAAvkE,EAAAwkE,EAAAxkE,EAAAykE,EAAAzkE,EAAA0kE,EAAA1kE,EAAA2kE,EAAA3kE,EAAA4kE,EAAA5kE,EAAA6kE,EAAA7kE,EAAA8kE,EAAA9kE,EAAA+kE,EAAA/kE,EAAAglE,EAAAhlE,EAAAilE,EAAAjlE,EAAAklE,EAAAllE,EAAAmlE,EAAAnlE,EAAAolE,EAAAplE,EAAAqlE,EAAArlE,EAAAslE,EAAAtlE,EAAAulE,EAAAvlE,EAAAwlE,EAAAxlE,EAAAylE,EAAAzlE,EAAA0lE,EAAA1lE,EAAA2lE,EAAA3lE,EAAA4lE,EAAA5lE,EAAA6lE,EAAA7lE,EAAA8lE,EAAA9lE,EAAA+lE,EAAA/lE,EAAAgmE,EAAAhmE,EAAAimE,EAAAjmE,EAAAkmE,EAAAlmE,EAAAmmE,EAAAnmE,EAAAomE,EAAApmE,EAAAqmE,EAAArmE,EAAAsmE,EAAAtmE,EAAAumE,EAAAvmE,EAAAwmE,EAAAxmE,EAAAymE,EAAAzmE,EAAA0mE,EAAA1mE,EAAA2mE,EAAA3mE,EAAA4mE,EAAA5mE,EAAA6mE,EAAA7mE,EAAA8mE,EAAA9mE,EAAA+mE,EAAA/mE,EAAAgnE,EAAAhnE,EAAAinE,EAAAjnE,EAAAknE,EAAAlnE,EAAAmnE,EAAAnnE,EAAAonE,EAAApnE,EAAAqnE,EAAArnE,EAAAsnE,EAAAtnE,EAAAunE,EAAAvnE,EAAAwnE,EAAAxnE,EAAAynE,EAAAznE,EAAA0nE,EAAA1nE,EAAA2nE,EAAA3nE,EAAA4nE,EAAA5nE,EAAA6nE,EAAA7nE,EAAA8nE,EAAA9nE,EAAA+nE,EAAA/nE,EAAAgoE,EAAAhoE,EAAAioE,EAAAjoE,EAAAkoE,EAAAloE,EAAAmoE,EAAAnoE,EAAAooE,EAAApoE,EAAAqoE,EAAAroE,EAAAsoE,EAAAtoE,EAAAuoE,EAAAvoE,EAAAwoE,EAAAxoE,EAAAyoE,EAAAzoE,EAAA0oE,EAAA1oE,EAAA2oE,EAAA3oE,EAAA4oE,EAAA5oE,EAAA6oE,EAAA7oE,EAAA8oE,EAAA9oE,EAAA+oE,EAAA/oE,EAAAgpE,EAAAhpE,EAAAipE,EAAAjpE,EAAAkpE,EAAAlpE,EAAAmpE,EAAAnpE,EAAAopE,EAAAppE,EAAAqpE,EAAArpE,EAAAspE,EAAAtpE,EAAAupE,EAAAvpE,EAAAwpE,EAAAxpE,EAAAypE,EAAAzpE,EAAA0pE,EAAA1pE,EAAA2pE,EAAA3pE,EAAA4pE,EAAA5pE,EAAA6pE,EAAA7pE,EAAA8pE,EAAA9pE,EAAA+pE,EAAA/pE,EAAAgqE,EAAAhqE,EAAAiqE,EAAAjqE,EAAAkqE,EAAAlqE,EAAAmqE,EAAAnqE,EAAAoqE,EAAApqE,EAAAqqE,EAAArqE,EAAAsqE,EAAAtqE,EAAAuqE,EAAAvqE,EAAAwqE,EAAAxqE,EAAAyqE,EAAAzqE,EAAA0qE,EAAA1qE,EAAA2qE,EAAA3qE,EAAA4qE,EAAA5qE,EAAA6qE,EAAA7qE,EAAA8qE,EAAA9qE,EAAA+qE,EAAA/qE,EAAAgrE,EAAAhrE,EAAAirE,EAAAjrE,EAAAkrE,EAAAlrE,EAAAmrE,EAAAnrE,EAAAorE,EAAAprE,EAAAqrE,EAAArrE,EAAAsrE,EAAAtrE,EAAAurE,EAAAvrE,EAAAwrE,EAAAxrE,EAAAyrE,EAAAzrE,EAAA0rE,EAAA1rE,EAAA2rE,EAAA3rE,EAAA4rE,EAAA5rE,EAAA6rE,EAAA7rE,EAAA8rE,EAAA9rE,EAAA+rE,EAAA/rE,EAAAgsE,EAAAhsE,EAAAisE,EAAAjsE,EAAAksE,EAAAlsE,EAAAmsE,EAAAnsE,EAAAosE,EAAApsE,EAAAqsE,EAAArsE,EAAAssE,EAAAtsE,EAAAusE,EAAAvsE,EAAAwsE,EAAAxsE,EAAAysE,EAAAzsE,EAAA0sE,EAAA1sE,EAAA2sE,EAAA3sE,EAAA4sE,EAAA5sE,EAAA6sE,EAAA7sE,EAAA8sE,EAAA9sE,EAAA+sE,EAAA/sE,EAAAgtE,EAAAhtE,EAAAitE,EAAAjtE,EAAAktE,EAAAltE,EAAAmtE,EAAAntE,EAAAotE,EAAAptE,EAAAqtE,EAAArtE,EAAAstE,EAAAttE,EAAAutE,EAAAvtE,EAAAwtE,EAAAxtE,EAAAytE,EAAAztE,EAAA0tE,EAAA1tE,EAAA2tE,EAAA3tE,EAAA4tE,EAAA5tE,EAAA6tE,EAAA7tE,EAAA8tE,EAAA9tE,EAAA+tE,EAAA/tE,EAAAguE,EAAAhuE,EAAAiuE,EAAAjuE,EAAAkuE,EAAAluE,EAAAmuE,EAAAnuE,EAAAouE,EAAApuE,EAAAquE,EAAAruE,EAAAsuE,EAAAtuE,EAAAuuE,EAAAvuE,EAAAwuE,EAAAxuE,EAAAyuE,EAAAzuE,EAAA0uE,EAAA1uE,EAAA2uE,EAAA3uE,EAAA4uE,EAAA5uE,EAAA6uE,EAAA7uE,EAAA8uE,EAAA9uE,EAAA+uE,EAAA/uE,EAAAgvE,EAAAhvE,EAAAivE,EAAAjvE,EAAAkvE,EAAAlvE,EAAAmvE,EAAAnvE,EAAAovE,EAAApvE,EAAAqvE,EAAArvE,EAAAsvE,EAAAtvE,EAAAuvE,EAAAvvE,EAAAwvE,EAAAxvE,EAAAyvE,EAAAzvE,EAAA0vE,EAAA1vE,EAAA2vE,EAAA3vE,EAAA4vE,EAAA5vE,EAAA6vE,EAAA7vE,EAAA8vE,EAAA9vE,EAAA+vE,EAAA/vE,EAAAgwE,EAAAhwE,EAAAiwE,EAAAjwE,EAAAkwE,EAAAlwE,EAAAmwE,EAAAnwE,EAAAowE,EAAApwE,EAAAqwE,EAAArwE,EAAAswE,EAAAtwE,EAAAuwE,EAAAvwE,EAAAwwE,EAAAxwE,EAAAywE,EAAAzwE,EAAA0wE,EAAA1wE,EAAA2wE,EAAA3wE,EAAA4wE,EAAA5wE,EAAA6wE,EAAA7wE,EAAA8wE,EAAA9wE,EAAA+wE,EAAA/wE,EAAAgxE,EAAAhxE,EAAAixE,EAAAjxE,EAAAkxE,EAAAlxE,EAAAmxE,EAAAnxE,EAAAoxE,EAAApxE,EAAAqxE,EAAArxE,EAAAsxE,EAAAtxE,EAAAuxE,EAAAvxE,EAAAwxE,EAAAxxE,EAAAyxE,EAAAzxE,EAAA0xE,EAAA1xE,EAAA2xE,EAAA3xE,EAAA4xE,EAAA5xE,EAAA6xE,EAAA7xE,EAAA8xE,EAAA9xE,EAAA+xE,EAAA/xE,EAAAgyE,EAAAhyE,EAAAiyE,EAAAjyE,EAAAkyE,EAAAlyE,EAAAmyE,EAAAnyE,EAAAoyE,EAAApyE,EAAAqyE,EAAAryE,EAAAsyE,EAAAtyE,EAAAuyE,EAAAvyE,EAAAwyE,EAAAxyE,EAAAyyE,EAAAzyE,EAAA0yE,EAAA1yE,EAAA2yE,EAAA3yE,EAAA4yE,EAAA5yE,EAAA6yE,EAAA7yE,EAAA8yE,EAAA9yE,EAAA+yE,EAAA/yE,EAAAgzE,EAAAhzE,EAAAizE,EAAAjzE,EAAAkzE,EAAAlzE,EAAAmzE,EAAAnzE,EAAAozE,EAAApzE,EAAAqzE,EAAArzE,EAAAszE,EAAAtzE,EAAAuzE,EAAAvzE,EAAAwzE,EAAAxzE,EAAAyzE,EAAAzzE,EAAA0zE,EAAA1zE,EAAA2zE,EAAA3zE,EAAA4zE,EAAA5zE,EAAA6zE,EAAA7zE,EAAA8zE,EAAA9zE,EAAA+zE,EAAA/zE,EAAAg0E,EAAAh0E,EAAAi0E,EAAAj0E,EAAAk0E,EAAAl0E,EAAAm0E,EAAAn0E,EAAAo0E,EAAAp0E,EAAAq0E,EAAAr0E,EAAAs0E,EAAAt0E,EAAAu0E,EAAAv0E,EAAAw0E,EAAAx0E,EAAAy0E,EAAAz0E,EAAA00E,EAAA10E,EAAA20E,EAAA30E,EAAA40E,EAAA50E,EAAA60E,EAAA70E,EAAA80E,EAAA90E,EAAA+0E,EAAA/0E,EAAAg1E,EAAAh1E,EAAAi1E,EAAAj1E,EAAAk1E,EAAAl1E,EAAAm1E,EAAAn1E,EAAAo1E,EAAAp1E,EAAAq1E,EAAAr1E,EAAAs1E,EAAAt1E,EAAAu1E,EAAAv1E,EAAAw1E,EAAAx1E,EAAAy1E,EAAAz1E,EAAA01E,EAAA11E,EAAA21E,EAAA31E,EAAA41E,EAAA51E,EAAA61E,EAAA71E,EAAA81E,EAAA91E,EAAA+1E,EAAA/1E,EAAAg2E,EAAAh2E,EAAAi2E,EAAAj2E,EAAAk2E,EAAAl2E,EAAAm2E,EAAAn2E,EAAAo2E,EAAAp2E,EAAAq2E,EAAAr2E,EAAAs2E,EAAAt2E,EAAAu2E,EAAAv2E,EAAAw2E,EAAAx2E,EAAAy2E,EAAAz2E,EAAA02E,EAAA12E,EAAA22E,EAAA32E,EAAA42E,EAAA52E,EAAA62E,EAAA72E,EAAA82E,EAAA92E,EAAA+2E,EAAA/2E,EAAAg3E,EAAAh3E,EAAAi3E,EAAAj3E,EAAAk3E,EAAAl3E,EAAAm3E,EAAAn3E,EAAAo3E,EAAAp3E,EAAAq3E,EAAAr3E,EAAAs3E,EAAAt3E,EAAAu3E,EAAAv3E,EAAAw3E,EAAAx3E,EAAAy3E,EAAAz3E,EAAA03E,EAAA13E,EAAA23E,EAAA33E,EAAA43E,EAAA53E,EAAA63E,EAAA73E,EAAA83E,EAAA93E,EAAA+3E,EAAA/3E,EAAAg4E,EAAAh4E,EAAAi4E,EAAAj4E,EAAAk4E,EAAAl4E,EAAAm4E,EAAAn4E,EAAAo4E,EAAAp4E,EAAAq4E,EAAAr4E,EAAAs4E,EAAAt4E,EAAAu4E,EAAAv4E,EAAAw4E,EAAAx4E,EAAAy4E,EAAAz4E,EAAA04E,EAAA14E,EAAA24E,EAAA34E,EAAA44E,EAAA54E,EAAA64E,EAAA74E,EAAA84E,EAAA94E,EAAA+4E,EAAA/4E,EAAAg5E,EAAAh5E,EAAAi5E,EAAAj5E,EAAAk5E,EAAAl5E,EAAAm5E,EAAAn5E,EAAAo5E,EAAAp5E,EAAAq5E,EAAAr5E,EAAAs5E,EAAAt5E,EAA

C,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IACpD,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,KAAK,CAAC,CAAC;IAC/C,MAAM,MAAM,GAAG,OAAO,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,CAAC;IAC7C,MAAM,OAAO,GAAG,OAAO,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,CAAC;IAChD,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;IACvB,OAAO,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;IAC9B

G,MAAM,CAAC,CAAC,CAAC,CAAC;IAClC,MAAM,aAAa,GAAG,MAAM,CAAC,CAAC,CAAC,CAAC;IAChC,oEAAoE;IACpE,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC;IAC9B,OAAO,EAAC,gBAAgB,EAAE,YAAY,EAAE,eAAe,EAAE,aAAa,EAAC,CAAC,CAAC;AAC1E,gBAAgB,EAAE,YAAY,EAAE,eAAe,EAAE,aAAa,EAAC,CAAC,CAAC;AAAC,MAAM,CAAC,CAAC,CAAC,CAAC

AC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ===\n
*/\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu6.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Floor.js","sourceRoot":"","sources":["../../src/kernels/Floor.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,KAAK,EAAE,MAAM,uBAAuB,CAAC;AAE1D,OAAO,EAAC,KAAK,EAAE,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,WAAW,GAAiB,uBAAuB,CAAC,KAAK,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ===\n
*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Floor.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"FlipLeftRight.js","sourceRoot":"","sources":["../../src/kernels/FlipLeftRight.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,KAAK,EAAE,MAAM,uBAAuB,CAAC;AAE7C,OAAO,EAAC,KAAK,EAAE,MAAM,gBAAgB,CAAC;AACtC,MAAM,CAAC,MAAM,eAAe,GAAiB,uBAAuB,CAAC,KAAK,CAAC,CAAC","sourcesContent":["/**\n

* @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n imageId, batch,\n imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FlipLeftRight.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Rsqrt.js","sourceRoot":"","sources":["../../src/kernels/Rsqrt.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,KAAK,EAAC,MAAM,uBAAuB,CAAC;AAE1D,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,OAAO,EAAC,MAAM,gBAAgB,CAAC;AAE/B

AAW,MAAM,kCAAkC,CAAC;AAc3D,MAAM,OAAO,WAAY,SAAQ,aAAa;IAK5C,YAAmB,IAAqD;QACtE,KAAK,EAAE,CAAC;QADS,SAAI,GAAJ,IAAI,CAAiD;QAJxE,mCAAmC;QAC3B,qBAAgB,GAAG,CAAC,CAAC;QAK3B,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,oBAAoB,CAAC,YAAY,CAAC,CAAC;QAClD,kBAAkB,GAAG,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,eAAe,EAAE,CAAC;QACtD,IAAI,CAAC,SAAS,GAAG,IAAI,CAAC,WAAW,CAAC,IAAI,CAAC,IAAI,CAAC,EAAE,MAAM,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,EAAE

AM,GAAG,EAAC,EAAE,EAAC,CAAC;YACd,IAAI,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,EAAE,EAAC,EAAE,EAAE,YAAY,EAAE,KAAK,EAAE,KAAK,EAAE,QAAQ,EAAE,CAAC,EAAC,CAAC,CAAC;YAC1E,MAAM,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC;YACvC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,cAAc,CAAC,CAAC,EAAE,EAAE,IAAI,EAAE,YAAY,CAAC,CAAC;SACvD;QACD,OAAO,EAAC,MAAM,EAAE,KAAK,EAAE,KAAK,EAAC,CAAC;IAChC,CAAC;IAED,kBAAkB,CAAC,EAAC,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,MAAM,EAAE,EAAa;QAEnD,MAAM,MAAM,GAAG,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC;QACvC,MAAM,EAAC,YAAY,EAAC,GAAG,IAAI,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC;QAClD,MAAM,IAAI,GAAG,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC;QACvC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,cAAc,CAAC,CAAC,EAAE,EAAE,IAAI,EAAE,YAAY,CAAC,CAAC;QACp

pB,MAAM,cAAc,GAAW,IAAI,CAAC;YACpC,oEAAoE;YACpE,MAAM,CAAC,IAAI,GAAG;gBACZ,IAAI,EAAE,MAAM,CAAC,KAAK,CAAC,MAAM,EAAE,IAAI,EAAE,EAAE,CAAC;gBACpC,oBAAoB,EAChB,MAAM,CAAC,KAAK,CAAC,yBAAyB,EAAE,IAAI,EAAE,CAAC,QAAQ,CAAC,CAAC;gBAC7D,eAAe,EAAE,MAAM,CAAC,KAAK,CAAC,mBAAmB,EAAE,QAAQ,EAAE,EAAE,CAAC;gBAChE,cAAc,EAAE,MAAM,CAAC,KAAK,CAAC,KAAK,CACxB,iBAAiB,EAAE,IAAI,EAAE,CAAC,vB;oBACE,QAAQ;oBACR,QAAQ;oBACR,QAAQ;iBACT,CAAC;gBACN,WAAW,EAAE,MAAM,CAAC,KAAK,CAAC,cAAc,EAAE,cAAc,EAAE,CAAC,QAAQ,CAAC,CAAC;gBACrE,OAAO,EAAE,MAAM,CAAC,KAAK,CAAC,SAAS,EAAE,cAAc,EAAE,EAAE,CAAC;aACrD,CAAC;YAEF,OAAO,CAAC,EAAC,IAAI,EAAE,MAAM,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC

```
BackendWasm extends KernelBackend {\n  // 0 is reserved for null data ids.\n  private dataIdNextNumber = 1;\n
dataIdMap: DataStorage<TensorData>;\n\n  constructor(public wasm:
BackendWasmModule|BackendWasmThreadedSimdModule) {\n    super();\n
this.wasm.tfjs.initWithThreadsCount(threadsCount);\n    actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n
 this.dataIdMap = new DataStorage(this, engine());\n  }\n\n  write(values: backend_util.BackendValues, shape:
number[], dtype: DataType):\n      DataId {\n    const dataId = {id: this.dataIdNextNumber++};\n
this.move(dataId, values, shape, dtype, 1);\n    return dataId;\n  }\n\n  numDataIds(): number {\n    return
this.dataIdMap.numDataIds();\n  }\n\n  async time(f: () => void): Promise<BackendTimingInfo>
 {\n    const start = util.now();\n    f();\n    const kernelMs = util.now() - start;\n    return {kernelMs};\n  }\n\n
move(\n      dataId: DataId, values: backend_util.BackendValues, shape: number[],\n      dtype: DataType, refCount:
number): void {\n    const id = this.dataIdNextNumber++;\n    if (dtype === 'string') {\n      const stringBytes =
values as Uint8Array[];\n      this.dataIdMap.set(\n          dataId,\n          {id, stringBytes, shape, dtype,
memoryOffset: null, refCount});\n      return;\n    }\n\n    const size = util.sizeFromShape(shape);\n    const
numBytes = size * util.bytesPerElement(dtype);\n    const memoryOffset = this.wasm._malloc(numBytes);\n\n
this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n    this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n\n    if (values != null) {\n      this.wasm.HEAPU8.set(\n          new Uint8Array(\n              (values
as backend_util.TypedArray).buffer,\n              (values as backend_util.TypedArray).byteOffset,
 numBytes),\n          memoryOffset);\n    }\n  }\n\n  async read(dataId: DataId):
Promise<backend_util.BackendValues> {\n    return this.readSync(dataId);\n  }\n\n  readSync(dataId: DataId):
backend_util.BackendValues {\n    const {memoryOffset, dtype, shape, stringBytes} =\n
this.dataIdMap.get(dataId);\n    if (dtype === 'string') {\n      return stringBytes;\n    }\n    const bytes =
this.wasm.HEAPU8.slice(\n        memoryOffset,\n        memoryOffset + util.sizeFromShape(shape) *
util.bytesPerElement(dtype));\n    return typedArrayFromBuffer(bytes.buffer, dtype);\n  }\n\n  /**\n   * Dispose the
memory if the dataId has 0 refCount. Return true if the memory\n   * is released, false otherwise.\n   * @param
dataId\n   * @oaram force Optional, remove the data regardless of refCount\n   */\n  disposeData(dataId: DataId,
force = false): boolean {\n    if (this.dataIdMap.has(dataId)) {\n      const data = this.dataIdMap.get(dataId);\n
data.refCount--;\n
    if (!force && data.refCount > 0) {\n        return false;\n      }\n\n      this.wasm._free(data.memoryOffset);\n
this.wasm.tfjs.disposeData(data.id);\n      this.dataIdMap.delete(dataId);\n    }\n    return true;\n  }\n\n  /** Return
refCount of a `TensorData`. */\n  refCount(dataId: DataId): number {\n    if (this.dataIdMap.has(dataId)) {\n
const tensorData = this.dataIdMap.get(dataId);\n      return tensorData.refCount;\n    }\n    return 0;\n  }\n\n
incRef(dataId: DataId) {\n    const data = this.dataIdMap.get(dataId);\n    if (data != null) {\n      data.refCount++;\n
}\n  }\n\n  floatPrecision(): 32 {\n    return 32;\n  }\n\n  // Returns the memory offset of a tensor. Useful for
debugging and unit\n  // testing.\n  getMemoryOffset(dataId: DataId): number {\n    return
this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n  dispose() {\n    this.wasm.tfjs.dispose();\n    if ('PThread' in
this.wasm) {\n      this.wasm.PThread.terminateAllThreads();\n    }\n    this.wasm
 = null;\n  }\n\n  memory() {\n    return {unreliable: false};\n  }\n\n  /**\n   * Make a tensor info for the output of an
op. If `memoryOffset` is not\n   * present, this method allocates memory on the WASM heap. If `memoryOffset`\n
* is present, the memory was allocated elsewhere (in c++) and we just record\n   * the pointer where that memory
lives.\n   */\n  makeOutput(shape: number[], dtype: DataType, memoryOffset?: number):\n      TensorInfo {\n    let
dataId: {};\n    if (memoryOffset == null) {\n      dataId = this.write(null /* values */, shape, dtype);\n    } else {\n
const id = this.dataIdNextNumber++;\n      dataId = {id};\n      this.dataIdMap.set(dataId, {id, memoryOffset, shape,
dtype, refCount: 1});\n      const size = util.sizeFromShape(shape);\n      this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n    }\n    return {dataId, shape, dtype};\n  }\n\n  typedArrayFromHeap({shape, dtype, dataId}:
TensorInfo):\n      backend_util.TypedArray {\n    const buffer
 = this.wasm.HEAPU8.buffer;\n    const {memoryOffset} = this.dataIdMap.get(dataId);\n    const size =
util.sizeFromShape(shape);\n    switch (dtype) {\n      case 'float32':\n        return new Float32Array(buffer,
memoryOffset, size);\n      case 'int32':\n        return new Int32Array(buffer, memoryOffset, size);\n      case 'bool':\n
```

```
    return new Uint8Array(buffer, memoryOffset, size);\n      default:\n        throw new Error(`Unknown dtype ${dtype}`);\n    }\n  }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n  // this will be replace by rollup plugin patchWechatWebAssembly in\n  // minprogram's output.\n  // tslint:disable-next-line:no-any\n  return (imports: any, callback: any) => {\n    util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n      if (!response['ok']) {\n        imports.env.a(`failed to load wasm binary file at '${path}'`);\n      }\n      response.arrayBuffer().then(binary => {\n        WebAssembly.instantiate(binary, imports).then(output => {\n          callback(output.instance, output.module);\n        });\n      });\n    });\n    return {};\n  };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n    simdSupported: boolean, threadsSupported: boolean,\n    wasmModuleFolder: string) {\n  if (wasmPath != null) {\n    // If wasmPath is defined, the user has supplied a full path to\n    // the vanilla .wasm binary.\n    return wasmPath;\n  }\n\n  let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n  if (simdSupported && threadsSupported) {\n    path = 'tfjs-backend-wasm-threaded-simd.wasm';\n  } else if (simdSupported) {\n    path = 'tfjs-backend-wasm-simd.wasm';\n  }\n\n  if (wasmFileMap != null) {\n    if (wasmFileMap[path] != null) {\n      return wasmFileMap[path];\n    }\n  }\n\n  return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n  const [simdSupported, threadsSupported] = await Promise.all([\n    env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n    env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n  ]);\n\n  return new Promise((resolve, reject) => {\n    const factoryConfig: WasmFactoryConfig = {};\n\n    /**\n     * This function overrides the Emscripten module locateFile utility.\n     * @param path The relative path to the file that needs to be loaded.\n     * @param prefix The path to the main JavaScript file's directory.\n     */\n    factoryConfig.locateFile = (path, prefix) => {\n      if (path.endsWith('.worker.js')) {\n        const response = wasmWorkerContents;\n        const blob = new Blob([response], {type: 'application/javascript'});\n        return URL.createObjectURL(blob);\n      }\n      if (path.endsWith('.wasm')) {\n        return getPathToWasmBinary(\n            simdSupported as boolean, threadsSupported as boolean,\n            wasmPathPrefix != null ? wasmPathPrefix : prefix);\n      }\n      return prefix + path;\n    };\n\n    // Use the instantiateWasm override when system fetch is not available.\n    // Reference:\n    // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n    if (customFetch) {\n      factoryConfig.instantiateWasm =\n          createInstantiateWasmFunc(getPathToWasmBinary(\n              simdSupported as boolean, threadsSupported as boolean,\n              wasmPathPrefix != null ? wasmPathPrefix : ''));\n    }\n\n    let initialized = false;\n    factoryConfig.onAbort = () => {\n      if (initialized) {\n        // Emscripten already called console.warn so no need to double log.\n        return;\n      }\n      if (initAborted) {\n        // Emscripten calls `onAbort` twice, resulting in double error\n        // messages.\n        return;\n      }\n      initAborted = true;\n      const rejectMsg =\n          'Make sure the server can serve the `.wasm` file relative to the ' +\n          'bundled js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n      reject({message: rejectMsg});\n    };\n\n    let wasm: Promise<BackendWasmModule>;\n    // If `wasmPath` has been defined we must initialize the vanilla module.\n    if (threadsSupported && simdSupported && wasmPath == null) {\n      factoryConfig.mainScriptUrlOrBlob = new Blob(\n          [`var WasmBackendModuleThreadedSimd = ` +\n              wasmFactoryThreadedSimd.toString()],\n          {type: 'text/javascript'});\n      wasm = wasmFactoryThreadedSimd(factoryConfig);\n    } else {\n      // The wasmFactory works for both vanilla and SIMD binaries.\n      wasm = wasmFactory(factoryConfig);\n    }\n\n    // The WASM module has been successfully created by the factory.\n    // Any error will be caught by the onAbort callback defined above.\n    wasm.then((module) => {\n      initialized = true;\n      initAborted = false;\n\n      const voidReturnType: string = null;\n      // Using the tfjs namespace to avoid conflict with emscripten's API.\n
```

```
module.tfjs = {\n  init: module.cwrap('init', null, []),\n  initWithThreadsCount:\n module.cwrap('init_with_threads_count', null, ['number']),\n  getThreadsCount:
module.cwrap('get_threads_count', 'number', []),\n  registerTensor: module.cwrap(\n  'register_tensor',
null,\n  [\n  'number',  // id\n  'number',  // size\n  'number',  // memoryOffset\n
]),\n  disposeData: module.cwrap('dispose_data', voidReturnType,
 ['number']),\n  dispose: module.cwrap('dispose', voidReturnType, []),\n  };\n\n  resolve({wasm:
module});\n  });\n  });\n}\n\nfunction typedArrayFromBuffer(\n  buffer: ArrayBuffer, dtype: DataType):
backend_util.TypedArray {\n  switch (dtype) {\n  case 'float32':\n  return new Float32Array(buffer);\n  case
'int32':\n  return new Int32Array(buffer);\n  case 'bool':\n  return new Uint8Array(buffer);\n  default:\n
throw new Error(`Unknown dtype ${dtype}`);\n  }\n}\n\nconst wasmBinaryNames = [\n  'tfjs-backend-
wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n  'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype
WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix:
string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet
customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file
which will be fetched
 when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-
wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param
usePlatformFetch optional boolean to use platform fetch to download\n *  the wasm file, default to false.\n *\n *
@doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string,
usePlatformFetch = false): void {\n  deprecationWarn(\n  'setWasmPath has been deprecated in favor of
setWasmPaths and' +\n  ' will be removed in a future release.');\n  if (initAborted) {\n  throw new Error(\n
'The WASM backend was already initialized. Make sure you call ' +\n  '`setWasmPath()` before you call
`tf.setBackend()` or `tf.ready()`');\n  }\n  wasmPath = path;\n  customFetch = usePlatformFetch;\n}\n\n/**\n *
Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n *  'tfjs-backend-wasm.wasm':
'renamed.wasm',\n
 *  'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n *  'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-
threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either
a string or object:\n *  - (string) The path to the directory where the WASM binaries are located.\n *  Note that this
prefix will be used to load each binary (vanilla,\n *  SIMD-enabled, threading-enabled, etc.).\n *  - (object)
Mapping from names of WASM binaries to custom\n *  full paths specifying the locations of those binaries. This
is useful if\n *  your WASM binaries are not all located in the same directory, or if your\n *  WASM binaries
have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n *  the
wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function
setWasmPaths(\n  prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n  usePlatformFetch
 = false): void {\n  if (initAborted) {\n  throw new Error(\n  'The WASM backend was already initialized. Make
sure you call ' +\n  '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n  '`tf.ready()`');\n  }\n\n  if
(typeof prefixOrFileMap === 'string') {\n  wasmPathPrefix = prefixOrFileMap;\n  } else {\n  wasmFileMap =
prefixOrFileMap;\n  const missingPaths =\n  wasmBinaryNames.filter(name => wasmFileMap[name] ==
null);\n  if (missingPaths.length > 0) {\n  throw new Error(\n  `There were no entries found for the
following binaries: ` +\n  `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n  `map
providing a path for each binary, or with a string indicating ` +\n  `the directory where all the binaries can be
found.`);\n  }\n  }\n\n  customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function
resetWasmPath(): void {\n  wasmPath = null;\n  wasmPathPrefix = null;\n
 wasmFileMap = {};\n  customFetch = false;\n  initAborted = false;\n}\n\nlet threadsCount = -1;\nlet
actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n *
threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling
`tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n  threadsCount =
numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the
```

backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/backend_wasm.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"SquaredDifference.js","sourceRoot":"","sources":["../../src/kernels/SquaredDifference.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,iBAAiB,EAAC,MAAM,uBAAuB,CAAC;AACtE,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,IAAI,CAAC;AACnC,MAAM,CAAC,MAAM,uBAAuB,GAAG,wBAAwB,CAAC,iBAAiB,EAAE,qBAAqB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
 specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n   createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SquaredDifference.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Reshape.js","sourceRoot":"","sources":["../../src/kernels/Reshape.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,UAAU,EAAE,OAAO,EAAE,YAAY,EAAE,aAAa,EAAE,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAI3G,MAAM,UAAU,OAAO,CACnB,IAAwE,EAAE,MAAkB,EAC5F,OAAqB;IACvB,MAAM,EAAC,MAAM,EAAC,GAAG,IAAI,CAAC;IACtB,MAAM,EAAC,MAAM,EAAC,GAAG,IAAI,CAAC;IACtB,MAAM,EAAC,KAAK,EAAC,GAAG,OAAO,CAAC;IACxB,MAAM,EAAC,KAAK,EAAC,GAAG,MAAM,CAAC;IACv

ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm})
{\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n   () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n   `shape must have the same number of elements.`);\n\n // Backend needs to track refCount for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Reshape.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Slice.js","sourceRoot":"","sources":["../../src/kernels/Slice.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAyC,KAAK,EAAE,UAAU,EAAuC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAG3I,OAAO,EAAC,YAAY,EAAC,MAAM,wBAAwB,CAAC;AAEpD,MAAM,UAAU,KAAK,CAAC,jB,IAAoE;IACtE,MAAM,EAAC,MAAM,EAAC,MAAM,EAAE,EAAC,CAAC,EAAC,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,IAAI,EAAC,E,AAE,OAAO,EAAC,GAAG,IAAI,CAAC;IAE1D,MAAM,CAAC,gBAAgB,CAAC,CAAC,EAAE,KAAK,EAAE,IAAI,CAAC,CAAC;IAEpE,MAAM,WAAW,GAAG,CAAC,gBAAgB,CAAC,CAAC,EAAE,KAAK,CAAC,CAAC;IAEhD,MAAM,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,EAAE,WAAW,CAAC,CAAC;IAClD,MAAM,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,EAAE,WAAW,CAAC,CAAC;IAClD,MAAM,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,EAAE,WAAW,CAAC,CAAC;IAClD,MAAM,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,KAAK,EAAE,WAAW,CAAC,CAAC;IAEl

E,SAAS,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC;KACtB;AACH,CAAC;AAED,SAAS,OAAO,CACZ,KAA8B,EAAE,QAAAgB,EAAE,QAAAgB,EAAE,EAClE,OAAAgC,EAAE,KAA+B,EACjE,IAA8B;IAChC,IAAI,SAAS,GAAG,CAAC,CAAC;IAClB,MAAM,MAAM,GAAG,KAAK,CAAC,CAAC,CAAC,CAAC;IACxB,MAAM,MAAM,GAAG,KAAK,CAAC,CAAC,CAAC,CAAC;IACxB,MAAM,MAAM,GAAG,KAAK,CAAC,CAAC,CAAC,CAAC;IAC9B,MAAM,IAAI,GAAG,MAAM,GAAG,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC;IAAC

{\n slice2d(\n
xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n size_ as [number, number]);\n } else if (rank === 3) {\n slice3d(\n xVals as TypedArray, xStrides[0], xStrides[1], outVals,\n begin_ as [number, number, number], size_ as [number, number, number]);\n } else if (rank === 4) {\n slice4d(\n xVals as TypedArray, xStrides[0], xStrides[1], xStrides[2], outVals,\n begin_ as [number, number, number, number],\n size_ as [number, number, number, number]);\n } else {\n const res =\n sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n outVals.set(res);\n }\n\n return out;\n}\n\nfunction slice2d(\n xVals: backend_util.TypedArray, xStride: number,\n outVals: backend_util.TypedArray, begin: [number, number],\n size: [number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const endI = beginI + size[0];\n for (let i = beginI; i < endI;
i++) {\n const xOffset = i * xStride + beginJ;\n outVals.set(xVals.subarray(xOffset, xOffset + size[1]), outOffset);\n outOffset += size[1];\n }\n}\n\nfunction slice3d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n outVals: backend_util.TypedArray, begin: [number, number, number],\n size: [number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n const xOffset = i * xStride1 + j * xStride2 + beginK;\n outVals.set(xVals.subarray(xOffset, xOffset + size[2]), outOffset);\n outOffset += size[2];\n }\n}\n\nfunction slice4d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n xStride3: number, outVals: backend_util.TypedArray,\n begin: [number, number, number, number],\n
size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n for (let k = beginK; k < endK; k++) {\n const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Slice.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"kernel_utils.js","sourceRoot":"","sources":["../../src/kernels/kernel_utils.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAc,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAErE,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AAEtC;;;;;;;GAOG;AACH,MAAM,UAAU,uBAAuB,CACnC,CAAa,EAAE,IAAqB,EAAE,IAAqB,EAAE,OAAoB;IAM5D,MAAM,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC;IAC7B,MAAM,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC;IAC7B,MAAM,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC;IAE7B,MAAM,EAAE,GAAG,IAAI,CAAC,CAAC,EAAE,KAAK,CAAC,CAAC;IAC1B,MAAM,EAAE,GAAG,IAAI,CAAC,CAAC,EAAE,KAAK,CAAC,CAAC;IAC1B,MAAM,EAAE,GAAG,IAAI,CAAC,CAAC,EAAE,KAAK,CAAC,CAAC;IAE1B,MAAM,GAAG,GAAG,IAAI,YAAY,CAAC,EAAE,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC;IAE3C,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,EAAE,EAAE,CAAC,EAAE,EAAE;QAC3B,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,EAAE,EAAE,CAAC,EAAE,EAAE;YAC3B,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,EAAE,EAAE,CAAC,EAAE,EAAE;gBAC3B,MAAM,GAAG,GAAG,CAAC,GAAG,EAAE,GAAG,EAAE,GAAG,CAAC,GAAG,EAAE,GAAG,EAAE,GAAG,CAAC,CAAC;gBAC3C

C;AAC3E,CAAC","sourcesContent":["/**\n
 * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
 implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n   x: TensorInfo, axis: number|number[], backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes,
 xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n   const newShape: number[] = new Array(xRank);\n   for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = xShape[permutedAxes[i]];\n   }\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n   xTransposed =\n   transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n   if (transposedId !== xId) {\n   inputWasTransposed = true;\n   }\n }\n\n return {transposed: xTransposed, originalAxes, axes, inputWasTransposed};\n}\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/kernel_utils.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"TopK.js","sourceRoot":"","sources":["../../src/kernels/TopK.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAuC,IAAI,EAAwB,MAAM,uBAAuB,CAAC;AAGxG,OAAO,EAAC,QAAQ,,EAAC,MAAM,,SAAS,,CAAC;AAEjC,OAAO,EAAC,IAAI,,QAAQ,6B,CAAC,;AAElC,SAAS,,KAAK,,CAAC,,OAAO,oB;IACjC,QAAQ,,GAAG,,OAAO,,CAAC,,IAAI,,CAAC,,KAAK,,CAAC,,IAAI,,EAAE,,IAAI,,CAAC,,UAAU,,EAAE;QACnD,QAAQ,,CAAC,,QAAQ,,CAAC,,QAAQ,,CAAC,,QAAQ,,CAAC,,MAAM;QACnD,QAAQ,,CAAC,,QAAQ,,CAAC,,KAAK,,CAAC,,OAAO,,CAAC,,QAAQ,,CAAC,,QAAQ,,CAAC,,QAAQ,,CAAC,,KAAK,,CAAC,,CAAC,,CAAC;AAEpE,OAAO,EAAC,IAAI,,QAAQ,,EAAC,MAAM,,SAAS,,CAAC;AAErC,OAAO,EAAC,SAAS,,EAAC,MAAM,,aAAa,,CAAC;AAEt

EAAE,MAAM;IACnB,SAAS,EAAE,KAAK;IAChB,UAAU,EAAE,IAAwB;CACrC,CAAC","sourcesContent":["/*\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n   xDtype: CppDType, k: number, sorted: boolean, outValuesId: number,\n   outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'number', // k\n   'bool',\n   // sorted\n   'number', // outValuesId\n   'number', // outIndicesId\n]);\n}\n\nexport const topk:\n   (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n   TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n   const {x} = inputs;\n   const {k, sorted} = attrs;\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n   const outputShape = x.shape.slice();\n   outputShape[outputShape.length - 1] = k;\n   const outValues = backend.makeOutput(outputShape, x.dtype);\n   const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n   const outIndices = backend.makeOutput(outputShape, 'int32');\n   const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n   wasmTopK(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n   outValuesId, outIndicesId);\n\n   return [outValues, outIndices];\n   };\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/TopK.js.map
No license file was found, but licenses were detected in source scan.

Copyright 2019 Google LLC. All Rights Reserved.
Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at
  http://www.apache.org/licenses/LICENSE
2.0
Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
==========

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/starter/parcel/index.html

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"_FusedMatMul.js","sourceRoot":"","sources":["../../src/kernels/_FusedMatMul.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAkE,MAAM,uBAAuB,CAAC;AAIpH,OAAO,EAAC,iBAAiB,EAAC,MAAM,SAAS,CAAC;AAE1C,IAAI,eAAKQ,CAAC;AAEb,SAAS,KAAK,CAAC,OAAoB;IACjC,eAAe,GAAG,OAAO,CAAC,IAAI,CAAC,YAAY,EAAE,iBAAiB,CAAC,UAAU,EAAE,iBAAiB,CAAC;QAC3F,IAAI,CAAC,eAAe,EAAE;QACpB,eAAe,GAAG,IAAI,CAAC,IAAI,CAAC,YAAY,EAAE,iBAAiB,CAAC,UAAU,CAAC,CAAC;KACzE;IACD,OAAO,eAAe,CAAC;AACzB,CAAC;AAED,MAAM,UAAU,SAAS,CAAC,IAAkB;IAC1C,MAAM,EAAC,CAAC,EAAE,MAAM,EAAE,MAAM,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAC,GAAG,IAAI,CAAC;IAC7F,MAAM,EAAC,MAAM,EAAE,MAAM,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAC,GAAG,MAAM,CAAC;IAE9F,IAAI,eAAe,GAAG,KAAK,CAAC,IAAI,CAAC,CAAC;IAClC,IAAI,CAAC,eAAe,EAAE;QACpB,eAAe,GAAG,KAAK,CAAC,MAAM,CAAC,CAAC;KACjC;IAED,MAAM,EAAC,MAAM,EAAE,MAAM,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAC,GAAG,eAAe,CAAC;IAEzG,MAAM,EAAC,MAAM,EAAE,MAAM,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,UAAU,EAAC,GAAG,MAAM,CAAC;IAE9F

biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha:
number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul =
backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', //
a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', //
transpose_a\n 'number', // transpose_b\n 'number', // activation\n 'number', // biasId\n 'number', //
preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number' // out_id\n]);\n}\n\nfunction
fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs:
_FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} =
inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `_FusedMatMul for non
non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha}
= attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n
let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if
(biasData.shape.length !== 1) {\n throw new Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n
`rank ${biasData.shape.length}.`);\n }\n biasId = biasData.id;\n }\n const preluActivationWeightsId =
preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const
fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if
(fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for
FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n
const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n
const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId =
backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new
Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n
wasmFusedMatMul(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n transposeA,
transposeB, fusedActivation, biasId, preluActivationWeightsId,\n leakyreluAlpha || 0, outId);\n\n return
out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName:
'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/_FusedMatMul.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2018 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/test_node.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/test_node.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/test_node.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Relu.js","sourceRoot":"","sources":["../../src/kernels/Relu.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,SAAS,GAAe,uBAAuB,CAAC,IAAI,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Relu.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Add.js","sourceRoot":"","sources":["../../src/kernels/Add.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,GAAG,EAAE,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,CAAC,MAAM,SAAS,GAAe,wBAAwB,CAAC,GAAG,EAAE,YAAY,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
 and\n * limitations under the License.\n *
 ==\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Add.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"MirrorPad.js","sourceRoot":"","sources":["../../src/kernels/MirrorPad.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;;GAgBG;AAEH,OAAO,EAAC,GAAG,EAAE,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,CAAC,MAAM,YAAY,GAAe,wBAAwB,CAAC,GAAG,EAAE,YAAY,CAAC,CAAC

AAC;AAE3B,SAAS,KAAK,CAAC,OAAoB;IACjC,aAAa,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,SAAS,EAAE,IAAI,CAAC,UAAU,EAAE;QAC7D,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,OAAO;QACP,OAAO;QACP,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,SAAS,CAAC,IAAIlB;IACC,MAAM,EAAC,MAAM,EAAE,EAAC,CAAC,EAAC,EAAE,EAAE,OAAO,EAAE,EAAE,KAAK,EAAE,EAAC,QAAQ,EAAE,EAAE,IAAI,EAAC,EAAC,EAAE,GAAG,IAAI,CAAC;IAE7D,MAAM,QAAQ,GAAG,QAAQ,CAAC,GAAG,CAAC,CAAC,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MirrorPad.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"OnesLike.js","sourceRoot":"","sources":["../../src/kernels/OnesLike.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,QAAQ,EAAiB,MAAM,uBAAuB,CAAC;AAIzF,SAAS,QAAQ,CAAC,IAAoD;IACpE,MAAM,EAAC,MAAM,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IAC/B,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAC1D,MAAM,OAAO,GAAG,OAAO,CAAC,qBAAqB,CAAC,GAAG,CAAC,CAAC;IACnD,OAAO,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC;IAChB,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM,CAAC,MAAM,eAAe,GAAiB;IAC3C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,QAAQ;CACrB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/OnesLike.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"ClipByValue.js","sourceRoot":"","sources":["../../src/kernels/ClipByValue.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,QAAQ,EAAiB,MAAM,uBAAuB,CAAC;AAI/D,SAAS,WAAW,CAAC,IAAuD;IAC1E,MAAM,EAAC,MAAM,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IAC/B,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;IAC1D,MAAM,OAAO,GAAG,OAAO,CAAC,qBAAqB,CAAC,GAAG,CAAC,CAAC;IACnD,OAAO,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC;IAChB,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM,CAAC,MAAM,kBAAkB,GAAiB;IAC9C,UAAU,EAAE,QAAQ;IACpB,WAAW,EAAE,MAAM;IACnB,UAAU,EAAE,WAAW;CACxB,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a

copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null /* void */, [\n 'number', // x_id\n 'number', // min\n 'number', // max\n 'number' // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ClipByValue.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Sigmoid.js","sourceRoot":"","sources":["../../src/kernels/Sigmoid.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,OAAO,EAA6B,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIzG,OAAO,EAA8C,CAAC,CAAC;AAEnD,SAAS,KAAK,CAAC,OAAoB,EAAE,CAAC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,CAAC,CAAC

=== 0) {\n   return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sigmoid.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"OneHot.js","sourceRoot":"","sources":["../../src/kernels/OneHot.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,MAAM,EAA4B,MAAM,uBAAuB,CAAC;AAIlG,IAAI,UAEsB,CAAC;AAE3B,SAAS,KAAK,CAAC,OAAoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,MAAM,EAAE

{"version":3,"file":"Greater.js","sourceRoot":"","sources":["../../src/kernels/Greater.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,OAAO,EAAE,MAAM,uBAAuB,CAAC;AAE5D,OAAO,EAAC,wBAAwB,EAAE,MAAM,iBAAiB,CAAC;AAEzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,aAAa,GAAiB;IACzC,UAAU,EAAE,SAAS;IACrB,OAAO,EAAE,qBAAqB;IAC9B,QAAQ,EAAE,wBAAwB,CAAC,OAAO,CAAC;CAC5C,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n
createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Greater.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"FusedBatchNorm.js","sourceRoot":"","sources":["../../src/kernels/FusedBatchNorm.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,OAAO,EAAE,MAAM,EAAE,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAEpE,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AAEzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,kBAAkB,GAAiB;IAC9C,UAAU,EAAE,cAAc;IAC1B,OAAO,EAAE,qBAAqB;IAC9B,QAAQ,EAAE,wBAAwB,CAAC,OAAO,CAAC;CAC5C,CAAC","sourcesContent":["/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
 may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

==========\n*/\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n xId: number, meanId: number, varianceId: number, offsetId: number,\n scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmBatchNorm = backend.wasm.cwrap(\n FusedBatchNorm, null /* void */,\n ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedBatchNorm.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"LogicalAnd.js","sourceRoot":"","sources":["../../src/kernels/LogicalAnd.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,UAAU,EAAC,MAAM,uBAAuB,CAAC;AAE/D,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AAEzD,OAAO,EAAC,qBAAqB,EAAC,MAAM,cAAc,CAAC;AAEnD,OAAO,EAAC,gBAAgB,EAAC,MAAM,yBAAyB,CAAC;AAEzD,OAAO,EAAC,qBAAqB,EAAC,MAAM,8BAA8B,CAAC;AAEnE,OAAO,EAAC,MAAM,EAAC,MAAM,MAAM,CAAC;AAE5B,OAAO,EAAC,gBAAgB,EAAC,MAAM,qBAAqB,CAAC;AAErD

2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Minimum.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Step.js","sourceRoot":"","sources":["../../src/kernels/Step.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,IAAI,EAAoC,MAAM,uBAAuB,CAAC;AAIxG,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAET,SAAS,CAAC;AAoB,OAAO,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,CAAC,CAAC,CAAC

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Step.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"FusedConv2D.js","sourceRoot":"","sources":["../../src/kernels/FusedConv2D.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,WAAW,EAA0E,MAAM,uBAAuB,CAAC;AAIzI,OAAO,EAAC,iBAAiB,EAAC,MAAM,SAAS,CAAC;AAE1C,IAAI,eAAQ,CAAC;AAEb,SAAS,CAAC,KAAK,CAAC,OAAO,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,MAAM

```
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
 implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==========================================================================\n
 */\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n    (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n     filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number, padTop: number, padRight: number, padBottom: number,\n     padLeft: number, isSamePad: number, dilationHeight: number,\n     dilationWidth: number, strideHeight: number, strideWidth: number,\n     inputChannels: number, outputChannels: number, activation: number,\n     preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n         void;\n\nfunction
 setup(backend: BackendWasm) {\n  wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void */, [\n
 'number',  // xId\n    'number',  // batchSize\n    'number',  // inputHeight\n    'number',  // inputWidth\n    'number',  // filterId\n    'number',  // filterHeight\n    'number',  // filterWidth\n    'number',  // biasId\n    'number',  // padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // isSamePad\n    'number',  // dilationHeight\n    'number',  // dilationWidth\n    'number',  // strideHeight\n    'number',  // strideWidth\n    'number',  // inputChannels\n    'number',  // outputChannels\n    'number',  // activation\n    'number',  // preluActivationWeightsId\n    'number',  // leakyreluAlpha\n    'number',  // outId\n  ]);\n}\n\nfunction fusedConv2d(args: {\n  inputs: FusedConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedConv2DAttrs\n}) {\n  const {inputs, attrs, backend} = args;\n  const {x, filter, bias,
 preluActivationWeights} = inputs;\n  const {\n    strides,\n    pad,\n    dilations,\n    dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n      pad, dimRoundingMode);\n\n  const fusedActivation =\n      FusableActivation[activation as {} as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation} activation not yet supported for FusedConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData = backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n`FusedConv2D only supports rank-1 bias but
 got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n    if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedConv2D bias shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n    biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth = convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth = convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const inWidth = convInfo.inWidth;\n\n
  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend FusedConv2D does not support dataFormat:` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const
```

preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n kernelName: FusedConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedConv2d as {} as KernelFunc\n};\n"]}

Found in path(s):
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/FusedConv2D.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Range.js","sourceRoot":"","sources":["../../src/kernels/Range.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,KAAK,EAAyB,MAAM,uBAAuB,CAAC;AAG9F,OAAO,EAAC,YAAY,EAAC,MAAM,wBAAwB,CAAC;AAEpD,MAAM,CAAC,MAAM,KAAK,GAAG,CAAC,EAAC,OAAO,EAAE,KAAK,EAAC,EAAE,IAAI

,IAAI,iBAGkE,CAAC;AAEvE,SAAS,KAAK,CAAC,OAAoB;IACjC,iBAAiB,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,aAAa,EAAE,IAAI,CAAC,QAAQ,EAAE;QACnE,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ,CAAG,SAAS;KACrB,CAAC,CAAC;AACL,CAAC;AAED,SAAS,aAAa,CAAC,IAAI,B;IACC,MAAM,EAAC,OAAO,EAAE,EAAE,MAAM,EAAE,EAAE,KAAK,EAAC,EAAE,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,EAAE,MAAM,EAAE,EAAE,KAAK,EAAE,EAAE,KAAK,EAAC,EAAE,MAAM,EAAC,EAAE,GAAG,IAAI,CAAC;IACrD,MAAM,EAAC,EAAE,KAAK,EAAE,EAAE,KAAK,EAAE,EAAE,KAAK,EAAC,EAAE,MAAM,EAAC,EAAE,GAAG,IAAI,CAAC;IACpD,MAAM,EAAC,EAAE,MAAM,EAAE,EAAE,KAAK,EAAE,EAAE,KAAK,EAAC,EAAE,MAAM,EAAC,EAAE,GAAG,IAAI,CAAC;IACr

backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n   cropWidth,\n InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n   extrapolationValue, outId);\n\n if (castedData != null) {\n   backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/CropAndResize.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Round.js","sourceRoot":"","sources":["../../src/kernels/Round.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,KAAK,EAAC,MAAM,uBAAuB,CAAC;AAE1D,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,WAAW,GAAG,uBAAuB,CAAC,KAAK,CAAC,CAAC,CAAC

AAE,EAAE,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,EAAE,CAAC,EAAG,GAAG,EAAE,EAAE,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,EAAE,EAAE;SACnE,CAAC,CAAC,CAAC;KACL;IAAC,OAAO,CAAC,EAAE;QACV,OAAO,KAAK,CAAC;KCd;AACH,CAAC,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT',
async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/flags_wasm.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"index.js","sourceRoot":"","sources":["../src/index.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,wBAAwB,CAAC;AAChC,cAAc,QAAQ,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport './register_all_kernels';\nexport
* from './base';\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/index.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Less.js","sourceRoot":"","sources":["../../src/kernels/Less.ts"],"names":[],"mappings":"AAAA;;;

;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,UAAU,GACnB,wBAAwB,CAAC,IAAI,EAAE,qBAAqB,EAAE,MAAM,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Less.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Concat.js","sourceRoot":"","sources":["../../src/kernels/Concat.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,MAAM,EAAuD,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAGtH,OAAO,EAAC,aAAa,EAAC,MAAM,wBAAwB,CAAC;AACrD,OAAO,EAAC,QAAQ,EAAC,MAAM,WAAW,CAAC;AACpC,OAAO,EAAC,OAAO,EAAE,MAAM,EAAC,MAAM,WAAW,CAAC;AAElC,MAAM,UAAU,IAAI,CAAC,EAAC,MAAM,EAAE,MAAM,EAAE,IAAI,EAAC,EAAE,IAAkB;IACpE,MAAM,CAAC,MAAM,EAAE,MAAM,CAAC,GAAG,MAAM,CAAC;IAChC,MAAM,CAAC,MAAM,EAAE,MAAM,CAAC,GAAG,MAAM,CAAC;IAEhC,MAAM,CAAC,GAAG,MAAM,CAAC,KAAK,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC;IACvC,MAAM,CAAC,GAAG,MAAM,CAAC,KAAK,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC;IAE

G,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,IAAI,CAAC,CAAC;QAElE,GAAG,CAAC,KAAK,GAAG,aAAa,CAAC;QAC1B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC;QAClD,OAAO,CAAC,WAAW,GAAG,YAAY,CAAC,sBAAsB,CAAC,OAAO,CAAC,CAAC;QAEnE,QAAQ,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,OAAO,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;QAErD,OAAO,GAAG,CAAC;KACZ;IAED,MAAM,QAAQ,GAAG,IAAI,CAAC,aAAa,CAAC,OAAO,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC;IACrE,IAAI,YAAY,GAAG,CAAC;IACpB,IAAI,QAAQ,GAAG,CAAC;IAEhB,MAAM,SAAS,GAAG,IAAI,CAAC,aAAa,CAAC,OAAO,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC;IACtE,IAAI,aAAa,GAAG,CAAC;IACrB,IAAI,SAAS,GAAG,CAAC;IAEj

inputs[0].dtype,\n   simplyConcat) as string[];\n\n   const finalOutShape =\n backend_util.computeOutShape($inputs.map(t => t.shape),
 axis);\n\n   out.shape = finalOutShape;\n   const outData = backend.dataIdMap.get(out.dataId);\n outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n   inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n   return out;\n }\n\n const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n const innerDims = $inputs.map(input => {\n   const innerDim = util.sizeFromShape(input.shape.slice(axis));\n   sumInnerDims += innerDim;\n   return innerDim;\n });\n const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n   let outOffset = b * sumInnerDims;\n   for (let i = 0; i < inVals.length; i++) {\n   const innerDim = innerDims[i];\n   const inOffset = b * innerDim;\n   const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n   outVals.set(vals, outOffset);\n   outOffset += innerDim;\n   }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Concat.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2020 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/kernel_utils.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/kernel_utils.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/kernel_utils.ts
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"NonMaxSuppressionV4.js","sourceRoot":"","sources":["../../src/kernels/NonMaxSuppressionV4.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,mBAAmB,EAAkE,MAAM,uBAAuB,CAAC;AAIrJ,OAAO,EAAC,iBAAiB,EAAC,MAAM,0BAA0B,CAAC;AAE3D,IAAI,QAAgC,CAAC;AAE3C,SAAS,KAAK,CAAC,OAAoB;IACjC,QAAQ,GAAG,OAAO,CAAC;AACrB,CAAC;AAED,SAAS,OAAO,CAAC,MAAc,EAAE,MAAc,EAAE,MAAc,EAAE

,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,YAAY,EAAE,aAAa,EAAE,cAAc,EAAE,kBAAkB,EAAC,GACnE,KAAK,CAAC;IACV,MAAM,EAAC,KAAK,EAAE,MAAM,EAAC,GAAG,MAAM,CAAC;IAE/B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IACvD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;IACzD,MAAM,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC;IAEzD,MAAM,SAAS,GAAG,QAAQ

aAAa,EAAC,MAAM,0CAA0C,CAAC;AACrF,iDAAiD;AACjD,OAAO,EAAC,SAAS,IAAI,YAAY,EAAC,MAAM,0CAA0C,CAAC;AACnF,iDAAiD;AACjD,OAAO,EAAC,SAAS,IAAI,YAAY,EAAC,MAAM,0CAA0C,CAAC;AAEnF,OAAO,EAAC,aAAa,EAAE,YAAY,EAAE,YAAY,EAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY
KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\n// Import shared functionality from tfjs-backend-cpu without triggering\n// side effects.\n// tslint:disable-next-line: no-imports-from-dist\nimport {concatImpl as concatImplCPU} from '@tensorflow/tfjs-backend-cpu/dist/shared';\n\n// tslint:disable-next-line: no-imports-from-dist\nimport {sliceImpl as sliceImplCPU} from '@tensorflow/tfjs-backend-cpu/dist/shared';\n\n// tslint:disable-next-line: no-imports-from-dist\nimport {rangeImpl as rangeImplCPU} from '@tensorflow/tfjs-backend-cpu/dist/shared';\n\nexport {concatImplCPU, rangeImplCPU, sliceImplCPU};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernel_utils/shared.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Max.js","sourceRoot":"","sources":["../../src/kernels/Max.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,GAAG,EAAmC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIzH,OAAO,EAAC,aAAa,EAAE,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACtD,QAAA,EAAE,OAAO,EAAE,aAAa,EAAE,QAAQ,EAAE,MAAM,SAAS,CAAC;AAEjC,QAAA,EAAE,OAAO,EAAE,IAAI,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,OAAO,EAAE,IAAI,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK,EAAE,MAAM,EAAE,KAAK

ACpC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n"]}

Found
in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Max.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"tf-backend-wasm.es2017.js","sources":["../src/kernels/types.ts","../src/kernels/_FusedMatMul.ts","../src/kernels/unary_kernel.ts","../src/kernels/Abs.ts","../src/kernels/binary_kernel.ts","../src/kernels/Add.ts","../src/kernels/AddN.ts","../src/kernels/Identity.ts","../src/kernels/Transpose.ts","../src/kernels/kernel_utils.ts","../src/kernels/All.ts","../src/kernels/Any.ts","../src/kernels/ArgMax.ts","../src/kernels/AvgPool.ts","../src/kernels/Reshape.ts","../src/kernels/BatchMatMul.ts","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Concat_impl.js","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Range_impl.js","../node_modules/@tensorflow/tfjs-backend-cpu/dist/kernels/Slice.js","../src/kernels/Slice.ts","../src/kernels/BatchToSpaceND.ts","../src/kernels/Cast.ts","../src/kernels/Ceil.ts","../src/kernels/ClipByValue.ts","../src/kernels/Concat.ts","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/

FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/Max.ts","../src/kernels/Maximum.ts","../src/kernels/MaxPool.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/Minimum.ts","../src/kernels/MirrorPad.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/NotEqual.ts","../src/kernels/OneHot.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Pow.ts","../src/kernels/Prelu.ts","../src/kernels/Prod.ts","../src/kernels/Range.ts","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/ScatterNd.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Sin.ts","../src/kernels/Softmax.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/Step.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sub.ts","../src/kernels/Sum.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/Tile.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/Unpack.ts","../src/kernels/ZerosLike.ts","../src/register_all_kernels.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../src/version.ts","../src/base.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
 WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n   (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n   transposeB: boolean, activation: number, biasId: number,\n   preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n
 'number', // a_id\n   'array',   // a_shape\n   'number', // a_shape.length\n   'number', // b_id\n   'array',   // b_shape\n   'number', // b_shape.length\n   'number', // transpose_a\n   'number', // transpose_b\n   'number', // activation\n   'number', // biasId\n   'number', // preluActivationWeightsId\n   'number', // leakyreluAlpha\n   'number'   // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend:

BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n `_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null) {\n   const biasData = backend.dataIdMap.get(bias.dataId);\n   if (biasData.shape.length !== 1) {\n   throw new Error(\n   `_FusedMatMul only supports rank-1 bias but got ` +\n   `rank ${biasData.shape.length}.`);\n   }\n   biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n   throw new Error(\n   `${activation} activation not yet supported for FusedConv2D ` +\n   `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n   aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n   transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n   leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n   kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null / void */, [\n   'number', // x_id\n   'number', // dtype\n 'number', // out_id\n   ]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n TensorInfo {\n   const {backend, inputs: {x}} = args;\n   const xId = backend.dataIdMap.get(x.dataId).id;\n
    const out = backend.makeOutput(x.shape, outType || x.dtype);\n   const outId =
backend.dataIdMap.get(out.dataId).id;\n\n   // Short-circuit zero-sized tensors.\n   if (util.sizeFromShape(out.shape) === 0) {\n   return out;\n   }\n\n   wasmFunc(xId, CppDType[x.dtype], outId);\n   return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
 and\n * limitations under the License.\n *
==\n
*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n

* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype === 'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims = backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims = backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

==========\n*/\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null /* void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const {inputs,
backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n
kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType}
from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // dtype\n 'number', // outId\n 'array', // perm\n 'number', // perm.length\n]);\n}\n\nexport function transpose(\n args:\n {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n if (perm[i] !== i) {\n permIsNoOp

= false;\n }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n dataId: inputs.x.dataId,\n shape: reducedShape,\n dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n const cloned = identity({inputs, backend});\n cloned.shape = outShape;\n return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction
removeOneSizeDims(\n shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n if (shape[i] !== 1) {\n newShape.push(shape[i]);\n }\n if (shape[perm[i]] !== 1) {\n newPerm.push(perm[i]);\n }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n let minValIdx = -1;\n for (let j = 0; j < newPerm.length; ++j) {\n if (newPerm[j] >= i &&\n (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n minValIdx = j;\n }\n }\n newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n x: TensorInfo, axis: number|number[],
backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n const newShape: number[] = new Array(xRank);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = xShape[permutedAxes[i]];\n }\n\n axes = backend_util.getInnerMostAxes(axes.length, xRank);\n xTransposed =\n transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n if (transposedId !== xId) {\n inputWasTransposed = true;\n }\n }\n\n return {transposed:
xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights

Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n   xId: number, dtype: number, outerSize: number, innerSize: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n   'number', // outer_size\n   'number', // inner_size\n   'number'   // out_id\n]);\n}\n\nfunction argmax(\n   args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let
 inputId = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n
  kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 * ==\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n   padBottom: number, padLeft: number, strideHeight: number,\n stride Width: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // channels\n   'number', // outId\n]);\n}\n\nfunction avgPool(\n   args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n
  const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo =
backend_util.computePool2DInfo(\n   x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop =

convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n throw new Error(\n `was backend only supports average pooling with dilation = [1, 1], `
+\n `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n `shape must have the same number of elements.`);\n\n // Backend needs to track refCount
for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport
{BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null /* void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number' // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const

{transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n `BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n   batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n   aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n   () => `Error in matMul: the input batch dimensions
 must either be the ` +\n          `same or at least one input batch dimension must be 1. Got input ` +\n          `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n  const outShapeOuterDims =\n      batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n  const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n  util.assert(\n      innerShapeA === innerShapeB,\n      () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n          `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n          `${b.shape} and transposeA=${transposeA}` +\n          ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n   [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n   [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation
 is designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n   a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n   b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape
 = outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport
 function concatImpl(inputs, outShape, dtype, simplyConcat) {\n   const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n   if (simplyConcat && dtype !== 'string') {\n   // Use built-in TypedArray.set() method for speed.\n   let offset = 0;\n   inputs.forEach(input => {\n   const size = util.sizeFromShape(input.shape);\n   outVals.set(input.vals, offset);\n   offset += size;\n   });\n   }\n   else {\n   let colOffset = 0;\n   inputs.forEach(input => {\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(input.vals) :\n   input.vals;\n   let tIdx = 0;\n   for (let row = 0; row < input.shape[0]; ++row) {\n   const resIdx = row * outShape[1] + colOffset;\n

for (let col = 0; col < input.shape[1]; ++col) {\n outVals[resIdx + col] = decodedData[tIdx++];\n }\n }\n colOffset += input.shape[1];\n });\n }\n return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUVILE9BQU8sRUFBQyxVILE9BQU8sRUFBQyxVDLElBQUksRUFBQyxVKSwgUFBaUIsQ0FBQyxpQkFBaUIsQ0FBQyxpQkFBaUIsQ0FBQyxpQkFBaUIsQ0FBQyxpQkFBaUIsQ

UZyb21TaGFwZShpbnB1dC5zaGFwZSk7XG5cbiAgICAgIChvdXRWYWxzIGFzIFR5cGVkQXJyYXkpLnNldChpbnB1dC52YWxzIGFzIFR5cGVkQXJyYXksIG9mZnNldCk7XG4gICAgICBvZmZzZXQgKz0gc2l6ZTtcbiAgICB9KTtcbiAgfSBlbHNlIHtcbiAgICBsZXQgY29sT2Zmc2V0ID0gMDtcblxuICAgIGlucHV0cy5mb3JFYWNoKGluc HV0ID0+IHtcbiAgICAgIGNvbnN0IGRlY29kZWREYXRhID0gZHR5cGUgPT09ICdzdHJpbmcnID9cbiAgICAgICAgIC

EMuIEFsbCBSaWdodHMgUmVzZXJ2ZWQuXG4gKiBMaWNlbnNlZCB1bmRlciB0aGUgQXBhY2hlIExpY2Vuc2UsIFZlcnNpb24gMi4wICh0aGUgXCJMaWNlbnNlXCIpO1xuICogeW91IG1heSBub3QgdXNlIHRoaXMgZmlsZSBleGNlcHQgaW4gY29tcGxpYW5jZSB3aXRoIHRoZSBMaWNlbnNlLlxuICogWW91IG1heSBvYnRhaW4gYSBjb3B5IG9mIHRoZSBMaWNlbnNlIGF0XG4gKlxuICogICAgIGh0dHA6Ly93d3cuYXBhY2hlLm9yZy9saWNlbnNlcy9MSUNFTlNFLTIuMFxuICpcbiAqIFVubGVzcyByZXF1aXJlZCBieSBhcHBsaWNhYmxlIGxhdyBvciBhZ3JlZWQgdG8gaW4gd3JpdGluZywgc29mdHdhcmVcbiAqIGRpc3RyaWJ1dGVkIHVuZGVyIHRoZSBMaWNlbnNlIGlzIGRpc3RyaWJ1dGVkIG9uIGFuIFwiQVMgSVNcIiBCQVNJUyxcbiAqIFdJVEhPVVQgV0FSUkFOVElFUyBPUiBDT05ESVRJT05TIE9GIEFOWSBLSU5ELCBlaXRoZXIgZXhwcmVzcyBvciBpbXBsaWVkLlxuICogU2VlIHRoZSBMaWNlbnNlIGZvciB0aGUgc3BlY2lmaWMgbGFuZ3VhZ2UgZ292ZXJuaW5nIHBlcm1pc3Npb25zIGFuZFxuICogbGltaXRhdGlvbnMgdW5kZXIgdGhlIExpY2Vuc2UuXG4gKlxuICogPT09PT09PT09P

{ x } = inputs;\n const { begin, size } = attrs;\n assertNotComplex(x, 'slice');\n const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n const vals = backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n kernelName: Slice,\n backendName: 'cpu',\n kernelFunc: slice\n};\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUU9sRUFBQyxZQUFZLEVBQUMsWlCLE1BQU0sRUFBc0MsMsS0FBSSxFQUFDLFlBQUMsSUFBSSxFQUFDLFlBQUMsSUFBSSxFQUFDLFlBQUMsSUF

GUgXCJMaWNlbnNlXCIpO1xuICogeW91IG1heSBub3QgdXNlIHRoaXMgZmlsZSBleGNlcHQgaW4gY29tcGxpYW5jZSB3aXRoIHRoZSBMaWNlbnNlLlxuICogWW91IG1heSBvYnRhaW4gYSBjb3B5IG9mIHRoZSBMaWNlbnNlIGF0XG4gKlxuICogaHR0cDovL3d3dy5hcGFjaGUub3JnL2xpY2Vuc2VzL0xJQ0VOU0UtMi4wXG4gKlxuICogVW5sZXNzIHJlcXVpcmVkIGJ5IGFwcGxpY2FibGUgbGF3IG9yIGFncmVlZCB0byBpbiB3cml0aW5nLCBzb2Z0d2FyZVxuICogZGlzdHJpYnV0ZWQgdW5kZXIgdGhlIExpY2Vuc2UgaXMgZGlzdHJpYnV0ZWQgb24gYW4gXCJBUyBJUyIgQkFTSVMsXG4gKiBXSVRIT1VUIFdBUlJBTlRJRVMgT1IgQ09ORElUSU9OUyBPRiBBTlkgS0lORCwgZWl0aGVyIGV4cHJlc3MgT3IgaW1wbGllZC5cbiAqIFNlZSB0aGUgTGljZW5zZSBmb3IgdGhlIHNwZWNpZmljIGxhbmd1YWdlIGdvdmVybmluZyBwZXJtaXNzaW9uc1xuICogYW5kIGxpbWl0YXRpb25zIHVuZGVyIHRoZSBMaWNlbnNlLlxuICovXG5cbi8qKlxuICogQGxpY2Vuc2UgaHR0cHM6Ly9tYXRoamF4Lm9yZy9saWNlbnNlcy9CU0QtMy1DbGF1c2VcbiAqXG4gKiBDb3B5cmlnaHQgKGMpIDIwMTktMjAyMCBUaGUgTWF0aEpheCBBdXRob3JzXG4gKlxuICogTGljZW5zZWQgdW5kZXIgdGhlIEFwYWNoZSBMaWNlbnNlLCBWZXJzaW9uIDIuMCAodGhlIFwiTGljZW5zZVwiKTtcbiAqIHlvdSBtYXkgbm90IHVzZSB0aGlzIGZpbGUgZXhjZXB0IGluIGNvbXBsaWFuY2Ugd2l0aCB0aGUgTGljZW5zZS5cbiAqIFlvdSBtYXkgb2J0YWluIGEgY29weSBvZiB0aGUgTGljZW5zZSBhdFxuICpcbiAqIGh0dHA6Ly93d3cuYXBhY2hlLm9yZy9saWNlbnNlcy9MSUNFTlNFLTIuMFxuICpcbiAqIFVubGVzcyByZXF1aXJlZCBieSBhcHBsaWNhYmxlIGxhdyBvciBhZ3JlZWQgdG8gaW4gd3JpdGluZywgc29mdHdhcmVcbiAqIGRpc3RyaWJ1dGVkIHVuZGVyIHRoZSBMaWNlbnNlIGlzIGRpc3RyaWJ1dGVkIG9uIGFuIFwiQVMgSVMgQkFTSVNcIixcbiAqIFdJVEhPVVQgV0FSUkFOVElFUyBPUiBDT05ESVRJT05TIE9GIEFOWSBLSU5ELCBlaXRoZXIgZXhwcmVzcyBvciBpbXBsaWVkLlxuICogU2VlIHRoZSBMaWNlbnNlIGZvciB0aGUgc3BlY2lmaWMgbGFuZ3VhZ2UgZ292ZXJuaW5nIHBlcm1pc3Npb25zXG4gKiBhbmQgbGltaXRhdGlvbnMgdW5kZXIgdGhlIExpY2Vuc2UuXG4gKi9cblxuLyoqXG4gKiBAbGljZW5zZVxuICogQ29weXJpZ2h0I

law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Slice, slice_util, SliceAttrs, SliceInputs, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {sliceImplCPU} from '../kernel_utils/shared';\n\nexport function slice(\n args: {inputs: SliceInputs, attrs: SliceAttrs, backend: BackendWasm}) {\n const {inputs: {x}, attrs: {begin, size}, backend} = args;\n\n const [begin_, size_] = slice_util.parseSliceParams(x, begin, size);\n\n const isContinous = slice_util.isSliceContinous(x.shape, begin_, size_);\n const xVals = backend.readSync(x.dataId);\n const out = backend.makeOutput(size_, x.dtype);\n const xStrides = util.computeStrides(x.shape);\n const outData = backend.dataIdMap.get(out.dataId);\n\n if (isContinous) {\n const flatOffset = slice_util.computeFlatOffset(begin_, xStrides);\n\n if (x.dtype === 'string') {\n outData.stringBytes =\n (xVals as Uint8Array[])\n .slice(flatOffset, flatOffset + util.sizeFromShape(size_));\n } else {\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(\n (xVals as TypedArray)\n .subarray(flatOffset, flatOffset + util.sizeFromShape(size_)));\n }\n\n return out;\n }\n\n if (x.dtype === 'string') {\n const res = sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype);\n outData.stringBytes = res as Uint8Array[];\n return out;\n }\n\n const outVals = backend.typedArrayFromHeap(out);\n const rank = x.shape.length;\n if (rank === 2) {\n slice2d(\n xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n size_ as [number, number]);\n } else if (rank === 3) {\n slice3d(\n xVals as TypedArray, xStrides[0], xStrides[1], outVals,\n begin_ as [number, number, number], size_ as [number, number, number]);\n } else if (rank === 4) {\n slice4d(\n xVals as TypedArray, xStrides[0], xStrides[1], xStrides[2], outVals,\n begin_ as [number, number, number, number],\n size_ as [number, number, number, number]);\n } else {\n const res =\n sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n outVals.set(res);\n }\n\n return out;\n}\n\nfunction slice2d(\n xVals: backend_util.TypedArray, xStride: number,\n outVals: backend_util.TypedArray, begin: [number, number],\n size: [number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const endI = beginI + size[0];\n for (let i = beginI; i < endI; i++) {\n const xOffset = i * xStride + beginJ;\n outVals.set(xVals.subarray(xOffset, xOffset + size[1]), outOffset);\n outOffset += size[1];\n }\n}\n\nfunction slice3d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n outVals: backend_util.TypedArray, begin: [number, number, number],\n size: [number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n const xOffset = i * xStride1 + j * xStride2 + beginK;\n outVals.set(xVals.subarray(xOffset, xOffset + size[2]), outOffset);\n outOffset += size[2];\n }\n }\n}\n\nfunction slice4d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n xStride3: number, outVals: backend_util.TypedArray,\n begin: [number, number, number, number],\n size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n for (let k = beginK; k < endK; k++) {\n const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const
permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n   transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape(\n   {inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n   inputs: {x: xTransposedReshaped},\n   backend,\n attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig:
KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nexport function cast(\n   args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n   TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig:
KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n *

@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min: number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip = backend.wasm.cwrap(ClipByValue, null /* void */, [\n 'number', // x_id\n 'number', // min\n 'number', // max\n 'number' // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend: BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmClip(xId, clipValueMin, clipValueMax, outId);\n return out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from '../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function concat(\n args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend} = args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape = backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1) {\n return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape, inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n return out;\n }\n\n const shapes = $inputs.map(t
=> t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n // Any concat of n-dimensional tensors across any axis can be reduced to\n // a concatenation of two-dimensional tensors across the axis 1 by first\n // partitioning the axes of the original tensors into those less than the\n // axis to be concatenated and the rest. Then reshape the tensors\n // into a two-dimensional tensor by collapsing these two sets of axes and\n // concatenate the resulting matrices across the axis 1, finally reshaping\n // the result to have the proper shape.\n const inputs2D = $inputs.map(t => {\n const innerSize = util.sizeFromShape(t.shape.slice(axis));\n const shape = [-1, innerSize];\n return reshape({inputs: {x: t}, backend, attrs: {shape}});\n });\n\n const inputsValShapes = inputs2D.map(t => {\n return {vals: backend.readSync(t.dataId), shape: t.shape};\n });\n\n // Concats 2d tensors
along axis=1.\n const outShape =\n backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n const simplyConcat = inputs2D[0].shape[0] === 1;\n const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n simplyConcat) as string[];\n\n const finalOutShape =\n backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n out.shape = finalOutShape;\n

```
const outData = backend.dataIdMap.get(out.dataId);\n    outData.stringBytes =
backend_util.fromStringArrayToUint8(outVals);\n\n    inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n
return out;\n  }\n\n  const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n  let sumInnerDims =
0;\n  const innerDims = $inputs.map(input => {\n    const innerDim = util.sizeFromShape(input.shape.slice(axis));\n
  sumInnerDims += innerDim;\n    return innerDim;\n  });\n  const inVals = $inputs.map(input =>
backend.typedArrayFromHeap(input));\n
  const outVals = backend.typedArrayFromHeap(out);\n  for (let b = 0; b < batchDim; b++) {\n    let outOffset = b *
sumInnerDims;\n    for (let i = 0; i < inVals.length; i++) {\n      const innerDim = innerDims[i];\n      const inOffset =
b * innerDim;\n      const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n      outVals.set(vals,
outOffset);\n      outOffset += innerDim;\n    }\n  }\n  return out;\n}\n\nexport const concatConfig: KernelConfig =
{\n  kernelName: Concat,\n  backendName: 'wasm',\n  kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License
 is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n    xId:
number, batchSize: number, inputHeight: number, inputWidth: number,\n    filterId: number, filterHeight: number,
filterWidth: number, padTop: number,\n    padRight: number, padBottom: number, padLeft: number, isSamePad:
number,\n    dilationHeight: number, dilationWidth: number, strideHeight: number,\n    strideWidth: number,
inputChannels: number, outputChannels: number,\n    outId: number) => void;\n\nfunction setup(backend:
BackendWasm) {\n  wasmConv2d = backend.wasm.cwrap(Conv2D,
 null /* void */, [\n    'number',  // xId\n    'number',  // batchSize\n    'number',  // inputHeight\n    'number',  //
inputWidth\n    'number',  // filterId\n    'number',  // filterHeight\n    'number',  // filterWidth\n    'number',  //
padTop\n    'number',  // padRight\n    'number',  // padBottom\n    'number',  // padLeft\n    'number',  // isSamePad\n
 'number',  // dilationHeight\n    'number',  // dilationWidth\n    'number',  // strideHeight\n    'number',  //
strideWidth\n    'number',  // inputChannels\n    'number',  // outputChannels\n    'number',  // outId\n
]);\n}\n\nfunction conv2d(\n    args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n
const {inputs, attrs, backend} = args;\n\n  const {x, filter} = inputs;\n  const xId =
backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const {strides,
dilations, pad, dimRoundingMode, dataFormat} = attrs;\n  const $dataFormat =
backend_util.convertConv2DDataFormat(dataFormat);\n
  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape,
strides, dilations,\n      pad, dimRoundingMode, false, $dataFormat);\n\n  const filterHeight =
convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const
padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft =
convInfo.padInfo.left;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth =
convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth =
convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const outputChannels =
convInfo.outChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n  if
(convInfo.dataFormat !== 'channelsLast') {\n    throw new Error(\n        `wasm backend Conv2D does not support
dataFormat:'` +\n        `${convInfo.dataFormat}'. Please
 use 'channelsLast'.`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId =
backend.dataIdMap.get(out.dataId).id;\n  wasmConv2d(\n      xId, x.shape[0], x.shape[1], x.shape[2], filterId,
```

filterHeight,\n filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number,
xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n 'number', // batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n
'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n
const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast ? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize,

filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight, strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride, yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==========\n */\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest = 1\n}\n\nlet wasmCropAndResize: (\n imagesId: number, boxesId: number, boxIndId: number, numBoxes: number,\n imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n method: number, extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n 'number', // imagesId\n 'number', // boxesId\n 'number', // boxIndId\n 'number', // numBoxes\n 'array', // images shape\n 'number', // cropHeight\n 'number', // cropWidth\n 'number', // method\n
'number', // extrapolation value\n 'number' // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData = backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData = cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData =

backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n
  const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n   imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n   cropWidth,\n   InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n   extrapolationValue, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n   finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null / void */, [\n   'number', // x_id\n   'number', // exclusive\n   'number', // reverse\n   'number', // final_dim\n
    'number', // out_id\n   'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n   () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n   permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const
 permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n   permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n   const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n   out = transpose(\n   {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n   backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with
 the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace:
(\n    xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n    xStridesLength: number,
outputShape: Uint8Array, outputStrides: Uint8Array,\n    outSize: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n  wasmDepthToSpace
 = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n    'number',  // xId\n    'number',  // blockSize\n    'number',
// channelsLast\n    'array',   // xStrides\n    'number',  // xStridesLength\n    'array',   // outputShape\n    'array',   //
outputStrides\n    'number',  // outSize\n    'number',  // outId\n  ]);\n}\n\nexport function depthToSpace(args: {\n
backend: BackendWasm,\n  inputs: DepthToSpaceInputs,\n  attrs: DepthToSpaceAttrs\n}): TensorInfo {\n  const
{backend, inputs, attrs} = args;\n  const {x} = inputs;\n  const {blockSize, dataFormat} = attrs;\n\n  const batchSize
= x.shape[0];\n  const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n  const inputWidth =
(dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n  const inputDepth = (dataFormat === 'NHWC') ? x.shape[3]
: x.shape[1];\n\n  const outputHeight = inputHeight * blockSize;\n  const outputWidth = inputWidth * blockSize;\n
const outputDepth = inputDepth / (blockSize * blockSize);\n\n
  const outputShape = (dataFormat === 'NHWC') ?\n      [batchSize, outputHeight, outputWidth, outputDepth] :\n
[batchSize, outputDepth, outputHeight, outputWidth];\n\n  const out = backend.makeOutput(outputShape,
'float32');\n\n  const xData = backend.dataIdMap.get(x.dataId);\n  const xId = xData.id;\n  const xStridesBytes =\n
new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n  const outputShapeBytes = new
Uint8Array(new Int32Array(outputShape).buffer);\n  const outStridesBytes =\n      new Uint8Array(new
Int32Array(util.computeStrides(outputShape)).buffer);\n\n  const outId = backend.dataIdMap.get(out.dataId).id;\n
const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n  wasmDepthToSpace(\n      xId, blockSize, channelsLast,
xStridesBytes, x.shape.length - 1,\n      outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n  return
out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n  kernelName: DepthToSpace,\n  backendName:
'wasm',\n
  setupFunc: setup,\n  kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs,
DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from
 '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n    xId: number, batchSize: number, inputHeight: number,
inputWidth: number,\n    filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n
padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n    dilationHeight: number,
dilationWidth: number, strideHeight: number,\n    strideWidth: number, inputChannels: number, outputChannels:
number,\n    outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmDepthwiseConv2d =\n
 backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n      'number',  // xId\n      'number',  //
batchSize\n      'number',  // inputHeight\n      'number',  // inputWidth\n      'number',  // filterId\n      'number',  //
filterHeight\n      'number',  // filterWidth\n      'number',  // padTop\n      'number',  // padRight\n      'number',  //
padBottom\n      'number',  // padLeft\n      'number',  // isSamePad\n
  'number',  // dilationHeight\n      'number',  // dilationWidth\n      'number',  // strideHeight\n      'number',  //
strideWidth\n      'number',  // inputChannels\n      'number',  // outputChannels\n      'number',  // outId\n
]);\n}\n\nfunction depthwiseConv2d(args: {\n  inputs: DepthwiseConv2dNativeInputs,\n  backend:
```

BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n   ($dilations as number | [number, number]), pad, dimRoundingMode,\n   true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend DepthwiseConv2dNative does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth,
 padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
 under the License.\n *
==\n
*/\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs,\n KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n // Negative value is counted from the tail of rank.\n util.assert(\n -(inputRank + 1) <= dim,\n () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape,\n value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId =

backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n   imageId, batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under\n the License.\n *\n==========\n*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n   xId: number, meanId: number, varianceId: number, offsetId: number,\n   scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmBatchNorm = backend.wasm.cwrap(\n   FusedBatchNorm, null /* void */,\n   ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n   return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n   xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as

KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth:\n number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', //\n leakyreluAlpha\n 'number', // outId\n]);\n}\n\nfunction fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n backend: BackendWasm,\n attrs: FusedConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode);\n\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels) {\n throw new Error(\n `FusedConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw new Error(\n `wasm backend FusedConv2D does not support dataFormat:` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const

```
preluActivationWeightsId = preluActivationWeights == null ?\n      0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n  wasmFusedConv2d(\n      xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n      biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n      dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n      fusedActivation, preluActivationWeightsId, leakyreluAlpha
 || 0, outId);\n\n  return out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n  kernelName: FusedConv2D,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs,
 FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n    (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n     biasId: number, padTop: number, padRight: number, padBottom: number,\n     padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n     inputChannels: number, outputChannels: number, activation: number,\n     preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n     void;\n\nfunction setup(backend: BackendWasm) {\n  wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n       'number',  // xId\n       'number',  // batchSize\n       'number',  // inputHeight\n   'number',  // inputWidth\n       'number',  // filterId\n       'number',  // filterHeight\n       'number',  // filterWidth\n    'number',  // biasId\n       'number',  // padTop\n       'number',  // padRight\n       'number',  // padBottom\n 'number',  // padLeft\n       'number',  // isSamePad\n       'number',  // dilationHeight\n       'number',  // dilationWidth\n       'number',  // strideHeight\n       'number',  // strideWidth\n       'number',  // inputChannels\n 'number',  // outputChannels\n       'number',  // activation\n       'number',  // preluActivationWeightsId\n 'number',  // leakyreluAlpha\n       'number',  // outId\n    ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n inputs: FusedDepthwiseConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedDepthwiseConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n strides,\n    pad,\n    dilations,\n
   dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation as {} as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n        `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n  const outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData = backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n    if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n    biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const
```

padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n
throw new Error(\n   `wasm backend FusedDepthwiseConv2D does not support dataFormat:'` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n   0 :\n   backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n   xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n   dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n   fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n   xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n   sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n   'number', // dtype\n   'number', // indicesId\n   'number', // numSlices\n   'number', // sliceRank\n   'number', // sliceSize\n   'array',   // strides\n   'number'   // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n   TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n   return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n
const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n   xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n   stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n    xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n    indicesId: number, batchSize: number, outStrides: Uint8Array,\n    outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n  wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n    'number',  // xId\n    'number',  // dtype\n    'array',  // xStrides\n    'number',  // stridesSize\n    'number',  // indicesId\n    'number',  // batchSize\n    'array',   // outStrides\n    'number'   // outId\n  ]);\n}\n\nfunction gatherV2(\n    args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n    TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {x, indices} = inputs;\n  const {axis, batchDims} = attrs;\n\n  // Throw error when any index is out of bound.\n  const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n  const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n  const axisDim = x.shape[parsedAxis];\n  for (let i = 0; i < indicesVals.length; ++i) {\n    const index = indicesVals[i];\n    util.assert(\n        index <= axisDim - 1 && index >= 0,\n        () =>\n            `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n  }\n\n  const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n      x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n  const flattenX = reshape({\n    inputs: {x},\n    attrs: {\n      shape: [\n        shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n        shapeInfo.sliceSize\n      ]\n    },\n    backend\n  });\n  const indicesSize = util.sizeFromShape(indices.shape);\n  const flattenIndex = reshape({\n    inputs: {x: indices},\n    attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n    backend\n  });\n  const flattenOutputShape = [\n    shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n    shapeInfo.sliceSize\n  ];\n\n  const out = backend.makeOutput(flattenOutputShape, x.dtype);\n  if (util.sizeFromShape(x.shape) === 0) {\n    return out;\n  }\n  const stridesSize = flattenX.shape.length - 1;\n\n  const xData = backend.dataIdMap.get(flattenX.dataId);\n  const xId = xData.id;\n\n  const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n  const indicesId = indicesData.id;\n\n  const outId = backend.dataIdMap.get(out.dataId).id;\n\n  const xStridesBytes = new Uint8Array(\n      new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n  const outStridesBytes = new Uint8Array(\n      new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n  wasmGather(\n      xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n      shapeInfo.batchSize, outStridesBytes, outId);\n\n  backend.disposeData(flattenX.dataId);\n  backend.disposeData(flattenIndex.dataId);\n\n  // reshape\n  out.shape = shapeInfo.outputShape;\n  return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n  kernelName: GatherV2,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n *
 distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
```

* distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(LeakyRelu, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // leakyrelu_alpha\n 'number', // out_id\n]);\n}\n\nexport function leakyRelu(\n args:\n {inputs: LeakyReluInputs, attrs: LeakyReluAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n // According to TF API, LeakyRelu returns float32 when input is either float32\n // or int32.\n const out = backend.makeOutput(x.shape, 'float32');\n\n if (util.sizeFromShape(x.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n }\n\n return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n kernelName: LeakyRelu,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\nimport {KernelConfig, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n
createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMax: (xId:
number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend:
BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null /*void*/, [\n   'number', // x_id\n
'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction max(args: {backend:
BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n   TensorInfo {\n const
{backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n const
xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes,
originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if
(inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   input =
transposed;\n   inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n
backend_util.assertAxesAreInnerMostDims('max', axes, inputRank);\n const [outShape, reduceShape] =\n
backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed)
{\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n
// reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape =
newShape;\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n
backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the

\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32
input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out
= backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels,

outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n   args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
  let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype:
 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
 file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend:

BackendWasm): void {\n wasmMin = backend.wasm.cwrap(Min,
 null /*void*/, [\n   'number', // x_id\n   'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n
]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n   TensorInfo {\n
const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId =
backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes,
inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n
const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose
was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId =
transposedId;\n   }\n }\n\n const inputRank = input.shape.length;\n\n
backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n const [outShape, reduceShape] =\n
    backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmMin(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the
transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const
newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n
return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n
createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-
core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match
enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n
xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes:
Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n
  outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad =
backend.wasm.cwrap(MirrorPad, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', //
x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', //
mode\n   'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend:
BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n
const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId =
backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId =
backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new

Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple
 => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n postPaddingsBytes, MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
 BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
 BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in `non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n   backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices = result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize,
 pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs,
NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {parseResultStruct} from
'./NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize:
number,\n iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend:
BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV3,\n 'number', //
Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n
'number', // iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend:
BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n
const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const
{boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId =
backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n wasmFunc(boxesId, scoresId, maxOutputSize,
iouThreshold,
scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n
parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the
heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const
selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return
selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName:
NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as
KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed
to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs,
NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n
boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number,\n
padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc =
backend.wasm.cwrap(\n NonMaxSuppressionV4,\n 'number', // Result*\n [\n 'number', // boxesId\n

'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', //
scoreThreshold\n 'bool', // padToMaxOutputSize\n]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n
backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}):
TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold,
padToMaxOutputSize} =\n attrs;\n const {boxes, scores} = inputs;\n\n const boxesId =
backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const
resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n
padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n
parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the
heap.\n backend.wasm._free(pSelectedScores);\n\n
const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const
validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor,

validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
 the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n (boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number, softNmsSigma: number) =>\n   number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n   NonMaxSuppressionV5,\n   'number', // Result*\n   [\n   'number', // boxesId\n   'number', // scoresId\n   'number', // maxOutputSize\n   'number', // iouThreshold\n   'number', // scoreThreshold\n   'number', // softNmsSigma\n   ]);\n}\n\nfunction
 kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n   boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n
  return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport
 {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n
*/\n\nimport
 {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n    indicesId: number, depth: number, onValue:
number, offValue: number,\n    outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n
wasmOneHot = backend.wasm.cwrap(OneHot, null /* void */, [\n    'number',  // indices_id\n    'number',  // depth,\n
 'number',  // onValue\n    'number',  // offValue\n    'number'   // out_id\n  ]);\n}\n\nfunction oneHot(\n    args:
{inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n  const {inputs, backend, attrs} = args;\n
const {indices} = inputs;\n  const {depth, onValue, offValue} = attrs;\n\n  const out =
backend.makeOutput([...indices.shape, depth], 'int32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n\n
const indicesData = backend.dataIdMap.get(indices.dataId);\n  const indicesId = indicesData.id;\n\n
wasmOneHot(indicesId, depth,
 onValue, offValue, outId);\n\n  return out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n  kernelName:
OneHot,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs}
 from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args:
{inputs: OnesLikeInputs, backend: BackendWasm}) {\n  const {inputs: {x}, backend} = args;\n  const out =
backend.makeOutput(x.shape, x.dtype);\n  const outVals = backend.typedArrayFromHeap(out);\n  outVals.fill(1);\n
return out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n  kernelName: OnesLike,\n  backendName:
'wasm',\n  kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC.
All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express
 or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-
core';\nimport {BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport
{expandDims} from './ExpandDims';\n\nexport function pack(\n    args: {inputs: PackInputs, backend:
BackendWasm, attrs: PackAttrs}):\n    TensorInfo {\n  const {inputs, backend, attrs} = args;\n  const {axis} =
attrs;\n\n  if (inputs.length === 1) {\n    return expandDims(\n        {inputs: {input: inputs[0]}, backend, attrs: {dim:
axis}});\n  }\n\n  const shape = inputs[0].shape;\n  const dtype = inputs[0].dtype;\n\n  inputs.forEach(t => {\n
util.assertShapesMatch(\n        shape, t.shape,\n        'All tensors passed to stack must have matching shapes');\n
util.assert(\n
        dtype === t.dtype,\n        () => 'All tensors passed to stack must have matching dtypes');\n  });\n\n  const
intermediateTensorInfos: TensorInfo[] = [];\n  const expandedTensors = inputs.map(t => {\n    const expandedT =\n
    expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n    intermediateTensorInfos.push(expandedT);\n
return expandedT;\n  });\n\n  const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n
intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n  return result;\n}\n\nexport const
```

packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType} from './types';\n\nlet wasmPadV2: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n   constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'array',   // pre-paddings\n   'array',   // post-paddings\n   'number', // constantValue\n   'number', // outId\n]);\n}\n\nfunction pad(\n   args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend, attrs: {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n   // Short-circuit the computation, since x doesn't have value, only\n   // the shape is used to compute output shape to pad.\n   return fill({\n   backend,\n   attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n   });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmPadV2(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number,
weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n  wasmPrelu =
backend.wasm.cwrap(Prelu, null /* void */, [\n    'number',  // x_id\n    'number',  // weights_id\n    'number'   //
out_id\n  ]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n  const {inputs, backend}
= args;\n  const {x, alpha} = inputs;\n  const xId = backend.dataIdMap.get(x.dataId).id;\n
  const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n  let inputId = xId;\n  const input = x;\n  let
castedInput = input;\n  if (input.dtype !== 'float32') {\n    castedInput = cast({backend, inputs: {x}, attrs: {dtype:
'float32'}});\n    inputId = backend.dataIdMap.get(castedInput.dataId).id;\n  }\n\n  const out =
backend.makeOutput(x.shape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmPrelu(inputId, weightsId, outId);\n\n  if (input.dtype !== 'float32') {\n
backend.disposeData(castedInput.dataId);\n  }\n  return out;\n}\n\nexport const preluConfig: KernelConfig = {\n
kernelName: Prelu,\n  backendName: 'wasm',\n  setupFunc: setup,\n  kernelFunc: prelu as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n
 *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n
xId: number, reduceSize: number,\n    dtype: number, outId: number) => void;\n\nfunction setup(backend:
BackendWasm): void {\n  wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n    'number',\n    'number',\n
'number',\n    'number'\n
  ]);\n}\n\nfunction prod(args: {\n  backend: BackendWasm,\n  inputs: ProdInputs,\n  attrs: ProdAttrs\n}):
TensorInfo {\n  const {backend, inputs, attrs} = args;\n  const {axis, keepDims} = attrs;\n  const {x} = inputs;\n
const xId = backend.dataIdMap.get(x.dataId).id;\n  let inputId = xId;\n  let input = x;\n\n  const {transposed, axes,
originalAxes, inputWasTransposed} =\n      permuteAxesAndTranspose(x, axis, backend);\n\n  let reductionAxes =
axes;\n  if (inputWasTransposed) {\n    const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n    if
(transposedId !== xId) {\n      // transpose was not a no-op. We will need to dispose of this\n      // once we are
done.\n      input = transposed;\n      inputId = transposedId;\n      reductionAxes =
backend_util.getInnerMostAxes(\n          reductionAxes.length, input.shape.length);\n    }\n  }\n\n
backend_util.assertAxesAreInnerMostDims(\n      'prod', reductionAxes, input.shape.length);\n  const [outShape,
reduceShape]
  =\n      backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n  const reduceSize =
util.sizeFromShape(reduceShape);\n\n  const out = backend.makeOutput(outShape, input.dtype);\n  if
(util.sizeFromShape(input.shape) !== 0) {\n    const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmProd(inputId, reduceSize, CppDType[out.dtype], outId);\n  }\n\n  if (inputWasTransposed) {\n    // dispose of
the transposed tensor.\n    backend.disposeData(transposed.dataId);\n  }\n\n  if (keepDims) {\n    // reshape\n    const
newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n    out.shape = newShape;\n  }\n\n
return out;\n}\n\nexport const prodConfig: KernelConfig = {\n  kernelName: Prod,\n  backendName: 'wasm',\n
setupFunc: setup,\n  kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in
```

compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} = args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step, dtype);\n\n const out = backend.makeOutput([values.length], dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(values);\n return out;\n };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const relu6Config: KernelConfig = createUnaryKernelConfig(Relu6);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n xId:
number, batch: number, oldHeight: number, oldWidth: number,\n numChannels: number, newHeight: number,
newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction
setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null
/*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n
'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number', // alignCorners\n
'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend:
BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend,
inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size}
= attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] =
images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData =
backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n
cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData =
backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out =
backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n
const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n xId, batch, oldHeight,
oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if
(castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const
resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n
backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes:
Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) =>
void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n
'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', //
out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs,
backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const
{x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length
=== 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n
const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new
Int32Array(x.shape).buffer);\n\n wasmReverse(\n xId, axesBytes, axes.length, outShapeBytes, x.shape.length,
outId);\n\n const reshaped =\n reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n
backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n
kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc:
setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the

Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // radians\n 'number', // centerX\n 'number', // centerY\n 'array', // fillBytes\n 'number', // fillLength\n 'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n *

@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==========\n */\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n 'number', // indicesId\n 'number', // updatesId\n 'number', // dtype\n 'number', // sliceRank\n 'number', // numUpdates\n 'number', // sliceSize\n 'array', // strides\n 'number', // outputSize\n 'number' // outId\n]);\n}\n\nfunction scatterNd(\n args:\n {backend: BackendWasm, inputs: ScatterNdInputs, attrs:
 ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n
 setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==========\n */\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number, eId:
 number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n 'number', // conditionId\n 'number', // tId\n 'number', // eId\n 'number', // offset\n 'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n 1 :\n util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig:
 KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed

under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n
* http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number, channels: number, batch: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n 'number', // xId\n 'number', // outId\n 'number', // channels\n 'number' // batch\n]);\n}\n\nfunction softmax(\n args: {backend: BackendWasm,
inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend,
  attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n
  const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
 the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n   args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs,
  attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n   const xSliceSize = [...size];\n   xSliceSize[$axis] = s;\n   const xSlice =\n   slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n   begin[$axis] += s;\n   return xSlice;\n });\n}\n\nexport const

splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n   createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n   'number', // x_id\n   'number', // alpha\n   'number', // dtype\n   'number', // out_id\n]);\n}\n\nfunction step(\n   args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc:

setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
 License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n   xId: number, xStridesBytes: Uint8Array, xRank: number,\n   beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n   outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n   outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n   'number', // xId\n   'array',   // xStrides\n   'number', // xRank\n   'array',   // beginBytes\n   'array',   // endBytes\n   'array',   // stridesBytes\n   'array',   // outShapeBytes\n   'array',   // outStridesBytes\n
 'number', // outShapeLength\n   'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n   begin,\n   end,\n   strides,\n   beginMask,\n   endMask,\n   ellipsisMask,\n   newAxisMask,\n   shrinkAxisMask\n } = attrs;\n\n const {\n   finalShapeSparse,\n   finalShape,\n   isIdentity,\n   sliceDim0,\n   isSimpleSlice,\n   begin: $begin,\n   end: $end,\n   strides: $strides\n } =\n   slice_util.sliceInfo(\n   x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n   newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n   // Optimization #1, slice is a no-op plus reshape\n   result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n   // Optimization #2, slice is memory contiguous
 (only occurs in dim 0)\n   util.assert(\n   x.shape.length >= 1,\n   () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n   const size = slice_util.computeOutShape($begin, $end, $strides);\n   // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n   const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n   result =\n   reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n   backend.disposeData(sliced.dataId);\n } else {\n   const out = backend.makeOutput(finalShapeSparse, 'float32');\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n   const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n   const endBytes = new Uint8Array(new Int32Array($end).buffer);\n   const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n   const outputShapeBytes =\n   new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n   const outStridesBytes = new Uint8Array(\n
 new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n   const outId = backend.dataIdMap.get(out.dataId).id;\n\n   wasmStridedSlice(\n   xId, xStridesBytes, x.shape.length, beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n   result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n   backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific

language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n
createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId:
number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend:
BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n 'number', // input_id\n
'number', // reduce_size\n 'number', // dtype\n
  'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs:
SumAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const
{x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const
{transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n
let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId =
backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We
will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n
reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n
backend_util.assertAxesAreInnerMostDims(\n 'sum', reductionAxes, input.shape.length);\n const [outShape,
reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize
= util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of
the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const
newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n
return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the

License at\n *\n
* http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null / void */, [\n 'number', // x_id\n 'array', // x_shape\n 'number', // x_shape.length\n 'array', // new_shape\n 'number', // new_shape.length\n 'number' // out_id\n]);\n}\n\nfunction tile(\n args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n xDtype: CppDType, k: number, sorted: boolean,
outValuesId: number,\n outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'number', // k\n 'bool', // sorted\n 'number', // outValuesId\n 'number', // outIndicesId\n]);\n}\n\nexport const topk:\n (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n const {x} = inputs;\n const {k, sorted} = attrs;\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const outputShape = x.shape.slice();\n

outputShape[outputShape.length - 1] = k;\n const outValues = backend.makeOutput(outputShape, x.dtype);\n const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n const outIndices = backend.makeOutput(outputShape, 'int32');\n const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n wasmTopK(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n outValuesId, outIndicesId);\n\n return [outValues, outIndices];\n };\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR
CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength: number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n 'number', // imageId\n 'number', // transformsId\n 'bool', // isBatchTransform\n 'number', // batch\n 'number', // outHeight\n 'number', // outWidth\n 'number', // numChannels\n 'number', // imageWidth\n 'number', // imageHeight\n 'array', // strides\n 'number', // stridesLength\n 'number', // interpolationModeId\n 'number', // fillModeId\n 'number', // fillValue\n 'number' // outId\n]);\n}\n\nfunction transform(\n args:\n {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n const [outHeight, outWidth] =\n outputShape != null ? outputShape : [imageHeight, imageWidth];\n const outShape =\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n case 'constant':\n fillModeId = 1;\n break;\n case 'reflect':\n fillModeId = 2;\n break;\n case 'wrap':\n fillModeId = 3;\n break;\n case 'nearest':\n fillModeId = 4;\n break;\n default:\n fillModeId = 1;\n break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs}
from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from
'./Slice';\n\nfunction unpack(\n args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n
TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis <
0) {\n axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank =
value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank;
i++) {\n if (i !== axis) {\n outShape[outIndex++] = value.shape[i];\n }\n }\n const outs: TensorInfo[] = new
Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n
for (let i = 0; i < outs.length; i++) {\n begin[axis] = i;\n outs[i] = slice({inputs: {x: value}, attrs: {begin, size},
backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype,
shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName:
'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm}
from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n
const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals =
backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig:
KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as
KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n//
We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the
library. A modular build would replace\n// the contents of this file and import only the kernels that are
needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig}
from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from
'./kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport
{anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig}
from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport
{batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {castConfig} from './kernels/Cast';\nimport
{ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport
{concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport
{conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {cosConfig} from
'./kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from
'./kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {depthToSpaceConfig}

from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from
'./kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from
'./kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from
'./kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from
'./kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from
'./kernels/FloorDiv';\nimport
{fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from
'./kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from
'./kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport
{gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport
{greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport
{leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport
{lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport
{logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport
{maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport
{meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from
'./kernels/Minimum';\nimport
{mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport
{negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from
'./kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from
'./kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from
'./kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig}
from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from
'./kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from
'./kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport
{rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig}
from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from
'./kernels/Reshape';\nimport {resizeBilinearConfig}
from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport
{rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from
'./kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from
'./kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from
'./kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport
{softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from
'./kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from
'./kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from
'./kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from
'./kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from
'./kernels/Sum';\nimport
{tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from
'./kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from
'./kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from
'./kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst
kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n
argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n
ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n
cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n
depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n

flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n
 fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n
gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n
leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n
maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n
multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n
nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n
padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n
relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n
rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n
softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n
 squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n
tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n
zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n
*/\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n   // This typed array
passed in to WebAssembly.validate is WebAssembly binary\n   // code. In this case it is a small program that
contains SIMD\n   // instructions.\n   'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new
Uint8Array([\n   0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1,   96, 0, 0, 3,\n   2, 1, 0,   10, 9, 1, 7, 0, 65, 0, 253, 15, 26,
11\n   ])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-
feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n //
TODO(annxingyuan): Enable node support once this is resolved:\n //
https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n   return false;\n }\n\n try {\n
    // Test for transferability of SABs (needed for Firefox)\n   //
https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n   new
MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n   // This typed array is a WebAssembly
program containing threaded\n   // instructions.\n   return WebAssembly.validate(new Uint8Array([\n   0, 97,
115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0,   0, 3, 2, 1, 0, 5,\n   4, 1, 3,   1,   1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26,
11\n   ]));\n } catch (e) {\n   return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n
var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src :
undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return
(\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd =
WasmBackendModuleThreadedSimd || {};\n\nfunction
GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}
return
 HEAP8}function
GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)
}return HEAPU8}function
GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)
}return HEAP32}function
GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer

)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function

shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return

ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var

runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm

callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}var ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,EBADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EBUSY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,ENOTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERANGE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNATCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOANO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:128,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFUSED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOSTDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,EPROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,ENOTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:148,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:135};function _emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)return-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var mainThreadWoken=0;if(mainThreadWaitAddress==addr){var loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainThreadWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return 1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value \"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runningWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}function cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cancelThread!\";var pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in cleanupThread!\";var pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var

```
PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var
 pthreadPoolSize=8;for(var
i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var
tb=_malloc(228);for(var
i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var
headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var
i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100
>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRON
MENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},t
hreadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.l
ength>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread
_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U
32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.stor
e(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscri
pten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var
tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHRE
AD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthr
ead_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in
PThread.pthreads){var
pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThre
ad.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var
worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var
i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var
pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeTh
readData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var
tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.thr
eadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.
allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.
worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(functio
n(){delete
PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorker
s.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=un
defined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_m
ain_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runti
me_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,o
nFinishedLoading){worker.onmessage=function(e){var
 d=e[\"data\"];var
cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;
if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var
thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{con
sole.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that
thread no longer
exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThread
Work\"){_emscripten_main_thread_process_queued_calls()}else
if(cmd===\"spawnThread\"){spawnThread(e.data)}else
if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else
if(cmd===\"killThread\"){killThread(d[\"thread\"])}else
if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else
```

```
if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread){worker.runPthread();delete
 worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if(detached){PThread.returnWorkerToPool(worker)}}else if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command \"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent an error! \"+e.filename+\":\"+e.lineno+\": \"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:data})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.postMessage({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMemory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var
 pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnusedWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var t=performance.now()+msecs;while(performance.now()<t){}}};function establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop)}Module[\"establishStackSpace\"]=establishStackSpace;function
 getNoExitRuntime(){return noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function invokeEntryPoint(ptr,arg){return wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function ___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at: \"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var _emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-Module[\"__performance_now_clock_drift\"]}}else if(typeof dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return
 _emscripten_proxy_to_main_thread_js(1,1,func,arg)}function __emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessage({\"cmd\":\"processQueuedMainThreadWork\"})}else if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueue\"})}else{var pthread=PThread.pthreads[targetThreadId];var worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}return 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function _emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function _emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-28;if(!ENVIRONMENT_IS_WEB){var
```

ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return 0;throw\"Atomics.wait returned an unexpected value \"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var i=JSEvents.eventHandlers.length-1;i>=0;--i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListeners:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListeners);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in

arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,argsList)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList});JSEvents.deferredCalls.sort(function(x,y){return x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.deferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!JSEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,eventTypeString){for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||eventTypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--)}}},_removeHandler:function(i){var h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);JSEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var jsEventHandler=function jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDeferredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventHandler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.eventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.eventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData){var stackTop=stackSave();var varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThread,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:function(targetThread){switch(targetThread){case 1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";if(target==screen)return\"#screen\";return target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return cString}function _emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var stackTop=stackSave();var varargs=stackAlloc(12);var targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32()[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[varargs+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestore(stackTop)}function _emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=targetCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height)}function maybeCStringToJsString(cString){return cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof

```
document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function
findEventTarget(target){target=maybeCStringToJsString(target);var
domElement=specialHTMLTargets[target]||(typeof
document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function
findCanvasEventTarget(target){return findEventTarget(target)}function
_emscripten_set_canvas_element_size_calling_thread(target,width,height){var
 canvas=findCanvasEventTarget(target);if(!canvas)return-
4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA
P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if
(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var
autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var
prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prev
Viewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;
canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else
if(canvas.canvasSharedPtr){var
targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_o
n_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function
_emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)retur
n
 _emscripten_proxy_to_main_thread_js(2,1,target,width,height);return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}function
_emscripten_set_canvas_element_size(target,width,height){var
canvas=findCanvasEventTarget(target);if(canvas){return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return
_emscripten_set_canvas_element_size_main_thread(target,width,height)}}function
_emscripten_set_current_thread_status(newStatus){}function
_emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var
ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ex
t[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcou
nt){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(
mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};
return
 1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var
ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers
WEBGL\"](n,bufs)};return 1}}function
__webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_dra
w\"))}var
GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],cont
exts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:
function
 recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var
ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return
ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var
len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-
```

1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return source},createContext:function(canvas,webGLContextAttributes){var ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var handle=GL.registerContext(ctx,webGLContextAttributes);return handle},registerContext:function(ctx,webGLContextAttributes){var handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensionsByDefault){GL.initExtensions(context)}return handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(contextHandle){return GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[contextHandle])GL.currentContext=null;if(typeof JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.contexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GLctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:function(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtensionsDone=true;var GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_object(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.indexOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var p=GL.programs[program];var ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var u=GLctx.getActiveUniform(p,i);var name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var j=1;j<u.size;++j){var n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}}}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function _emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"premultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerformanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return 0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function

_emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function _fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var global_libc=_emscripten_get_global_libc();var global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthread=pthread;var msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":threadParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthread=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded){worker.runPthread();delete worker.runPthread}}function _pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current environment does not support SharedArrayBuffer, pthreads are not available!\");return 6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return _emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-

=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_ptr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_PTHREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(threadParams)}return 0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var tb=_pthread_self();if(!tb)return;var cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function _emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKER)return;warnOnce(\"Blocking on the main thread is very dangerous, see https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function __emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread pointer!\");return ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread \"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return ERRNO_CODES.ESRCH}var detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread \"+thread+\", which was already detached!\");return ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[status>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PTHREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return 0}if(!block){return ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thread_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1)}}function _pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function _sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return

65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_write,_sysconf];var asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_logical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_canvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscripten_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Module[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthread_join,\"t\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var _Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var _AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var _All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var _Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var _ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var _AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var _BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var _Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var

_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,arguments)};var

_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var

_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"fb\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"gb\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"hb\"]).apply(null,arguments)};var

_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"asm\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=function(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=function(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).apply(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(null,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){return(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb

\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=10512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module[\"ExitStatus\"]=ExitStatus;var
calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromiseResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PTHREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw
new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRuntime();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define === 'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if (typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"]
= WasmBackendModuleThreadedSimd;\n","export const wasmWorkerContents = 'var Module={};function
threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function
threadAlert(){var text=Array.prototype.slice.call(arguments).join(\"
\");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var
err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var
instance=new
WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function
moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof
e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var
objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}
WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else
if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else
if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var
top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"]();Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self\"](),1);try{var

result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else if(ex!=\"unwind\"){if(ex instanceof Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}else{Module[\"PThread\"].threadExit(-2);throw ex}}}}else if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else if(e.data.target===\"setimmediate\"){}else if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_process_queued_calls\"]()}}else{err(\"worker.js received unknown command \"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception: \"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n WasmBackendModule = WasmBackendModule || {};\n\nvar Module=typeof WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw

ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-

idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new

WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAndViews(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-instantiate\")}addRunDependency(\"wasm-instantiate\");function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function _emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function _emscripten_get_heap_size(){return HEAPU8.length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var

replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1};var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"o\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"p\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments)};var _Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,arguments)};var _AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,ar

guments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};
var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).app
ly(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,argument
s)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\
"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).ap
ply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Modul
e[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments
)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,argu
ments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]
=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).a
pply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=M
odule[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=M
odule[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)}
;var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arg
uments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,argument
s)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Modul
e[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,argu
ments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).
apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchN
orm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Mod
ule[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=M

odule[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null
,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"
]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(
null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\
"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\
"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,argume
nts)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"
Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments
)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm
\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,argume
nts)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).
apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,ar
guments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,argumen
ts)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\
"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).a
pply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,argument
s)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Mod
ule[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Mod
ule[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Mod
ule[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"
]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).appl
y(null,arguments)};var

_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(null,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,arguments)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,arguments)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).apply(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,arguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Module[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).apply(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWithOffset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(null,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arguments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).apply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,arguments)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(null,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_SquaredDifference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,arguments)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"asm\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,arguments)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var

_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}}run();\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports ===
'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define ===
 'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports ===
'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn,

```
engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n  id: number;\n  memoryOffset: number;\n  shape: number[];\n  dtype: DataType;\n  refCount: number;\n  /** Only used for string tensors, storing encoded bytes. */\n  stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object;  // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n  // 0 is reserved for null data ids.\n  private dataIdNextNumber = 1;\n  dataIdMap: DataStorage<TensorData>;\n\n  constructor(public
 wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n    super();\n
this.wasm.tfjs.initWithThreadsCount(threadsCount);\n    actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n
 this.dataIdMap = new DataStorage(this, engine());\n  }\n\n  write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n      DataId {\n    const dataId = {id: this.dataIdNextNumber++};\n
this.move(dataId, values, shape, dtype, 1);\n    return dataId;\n  }\n\n  numDataIds(): number {\n    return
this.dataIdMap.numDataIds();\n  }\n\n  async time(f: () => void): Promise<BackendTimingInfo> {\n    const start =
util.now();\n    f();\n    const kernelMs = util.now() - start;\n    return {kernelMs};\n  }\n\n  move(\n      dataId:
DataId, values: backend_util.BackendValues, shape: number[],\n      dtype: DataType, refCount: number): void {\n
const id = this.dataIdNextNumber++;\n    if (dtype === 'string') {\n      const stringBytes = values as Uint8Array[];\n

  this.dataIdMap.set(\n          dataId,\n          {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n
return;\n    }\n\n    const size = util.sizeFromShape(shape);\n    const numBytes = size *
util.bytesPerElement(dtype);\n    const memoryOffset = this.wasm._malloc(numBytes);\n\n
this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n    this.wasm.tfjs.registerTensor(id, size,
memoryOffset);\n\n    if (values != null) {\n      this.wasm.HEAPU8.set(\n          new Uint8Array(\n              (values
as backend_util.TypedArray).buffer,\n              (values as backend_util.TypedArray).byteOffset, numBytes),\n
memoryOffset);\n    }\n  }\n\n  async read(dataId: DataId): Promise<backend_util.BackendValues> {\n    return
this.readSync(dataId);\n  }\n\n  readSync(dataId: DataId): backend_util.BackendValues {\n    const {memoryOffset,
dtype, shape, stringBytes} =\n        this.dataIdMap.get(dataId);\n    if (dtype === 'string') {\n      return
 stringBytes;\n    }\n    const bytes = this.wasm.HEAPU8.slice(\n        memoryOffset,\n        memoryOffset +
util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n    return typedArrayFromBuffer(bytes.buffer, dtype);\n
}\n\n  /**\n   * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n   * is released, false
otherwise.\n   * @param dataId\n   * @oaram force Optional, remove the data regardless of refCount\n   */\n
disposeData(dataId: DataId, force = false): boolean {\n    if (this.dataIdMap.has(dataId)) {\n      const data =
this.dataIdMap.get(dataId);\n      data.refCount--;\n      if (!force && data.refCount > 0) {\n        return false;\n
}\n\n      this.wasm._free(data.memoryOffset);\n      this.wasm.tfjs.disposeData(data.id);\n
this.dataIdMap.delete(dataId);\n    }\n    return true;\n  }\n\n  /** Return refCount of a `TensorData`. */\n
refCount(dataId: DataId): number {\n    if (this.dataIdMap.has(dataId)) {\n      const tensorData =
 this.dataIdMap.get(dataId);\n      return tensorData.refCount;\n    }\n    return 0;\n  }\n\n  incRef(dataId: DataId) {\n
 const data = this.dataIdMap.get(dataId);\n    if (data != null) {\n      data.refCount++;\n    }\n  }\n\n  floatPrecision():
32 {\n    return 32;\n  }\n\n  // Returns the memory offset of a tensor. Useful for debugging and unit\n  // testing.\n
getMemoryOffset(dataId: DataId): number {\n    return this.dataIdMap.get(dataId).memoryOffset;\n  }\n\n
dispose() {\n    this.wasm.tfjs.dispose();\n    if ('PThread' in this.wasm) {\n
this.wasm.PThread.terminateAllThreads();\n    }\n    this.wasm = null;\n  }\n\n  memory() {\n    return {unreliable:
false};\n  }\n\n  /**\n   * Make a tensor info for the output of an op. If `memoryOffset` is not\n   * present, this
method allocates memory on the WASM heap. If `memoryOffset`\n   * is present, the memory was allocated
elsewhere (in c++) and we just record\n   * the pointer where that memory lives.\n   */\n  makeOutput(shape:
```

number[], dtype: DataType, memoryOffset?: number):\n TensorInfo {\n let dataId: {};\n if (memoryOffset == null) {\n dataId = this.write(null /* values */, shape, dtype);\n } else {\n const id = this.dataIdNextNumber++;\n dataId = {id};\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount: 1});\n const size = util.sizeFromShape(shape);\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n }\n return {dataId, shape, dtype};\n }\n\n typedArrayFromHeap({shape, dtype, dataId}: TensorInfo):\n backend_util.TypedArray {\n const buffer = this.wasm.HEAPU8.buffer;\n const {memoryOffset} = this.dataIdMap.get(dataId);\n const size = util.sizeFromShape(shape);\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer, memoryOffset, size);\n case 'int32':\n return new Int32Array(buffer, memoryOffset, size);\n case 'bool':\n return new Uint8Array(buffer, memoryOffset, size);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n // this will be replace by rollup plugin patchWechatWebAssembly in\n // minprogram's output.\n // tslint:disable-next-line:no-any\n return (imports: any, callback: any) => {\n util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n if (!response['ok']) {\n imports.env.a(`failed to load wasm binary file at '${path}'`);\n }\n response.arrayBuffer().then(binary => {\n WebAssembly.instantiate(binary, imports).then(output => {\n callback(output.instance, output.module);\n });\n });\n });\n return {};\n };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n simdSupported: boolean, threadsSupported: boolean,\n wasmModuleFolder: string) {\n if (wasmPath != null) {\n // If wasmPath is defined, the user has supplied a full path to\n // the vanilla .wasm binary.\n return wasmPath;\n }\n\n let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n if (simdSupported && threadsSupported) {\n path = 'tfjs-backend-wasm-threaded-simd.wasm';\n } else if (simdSupported) {\n path = 'tfjs-backend-wasm-simd.wasm';\n }\n\n if (wasmFileMap != null) {\n if (wasmFileMap[path] != null) {\n return wasmFileMap[path];\n }\n }\n\n return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n const [simdSupported,
threadsSupported] = await Promise.all([\n env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n]);\n\n return new Promise((resolve, reject) => {\n const factoryConfig: WasmFactoryConfig = {};\n\n /**\n * This function overrides the Emscripten module locateFile utility.\n * @param path The relative path to the file that needs to be loaded.\n * @param prefix The path to the main JavaScript file's directory.\n */\n factoryConfig.locateFile = (path, prefix) => {\n if (path.endsWith('.worker.js')) {\n const response = wasmWorkerContents;\n const blob = new Blob([response], {type: 'application/javascript'});\n return URL.createObjectURL(blob);\n }\n\n if (path.endsWith('.wasm')) {\n return getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : prefix);\n }\n return prefix + path;\n
};\n\n // Use the instantiateWasm override when system fetch is not available.\n // Reference:\n // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n if (customFetch) {\n factoryConfig.instantiateWasm =\n createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : ''));\n }\n\n let initialized = false;\n factoryConfig.onAbort = () => {\n if (initialized) {\n // Emscripten already called console.warn so no need to double log.\n return;\n }\n if (initAborted) {\n // Emscripten calls `onAbort` twice, resulting in double error\n // messages.\n return;\n }\n initAborted = true;\n const rejectMsg =\n 'Make sure the server can serve the `.wasm` file relative to the ' +\n 'bundled

```
 js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n      reject({message: rejectMsg});\n    };\n\n    let wasm: Promise<BackendWasmModule>;\n    // If `wasmPath` has been defined we must initialize the vanilla module.\n    if (threadsSupported && simdSupported && wasmPath == null) {\n      factoryConfig.mainScriptUrlOrBlob = new Blob(\n          [`var WasmBackendModuleThreadedSimd = ` +\n           wasmFactoryThreadedSimd.toString()],\n          {type: 'text/javascript'});\n      wasm = wasmFactoryThreadedSimd(factoryConfig);\n    } else {\n      // The wasmFactory works for both vanilla and SIMD binaries.\n      wasm = wasmFactory(factoryConfig);\n    }\n\n    // The WASM module has been successfully created by the factory.\n    // Any error will be caught by the onAbort callback defined above.\n    wasm.then((module) => {\n      initialized = true;\n      initAborted = false;\n\n      const voidReturnType: string = null;\n      // Using the tfjs namespace to avoid conflict with emscripten's API.\n      module.tfjs = {\n        init: module.cwrap('init', null, []),\n        initWithThreadsCount:\n            module.cwrap('init_with_threads_count', null, ['number']),\n        getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n        registerTensor: module.cwrap(\n            'register_tensor', null,\n            [\n              'number',  // id\n              'number',  // size\n              'number',  // memoryOffset\n            ]),\n        disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n        dispose: module.cwrap('dispose', voidReturnType, []),\n      };\n\n      resolve({wasm: module});\n    });\n  });\n}\n\nfunction typedArrayFromBuffer(\n    buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n  switch (dtype) {\n    case 'float32':\n      return new Float32Array(buffer);\n    case 'int32':\n      return new Int32Array(buffer);\n    case 'bool':\n      return new Uint8Array(buffer);\n    default:\n      throw new Error(`Unknown dtype ${dtype}`);\n  }\n}\n\nconst wasmBinaryNames = [\n  'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n  'tfjs-backend-wasm-threaded-simd.wasm'\n] as const ;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n *     the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string, usePlatformFetch = false): void {\n  deprecationWarn(\n      'setWasmPath has been deprecated in favor of setWasmPaths and' +\n      ' will be removed in a future release.');\n  if (initAborted) {\n    throw new Error(\n        'The WASM backend was already initialized. Make sure you call ' +\n        '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n  }\n  wasmPath = path;\n  customFetch = usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n *  'tfjs-backend-wasm.wasm': 'renamed.wasm',\n *  'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n *  'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n *  - (string) The path to the directory where the WASM binaries are located.\n *     Note that this prefix will be used to load each binary (vanilla,\n *     SIMD-enabled, threading-enabled, etc.).\n *  - (object) Mapping from names of WASM binaries to custom\n *     full paths specifying the locations of those binaries. This is useful if\n *     your WASM binaries are not all located in the same directory, or if your\n *     WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n *     the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n    prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n    usePlatformFetch = false): void {\n  if (initAborted) {\n    throw new Error(\n        'The WASM backend was already initialized. Make sure you call ' +\n        '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n        '`tf.ready()`');\n  }\n\n  if (typeof prefixOrFileMap === 'string') {\n    wasmPathPrefix = prefixOrFileMap;\n  } else {\n    wasmFileMap = prefixOrFileMap;\n    const missingPaths =\n        wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n    if (missingPaths.length > 0) {\n      throw new Error(\n          `There were no entries found for the following binaries: `
```

+\n `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND,
 either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n},
WASM_PRIORITY);\n"],"names":["_FusedMatMul","util","Abs","backend_util","Add","AddN","Identity","setup","Transpose","All","Any","wasmFunc","ArgMax","AvgPool","Reshape","BatchMatMul","slice_util","buffer","sliceImplCPU","Slice","BatchToSpaceND","Cast","Ceil","ClipByValue","concatImplCPU","Concat","Conv2D","Conv2DBackpropInput","Cos","Cosh","CropAndResize","Cumsum","DepthToSpace","DepthwiseConv2dNative","Elu","supportsFullBroadcast","Equal","Exp","ExpandDims","Fill","FlipLeftRight","Floor","FloorDiv","FusedBatchNorm","FusedConv2D","FusedDepthwiseConv2D","GatherNd","gather_util","GatherV2","Greater","GreaterEqual","setupFunc","LeakyRelu","Less","LessEqual","Log","LogicalAnd","Max","Maximum","MaxPool","Mean","Min","Minimum","MirrorPad","Multiply","Neg","NonMaxSuppressionV3","NonMaxSuppressionV4","NonMaxSuppressionV5","kernelFunc","NotEqual","OneHot","OnesLike","Pack","PadV2","Pow","Prelu","Prod","rangeImplCPU","Range","RealDiv","Relu","Relu6","ResizeBilinear","Reverse","RotateWithOffset","Round","Rsqrt","ScatterNd","scatter_util","Select","Sigmoid","Sin","Softmax","SpaceToBatchND","SplitV","Sqrt","Square","SquaredDifference","Step","StridedSlice","Sub","Sum","Tan","Tanh","Tile","TopK","Transform","Unpack","ZerosLike","registerKernel","env","require$$0","require$$1","require$$2","global","require$$3","require$$4","KernelBackend","DataStorage","engine","wasmFactoryThreadedSimd","wasmFactory","deprecationWarn","registerBackend"],"mappings":";;;;

O,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,CAAC,EAAE,CAAC,EAAE,IAAI,EAAE,sB
AAsB,EAAC,GAAG,MAAM,CAAC;MAEpD,IAAI,CAAC,CAAC,KAAK,KAAK,SAAS,IAAI,CAAC,CAAC,KA
AK,KAAK,SAAS,EAAE;UAClD,MAAM,IAAI,KAAK,CACX,6DAA6D,CAAC,CAAC;OACpE;MAED,MAAM,
EAAC,UAAU,EAAE,UAAU,EAAE,UAAU,EAAE,cAAc,EAAC,GAAG,KAAK,CAAC;MACnE,MAAM,GAAG,
GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAC/C,
MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,
CAAC;MAE/C,IAAI,MAAM,GAAG,CAAC,CAAC;MACf,IAAI,IAAI,IAAI,IAAI,EAAE;UAChB,MAAM,QAAQ
,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC;UACpD,IAAI,QAAQ,C
AAC,KAAK,CAAC,MAAM,KAAK,CAAC,EAAE;cAC/B,MAAM,IAAI,KAAK,CACX,iDAAiD;kBACjD,QAAQ
,QAAQ,CAAC,KAAK,CAAC,MAAM,GAAG,CAAC,CAAC;WACvC;UACD,MAAM,GAAG,QAAQ,CAAC,EA
AE,CAAC;OACtB;MACD,MAAM,wBAAwB,GAAG,sBAAsB,IAAI,IAAI;UAC3D,CAAC;UACD,OAAO,CAAC,
SAAS,CAAC,GAAG,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAC5D,MAAM,eAAe,GACj
B,iBAAiB,CAAC,UAAkD,CAAC,CAAC;MAC1E,IAAI,eAAe,IAAI,IAAI,EAAE;UAC3B,MAAM,IAAI,KAAK,C
ACX,GAAG,UAAU,gDAAgD;cAC7D,sBAAsB,CAAC,CAAC;OAC7B;MAED,MAAM,OAAO,GAAG,UAAU,G
AAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;MA
CrD,MAAM,QAAQ,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,K
AAK,CAAC,CAAC,CAAC,CAAC;MACtD,MAAM,QAAQ,GAAG,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,C
AAC;MAE5B,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,QAAQ,EAAE,OAAO,EAAE,QAAQ,
CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MACvE,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,
GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEnD,MAAM,WAAW,GAAG,IAAI,UAA
U,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;MACnE,MAAM,WA
AW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC
;MAEnE,eAAe,CACX,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,EAAE,GAAG,EAE,
WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAClE,UAAU,EAAE,UAAU,EAAE,eAAe,EAAE,MAAM,
EAAE,wBAAwB,EACzE,cAAc,IAAI,CAAC,EAAE,KAAK,CAAC,CAAC;MAEhC,OAAO,GAAG,CAAC;EACb,
CAAC;EAEM,MAAM,iBAAiB,GAAiB;MAC7C,UAAU,EAAEA,qBAAY;MACxB,WAAW,EAAE,MAAM;MAC
nB,SAAS,EAAE,KAAK;MAChB,UAAU,EAAE,gBAAoC;GACjD;;EC7GD;;;;;;;;;;;;;;;;WAuBgB,uBAAuB,CACn
C,UAAkB,EAAE,OAAkB;MACxC,IAAI,QAA6D,CAAC;MAElE,SAAS,CAAC,UAAU,EAAE,OAAO,CAAC;MAE9B,QAAQ
,GAAG,OAAO,CAAC,IAAI,CAAC,UAAU,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;MAEhD,OAAO
,QAAQ,CAAC;EAClB;;EAEA,SAAS,SAAS,CAAC,UAAkB,EAAE,OAAkB;MACvD,IAAI,CAAC,OAAO,IAAI,
OAAO,CAAC,MAAM,KAAK,CAAC,EAAE;UAC7B,MAAM,IAAI,KAAK,CAAC,gBAAgB,CAAC;OACpC;MAED,IAAI,
CAAC,UAAU,IAAI,UAAU,CAAC,MAAM,KAAK,CAAC,EAAE;UAC1C,MAAM,IAAI,KAAK,CAAC,kBAAkB,CAAC;
OACtC;MAED,KAAK,MAAM,MAAM,IAAI,OAAO,EAAE;UAC5B,IAAI,OAAO,MAAM,CAAC,KAAK,KAAK,QAAQ,I
AAI,MAAM,CAAC,KAAK,GAAG,CAAC,EAAE;cACxD,MAAM,IAAI,KAAK,CAAC,qBAAqB,CAAC;WACzC;UAED,IAAI,
OAAO,MAAM,CAAC,MAAM,KAAK,QAAQ,IAAI,MAAM,CAAC,MAAM,GAAG,CAAC,EAAE;cAC1D,MAAM,IAAI,KAAK,
CAAC,sBAAsB,CAAC;WAC1C;UAED,IAAI,MAAM,CAAC,MAAM,GAAG,UAAU,CAAC,MAAM,EAAE;cACrC,MAAM,IAAI,KAAK,
CAAC,sBAAsB,CAAC;WAC1C;OACF;EACH;;EAEA,SAAS,OAAO,CAAC,UAAkB,EAAE,OAAkB;MACrD,IAAI,CAAC,OAAO,IAAI,
OAAO,CAAC,MAAM,KAAK,CAAC,EAAE;UAC7B,MAAM,IAAI,KAAK,CAAC,gBAAgB,CAAC;OACpC;MAED,IAAI,CAAC,UAAU,IAAI,UAAU,CAAC,MAAM,KAAK,CAAC,EAAE;UAC1C,MAAM,IAAI,KAAK,CAAC,kBAAkB,CAAC;
OACtC;MAED,KAAK,MAAM,MAAM,IAAI,OAAO,EAAE;UAC5B,IAAI,OAAO,MAAM,CAAC,KAAK,KAAK,QAAQ,I
AAI,MAAM,CAAC,KAAK,GAAG,CAAC,EAAE;cACxD,MAAM,IAAI,KAAK,CAAC,qBAAqB,CAAC;WACzC;UAED,IAAI,
OAAO,MAAM,CAAC,MAAM,KAAK,QAAQ,IAAI,MAAM,CAAC,MAAM,GAAG,CAAC,EAAE;cAC1D,MAAM,IAAI,KAAK,
CAAC,sBAAsB,CAAC;WAC1C;UAED,IAAI,MAAM,CAAC,MAAM,GAAG,UAAU,CAAC,MAAM,EAAE;cACrC,MAAM,IAAI,KAAK,
CAAC,sBAAsB,CAAC;WAC1C;OACF;EACH;;EAEA,SAAS,SAAS,CAAC,UAAkB,EAAE,OAAkB;MACv

,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,UAAU,CAAC,CAAC;;UAGrD,IAAIF,aAAI,CAAC,aAAa,CAAC,QAAQ,CAAC,KAAK,CAAC,EAAE;cACtC,OAAO,GAAG,CAAC;WACZ;UAED,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;UACnE,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC;UACnE,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;UACnD,MAAM,UAAU,GAAG,GAAG,CAAC,MAAM,QAAQ,CAAC7B,GAAG,EAAE,EAAE,WAAW,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;UACnG

;MAEF,IAAI,UAAU,EAAE;UACd,MAAM,MAAM,GAAG,QAAQ,CAAC,EAAC,MAAM,EAAE,OAAO,EAAC,CAAC,CAAC;UAC3C,MAAM,CAAC,KAAK,GAAG,QAAQ,CAAC;UACxB,OAAO,MAAM,CAAC;OACf;MAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MAClD,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,,CAAC,GAAG,,CAAC,CAAC,,MAAM,,CAAC,CAAC,,EAAE,CAAC;MAC/C,MAAM,KAAK,,GAAG,,OAAO,CAAC,SAAS,,CAAC,GAAG,,CAAC,GAAG,,CAAC,MAAM,,C,AAC,CAAC,EAAE,,CAAC;MACnD,MAAM,SAAS,,GAAG,,IAAI,,UAAU,,CAAC,IAAI,,UAAU,,CAAC,IAAI,,CAAC,,CAAC,MAAM,,CAAC,CAAC;MAC9D,MAAM,WAAW,,GAAG,,IAAI,,UAAU,,CAAC,IAAI,,UAAU,,CAAC,CAAC,,CAAC,KAAK,,CAAC,CAAC,,MAAM,,CAAC,CAAC;MAEnE,MAAM,EAAAa,CACT,EAAE,,QAAQ,,CAAC,CAAC,,CAAC,KAAK,,CAAC,EAAE,,KAAK,,EAAE,,SAAS,,EACrE,IAAI,,CAAC,,MAAM,,CAAC,,CAAC;MACjB,OAAO,,GAAG,,CAAC;EACb,CAAC;EAED,SAAS,,eAAe,,CAAC,OAAO,iB,AAAiB,EAAE,IAAI,c,AAAc,CAAC,CAAC,EAAE,IAAI,EAAE,IAAI,CAAC;MACxF,MAAM,QAAQ,GAAG,IAAI,KAAK,CAAC,CAAC,CAAC;MAC7B,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;QAC1B,QAAQ,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC;MACnC;MACA,OAAO,QAAQ;EACjB;EAEA,SAAS,eAAe,CAAC,GAAG,EAAE,CAAC,EAAE;MAC/B,OAAO,GAAG,CAAC,MAAM,KAAK,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC

B,EAAC,GACtD,uBAAuB,CAAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;MAE9C,IAAI,kBAAkB,EAAE;UACtB,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;UACjE,KAAK,GAAG,UAAU,CAAC;UACnB,OAAO,GAAG,YAAY,CAAC;OACxB;MAED,MAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;MACrC,N,qBAAY,CAAC,0BAA0B,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;MAChE,E,WAAW,CAAC,QAAQ,EAAE,WAAW,CAAC,GAAG,CAAC,yBAAyB,CAAC,qBAAY,CAAC,yBAAyB,CAAC,KAAK,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;MAAC

AG,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;MAC1C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,OAAO,CAAC,CAAC;MAClD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAChD,MAAM,SAAS,GAAG,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC;MAChD,MAAM,KAAK,GAAG,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;MACvC,UAAU,CAAC,QAAQ,CAAC,OAAO,EAAE,QAAQ,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE,CAAC,CAAC,CAAC;MAEtE,IAAI,kBAAkB,EAAE;;UAEtB,OAAO,CAAC,WAAW,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,CAAC;OACxC;MAED,OAAO,GAAG,CAAC;ECb,CAAC;EAEM,MAAM,YAAY,GAAiB,CAAC;MACxC,UAAU,EAAE,EAAE,AAM;MAClB,WAAW,EAAE,EAAE,MAAM;MACnB,UAAU,EAAE,EAAE,MAA0B;MACtC,SAAS,EAAE,EAAE,EAAE,OAAO,GAAG;GACjB,B;;EChFD;;;;;;;;;;;;;;;;;;;;EAqBA,IAAI,WAAW,I6D,CAAC;EAElE,SAASA,OAAK,CAAC,OAAO,oB;MACjC,WAAW,GAAG,OAAO,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

AI,CAAC;MACtC,MAAM,EAAC,CAAC,EAAE,CAAC,EAAC,GAAG,MAAM,CAAC;MACtB,MAAM,EAAC,U
AAU,EAAE,UAAU,EAAC,GAAG,KAAK,CAAC;MAEvC,IAAI,CAAC,CAAC,KAAK,KAAK,SAAS,IAAI,CAA
C,CAAC,KAAK,KAAK,SAAS,EAAE;UAClD,MAAM,IAAI,KAAK,CACX,4DAA4D,CAAC,CAAC;OACnE;MA
ED,MAAM,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC;MAC7B,MAAM,KAAK,GAAG,CAAC,
CAAC,KAAK,CAAC,MAAM,CAAC;MAE7B,MAAM,WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CA
AC,KAAK,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;MA
CzE,MAAM,WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,GAAG,C
AAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;MAEzE,MAAM,WAAW,GAAG,UAAU,GAAG
,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,
CAAC,CAAC,CAAC;MACzE,MAAM,WAAW,GAAG,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAA
G,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,GAAG,CAAC,CAAC,CAAC;MAEzE,MAAM,UA
AU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;MACxC,MA
AM,UAAU,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;MA
ExC,MAAM,SAAS,GAAGd,aAAI,CAAC,aAAa,CAAC,UAAU,CAAC,CAAC;MACjD,MAAM,SAAS,GAAGA,a
AAI,CAAC,aAAa,CAAC,UAAU,CAAC,CAAC;MAEjD,MAAM,mBAAmB,GACrB,SAAS,KAAK,SAAS,IAAI,S
AAS,KAAK,CAAC,IAAI,SAAS,KAAK,CAAC,CAAC;MAElEA,aAAI,CAAC,MAAM,CACP,KAAK,IAAI,CAA
C,IAAI,KAAK,IAAI,CAAC,IAAI,mBAAmB,EAC/C,MAAM,iEAAiE;UACnE,kEAAkE;UAClE,wBAAwB,UAA
U,UAAU,UAAU,IAAI,CAAC,CAAC;MAEpE,MAAM,iBAAiB,GACnB,SAAS,GAAG,SAAS,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;MACxE,MAAM,QAAQ,GAAG,iBAAiB,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC

AY,EAAE;EAClE,IAAI,MAAM,OAAO,GAAGN,aAAI,CAAC,iBAAiB,CAAC,KAAK,EAAEA,aAAI,CAAC,aA
Aa,CAAC,QAAQ,CAAC,CAAC,CAAC;EAChF,IAAI,IAAI,YAAY,IAAI,KAAK,KAAK,QAAQ,EAAE;EAC5C;E
ACA,QAAQ,IAAI,MAAM,GAAG,CAAC,CAAC;EACvB,QAAQ,MAAM,CAAC,OAAO,CAAC,KAAK,IAAI;EA
ChC,YAAY,MAAM,IAAI,GAAGA,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC;EACzD,YA
AY,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,IAAI,EAAE,MAAM,CAAC,CAAC;EAC5C,YAAY,MAAM,IA
AI,IAAI,CAAC;EAC3B,SAAS,CAAC,CAAC;EACX,KAAK;EACL,SAAS;EACT,QAAQ,IAAI,SAAS,GAAG,CA
AC,CAAC;EAC1B,QAAQ,MAAM,CAAC,OAAO,CAAC,KAAK,IAAI;EAChC,YAAY,MAAM,WAAW,GAAG,
KAAK,KAAK,QAAQ;EAClD,gBAAgBE,qBAAY,CAAC,sBAAsB,CAAC,KAAK,CAAC,IAAI,CAAC;EAC/D,gB
AAgB,KAAK,CAAC,IAAI,CAAC;EAC3B,YAAY,IAAI,IAAI,GAAG,CAAC,CAAC;EACzB,YAAY,KAAK,IAAI
,GAAG,GAAG,CAAC,EAAE,GAAG,GAAG,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,EAAE,GAAG,E
AAE;EAC3D,gBAAgB,MAAM,MAAM,GAAG,GAAG,GAAG,QAAQ,CAAC,CAAC,CAAC,GAAG,SAAS,CAA
C;EAC7D,gBAAgB,KAAK,IAAI,GAAG,GAAG,CAAC,EAAE,GAAG,GAAG,KAAK,CAAC,KAAK,CAAC,CA
AC,CAAC,EAAE,EAAE,GAAG,EAAE;EAC/D,oBAAoB,OAAO,CAAC,MAAM,GAAG,GAAG,CAAC,GAAG,
WAAW,CAAC,IAAI,EAAE,CAAC,CAAC;EAChE,iBAAiB;EACjB,aAAa;EACb,YAAY,SAAS,IAAI,KAAK,CA
AC,KAAK,CAAC,CAAC,CAAC,CAAC;EACxC,SAAS,CAAC,CAAC;EACX,KAAK;EACL,IAAI,OAAO,OAAO
,CAAC;EACnB;;EC7CA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;
EACA;EACA;EAEO,SAAS,SAAS,CAAC,KAAK,EAAE,IAAI,EAAE,IAAI,EAAE,KAAK,EAAE;EACpD,
IAAI,MAAM,aAAa,GAAG,KAAK,KAAK,IAAI,CAAC;EACzC,IAAI,MAAM,2BAA2B,GAAG,KAAK,I
AAI,IAAI,IAAI,GAAG,CAAC,CAAC;EACjE,IAAI,MAAM,2BAA2B,GAAG,IAAI,IAAI,GAAG,KAAK,IAAI,I
AAG,CAAC,CAAC;EACjE,IAAI,IAAI,aAAa,IAAI,2BAA2B;EACpD,QAAQ,2BAA2B,EAAE;EACrC,QAAQ,OA
AOF,aAAI,CAAC,mBAAmB,CAAC,CAAC,EAAE,KAAK,CAAC,CAAC;EAClD,KAAK;EACL,IAAI,MAAM,W
AAW,GAAG,IAAI,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,CAAC,IAAI,GAAG,KAAK,IAAI,IAAI,CAA
C,CAAC,CAAC;EACnE,IAAI,MAAM,MAAM,GAAGA,aAAI,CAAC,mBAAmB,CAAC,WAAW,EAAE,KAAK,
CAAC,CAAC;EAChE,IAAI,IAAI,IAAI,GAAG,KAAK,IAAI,KAAK,CAAC,CAAC,EAAE;EACpC;EACA,Q
AAQ,IAAI,GAAG,CAAC,CAAC,CAAC;EAClB,KAAK,KAAK,IAAI,MAAM,CAAC,CAAC,CAAC,GAAG,KAA
K,CAAC;EACtB,IAAI,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,MAAM,CAAC,MAAM,EAAE,
CAAC,EAAE,EAAE;EAC5C,QAAQ,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,GAAG,CAAC
,CAAC,GAAG,IAAI,CAAC;EACzC,KAAK;EACL,IAAI,OAAO,MAAM,CAAC;EAClB;;ECrCA;EACA;EACA;EA
CA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EACA;EAGO,SAAS,SAAS
,CAAC,IAAI,EAAE,KAAK,EAAE,IAAI,EAAE,KAAK,EAAE;EAC3D,IAAI,MAAM,WAAW,GAAG,
AGe,mBAAU,CAAC,gBAAgB,CAAC,KAAK,EAAE,KAAK,EAAE,IAAI,CAAC,CAAC,CAAC;EACxE,IAAI,MAAM,M
AAM,GAAGf,aAAI,CAAC,aAAa,CAAC,IAAI,CAAC,CAAC,CAAC;EAC5C,IAAI,MAAM,QAAQ,GAAG
,cAAc,CAAC,KAAK,CAAC,CAAC,CAAC;EAChD,IAAI,IAAI,IAAI,GAAG,WAAW,EAAE;EACrB,QAAQ,MAAM,UAAU,GAAG
,iBAAiB,CAAC,KAAK,EAAE,QAAQ,CAAC,CAAC,CAAC;EACzD,QAAQ,IAAI,IAAI,GAAG,IAAI,EAAE;EACzB,YAAY,OAAO,IAAI,GAAG,CAAC,CAAC;EAC5B,SAAS;EACT,KAAK;EACL,IAAI,OAAO,CAAC,CAAC;EACb,CAAC;EAED,SAAS,cAAc,CAAC,KAAK,EAAE,KAAK,EAAE,IAAI,EAAE,KAAK,EAAE;EACnD,IAAI,MAAM,WAAW,GAAG
,KAAK,KAAK,IAAI,CAAC;EACxC,IAAI,MAAM,MAAM,GAAG,WAAW,GAAG,CAAC,GAAG,CAAC,CAAC;EACvC,IAAI,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,EAAE;EACtC,QAAQ,MAAM,CAAC,GAAG,WAAW,GAAG,CAAC,GAAG,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;EACnD,QAAQ,MAAM,CAAC,GAAG,KAAK,CAAC,CAAC,CAAC,CAAC;EAC3B,QAAQ,IAAI,CAAC,GAAG,CAAC,EAAE;EACnB,YAAY,OAAO,CAAC,CAAC;EACrB,SAAS;EACT,KAAK;EACL,IAAI,OAAO,CAAC,CAAC,CAAC;EACd,CAAC;EAED,SAAS,iBAAiB,CAAC,KAAK,EAAE,KAAK,EAAE,QAAQ,EAAE;EACnD,IAAI,MAAM,WAAW,GAAG
,KAAK,KAAK,IAAI,CAAC;EACxC,IAAI,MAAM,MAAM,GAAG,WAAW,GAAG,CAAC,GAAG,CAAC,CAAC;EACvC,IAAI,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,EAAE;EACtC,QAAQ,MAAM,CAAC,GAAG,WAAW,GAAG,CAAC,GAAG,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;EACnD,QAAQ,MAAM,CAAC,GAAG,KAAK,CAAC,CAAC,CAAC,CAAC;EAC3B,QAAQ,IAAI,CAAC,GAAG,QAAQ,EAAE;EAC1B,YAAY,OAAO,CAAC,CAAC;EACrB,SAAS;EACT,KAAK;EACL,IAAI,OAAO,CAAC,CAAC,CAAC;EACd

M,CAAC,MAAM,EAAE,KAAK,CAAC,GAAGa,mBAAU,CAAC,gBAAgB,CAAC,CAAC,EAAE,KAAK,EAAE,IAAI,CAAC,CAAC;MAEpE,MAAM,WAAW,GAAGA,mBAAU,CAAC,gBAAgB,CAAC,CAAC,CAAC,KAAK,EAAE,MAAM,EAAE,KAAK,CAAC,CAAC;MACxE,MAAM,KAAK,GAAG,OAAO,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC;MACzC,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MAC/C,MAAM,QAAQ,GAAGf,aAAI,CAAC,cAAc,CAAC,KAAK,CAAC,cAAc,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,,CAAC,CAAC;MAElD,IAAI,WAAW,EAAE;UACf,MAAM,UAAU,GAAG,OAAO,CAAC,UAAU,CAAC,KAAK,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;cACxG,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kBAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sBAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0BAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8BAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kCAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sCAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0CAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8CAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kDAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sDAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0DAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8DAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kEAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sEAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0EAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8EAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kFAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sFAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0FAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8FAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kGAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sGAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0GAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8GAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kHAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sHAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0HAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8HAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kIAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sIAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0IAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8IAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kJAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sJAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0JAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8JAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kKAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sKAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0KAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8KAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kLAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sLAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0LAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8LAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kMAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sMAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0MAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8MAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kNAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sNAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0NAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8NAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kOAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sOAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0OAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8OAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kPAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sPAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0PAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8PAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kQAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sQAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0QAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8QAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kRAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sRAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0RAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8RAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kSAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sSAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0SAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8SAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kTAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sTAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0TAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8TAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kUAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sUAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0UAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8UAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kVAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sVAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0VAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8VAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kWAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sWAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0WAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8WAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kXAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sXAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0XAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8XAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kYAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sYAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0YAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8YAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kZAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sZAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;0ZAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;8ZAC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;kaC5G,OAAO,CAAC,WAAW,GAAG,kBAAC,KAAK,EAAE,UAAU,EAAE,mBAAU,CAAC,iBAAiB,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,EAAE;sa

AAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;UAClC,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;cAClC,KAAK,IAAI,CAAC,GAAG,MAAM,EAAE,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,EAAE;kBAClC,MAAM,OAAO,GAAG,CAAC,GAAG,QAAQ,GAAG,CAAC,GAAG,QAAQ,GAAG,CAAC,GAAG,QAAQ,GAAG,CAAC,GAAG,QAAQ,GAAG,MAAM,CAAC;kBACpE,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,QAAQ,,CAAC,OAAO,EAAE,OAAO,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC,EAAE,SAAS,CAAC,CAAC;kBACnE,SAAS,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC;eACtB;WACF;OACF;ECH,CAAC;EAEM,MAAM,WAAW,GAAiB;MACvC,UAAU,EAAEC,cAAA;MACjB,WAAW,EAAE,MAAM;MACnB,UAAU,EAAE,KAAyB;GACtC;;ECh JD;;;;;;;;;;;;;;;EAyBA,SAAS,cAAc,CAAC,IAAIvB;MACC,MAAM,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;MAC7D,IAAI,CAAC,MAAM,GAAG,MAAM,CAAC;MACrB,IAAI,CAAC,KAAK,GAAG,KAAK,CAAC;MACnB,IAAI,CAAC,OAAO,GAAG,OAAO,CAAC;MACvB,IAAI,CAAC,IAAI,GAAG,IAAI,CAAC;IACnB;IAEA,cAAc,CAAC,SAAS,CAAC,QAAQ,GAAG,SAAS,QAAQ;MACnD,OAAO,IAAI,CAAC,MAAM,CAAC,QAAQ,EAAE,CAAC;IAChC,CAAC;IAED,cAAc,CAAC,SAAS,CAAC,MAAM,GAAG,SAAS,MAAM;MAC/C,OAAO,IAAI,CAAC,KAAK,CAAC,MAAM,EAAE,CAAC;IAC7B,CAAC;IAED,cAAc,CAAC,SAAS,CAAC,OAAO,GAAG,SAAS,OAAO;MACjD,OAAO,IAAI,CAAC,OAAO,CAAC,OAAO,EAAE,CAAC;IAC/B,CAAC;IAED,cAAc,CAAC,SAAS,CAAC,IAAI,GAAG,SAAS,IAAI;MAC3C,OAAO,IAAI,CAAC,IAAI,CAAC,IAAI,EAAE,CAAC;IAC1B,CAAC;IAED,OAAO,cAAc,CAAC;EACxB,CAAC,EAAE;EAEH,IAAI,OAAO,GAAG,cAAc,EAAE,CAAC;EAE/B,IAAI,OAAO,OAAO,KAAK,WAAW,EAAE;IAClC,OAAO,CAAC,OAAO,GAAG,OAAO,CAAC;EAC5B;EAEA,IAAI,OAAO,MAAM,KAAK,WAAW,EAAE;IACjC,MAAM,CAAC,OAAO,GAAG,OAAO,CAAC;EAC3B;EAEA,IAAI,OAAO,IAAI,KAAK,WAAW,EAAE;IAC/B,IAAI,CAAC,OAAO,GAAG,OAAO,CAAC;EACzB;AACA,CAAC,CAAC,CAAC;;;;;;;;;;;;;;;

CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC;MAEtE,IAAI,QAAQ,GAAGE,qBAAY,
CAAC,eAAe,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,EAAE,IAAI,CAA
C,CAAC;;MAG5E,MAAM,OAAO,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,IAAIF,aAAI,CAAC,aAAa,CA
AC,CAAC,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC,CAAC;MACpE,IAAI,OAAO,CAAC,MAAM,KAAK,CA
AC,EAAE;UACxB,OAAO,QAAQ,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,OAAO,CAAC,CAAC,CA
AC,EAAC,EAAE,OAAO,EAAC,CAAC,CAAC;OACrD;MAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,C
AAC,QAAQ,EAAE,MAAM,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC;MAE1D,IAAIA,aAAI,CAAC,aA
Aa,CAAC,QAAQ,CAAC,KAAK,CAAC,EAAE;UACtC,OAAO,GAAG,CAAC;OACZ;MAED,MAAM,MAAM,G
AAG,OAAO,CAAC,GAAG,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,CAAC;MACzCE,qBAAY,CAAC,s
BAAsB,CAAC,MAAM,EAAE,IAAI,CAAC,CAAC;MAElD,IAAI,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,K
AAK,QAAQ,EAAE;;;;;;;;UAQjC,MAAM,QAAQ,GAAG,OAAO,CAAC,GAAG,CAAC,CAAC;cAC5B,MAAM,S
AAS,GAAGF,aAAI,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC
;cAC1D,MAAM,KAAK,GAAG,CAAC,CAAC,CAAC,EAAE,SAAS,CAAC,CAAC;cAC9B,OAAO,OAAO,CAAC,
EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,KAAK,EA
AC,EAAC,CAAC,CAAC;WAC3D,CAAC,CAAC;UAEH,MAAM,eAAe,GAAG,QAAQ,CAAC,GAAG,CAAC,CA
AC;cACpC,OAAO,EAAC,IAAI,EAAE,OAAO,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,KAA
K,EAAE,CAAC,CAAC,KAAK,EAAC,CAAC,CAAC;WAC3D,CAAC,CAAC;;UAGH,QAAQ;cACJE,qBAAY,CAAC,eA
Ae,CAAC,QAAQ,CAAC,GAAG,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,YAAY,CAAC;
UAC3E,MAAM,YAAY,GAAG,QAAQ,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC
,CAAC;UAChD,MAAM,OAAO,GAAGqB,CAACT,eAAe,EAAE,QAAQ,EAAE,MAAM,CAAC,CAAC,CAAA
C,CAAC,KAAK,EAC1C,YAAY,CAAA,CAAC;UAE9C,MAAM,aAAa,GACfrB,qBAAY,CAAC,eAAe,CAAC,OA
AO,CAAC,GAAG,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,EAAE,IAAI,CAAC,CAAC;UAElE,IAAI,GAAG,
CAAC,KAAK,GAAG,aAAa,CAAC;UAC1B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,
GAAG,CAAC,MAAM,CAAC,CAAC;UAClD,OAAO,CAAC,WAAW,GAAG,qBAAY,CAAC,sBAAsB,CAAC,
OAAO,CAAC,CAAC;UAEnE,QAAQ,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,WAAW,CAAC,CAAC,
CAAC,MAAM,CAAC,CAAC;UAErD,OAAO,GAAG,CAAC;OACZ;MAED,MAAM,QAAQ,GAAG,GAAGF,aAAI,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,EAAE,IAAI,CA
AC,CAAC,CAAC;MACrE,IAAI,YAAY,GAAG,QAAQ,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC,KAAK

AC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEzD,MAAM,EAAC,OAAO,EAAE,SAAS,EAAE,GAAG,EAAE,eA
Ae,EAAE,UAAU,EAAC,GAAG,KAAK,CAAC;MACrE,MAAM,WAAW,GAAGvB,qBAAY,CAAC,uBAAuB,CA
AC,UAAU,CAAC,CAAC;MACrE,MAAM,QAAQ,GAAGA,qBAAY,CAAC,iBAAiB,CAC1C,CAAc,CAAC,KAA
K,EAAG,MAAmB,CAAC,KAAK,EAAE,OAAO,EAAE,SAAS,EACrE,GAAG,EAAE,eAAe,EAAE,KAAK,EAAE,
WAAW,CAAC,CAAC;MAE9C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;MAC3C,MAAM,WAAW,
GAAG,QAAQ,CAAC,WAAW,CAAC;MACzC,MAAM,MAAM,GAAG,QAAQ,CAAC,OAAO,CAAC,GAAG,CA
AC;MACpC,MAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;MACxC,MAAM,SAAS,GAAG,
QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;MAC1C,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI
,CAAC;MACtC,MAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;MAC/C,MAAM,aAAa,GAAG,QAAQ,CAAC,
aAAa,CAAC;MAC7C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;MAC3C,MAAM,WAAW,GAAG,QA
AQ,CAAC,WAAW,CAAC;MACzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;MAC1C,MAAM,cAAc,
GAAG,QAAQ,CAAC,WAAW,CAAC;MAC5C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,KAAK
,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;MAE3D,IAAI,QAAQ,CAAC,UAAU,KAAK,cAAc,EAAE;UAC1C,
MAAM,IAAI,KAAK,CACX,mDAAmD;cACnD,GAAG,QAAQ,CAAC,UAAU,+BAA+B,CAAC,CAAC;OAC5D;
MAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;
MAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAA
C,EAAE,CAAC;MACnD,UAAU,CACN,GAAG,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,CAA
C,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,QAAQ,EAAE,
YAAY,EAC/D,WAAW,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAC5D,cAAc,E
AAE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EACvE,cAAc,EAAE,KAAK,CAAC,CAAC;MAC3B,OA
AO,GAAG,CAAC;EACb,CAAC;EAEM,MAAM,YAAY,GAAiB;MACxC,UAAU,EAAE,eAAuB,eAAM;MAClB,WAA
W,EAAE,MAAM;MACnB,SAAS,EAAE,nB,OAAK;MAChB,UAAU,EAAE,MA0B;GACvC;;ECtGD;;;

AAU,CAAC,QAAQ,CAAC,OAAO,EAAE,SAAS,CAAC,CAAC;MAC5D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACnD,MAAM,IAAI,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACjD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEzD,uBAAuB,CACnB,IAAI,EAAE,QAAQ,EAAE,SAAS,EAAE,YAAY,EAAE,WAAW,EAAE,QAAQ,EAAE,OAAO,EACvE,UAAU,EAAE,SAAS,EAAE,QAAQ,EAAE,WAAW,EAAE,YAAY,EAAE,WAAW,EACvE,MAAM,EAAE,OAAO,EAAE,KAAK,EAAE,KAAK,EAAE,KAAK,EAAE,YAAY,EAAE,UAAU,EAC9D,UAAU,EAAE,cAAc,EAAE,YAAY,EAAE,UAAU,EAAE,UAAU,EAAE,cAAc,EAAE,KAAK,CAAC,CAAC;MAC3B,OAAO,GAAG,CAAC,CAAC;EACb,CAAC,CAAC;EAEM,MAAM,yBAAyB,GAAG,iBAAiB;MACrD,UAAU,EAAE,QAAQ,EAAE,EAAE,0BAA0B,EAAE,4BAA4B;MAC/E,CAAC,EAAE,WAAW,EAAE,QAAQ,EAAE,EAAE,MAAM,EAAE,MAAM,EAAE,yBAAyB,EAAE,iBAAiB;MACtF,UAAU,EAAE,QAAQ,EAAE,EAAE,MAAM,EAAE,MAAM,EAAE,yBAAyB,EAAE,iBAAiB;MACp

CAAC;OAC3E;MACD,MAAM,YAAY,GAAGA,qBAAY,CAAC,gBAAgB,CAAC,CAAC,EAAE,KAAK,CAAC,C
AAC,CAAC,CAAC,CAAC;MAChEA,qBAAY,CAAC,0BAA0B,CAAC,QAAQ,EAAE,CAAC,YAAY,CAAC,EA
AE,KAAK,CAAC,CAAC;MAEzE,MAAM,WAAW,GAAG,OAAO,CAAC,UAAU,CAAC,SAAS,CAAC,KAAK,E
AAE,SAAS,CAAC,KAAK,CAAC,CAAC;MACzE,MAAM,QAAQ,GAAG,SAAS,CAAC,KAAK,CAAC,YAAY,C
AAC,CAAC;MAC/C,MAAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,
CAAC,CAAC,EAAE,CAAC;MAC/D,MAAM,aAAa,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,WAAW,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACnE,UAAU,CAAC,WAAW,EAAE,SAAS,GAAG,CAAC,GAAG
,CAAC,EAAE,OAAO,GAAG,CAAC,GAAG,CAAC,EAAE,QAAQ,EACzD,aAAa,EAAE,QAAQ,CAAC,CAAC,C
AAC,KAAK,CAAC,CAAC,CAAC;;MAG7C,IAAI,GAAG,GAAG,WAAW,CAAC;MACtB,IAAI,WAAW,KAAK,I
AAI,EAAE;UACxB,MAAM,eAAe,GAAGA,qBAAY,CAAC,sBAAsB,CAAC,WAAW,CAAC,CAAC;UACzE,GA
AG,GAAG,SAAS,CACb,EAAC,MAAM,EAAE,EAAC,CAAC,CAAC,EAAE,WAAW,EAAC,EAAE,EAAE,KAAK,EAAE,EAA
C,IAAI,EAAE,eAAe,EAAC,EAAE,OAAO,EAAC,CAAC,CAAC;UACvE,OAAO,CAAC,WAAW,CAAC,SAAS,C
AAC,MAAM,CAAC,CAAC;UACtC,OAAO,CAAC,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC;OACz
C;MACD,OAAO,GAAG,CAAC;EACb,CAAC;EAEM,MAAM,YAAY,GAAGA,iB;MACxC,UAAU,EAAE4B,eAAM;
MAClB,WAAW,EAAE,MAAM;MACnB,SAAS,EAAExB,OAAK;MAChB,UAAU,EAAE,MA0B;GACvC;;EClF
D;;;;;;;;;;;;;;;EAqBA,IAAI,gBAGuC,CAAC;EAE5C,SASA,OAAK,CAAC,OAAoB;MACjC,gBAAgB,GAAG,O
AAO,CAAC,IAAI,CAAC,KAAK,CAACyB,qBAAY,EAAE,IAAI,WAAW;UACjE,QAAQ;UACR,QAAQ;UACR,
QAAQ;UACR,OAAO;UACP,QAAQ;UACR,OAAO;UACP,OAAO;UACP,QAAQ;UACR,QAAQ;OACT,CAAC,C
AAC;EACL,CAAC;WEe,YAAY,CAAC,IAI5B;MACC,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,E
AAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,CAAC,EAAC,GAAG,MAAM,CAAC,CAAC,EAAC,GAAG,MAAM,CAAC;MACnB,MAAM,EAAC,
SAAS,EAAE,UAAU,EAAC,GAAG,KAAK,CAAC;MAEtC,MAAM,SAAS,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;MAC7B,MAAM,WAAW,GAAG,UAAU,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

EAAC,GAAG,MAAM,CAAC;MAC3B,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAA
C,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAC/C,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GA
AG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEzD,MAAM,EAAC,OAAO,EAAE,SAAS,E
AAE,GAAG,EAAE,eAAe,EAAC,GAAG,KAAK,CAAC;MAEzD,MAAM,UAAU,GAAG,SAAS,IAAI,IAAI,GAA
G,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,SAAS,CAAC;MAE1D,MAAM,QAAQ,GAAG9B,qBAAY,,CAAC,i
BAAiB,CAC1C,CAAc,CAAC,KAAK,EAAG,MAAmB,CAAC,KAAK,EAAE,OAAO,EACzD,UAAwC,EAAE,GA
AG,EAAE,eAAe,EAC/D,IAAI,iBAAiB,CAAC;MAE1B,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;M
AC3C,MAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;MACzC,MAAM,MAAM,GAAG,QAAQ,CAAC,O
AAO,CAAC,GAAG,CAAC;MACpC,MAAM,QAAQ,GAAG,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;MACx
C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC;MAC1C,MAAM,OAAO,GAAG,QAAQ,C
AAC,OAAO,CAAC,IAAI,CAAC;MACtC,MAAM,cAAc,GAAG,QAAQ,CAAC,cAAc,CAAC;MAC/C,MAAM,aA
Aa,GAAG,QAAQ,CAAC,aAAa,CAAC;MAC7C,MAAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;MAC3C,M
AAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;MACzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAA
C;MAC1C,MAAM,cAAc,GAAG,QAAQ,CAAC,WAAW,CAAC;MAC5C,MAAM,SAAS,GAAG,QAAQ,CAAC,O
AAO,CAAC,IAAI,KAAK,MAAM,GAAG,QAAQ,CAAC,CAAC;MAE3D,IAAI,QAAQ,CAAC,UAAU,,KA
AK,cAAc,EAAE;UAC1C,MAAM,IAAI,KAAK,CACX,kEAAkE;cAClE,GAAG,QAAQ,CAAC,UAAU,,+BAA+B,
CAAC,CAAC;OAC5D;MAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAA
E,SAAS,CAAC,CAAC;MAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAA
C,MAAM,CAAC,CAAC,EAAE,CAAC;MACnD,mBAAmB,CACf,GAAG,EAAE,CAAC,CAAC,KAAK,CAAC,C
AAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CA
AC,EAAE,QAAQ,EAAE,YAAY,EAC/D,WAAW,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EA
AE,SAAS,EAC5D,cAAc,EAAE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EACvE,cAAc,EAAE,KAAK,C
AAC,CAAC;MAC3B,OAAO,GAAG,CAAC;EACb,CAAC;EAEM,MAAM,2BAA2B,GAAiB,UAAU,EA
AE8B,8BAAqB;MACjC,WAAW,EAAE,MAAM;MACnB,SAAS,EAAE1B,UAAK;MAChB,UAAU,EAAE,eAAm
C;GAChD;;EC7GD;;;;;;;;;;;;;;;EAoBO,MAAM,SAAS,GAAiB,uBAAuB,CAAC2B,YAAG,CAAC;;ECpBnE;;;;;;;;;
;;;;;EAoBA,MAAMC,uBAAqB,GAAG,KAAK,CAAC;EAC7B,MAAM,WAAW,GAAG,CpB,wBAAwB,CAACC,cAAK,
K,EAAED,uBAAqB,EAAE,MAAM,CAAC;;ECtBlE;;;;;;;;;;;;;;;EAoBO,MAAM,SAAS,GAAiB,uBAAuB,CAACE,cAAK,E,
YAAG,EAAE,SAAS,CAAC;;ECpB9E;;;;;;;;;;;;;;;WAsBgB,UAAU,CAAC,IAI1B;MACC,MAAM,EAAC,IAI1,
EAAC,MAAM,EAAC,IAAI,EAAC,MAAM,EAAC,IAAI,EAAC,MAAM,EAAC,IAAI,EAAC,MAAM,EAAC,IAAI,EAAC,MAAM,
EAAE,KAAK,EAAE,OAAO,EAAC,GAAG,EAAC,IAAI,CAAC;MACtC,MAAM,EAAC,KAAK,EAAC,GAAG,EAAC,IAAI,EAAC,MAAM,,
CAAC;MACvB,MAAM,EAAC,GAAG,EAAC,IAAI,EAAC,GAAG,EAAC,IAAI,EAAC,KAAK,CAAC;MAEpB,MAAM,SAAS,GAAG,CpB,QAAQ,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC

AAO,CAAC,UAAU,CAAC,KAAK,CAAC,KAAK,EAAE,KAAK,CAAC,KAAK,CAAC,CAAC;MACzD,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACvD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEnD,MAAM,CAAC,KAAK,EAAE,WAAW,EAAE,UAAU,EAAE,WAAW,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC;MAElE,iBAAiB,CACb,OAAO,EAAE,KAAK,EAAE,WAAW,EAAE,UAAU,EAAE,WAAW,EAAE,KAAK,CAAC,CAAC,EAAE,MAAM,mBAAmB,GAAiB;MAC/F/C,UAAU,EAAE,WAAW;MACzB,SAAS,EAAE,WAAW,EAAE,MAAM;MAC9B,UAAU,EAAE,WAAW,EAAE,aAAiC;MAC7C7C,SAAS,EAAE,WAAW,EAAE,OAAO,GAAG,CAAC,EAAE,CAAC,DAAD;;;;;;;;;;;;;;;EAmBO,MAAM,WAAW,GAAiB,uBAAuB,CAAC,CAAC,kC,CAAC,GAAG,K,CAAC,C;;EAC9F,CAAC,vE;;;;;;;;;;;;;;;EAqBA,MAAM,MAAM,uBAAuB,CAAC,GAAG,KAAK,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,vB,CAAC,C;;EAC9D,CAAC,vB7D;;;;;;;;;;;;;;;EAqBA,IAAI,aAAE,gE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,rE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,S5B,OAAO,CAAC,CAAC,OAAO,oB;MACjC,CAAC,aAAa,GAAG,CAAC,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,C9BoC,uBAAuB,CAAC,GAAG,EAAE,IAAI,CAAC,aAAa,pB,CAAC,CAAC,EAAE,CAAC,QAAQ,EAAE,CAAC,EAAE,QAAQ,EAAE,CAAC,EAAE,QAAQ,EAAE,CAAC,EAAE

wC,cAAc,GAAG,CAAC,CAAC;WAChE;UACD,MAAM,GAAG,QAAQ,CAAC,EAAE,CAAC;OACtB;MAED,M
AAM,YAAY,GAAG,QAAQ,CAAC,YAAY,CAAC;MAC3C,MAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CA
AC;MACzC,MAAM,MAAM,GAAG,QAAQ,CAAC,OAAO,CAAC,GAAG,CAAC;MACpC,MAAM,QAAQ,GAA
G,QAAQ,CAAC,OAAO,CAAC,KAAK,CAAC;MACxC,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,MA
AM,CAAC;MAC1C,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC;MACtC,MAAM,cAAc,G
AAG,QAAQ,CAAC,cAAc,CAAC;MAC/C,MAAM,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC;MAC7C,MAAM,Y
AAY,GAAG,QAAQ,CAAC,YAAY,CAAC;MAC3C,MAAM,WAAW,GAAG,QAAQ,CAAC,WAAW,CAAC;MA
CzC,MAAM,aAAa,GAAG,QAAQ,CAAC,UAAU,CAAC;MAC1C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,C
AAC,IAAI,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;MAC3D,MAAM,SAAS,GAAG,QAAQ,CAAC,S
AAS,CAAC;MACrC,MAAM,QAAQ,GAAG,QAAQ,CAAC,QAAQ,CAAC;MACnC,MAAM,OAAO,GAAG,QAA
Q,CAAC,OAAO,CAAC;MAEjC,IAAI,UAAU,KAAK,MAAM,EAAE;UACzB,MAAM,IAAI,KAAK,CACX,wDA
AwD;cACxD,GAAG,UAAU,uBAAuB,CAAC,CAAC;OC3C;MED,MAAM,GAAG,GAAG,OAAO,CAAC,UA
AU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;MAC7D,MAAM,KAAK,GAAG,OAAO,CAAC,SA
AS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACnD,MAAM,wBAAwB,GAA
G,sBAAsB,IAAI,IAAI;UAC3D,CAAC;UACD,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,sBAAsB,CAAC,MAA
M,CAAC,CAAC,EAAE,CAAC;ME5D,eAAe,CACX,GAAG,EAAE,SAAS,EAAE,QAAQ,EAAE,EAAE,
QAAQ,EAAE,YAAY,EAAE,WAAW,ECtE,MAAM,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,
EAAE,SAAS,EAAE,cAAc,ECvE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EAAE,cAAc,ECvE,eAAe,
EAAE,wBAAwB,EAAE,cAAc,IAAI,CAAC,EAAE,KAAK,CAAC,CAAC;ME3E,OAAO,GAAG,CAAC;ECb,C
AAC;EAEM,MAAM,iBAAiB,GAAG,iB;MAC7C,UAAU,EAAE,WAAW,EAAE,MAAM;MAC
nB,SAAS,EAAE,ErC,OAAK;MAChB,UAAU,EAAE,WA+B;GAC5C;;ECzJD;;;;;;;;;;;;;;;;EAuBA,IAAI,wBAQQ,C
AAC;EAEb,SAASA,OAAK,CAAC,OAAoB;MACjC,wBAAwB;UACpB,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAA
CsC,6BAAoB,EAAE,IAAI,aAAa;cACxD,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,
QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cAC
R,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cACR,QAAQ;cA
CR,QAAQ;cACR,QAAQ;WACT,CAAC,CAAC;EACT,CAAC;EAED,SAAS,oBAAoB,CAAC,IAI7B;MACC,MAAM,
EAAC,MAAM,EAAE,KAAK,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,MAAM,EAAC,CAAC,
AE,MAAM,EAAE,IAAI,EAAE,sBAAsB,EAAC,GAAG,MAAM,CAAC;MACzD,MAAM,EACJ,EAAE,MAAM,EAAE,OAAO,EAAE,EACP,GAAG,EAAE,CAAC,EAAE,KAAK,EAAE,OAAO,EAAE

AAC;MAC1C,MAAM,SAAS,GAAG,QAAQ,CAAC,OAAO,CAAC,IAAI,KAAK,MAAM,GAAG,CAAC,GAAG,CAAC,CAAC;MAC3D,MAAM,SAAS,GAAG,QAAQ,CAAC,SAAS,CAAC;MACrC,MAAM,QAAQ,GAAG,QAAQ,,CAAC,QAAQ,CAAC;MACnC,MAAM,OAAO,GAAG,QAAQ,CAAC,OAAO,CAAC;MAEjC,IAAI,UAAU,,KAAK,MAAM,EAAE;UACzB,MAAM,IAAI,KAAK,CACX,iEAAiE;cACjE,GAAG,UAAU,uBAAuB,CAAC,CAAC;OAC3C;MAED,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;MAC7D,MAAM,KAAK,GAAG,CAAC,GAAG,OAAO,CAAC,GAAG,CAAC,GAAG,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;MAED,MAAM,wBAAwB,GAAG,sBAAsB,IAAI,IAAI;UAC3D,CAAC;UACD,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,sBAAsB,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC;MAE5D,wBAAwB,CACpB,GAAG,EAAE,EAAE,QAAQ,EAAE,OAAO,EAAE,QAAQ,EAAE,YAAY,EAAE,WAAW,EACtE,MAAM,EAAE,EAAE,MAAM,EAAE,QAAQ,EAAE,SAAS,EAAE,OAAO,EAAE,SAAS,EAAE,cAAc,EACvE,aAAa,EAAE,YAAY,EAAE,WAAW,EAAE,aAAa,EAAE,cAAc,EACvE,eAAe,EAAE,wBAAwB,EAAE,cAAc,IAAI,CAAC,EAAE,KAAK,CAAC,CAAC;MAE3E,OAAO,GAAG,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,CAAC,MAAM,CAAC,0BAA0B,GAAG,iBAAiB,CAAC,GAAG,CAAC,UAAU,EAAE,cAAc,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE

K,CAAC,CAAC;MACtD,MAAM,YAAY,GAAG,OAAO,CAAC;UAC3B,MAAM,EAAE,EAAC,CAAC,EAAE,OAAO,EAAC;UACpB,KAAK,EAAE,EAAC,KAAK,EAAE,CAAC,SAAS,CAAC,SAAS,EAAE,WAAW,GAAG,SAAS,CAAC,SAAS,CAAC,EAAC;UACxE,OAAO;OACR,CAAC,CAAC;MACH,MAAM,kBAAkB,GAAG;UACzB,SAAS,CAAC,SAAS,EAAE,SAAS,CAAC,SAAS,EAAE,WAAW,GAAG,SAAS,CAAC,SAAS;UAC3E,SAAS,CAAC,SAAS;OACpB,CAAC;MAEF,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,kBAAkB,EAAE,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC;MAC5D,IAAI,aAAa,CAAC,aAAa,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;UACrD,OAAO,GAAG,CAAC,OAAO;OACrB,CAAC,CAAC;MACH,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,MAAM

AAE,IAAI,EAAE,OAAO,CAAC,CAAC;MAE9C,IAAI,kBAAkB,EAAE;UACtB,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;UACjE,KAAK,GAAG,UAAU,CAAC;UACnB,OAAO,GAAG,YAAY,CAAC;OACxB;MAED,MAAM,SAAS,GAAG,KAAK,CAAC,KAAK,CAAC,KAAK,,CAAC,MAAM,CAAC;MACrCtD,qBAAY,CAAC,0BAA0B,CAAC,KAAK,,EAAE,IAAI,EAAE,SAAS,CAAC,CAAC;MAChE,MAAM,CAAC,QAAQ,EAAE,WAAW,CAAC,GACzBA,qBAAY,CAAC,yBAAyB,CAAC,KAAK,,CAAC,KAAK,,EAAE,IAAI,CAAC,CAAC,CAAC;MAC9C9D,MAAM,UAAU,GAAG,GAAG,EAAE,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,CAAC;MAAE,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,UAAU,CAAC,KAAK,CAAC,GAAG,CAAC;MAAE,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC;;MAEnH,MAAM,CAAC,QAAQ,EAAE,WAAW,CAAC,GAAG,CAAC,CAAC

AG,MAAM,CAAC;MACnB,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,M
AAM,CAAC,CAAC,EAAE,CAAC;MAC/C,IAAI,OAAO,GAAG,GAAG,CAAC;MAClB,IAAI,KAAK,GAAG,CA
AC,CAAC;MAEd,MAAM,EAAC,UAAU,EAAE,IAAI,EAAE,YAAY,EAAE,kBAAkB,EAAC,GACtD,uBAAuB,C
AAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;MAE9C,IAAI,aAAa,GAAG,IAAI,CAAC;MACzB,IAAI,k
BAAkB,EAAE;UACtB,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAAC,MAA
M,CAAC,CAAC,EAAE,CAAC;UACjE,IAAI,YAAY,KAAK,GAAG,EAAE;;;cAGxB,KAAK,GAAG,UAAU,CAA
C;cACnB,OAAO,GAAG,YAAY,CAAC;cACvB,aAAa,GAAGzD,qBAAY,,CAAC,gBAAgB,CACzC,aAAa,CAAC,
MAAM,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;WAC/C;OACF;MAEDA,qBAAY,,CAAC,0B
AA0B,CACnC,MAAM,EAAE,aAAa,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;MAC/C,MAA
M,CAAC,QAAQ,EAAE,WAAW,CAAC,GACzB,aAAa,qBAAY,,CAAC,yBAAyB,CAAC,KAAK,CAAC,KAAK,EAAE
,aAAa,CAAC,CAAC;MACvE,MAAM,UAAU,GAAGF,aAAI,,aAAa,CAAC,WAAW,CAAC,CAAC;MACnD
,IAAI,WAAW,GAAG,KAAK,CAAC;MACxB,IAAI,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;UAC7B,WAA
W;cACP,IAAI,CAAC,EAAC,OAAO,EAAE,MAAM,EAAE,EAAC,CAAC,EAAE,KAAK,EAAC,EAAE,KAAK,E
AAE,EAAC,KAAK,EAAE,SAAS,EAAC,EAAC,CAAC,CAAC;UACnE,OAAO,GAAG,OAAO,CAAC,SAAS,CA
AC,GAAG,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;OACxD;MAED,MAAM,GAAG,GAAG,
OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,SAAS,CAAC,CAAC;MACpD,IAAIA,aAAI,,aAAa,CAAC,KA
AK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;UACzC,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GA
AG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;UACnD,QAAQ,CAAC,OAAO,EAAE,UAAU,EA
AE,KAAK,CAAC,CAAC;OACtC;MAED,IAAI,kBAAkB,EAAE;;UAEtB,OAAO,CAAC,WAAW,CAAC,UAAU,C
AAC,MAAM,CAAC,CAAC;OACxC;MAED,IAAI,QAAQ,EAAE;;UAEZ,MAAM,QAAQ,GAAGE,qBAAY,,CAAC,oBAAoB,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC;UAC5E,QAAQ,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,QAAQ,CAAC;OACtC;MAED,IAAI,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;UAC7B,OAAO,CAAC,WAAW,CAAC,CAAC,EAAE,KAAK,CAAC,KAAK,CAAC;OACpC;MAED,IAAI,WAAW,EAAE;UACf,OAAO,CAAC,WAAW,CAAC,CAAC,EAAE,KAAK,CAAC,KAAK,CAAC;OACpC;MAED,IAAI,aAAa,EAAE;UACjB,aAAa,CAAC,WAAW,CAAC,CAAC,EAAE,KAAK,CAAC,KAAK,CAAC;OAC1C;MAED,OAAO,CAAC,WAAW,CAAC,CAAC,EAAE,KAAK,CAAC,KAAK,CAAC;KACpC;IAED,IAAI,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;MAC9B,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;QAC1C,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;UAC5C,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;YAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;cAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;gBAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;kBAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;oBAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;sBAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;wBAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;0BAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;4BAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;8BAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;gCAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;kCAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;oCAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;sCAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;wCAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;0CAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;4CAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;8CAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;gDAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;kDAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;oDAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;sDAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;wDAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;0DAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;4DAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;8DAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;gEAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;kEAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;oEAC5D,IAAI,CAAC,KAAK,KAAK,SAAS,EAAE;sEAC5D,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK

AAM4B,uBAAqB,GAAG,KAAK,CAAC;EAC7B,MAAM,aAAa,GACtB,wBAAwB,CAAC2B,gBAAO,EAAE3B,uBAAqB,CAAC;;ECrB5D;;;;;;;;;;;;;;;;EAuBA;EACA,IAAK,iBAGJ;EAHD,WAAK,iBAAiB;MACpB,+DAAW,CAAA;MACX,mEAAa,CAAA;EACf,CAAC,EAHI,iBAAiB,KAAjB,iBAAiB,QAGrB;EAED,IAAI,aAGsB,CAAC;EAE3B,SAAS5B,OAAK,CAAC,OAAOoB;MACjC,aAAa,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,wD,kBAAS,EAAE,IAAI,aAAa;UAC7D,QAAQ;UACR,OAAO;UACP,QAAQ;UACR,QAAQ;UACR,OAAO;UACP,OAAO;UACP,QAAQ;UACR,QAAQ;OACT,CAAC,CAAC;EACL,CAAC;EAED,SAAS,SAAS,CAAC,IAIlB;MACC,MAAM,EAAC,MAAM,EAAE,EAAC,CAAC,EAAC,EAAE,EAAC,OAAO,EAAE,KAAK,EAAE,EAAC,QAAQ,EAAE,IAAI,EAAC,EAAC,GAAG,IAAI,CAAC;MAE7D,MAAM,QAAQ,GAAG,QAAQ,CAAC,GAAG,CAAC,CAAC,CAAC

S,mBAAmB,CAAC,IAI5B;MACC,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CA
AC;MACtC,MAAM,EAAC,YAAY,EAAE,aAAa,EAAE,cAAc,EAAE,kBAAkB,EAAC,GACnE,KAAK,CAAC;M
ACV,MAAM,EAAC,KAAK,EAAE,MAAM,EAAC,GAAG,MAAM,CAAC;MAE/B,MAAM,OAAO,GAAG,OAA
O,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACvD,MAAM,QA
AQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MA
EzD,MAAM,SAAS,GAAGxD,UAAQ,CACtB,OAAO,EAAE,QAAQ,EAAE,aAAa,EAAE,YAAY,EAAE,cAAc,EA
C9D,kBAAkB,CAAC,CAAC;MAExB,MAAM,EAAC,gBAAgB,EAAE,YAAY,EAAE,eAAe,EAAE,aAAa,EAAC,
GAClE,iBAAiB,CAAC,OAAO,EAAE,SAAS,CAAC,CAAC;;MAG1C,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,
eAAe,CAAC,CAAC;MAEpC,MAAM,qBAAqB,GACvB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EA
AE,OAAO,EAAE,gBAAgB,CAAC,CAAC;MAElE,MAAM,kBAAkB,GAAG,OAAO,CAAC,UAAU,CAAC,EAAE
,EAAE,OAAO,EAAE,aAAa,CAAC,CAAC;MAE1E,OAAO,CAAC,qBAAqB,EAAE,kBAAkB,CAAC,CAAC;EAC
rD,CAAC;EAEM,MAAM,yBAAyB,GAAiB;MACrD,UAAU,EAAEwD,4BAAmB;MAC/B,WAAW,EAAE,MAA
M;MACnB,SAAS,EAAE5D,OAAK;MAChB,UAAU,EAAE,mBAAuC;GACpD;;EC9ED;;;;;;;;;;;;;;;EAuBA,IAAII,
UAGU,CAAC;EAEf,SASJ,OAAK,CAAC,OAAoB;MACjCI,UAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,
CACzByD,4BAAmB,EACnB,QAAQ;MACR;UACE,QAAQ;UACR,QAAQ;UACR,QAAQ;UACR,QAAQ;UACR,
QAAQ;UACR,QAAQ;OACT,CAAC,CAAC;EACT,CAAC;EAED,SASC,YAAU,CAAC,IAInB;MACC,MAAM,
EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,YAAY,EAAE,a
AAa,EAAE,cAAc,EAAE,YAAY,EAAC,GAAG,KAAK,CAAC;MAC1E,MAAM,EAAC,KAAK,EAAE,MAAM,
EAAC,GAAG,MAAM,CAAC;MAE/B,MAAM,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACvD,MAAM,QAAQ,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAA
G,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAEzD,MAAM,SAAS,GAAG1D,UAAQ,CACtB,
OAAO,EAAE,QAAQ,EAAE,aAAa,EAAE,YAAY,EAAE,cAAc,EAC9D,YAAY,CAAC,CAAC;MAElB,MAAM,EAC
gBAAgB,EAAE,YAAY,EAAE,eAAe,EAAE,aAAa,EAAC,GAClE,iBAAiB,CAAC,OAAO,EAAE,SAAS,CA
AC,CAAC;;;MAI1C,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,aAAa,CAAC,CAAC;MAElC,MAAM,qBAAqB,G
ACvB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EAAE,OAAO,EAAE,gBAAgB,CAAC,CAAC;MAClE
,MAAM,oBAAoB,GACtB,OAAO,CAAC,UAAU,CAAC,CAAC,YAAY,CAAC,EAAE,SAAS,EAAE,eAAe,CAAC
,CAAC;MAEnE,OAAO,CAAC,qBAAqB,EAAE,oBAAoB,CAAC,CAAC;EACvD,CAAC;EAEM,MAAM,yBAAyB,G
ACrD,UAAU,EAAEyD,4BAAmB;MAC/B,WAAW,EAAE,MAAM;MACnB,SAAS,EAAE7D,OAAK;MAChB,UAAU,EAAE,mBAAuC;GACpD;;EC9ED;;;;;;;;;;;;;;;EAmBA,IAAII,

E,MAAM,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,IAAI,EAAC,GAAG,KAAK,CAAC;MAErB,IAAI,MAAM,CAAC,MAAM,KAAK,CAAC,EAAE;UACvB,OAAO,UAAU,CACb,EAAC,MAAM,EAAE,EAAC,KAAK,EAAE,MAAM,CAAC,CAAC,CAAC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,GAAG,EAAE,IAAI,EAAC,EAAC,CAAC,CAAC;OAChE;MAED,MAAM,KAAK,GAAG,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC;MAC9B,MAAM,KAAK,GAAG,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC;MAEhC,MAAM,CAAC,OAAO,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;UACxB,aAAI,CAAC,iBAAI,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC;UAC5B,aAAI,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC;MAE3B

AAW,GAAG,IAAI,CAAC,EAAC,OAAO,EAAE,MAAM,EAAE,EAAC,CAAC,EAAC,EAAE,KAAK,EAAE,EAA
C,KAAK,EAAE,SAAS,EAAC,EAAC,CAAC,CAAC;UACtE,OAAO,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,
CAAC,WAAW,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;OACxD;MAED,MAAM,GAAG,GAAG,OAAO,CA
AC,UAAU,CAAC,CAAC,CAAC,KAAK,EAAE,SAAS,CAAC,CAAC;MACnD,MAAM,KAAK,GAAG,OAAO,C
AAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACnD,SAAS,CAAC,O
AAO,EAAE,SAAS,EAAE,KAAK,CAAC,CAAC;MAErC,IAAI,KAAK,CAAC,KAAK,KAAK,SAAS,EAAE;UAC
7B,OAAO,CAAC,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,CAAC;OACzC;MACD,OAAO,GAAG,CAAC;
EACb,CAAC;EAEM,MAAM,WAAW,GAAiB;MACvC,UAAU,EAAEA,cAAK;MACjB,WAAW,EAAE,MAAM;
MACnB,SAAS,EAAErE,OAAK;MAChB,UAAU,EAAE,KAAyB;GACtC;;EC9DD;;;;;;;;;;;;;;;EAyBA,IAAI,QAEq
C,CAAC;EAE1C,SASA,OAAK,CAAC,OAAoB;MACjC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CA
ACsE,aAAI,EAAE,IAAI,WAAW;UACjD,QAAQ;UACR,QAAQ;UACR,QAAQ;UACR,QAAQ;OACT,CAAC,CA
AC;EACL,CAAC;EAED,SAAS,IAAI,CAAC,IAIb;MACC,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,E
AAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,IAAI,EAAE,QAAQ,EAAC,GAAG,KAAK,CAAC;MAC/B,MA
AM,EAAC,CAAC,EAAC,GAAG,MAAM,CAAC;MACnB,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,G
AAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAC/C,MAAM,GAAG,GAAG,OAAO,CAAC,GAAG,CAAC;M
AClB,IAAI,KAAK,GAAG,CAAC,CAAC;MAEd,MAAM,EAAC,UAAU,EAAE,IAAI,EAAE,YAAY,EAAE,kBAA
kB,EAAC,GAAC,D,uBAAuB,CAAC,CAAC,EAAE,IAAI,EAAE,OAAO,CAAC,CAAC;MAE9C,IAAI,aAAa,GAAG
,IAAI,CAAC;MACzB,IAAI,kBAAkB,EAAE;UACtB,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG
,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;UACjE,IAAI,YAAY,KAAK,GAAG,EAAE;;;cAGxB,
KAAK,GAAG,UAAU,CAAC;cACnB,OAAO,GAAG,YAAY,CAAC;cACvB,aAAa,GAAG1E,qBAAY,CAAC,gBA
AgB,CACzC,aAAa,CAAC,MAAM,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;WAC/C;OACF;
MAEDA,qBAAY,CAAC,0BAA0B,CACnC,MAAM,EAAE,aAAa,EAAE,KAAK,CAAC,KAAK,CAAC,MAAM,C
AAC,CAAC;MAC/C,MAAM,CAAC,QAAQ,EAAE,WAAW,CAAC,GACzBA,qBAAY,CAAC,yBAAyB,CAAC,K
AAK,CAAC,KAAK,EAAE,aAAa,CAAC,CAAC;MACvE,IAAI,aAAa,GAAG,WAAW,CAAC,WAAW,CAAC,W
AAW,CAAC,CAAC;MAEnD,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,KAAK,CAAC,
KAAK,CAAC,CAAC;MACtD,IAAIA,IAAI+C,aAAa,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EA
AE;UACzC,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,C
AAC,EAAE,CAAC;UACnD,QAAQ,CAAC,OAAO,EAAE,UAAU,EAAE,QAAQ,EAAE,CAAC,KAAK,C
AAC,EAAE,KAAK,CAAC,CAAC;OAC3D;MAED,IAAI,kBAAkB,EAAE;UAEtB,OAAO,CAAC,WAAW,CAAC
,UAAU,CAAC,MAAM,CAAC,CAAC;OACxC;MAED,IAAI,QAAQ,EAAE;UAEZ,MAAM,QAAQ,GAAGE,qBAAY,CAAC,KAAK,CAAC,KAAK,EAAE,IAAI,EAAE,I
AAI,EAAE,KAAK,CAAC,CAAC;MAEtD,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,KAAK,CAAC,
KAAK,CAAC,CAAC;MACtD,IAAI,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,
KAAK,CAAC,CAAC;MAEnD,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,C
AAC,CAAC,EAAE,CAAC;MAC/C,MAAM,GAAG,GAAG,OAAO,CAAC,GAAG,CAAC;MACx

AM,EAAC,MAAM,EAAC,GAAG,MAAM,CAAC;MACxB,MAAM,EAAC,YAAY,EAAE,gBAAgB,EAAE,IAAI,EAAC,GAAG,KAAK,CAAC;MACrD,MAAM,CAAC,SAAS,EAAE,QAAQ,CAAC,GAAG,IAAI,CAAC;MAEnC,MAAM,CAAC,KAAK,EAAE,SAAS,EAAE,QAAQ,EAAE,WAAW,CAAC,GAAG,MAAM,CAAC,KAAK,CAAC;MAC/D,MAAM,QAAQ,GAAG,CAAC,KAAK,EAAE,SAAS,EAAE,QAAQ,EAAE,WAAW,CAAC,CAAC;MAE3D,IAAI,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC;MACjD,IAAI,UAAU,CAAC;MACf,IAAI,KAAK,CAAC,KAAK,CAAC,KAAK,SAAS,EAAE;UAC7B,cACN,IAAI,CAAC,EAAC,OAAO,EAAE,MAAM,EAAE,EAAC,CAAC,EAAE,MAAM,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,SAAS,EAAC,EAAC,CAAC,CAAC;UACpE,IAAI,KAAK,CAAC,KAAK,CAAC,KAAK,SAAS,EAAE;UAC5

AM,EAAE,WAAW,EAAE,UAAU,CAAC,CAAC;MAEjE,MAAM,WAAW,GAAG,SAAS,KAAK,CAAC,CAAC;MACpC,MAAM,gBAAgB,GAAG,GAAG,CAAC;MAE7B,MAAM,UAAU,GAAG,OAAO,SAAS,KAAK,QAAQ;UAC5C,CAAC,SAAS,EAAE,SAAS,EAAE,SAAS,EAAE,WAAW,GAAG,CAAC,GAAG,gBAAgB,CAAC;UACrE,CAAC,GAAG,SAAS,EAAE,gBAAgB,CAAC,CAAC;MACrC,MAAM,SAAS,GAAG,IAAI,UAAU,IAAI,CAAC,IAAI,UAAU,CAAC,CAAC,MAAM,CAAC,CAAC;MAEpE,UAAU,CACN,OAAO,EAAE,KAAK,EAAE,WAAW,EAAE,WAAW,EAAE,OAAO,EAAE,OAAO,EACtE,OAAO,EAAE,SAAS,EAAE,UAAU,CAAC,MAAM,EAAE,KAAK,EAAE,CAAC,OAAO,EAA

EAAC,GAAG,IAAI,CAAC;MACpC,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAC/C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MACjD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;;MAGnD,IAAI1F,aAAI,CAAC,aAAa,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;UACvC,OAAO,GAAG,CAAC;OACZ;MAEDU,UAAQ,CAAC,GAAG,EAAE,KAAK,CAAC,CAAC;EACb,CAAC;EAEM,MAAM,aAAa,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;UACvC,OAAO,GAAG,CAAC;OACZ;MAEDA

CAAC;MACnB,MAAM,EAAC,eAAe,EAAE,IAAI,EAAC,GAAG,KAAK,CAAC;MAEtC,MAAM,KAAK,GAAG7
F,aAAI,CAAC,cAAc,CAAC,IAAI,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC;MAEpD,M
AAM,UAAU,GAAGE,qBAAY,CAAC,gBAAgB,CAAC,CAAC,EAAE,eAAe,EAAE,KAAK,CAAC,CAAC;MAC5
E,MAAM,KAAK,GAAG,IAAI,KAAK,CAAC,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,IAAI,CAAC,
CAAC,CAAC,CAAC;MAChD,MAAM,IAAI,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,EAAE,CAAC;MAC7B
,OAAO,UAAU,CAAC,GAAG,CAAC,CAAC;UACrB,MAAM,UAAU,GAAG,CAAC,GAAG,IAAI,CAAC,CAAC;
UAC7B,UAAU,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC;UACtB,MAAM,MAAM,GACR,KAAK,CAAC,EAAA
C,MAAM,EAAE,EAAC,CAAC,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,IAAI,EAAE,UAAU,EAAC,E
AAE,OAAO,EAAC,CAAC,CAAC;UACpE,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC;UAClB,OAAO,M
AAM,CAAC;OACf,CAAC,CAAC;EACL,CAAC;EAEM,MAAM,YAAY,GAAiB;MACxC,UAAU,EAAE4F,eAA
M;MAClB,WAAW,EAAE,MAAM;MACnB,UAAU,EAAE,MA0B;GACvC;;ECjDD;;;;;;;;;;;;;;;EAoBO,MAAM,
UAAU,GAAiB,uBAAuB,CAACC,aAAI,CAAC;;ECpBrE;;;;;;;;;;;;;;;EAmBO,MAAM,YAAY,GAAiB,uBAAuB,C
AACC,eAAM,CAAC;;ECnBzE;;;;;;;;;;;;;;;EAkBA,MAAM9D,uBAAqB,GAAG,IAAI,CAAC;EAC5B,MAAM,uB
AAuB,GAChC,wBAAwB,CAAC+D,0BAAiB,EAAE/D,uBAAqB,CAAC;;ECpBtE;;;;;;;;;;;;;;;EAuBA,IAAI,QACI,
CAAC;EAET,SAAS5B,OAAK,CAAC,OAAoB;MACjC,QAAQ,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAA
C4F,aAAI,EAAE,IAAI,WAAW;UACjD,QAAQ;UACR,QAAQ;UACR,QAAQ;UACR,QAAQ;OACT,CAAC,CAA
C;EACL,CAAC;EAED,SAAS,IAAI,CACT,IAAkE;MAEpE,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,
EAAC,GAAG,IAAI,CAAC;MACtC,MAAM,EAAC,GAAG,IAAI,CAAC,KAAK,EAAC,GAAG,IAAI,CAAC,KAAK,
CAAC;MACtB,MAAM,EAAC,GAAG,MAAM,CAAC;MACnB,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,
C,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MAE/C,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,CAAC,
AC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MACjD,MAAM,KAAK,GAAG,OAAO,C
AAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;MACnD,QAAQ,CAAC,G
AAG,EAAE,KAAK,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,KAAK,CAAC,CAAC;MAC/C,O
AAO,GAAG,CAAC;EACb

AAI,UAAU,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC;UACjE,MAAM,QAAQ,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,IAAI,CAAC,CAAC,MAAM,CAAC,CAAC;UAC7D,MAAM,YAAY,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC;UAErE,MAAM,gBAAgB,GAAClB,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,CAAC;UAC5D,MAAM,eAAe,GAAG,IAAI,UAAU,ClC,IAAI,UAAU,CAACA,gBAAgB,CAAC,CAAC,CAAC,gBAAgB,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;UAClE,MAAM,KAAK,GAAG,GAAG,OAAO,CAAC,SAAS,GAAG,GAAG,GAAG,EAAE,CAAC;UAEnD,gBAAgB,CAAC,CAAZ,GAAG,EAAE,EAAE,CAAC;UAEvE,MAAM,GAAG,OAAO,CAAC,EAAC,MAAM,EAAE,CAAC,EAAC,MAAM,EAAE,CAAC,EAAC,MAAM,EAAE

AC,MAAM,EAAE,CAAC,EAAE,EAAE;UACxC,QAAQ,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,KAAK,CA
AC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,CAAC,CAAC;OACpC;MACD,MAAM,WAAW,GAAG,IAAI,UA
AU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,CAAC;MACnE,MAAM,aA
Aa,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC;MAEtE,MAA
M,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MAClD,MA
AM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CA
AC;MACnD,QAAQ,CACJ,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,aAAa,EA
AE,QAAQ,CAAC,MAAM,EAChE,QAAQ,CAAC,GAAG,CAAC,KAAK,CAAC,EAAE,KAAK,CAAC,CAAC;M
AChC,OAAO,GAAG,CAAC;EACb,CAAC;EAEM,MAAM,UAAU,GAAiB;MACtC,UAAU,EAAEA,aAAI;MACh
B,WAAW,EAAE,MAAM;MACnB,SAAS,EAAElG,OAAK;MAChB,UAAU,EAAE,IAAwB;GACrC;;ECjED;;;;;;;;;
;;;;;;EAsBA,IAAI,QAG6B,CAAC;EAElC,SASA,OAAK,CAAC,OAAoB;MACjC,QAAQ,GAAG,OAAO,CAAC,
IAAI,CAAC,KAAK,CAAC,mG,aAAI,EAAE,IAAI,aAAa;UACnD,QAAQ;UACR,OAAO;UACP,QAAQ;UACR,Q
AAQ;UACR,QAAQ;UACR,MAAM;UACN,QAAQ;UACR,QAAQ;OACT,CAAC,CAAC;EACL,CAAC;EAEM,M
AAM,IAAI,GAEmB,CAAC,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC;MACnD,MAAM,EAAC,CAAC,
EAAC,GAAG,MAAM,CAAC;MACnB,SAAS,MAAM,EAAC,CAAC,EAAE,MAAM,EAAC,GAAG,KAAK,CAAC;ME
1B,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EA
AE,CAAC;MAC/C,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CAA
C,CAAC,MAAM,CAAC,CAAC;MACnE,MAAM,WAAW,GAAG,CAAC,KAAK,CAAC,KAAK,EAAE,C
AAC;MACpC,WAAW,CAAC,WAAW,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC;MACxC,MA
AM,SAAS,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MAC3D,M
AAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC,EAAE,C
AAC;MAC/D,MAAM,UAAU,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,OAAO,CAAC,CAAC;MAC5D
D,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAA
E,CAAC;MAEjE,QAAQ,CACJ,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,QAA
Q,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,EAAE,MAAM,EAC9D,WAAW,EAAE,YAAY,,CAAC,CA
AC;MAE/B,OAAO,CAAC,SAAS,EAAE,UAAU,CAAC,CAAC;EAEjC,CAAC,CAAC;EAEH,MAAM,UAAU,GA
AiB;MACtC,UAAU,EAAEA,aAAI;MAChB,WAAW,EAAE,MAAM;MACnB,SAAS,EAAElG,OAAK;MAChB,U
AAU,EAAE,IAAwB;GACrC;;ECnED;;;;;;;;;;;;;;;;EAqBA,IAAI,aAKyC,CAAC,EAE9C,SASA,OAAK,CAAC,OAAoB;MACjC,QAAQ,GAAG,OAAO,CAAC,
IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAA
C,CAAC,MAAM,CAAC,CAAC;MACnE,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,CAAC,CAAC,KAAK,CA
C,CAAC,MAAM,CAAC,CAAC;MACnE,MAAM,WAAW,GAAG,CAAC,KAAK,CAAC,KAAK,EAAE,C
AAC;MACpC,WAAW,CAAC,WAAW,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,CAAC;MACxC,MA
AM,SAAS,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC;MAC3D,M
AAM,WAAW,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC,EAAE,C
AAC;MAC/D,MAAM,UAAU,GAAG,OAAO,CAAC,UAAU,CAAC,WAAW,EAAE,OAAO,CAAC,CAAC;MAC5D
D,MAAM,YAAY,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAA
E,CAAC;MAEjE,QAAQ,CACJ,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,QAA
Q,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,EAAE,MAAM,EAC9D,WAAW,EAAE,YAAY,,CAAC,CA
AC;MAE/B,OAAO,CAAC,SAAS,EAAE,UAAU,CAAC,CAAC;EAEjC,CAAC,CAAC;EAEH,MAAM,UAAU,GA
AiB;MACtC,UAAU,EAAEA,aAAI;MAChB,WAAW,EAAE,MAAM;MACnB,SAAS,EAAElG,OAAK;MAChB,U
AAU,EAAE,IAAwB;GACrC;;ECnED;;;;;;;;;;;;;;;;EAqBA,IAAI,aAKyC,CAAC,EAE9C,SASA,OAAK,CAAC,OAAoB;MACjC,QAAQ,GAAG,OAAO,CAAC,
IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,C

M;UACR;cACE,UAAU,GAAG,CAAC,CAAC;cACf,MAAM;OACT;MAED,aAAa,CACT,OAAO,EAAE,YAAY,G
AAG,UAAU,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,KAAK,EAAE,SAAS,EAClE,QAAQ,EA
AE,WAAW,EAAE,UAAU,EAAE,WAAW,EAAE,OAAO,EACvD,KAAK,CAAC,KAAK,CAAC,MAAM,GAAG,
CAAC,EAAE,mBAAmB,EAAE,UAAU,EAAE,SAAS,EAClE,KAAK,CAAC,CAAC;MAEX,OAAO,GAAG,CAA
C;EACb,CAAC;EAEM,MAAM,eAAe,GAAiB;MAC3C,UAAU,EAAE0G,kBAAS;MACrB,WAAW,EAAE,MAA
M;MACnB,SAAS,EAAEpG,OAAK;MAChB,UAAU,EAAE,SAA6B;GAC1C;;EC5GD;;;;;;;;;;;;;;;EAuBA,SAAS,
MAAM,CACX,IAAsE;MAExE,MAAM,EAAC,MAAM,EAAE,EAAE,OAAO,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;
MACtC,MAAM,EAAC,KAAK,EAAC,GAAG,MAAM,CAAC;MACvB,IAAI,EAAC,IAAI,EAAC,GAAG,KAAK,
CAAC;MAEnB,IAAI,IAAI,GAAG,CAAC,EAAE;UACZ,IAAI,IAAI,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC
;OAC5B;MAED,MAAM,UAAU,GAAG,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC;MACrC,MAAM,IAAI
,GAAG,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC;MAChC,MAAM,QAAQ,GAAa,IAAI,KAAK,CAAC,IAAI,
GAAG,CAAC,CAAC;MAC/B;MAEA,QAAQ,GAAG,CAAC,CAAC;MACjB,MAAM,EAAE,GAAG,CAAC,CAAC;MACjB,
KAAK,MAAM,CAAC,IAAI,KAAK,EAAE;QACrB,QAAQ,CAAC,EAAE,CAAC,GAAG,CAAC;QAChB,EAAE,IAAI,
CAAC,GAAG,CAAC,CAAC,CAAC,CAAC;MAChB;MAEA,KAAK,MAAM,CAAC,IAAI,KAAK,EAAE;QACrB,MAAM,EAAC,
KAAK,EAAC,GAAG,CAAC;QACjB,IAAI,KAAK,KAAK,CAAC,EAAE;UACf,QAAQ,CAAC,KAAK,CAAC,GAAG,
CAAC;UACnB,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,KAAK,EAAE,CAAC,EAAE,EAAE;UACpC,KAAK,
CAAC,IAAI,CAAC,GAAG,CAAC,CAAC;UAChB,QAAQ,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAC,MA
AM,EAAE,EAAC,CAAC,EAAE,KAAK,EAAC,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,IAAI,EAAC,EAAE,O
AAO,EAAC,CAAC,CAAC;OACtE;MACD,OAAO,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAC,MAAM,EAAE,KA
AK,EAAC,MAAM,EAAC,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,QAAQ,EAAC,CAAC,CAAC;EAC3E,CAAC;EAEM,MAAM,YAAY,GAAiB;MACxC,UAAU,EAAEqG,eAAM;MAClB,WAAW,EAAE,MAAM;MACnB,UAAU,EAAE,MA0B;GACvC;;EC1DD;;;;;;;;;;;;;;;EAqBA,SAAS,SAAS,CAAC,IAAqD;QACtE,MAAM,EAAC,KAAK,EAAC,GAAG,IAAI,CAAC;MACrB,KAAK,MAAM,CAAC,IAAI,KAAK,EAAE;QACrB,IAAI,CAAC,KAAK,CAAC,EAAE;UACX,OAAO,KAAK;QACd;MACF;MACA,OAAO,IAAI;IACb;IAE

AG,CAAC,EAAI,EAAE,EAAG,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,EAAE,CAAC,E
AAE,GAAG,EAAE,EAAE,EAAE,EAAE,EAAE,EAAE;GACpD,CAAC,CAAC,CAAC,CAAC;EAET;;;EAGA;EA
CA,GAAG,CAAC,YAAY,CAAC,8BAA8B,EAAE;;;MAG/C,IAAI,GAAG,CAAC,GAAG,CAAC,SAAS,CAAC,E
AAE;UACtB,OAAO,KAAK,CAAC;OACd;MAED,IAAI;;;UAGF,IAAI,cAAc,EAAE,CAAC,KAAK,CAAC,WAA
W,CAAC,IAAI,iBAAAiB,CAAC,CAAC,CAAC,CAAC,CAAC;;;UAGjE,OAAO,WAAW,CAAC,QAAQ,CAAC,IA
AI,UAAU,CAAC;cACzC,CAAC,EAAE,EAAE,EAAE,GAAG,EAAE,GAAG,EAAE,CAAC,EAAE,CAAC,EAAG,
CAAC,EAAG,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAG,EAAE,EAAE,CAAC,EAAI,CAAC,EAA
G,CAAC,EAAE,CAAC,EAAE,CAAC,EAAG,CAAC,EAAE,CAAC;cACpE,CAAC,EAAE,CAAC,EAAG,CAAC,E
AI,CAAC,EAAI,CAAC,EAAE,EAAE,EAAE,EAAE,CAAC,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,E
AAE,CAAC,EAAG,GAAG,EAAE,EAAE,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,EAAE,EAAE;WACnE,CAA
C,CAAC,CAAC;OACL;MAAC,OAAO,CAAC,EAAE;UACV,OAAO,KAAK,CAAC;OACd;EACH,CAAC,CAAC;
;;;;;;;;ECzDF,IAAI,6BAA6B,GAAG,CAAC,WAAW;EAChD,EAAE,IAAI,UAAU,GAAG,OAAO,QAAQ,KAK,
WAAW,IAAI,QAAQ,CAAC,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC,GAAG,GAAG,SAAS,CAAC;EACtH,EA
AE,IAAI,OAAO,UAAU,KAAK,WAAW,EAAE,UAAU,GAAG,UAAU,IAAI,UAAU,CAAC;EAC/E;EACF,
SAAS,6BAA6B,EAAE;EACxC,EAAE,6BAA6B,GAAG,6BAA6B,IAAI,EAAE,CAAC;AACtE;EACA,SAAS,gBA
AgB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,
MAAM,EAAC,CAAC,OAAO,KAAK,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAA
E,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,MAAM,CAAC,SAAS,iB
AAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC
,MAAM,EAAC,CAAC,OAAO,MAAM,CAAC,SAAS,iBAAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAA
E,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,SAAS,iB
AAiB,EAAE,CAAC,GAAG,UAAU,CAAC,MAAM,EAAE,MAAM,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC
,MAAM,EAAC,CAAC,OAAO,OAAO,CAAC,IAAI,MAAM,CAAC,OAAO,6BAA6B,GAAG,WAAW,CAAC,6BA
A6B,CAAC,EAAE,CAAC,IAAI,mBAAmB,CAAC,kBAAkB,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,IAAI,
OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,mBAAmB,CAAC,OAAO,CAAC,kBAAkB,CAAC,O
AAM,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,IAAI,GAAG,CAAC,IAAI,GAAG,IAAI,MAAM,C
AAC,CAAC,GAAG,MAAM,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAA
C,MAAM,CAAC,GAAG,EAAC,CAAC,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,WAAW,CAAC,gBAg
B,CAAC,IAAI,KAAK,CAAC,SAAS,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,OAAO,CAAC,CAAC,IAAI,k
BAAkB,CAAC,KAAK,CAAC,IAAI,qBAAqB,CAAC,KAAK,CAAC,IAAI,mBAAmB,CAAC,KAAK,CAAC,IAAI
,oBAAoB,CAAC,KAAK,CAAC,kBAAkB,CAAC,OAAO,MAAM,GAAG,QAAQ,CAAC,qBAAqB,CAAC,OAAO,
aAAa,GAAG,UAAU,CAAC,mBAAmB,CAAC,OAAO,OAAO,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAA
Q,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,CAAC,IAAI,GAAG,QAAQ,CAAC,oBAAoB,CAAC,CAA
C,kBAAkB,EAAE,CAAC,mBAAmB,EAAE,CAAC,qBAAqB,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBA
AwB,CAAC,EAAE,KAAK,CAAC,GAAG,sBAAsB,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,EAAC,
CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,SAAS,UAAU,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,YA
Y,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,e
AAe,CAAC,IAAI,KAAK,KAAK,CAAC,SAAS,CAAC,UAAU,CAAgB,IAAI,MAAM,CAAC,IAAI,QAAQ,CAAC,
GAAG,mBAAmB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,eAAe,CACC,IAAe,CAAC,OAAO,CAAC,eA
Ae,CAAC,CAAC,IAAG,CAAC,KAAI,CAAC,eAAe,CAAC,SAAS,CAAC,IAAG,CAAC,KAAK,CAAC,SAAS,UA
AU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CACC,EAAa,CAAC,G
AAG,CAAC,QAAQ,CAAC,QAAQ,CACD,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,Q
AAQ,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,IAAI,CAAC,MA
AM,CAAC,CAAC,CAAC,UAAU,CAAC,SAAS,UAAU,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,KAAK
,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,I
AAI,UAAU,CAAC,GAAG,EAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,GAAG,C
AAC,CAAC,GAAG,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,WAAW,CAAC,
OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,GAAG,EAAC,CAAC,

UAAU,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,C
AAC,CAAC,mBAAmB,CAAC,SAAS,EAAE,CAAC,CAAC,GAAG,EAAE,EAAE,YAAY,UAAU,CAAC,CAAC,C
AAC,MAAM,EAAE,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,oBAAoB,CAAC,KAAK,C
AAC,CAAC,KAAK,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,MAAM,EAAC,C
AAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,4BAA4B,CAAC,CAAC,IAAI,iBAAiB,
CAAC,GAAG,CAAC,iBAAiB,CAACE,eAAyB,CAAC,MAAM,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAA
C,yGAAyG,CAAC,CAAC,MAAM,CAAC,CACC,cAAM,CAAC,MAAM,CAAC,iBAAiB,CAAC,OAAM,CAAC
,KAAK,GAAG,oBAAoB,CAAC,CAAC,GAAG,OAAO,IAAI,EAAE,WAAW,CAAC,CAAC,KAAK,CAAC,SAS,
UAAU,CAAC,CAAC,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,UAAU,CAAC,SAS,UA
AU,CAAC,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,GAAG,OAAO,UAAU,GAAG,UAAU,CAAC,CAAC,OAAO,I
AAI,UAAU,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,
CAAC,CAAC,MAAM,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,GAAG,OA
AO,UAAU,EAAE,WAAW,CAAC,CAAC,UAAU,CAAC,WAAU,CAAC,KAAK,GAAG,OAAO,SAAS,EAAE,WA
AW,CAAC,CAAC,UAAU,CAAC,UAAS,CAAC,GAAG,OAAO,IAAI,GAAG,UAAU,CAAC,CAAC,KAAK,CAA
C,SAS,MAAM,CAAC,CAAC,IAAI,CAAC,MAAM,EAAC,EAAC,CAAC,GAAG,OAAO,KAAK,GAAG,WAA
W,CAAC,CAAC,GAAG,OAAO,OAAO,GAAG,WAAW,CAAC,OAAO,CAAC,EAAE,CAAC,OAAO,CAAC,GA
AG,CAAC,KAAK,CAAC,OAAO,CAAC,IAAI,CAAC,OAAO,CAAC,KAAK,CAAC,OAAO,QAAQ,GAAG,WAA
W,CAAC,QAAQ,CAAC,MAAK,CAAC,CAAC,KAAK,GAAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAAG,q
BAAqB,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,QAAQ,CAAC,KAAI,CAAC,KAAK,GAAG,OAAO,QAAQ,GA
AG,WAAW,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,eAAe,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAG,CAAC,
GAAG,OAAO,UAAU,KAAK,WAW,IAAI,UAAU,CAAC,CAAC,eAAe,CAAC,WAAU,CAAC,GAAG,eAAe,CA
AC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,eAAe,CAAC,MAAM,CAAC,CAAC
,CAAC,eAAe,CAAC,WAAW,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,eAAe,CAAC,GA
AE,CAAC,GAAG,mBAAmB,CAAC,CAAC,KAAK,CAAC,SAS,UAAU,CAAC,QAAQ,CAAC,MAAM,CAAC,
CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAACF,EAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CAAC
D,IAAe,CAAC,QAAQ,CAAC,QAAQ,CAAC,WAW,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,MAAM,CAA
C,cAAc,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,
SAS,UAAU,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,KAK,CAAC,QAAQ,CAAC,IAAI,CAAC,CAA
C,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,IAAI,UAAU,CAAC,GAAG,EAAC,CAAC,
MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,GAAG,EAAC,CAAC,KAI,CAAC,KAK,CAAC,
SAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,cAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,
GAAG,CAAC,KAK,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,YA
AY,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,UAAU,CAAC,SAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAA
C,IAAI,cAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,GAAG,CAAC,KAK,CAAC,CAAC,GAAG,CA
AC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,UAAU,CAAC,GA
AG,CAAC,QAAQ,CAAC,EAAC,CAAC,SAS,CAAC,SAS,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAA
C,IAAI,GAAG,CAAC,IAAI,cAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAK,CAAC,GAAG,CAAC,IAAI,CAAC,
CAAC,GAAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAG,C
AAC,MAAM,EAAE,GAAG,EAAE,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,C
AAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,C
AAC,OAAO,CAAC,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,GAAG,mBA
AmB,CAAC,CAAC,GAAG,OAAO,WAW,GAAG,WAW,CAAC,CACG,cAAM,CAAC,WAW,CACC,UA
AqB,CAAC,YAAW,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,EAAE,OAAO,CAAC,GA
AG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,EAAE,OAAO,
CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GAAG,IAAI,eAAe,CAAC,CAAC,GAAG,eAAe,CA
AC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,EAAC
,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAAG,MAAM,CAAC,WAW,CAAC,CAAC,UAAU,CAAC,MAM,
CAAC,WAW,CAAC,CAAC,GAAG,MAAM,CAAC,aAAa,CAAC,WAW,CAAC,MAAM,CAAC,aAAa,

CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAA
C,SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,KAAK,CAAC,QAAQ,CAAC,KAAK,C
AAC,EAAE,CAAC,GAAG,CAAC,QAAQ,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC,CAAC,QAAQ,CAAC,KAA
K,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,EAAC,CAAC,CAAmH,IAAI,UAAU,CAAC,G
AAG,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CA
AC,MAAM,CAAC,eAAe,CAAC,EAAE,IAAI,CAAC,GAAG,OAAO,WAAW,GAAG,QAAQ,CAAC,CAAC,KAA
K,CAAC,iCAAiC,EAAC,CAAC,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,IAAI,KAAK,CAAC,KAAK,CAAgB,S
AAS,MAAM,CAAC,SAAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,KAAK,CAAC,oBA
AoB,CAAC,IAAI,EAAC,CAAC,CAAC,SAAS,QAAQ,CAAC,KAAK,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,C
AAC,GAAG,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,IAAI,CAAC,+BAA+B,CAAC,KAAK,CAAC,4BAA4B
,CAAC,CAAC,OAAO,IAAI,CAAC,SAAS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,CAA
C,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,QAAQ,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAA
C,CAAC,CAAC,GAAG,GAAG,GAAG,IAAI,EAAE,GAAG,GAAG,SAAS,EAAE,GAAG,GAAG,CAAC,CAAC,C
AAC,IAAI,GAAG,CAAC,CAAC,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,UA
AU,CAAC,GAAG,CAAC,CAAC,YAAY,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,OAAO,GA
AG,CAAC,CAAC,OAAO,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,
MAAM,CAAC,CAAC,kBAAkB,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAA
C,SAAS,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,QAAQ,CAAC,OAAO,YAAY,CAAC,GA
AG,CAAC,CAAC,GAAG,UAAU,GAAG,SAAS,CAAC,OAAO,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,GA
AG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,KAAK,CAAC,CAAC,IAAI,KAAK,CAAC,EAAE,CAAC,IAAI,KA
AK,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,IA
AI,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,
CAAC,CAAC,CAAC,GAAG,SAAS,CAAC,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,E
AAE,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,
CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,EAAC,CAAC,CAAC,CAAC,IAAI,GAAG,CAA
C,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,kBAAkB,CAAC,GAAG,CAAC,
CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,YAAY,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,K
AAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAA
E,CAAC,IAAI,WAAW,CAAC,QAAQ,CAAC,KAAK,CAAC,SAAS,IAAI,CAAC,CAAC,OAAO,IAAI,GAAG,QA
AQ,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,UAAU,GAAG,QAAQ,CAAC,GAAG,UAAU,EAAE,WAAW,EAA
E,CAAC,IAAI,CAAC,CAAC,OAAO,QAAQ,CAAC,KAAK,CAAC,CAAC,OAAO,UAAU,CAAC,OAAO,KAAK,
CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,SAAc,iBAAiB,CAAC,IAAI,CA
AC,GAAG,CAAC,cAAc,CAAC,CAAC,IAAI,MAAM,CAAC,GAAG,CAAC,cAAc,CAAC,IAAI,GAAG,CAAC,E
AAE,CAAC,MAAM,EAAE,GAAG,EAAE,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,IAAI,GAAG,CAA
G,EAAE,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,OAAO,GAAG,CAAC,GAAG,EAAE,EAAE,CAAC,GAAG,
CAAC,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,EAAE,CAAC,QAAQ,CAAC,IAAI,EA
AE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,
GAAG,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,CAAC,EAAE,CAAC,EAAE,GAAG,CAAC,C
AAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,
CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,E
AAE,GAAG,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,GAAE,CAAC,KAAI,CAAC,EAAE,CAAC,CAAC,EAAE
,CAAC,CAAC,GAAG,EAAE,CAAC,EAAE,EAAE,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,IAAI,CAAC,GAA
G,EAAE,CAAC,CAAC,GAAE,CAAC,GAAG,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC
,YAAY,CAAC,EAAE,EAAC,CAAC,KAAI,CAAC,IAAI,EAAE,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,EAA
E,MAAM,CAAC,YAAY,CAAC,KAAK,CAAC,EAAE,EAAE,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,E
AAC,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,YAAY,CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,OAAO,GA
AG,CAAC,iBAAiB,CAAC,gBAAgB,EAAE,CAAC,GAAG,CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,iBA
AiB,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,EAAE,eAAe,CAAC,CAAC,

CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,e
AAe,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,
EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC,GAAG,CA
AC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC,IAAI,EAAE,CAAC,GAAG,CAAC,UAAU,CAAC,
EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAA
C,EAAE,CAAC,KAAI,CAAC,GAAG,CAAC,EAAE,GAAG,CAAC,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC
,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,EAAC,CAAC,KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,CA
AC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GA
AG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,
GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,
CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CA
AC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MAA
M,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAAI,CAAC,GAAG,MAAM,CAAC,CAAC
,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,C
AAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,
CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,IAAI,CAAC,MA
AM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAA
C,CAAC,CAAC,OAAO,MAAM,CAAC,QAAQ,CAAC,SAAS,YAAY,CAAC,GAAG,CAAC,MAAM,CAAC,eAAe
,CAAC,CAAC,OAAO,iBAAiB,CAAC,GAAG,CAAC,gBAAgB,EAAE,CAAC,MAAM,CAAC,eAAe,CAAC,CAA
C,SAAS,eAAe,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC
,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,C
AAC,UAAU,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CA
AC,CAAC,KAAK,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,
EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,EAAE,GAAG,CAAC,EAAE,GAAG,CAAC,KAAK,GA
AG,CAAC,EAAE,IAAI,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,GAAG,
EAAE,CAAC,CAAC,KAAK,GAAG,EAAE,EAAC,CAAC,OAAO,GAAG,CAAC,SAAS,kBAAkB,CAAC,KAAK,
CAAC,MAAM,CAAC,CAAC,gBAAgB,EAAE,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAA
S,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,GAAG,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,
CAAC,EAAE,QAAQ,CAAC,CAAC,CAAC,SAAQ,CAAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,KAAK,CA
AC,MAAM,CAAC,MAAM,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,OAAO,CAAC,S
AAS,0BAA0B,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC
,KAAK,CAAC,IAAI,SAAS,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,I
AAI,UAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAU,CA
AC,GAG,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAU,CAAC,GAG,CA
AC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAG,CAAC,CAAC,MAA
M,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,IAAI,WAAW,CAAC,GAG,CAAC,CAAC,MAAM,CAAC,SAS,
CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,GAG,CAAC,CAAC,MAAM,CAAC,SAS,CAAC,CAAC,OA
AO,CAAC,IAAI,YAAY,CAAC,GAG,EAAC,CAAC,IAAI,cAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,EAAE
,QAAQ,CAAC,GAG,sBAAsB,CAAC,CAAC,UAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CA
AC,MAAM,CAAC,QAAQ,EAAC,CAAC,KAAI,CAAC,GAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,UA
AU,CAAC,MAAM,CAAC,YAAY,EAAC,CAAC,KAAI,CAAC,UAU,CAAC,IAI,WAAW,CAAC,MAAM,CA
AC,SAAS,CAAC,cAAc,CAAC,KAAK,CAAC,SAAS,CAAC,UAU,CAAC,KAAK,CAAC,QAAQ,CAAC,
IAI,CAAC,CAAC,CAAC,GAG,EAAE,UAU,CAAC,MAAM,YAAY,iBAAiB,CAAC,CAAC,CAAC,GAG,C
AAC,6NA6N,CAAC,CAAC,GAG,mBAAmB,CAAC,CAAC,OAAO,CAAC,GAG,CAAC,mHAAmH,EAAC,
CAAC,MAAM,KAAK,CAAC,YAY,CAAC,CAAC,CAAC,CAAC,GAG,UAU,CAAC,CAAC,MAM,CAAC,
UAU,CAAC,OAAM,CAAC,cAc,CAAC,MAM,CAAC,UAU,CAAC,0BAA0B,CAAC,MAM,CAAC,CAA
C,IAI,SAS,CAAC,IAI,YAY,CAAC,EAE,CAAC,IAI,UAU,CAAC,EAE,CAAC,IAI,UAU,CAAC,
EAE,CAAmB,IAI,aAa,CAAC,EAE,CAAsD,GAG,CAAC,sBAAsB,CAAC,UAU,CAAC,IAI,CAAC,C

AAC,IAAI,CAAC,UAAU,CAAC,kBAAkB,GAAE,CAAC,CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,GA
AG,sBAAsB,CAAC,OAAO,GAAG,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,
QAAQ,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,
CAAC,CAAC,MAAM,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,CAAC,WAAW,CAAC,MAAM,CA
AC,QAAQ,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,YAAY,EAAC,CAAC,SAAS,WA
AW,EAAE,CAAyB,GAAG,sBAAsB,CAAC,OAAO,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAAO,EAAE,
CAAC,GAAG,sBAAsB,CAAC,OAAO,oBAAoB,CAAC,UAAU,EAAC,CA4E,SAAS,OAAO,EAAE,CAAC,GA
AG,sBAAsB,CAAC,OAAO,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,S
AAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CA
AC,CAAC,MAM,MAM,CAAC,SAAS,CAAC,CAAC,MAM,CAAC,CAAC,YAAY,CAAC,MAM,CAAC,S
AAS,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,aAAa,EAAC,CAAC,SAAS,WAAW,C
AAC,EAAE,CAAC,CAAC,YAAY,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,SAAS,YAAY,CAAC,EAAE,CAA
C,CAAC,aAAa,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,IAAI,eAAe,CAAC,CAAC,CAA+B,IAAI,qBAAqB,C
AAC,IAAI,CAAC,SAAS,gBAAgB,CAAC,EAAE,CAAC,CAAC,MAM,CAAC,CAAC,sBAAsB,CAAC,qDAAq
D,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAM,CAAC,wBAAwB,CAAC,CAAC,CAAC,MAM,CAAC,wB
AAwB,CAAC,CAAC,eAAe,EAAC,CAAC,CAAC,SAAS,mBAAmB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,C
AAC,GAAG,MAM,CAAC,wBAAwB,CAAC,CAAC,CAAC,MAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EA
AC,CAAC,GAAG,eAAe,EAAE,CAAC,CAAC,CA+F,GAAG,qBAAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBA
AqB,CAAC,qBAAqB,CAAC,IAAI,CAAC,QAAQ,GAAE,CAAC,CAAC,CAAC,MAM,CAAC,iBAAiB,CAAC,C
AAC,EAAE,CAAC,MAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CA
AC,GAAG,MAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAM,CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC
,GAAG,sBAAsB,CAAC,OAAO,CAAC,KAK,CAAC,sBAAsB,CAAC,CAAC,IAAI,KAK,EAAE,KAK,CAAC
,CAAC,IAAI,EAAE,EAAE,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,KAK,CAAC,IAAI,CAAC,IAAI,CAAC,Q
AAQ,CAAC,IAAI,CAAC,8CAA8C,CAAC,IAAI,CAAC,CAAC,IAAI,WAAW,CAAC,YAAY,CAAC,IAAI,CAAC
,CAAC,kBAAkB,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,CAAC,SAAS,SAAS,CAAC,GAAG,CAAC,MAA
M,CAAC,CAAC,OAAO,MAM,CAAC,SAAS,CAAC,UAAU,CAAC,GAAG,CAAC,UAAU,CAAC,MAM,CAAA
C,CAAC,GAAG,CAAC,OAAO,CAAC,MAM,CAAC,GAAG,CAAC,CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC
,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa
,CAAC,SAAS,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAA
C,CAAC,IAAI,cAAc,CAAC,sCAAsC,CAAC,GAAG,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CA
AC,UAU,CAAC,cAAc,EAAC,CAAC,SAAS,SAAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,IAAI,EA
AE,cAAc,EAAE,UAU,CAAC,CAAC,OAAO,IAAI,UAU,CAAC,UAU,CAAC,GAAG,UAU,CAAC,
CAAC,OAAO,UAU,CAAC,IAAI,CAAC,CAAC,KAI,CAAC,MAAK,iDAAiD,CAAC,CAAC,MAM,GAAG,
CAAC,CAAC,KAK,CAAC,GAAG,EAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAU,
GAG,kBAAkB,EAAE,qBAAqB,CAAC,CAAC,GAG,OAO,KAK,GAG,UAU,EAAE,CAAC,SA
AS,CAAC,cAAc,CAAC,CAAC,CAAC,OAO,KAK,CAAC,cAAc,CAAC,CAAC,WAW,CAAC,aAAa,CAAC,
CAAC,CAAC,IAI,CAAC,SAS,QAQ,CAAC,CAAC,GAG,CAAC,QAQ,CAAC,IAI,CAAC,CAAC,CAAA
C,MAAK,sCAAsC,CAAC,cAAc,CAAC,GAG,CAAC,OAO,QQ,CAAC,aAA,CAAC,EAE,CAAC,CAAC,
CAAC,KAK,CAAC,UU,CAAC,OO,SS,CAAC,cAAc,CAAC,GG,CAAC,GG,CAAC,KK,CAAC,CAAC,GA
AG,SS,CAAC,CAAC,OO,IAI,OO,CAAC,SS,OO,CAAC,MM,CAAC,CAAC,SS,CAAC,
cAAc,CAAC,SS,QQ,CAAC,CAAC,CAAC,OO,CAAC,IAI,UU,CAAC,QQ,CAAC,EE,CAAC,CAAA
C,MM,EE,CAAC,CAAC,CAAC,CAAC,CAAC,OO,OO,CAAC,OO,EE,CAAC,II,CAAC,
UU,CAAC,OO,SS,CAAC,cAAc,CAAC,GG,CAAC,CAAC,CAAC,SS,UU,EE,CAAC,II,II,
CAAC,CAAC,GG,CAAC,aA,CAAC,CAAC,SS,eA,CAAC,QQ,CAAC,MM,CAAC,CAAC,II,AA
I,OO,CAAC,QQ,CAAC,OO,CAAC,MM,CAAC,KK,CAAC,CAAC,OO,CAAC,SS,CAAC,
MM,CAAC,KK,CAAC,CAAC,GG,CAAC,CAAC,UU,CAAC,MM,CAAC,GG,CAAC,sBAAs
B,CAAC,CAAC,IAI,gBAAgB,CAAC,OO,CAAC,aA,CAAC,MM,CAAC,OO,CAAC,aA,CAAC,
OO,CAAC,SS,CAAC,CAAC,CAAC,OO,CAAC,sBAAsB,CAAC,CAAC,CAAC,UU,CAAC,GG,

CAAC,EAAE,gBAAgB,CAAC,mBAAmB,CAAmB,EAAC,CAAC,EAAC,CAAC,EAAC,CAAC,CAAC,GAAG,C
AAC,sBAAsB,CAAC,CAAC,gBAAgB,CAAmB,EAAC,CAAC,SAAS,yBAAyB,CAAC,MAAM,CAAC,CAAC,eA
Ae,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,QAAQ,CAAC,EAAC,CAAC,SAAS,sBAAsB,C
AAC,QAAQ,CAAC,CAAC,OAAO,gBAAgB,EAAE,CAAC,IAAI,CAAC,SAAS,MAAM,CAAC,CAAC,OAAO,W
AAW,CAAC,WAAW,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,QAAQ,CAAC,SA
AS,MAAM,CAAC,CAAC,GAAG,CAAC,yCAAyC,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAAM,EAAC,
CAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,EAAE,OAAO,WAAW,CAAC,oBAA
oB,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,O
AAO,KAAK,GAAG,UAAU,CAAC,CAAC,OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CA
AC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,WAAW,CAAC,oBAAoB,CAA
C,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,MAAM,CAAC,IAAI,CAAC,yBAAyB,CAAC,SAAS,MAAM,CAAC
,CAAC,GAAG,CAAC,iCAAiC,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,2CAA2C,CAAC,CAAC,OAAO,sBA
AsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,sBAAsB,CAAC,yBAAyB
,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,OAAO,CAAC,
MAAM,CAAC,iBAAiB,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,OAAO,CAAC,MAAM,CAAC,C
AAC,CAAC,GAAG,CAAC,qDAAqD,CAAC,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,CAAC,gBAAgB,EAA
E,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,OAAM,EAAE,CAAC,IAAI,UAAU,CAAC,CAAC,KAAK,CAA
C,UAAU,CAAC,MAAK,WAAW,CAAC,CAAC,KAAK,CAAC,SAAS,EAAE,CAAC,EAAE,CAAC,CAAC,UAA
U,CAAC,UAAU,CAAC,kCAAkC,CAAC,EAAE,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAA
C,CAAC,SAAS,cAAc,EAAE,CAAC,OAAO,CAAC,WAAW,GAAE,CAAC,SAAS,oBAAoB,CAAC,SAAS,CAAC,
CAAC,MAAM,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,CAAC,KAAK,EA
AE,CAAC,GAAG,OAAO,QAAQ,EAAE,UAAU,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,QAAQ,CA
AC,IAAI,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,GAAG,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,GAAG,QA
AQ,CAAC,GAAG,GAAG,SAAS,CAAC,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,GAAE,CAAC,KAAI,C
AAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,KAAI,CAAC
,IAAI,CAAC,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAA
C,CAAC,IAAI,WAAW,CAAC,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,
EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,KAAK,C
AAC,CAAC,CAAC,OAAO,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,M
AAM,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,CAAC,
CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,
EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,MAAM,C
AAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,M
AAM,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CA
AC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,EA
AE,CAAC,IAAI,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC
,EAAE,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,C
AAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CA
AC,MAAM,CAAC,GAAG,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,
CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,
CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,
CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,EAAE,CAAC,MAAM,CAAC,GAAG,CAAC,EAAE,CAAC,KAAK,
CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,C
AAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,SAAS,CAAC,EAAE,CAAC,MAAM,CAAC,GAAG,CAAC,M
AAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,C
AAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,
EAAE,CAAC,IAAI,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,C
AAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,CAAC,QA
AQ,CAAC,GAAG,CAAC,MAM,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CA
AC,OAAO,CAAC,GAAG,CAAC,OAAO,CAAC,GAAG,CAAC,QAAQ,CAAC,GA
AG,CAAC,MAAM,CAAC,EAAE,CAAC,SAS,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,KAK,CAA

C,EAAE,CAAC,UAAU,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,YAAY,CAAC,CAAC,CAAC,UAAU,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,WAAW,CAAC,EAAE,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC,EAAE,CAAC,UAAU,CAAC,CAAC,CAAC,YAAY,CAAC,EAAE,CAAC,WAAW,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC,EAAE,CAAC,WAAW,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,eAAe,CAAC,EAAE,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,CAAC,SAAS,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,CAAC,YAAY,CAAC,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,SAAS,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,CAAC,eAAe,CAAC,EAAE,CAAC,UAAU,CAAC,EAAE,CAAC,QAAQ,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,IAAI,EAAE,CAAC,EAAE,IAAI,CAAC,gBAAgB,EAAE,CAAC,MAAM,EAAE,IAAI,CAAC,CAAC,EAAE,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,OAAM,CAAC,EAAE,CAAC,GAAG,KAAK,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,KAAK,EAAE,UAAU,CAAC,KAAK,CAAC,QAAQ,CAAC,IAAI,qBAAqB,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,8BA8B,EAAE,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,CAAC,CAAC,GAAG,qBAAqB,EAAE,IAAI,CAAC,CAAC,IAAI,UAAU,CAAC,OAAO,CAAC,eAAe,CAAC,iBAAiB,EAAE,CAAC,8BA8A8B,EAAE,CAAC,CAAC,qBAAqB,CAAC,CAAC,CAAC,GAAG,UAAU,EAAE,qBAAqB,CAAC,CAAC,EAAE,KAAK,CAAC,eAAe,CAAC,CAAC,CAAC,GAAG,KAAK,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,sBAAsB,CAAC,SAAS,UAAU,CAAC,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAM,oFAAoF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,iDAAiD,CAAC,iBAAiB,EAAE,CAAC,WAAW,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,EAAE,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,CAAC,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,OAAO,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,UAAU,SAAS,CAAC,SAAS,YAAY,CAAC,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAM,sFAAsF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,mDAAmD,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,KAAK,CAAC,QAAQ,CAAC,EAAE,CAAC,SAAS,aAAa,CAAC,WAAW,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAM,uFAAuF,CAAC,GAAG,CAAC,WAAW,CAAC,MAAM,oDAAoD,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,iBAAiB,EAAE,CAAC,WAAW,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,CAAC,aAAa,CAAC,EAAE,CAAC,cAAc,EAAE,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,eAAe,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,eAAe,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,oBAAoB,GAAG,EAAE,CAAC,CAAC,CAAC,WAAW,CAAC,UAAU,CAAC,IAAI,EAAE,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

CAAC,GAAG,EAAE,GAAE,CAAC,GAAG,sBAAsB,EAAE,aAAa,EAAE,CAAC,wBAAwB,GAAE,CAAC,CAAC,8BAA8B,CAAC,SAAS,EAAE,CAAC,QAAQ,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,eAAe,EAAE,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,sBAAsB,CAAC,EAAE,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,wBAAwB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,UAAU,CAAC,SAAS,QAAQ,CAAC,CAAC,IAAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,OAAO,CAAC,8BAA8B,CAAC,EAAE,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,EAAC,CAAC,CAAC,CAAC,CAAC,YAAY,CAAC,UAAU,CAAC,OAAO,CAAC,8BAA8B,CAAC,aAAa,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,YAAY,CAAC,EAAC,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,IAAI,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,GAAG,OAAO,EAAE,OAAO,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,OAAO,CAAC,MAAM,EAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,GAAE,CAAC,OAAO,CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,SAAS,,OAAO,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,GAAG,OAAO,CAAC,gBAAgB,CAAC,CAAC,IAAI,SAAS,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC,KAAK,CAAC,OAAO,CAAC,gBAAgB,CAAC,EAAE,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,GAAG,OAAO,CAAC,iBAAiB,EAAE,OAAO,CAAC,SAAS,CAAC,KAAK,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,GAAG,OAAO,CAAC,MAAM,CAAC,OAAO,CAAC,KAAK,CAAC,kBAAkB,CAAC,SAAS,CAAC,OAAO,CAAC,+B+B+B,CAAC,UAAU,CAAC,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,IAAI,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,cAAc,CAAC,MAAM,CAAC,OAAO,CAAC,cAAc,CAAC,UAAU,CAAC,EAAC,CAAC,CAAC,+B+B+B,CAAC,SAAS,IAAI,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,4CAA4C,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,iBAAiB,EAAE,CAAC,4CAA4C,EAAE,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,qBAAqB,CAAC,SAAS,IAAI,CAAC,SAAS,CAAC,sBAAsB,CAAC,CAAC,SAAS,MAAM,CAAC,iBAAiB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

AAM,CAAC,MAAM,CAAC,IAAI,CAAC,GAAG,iBAAiB,CAAC,iBAAiB,CAAC,MAAM,CAAC,CAAC,GAAG,
MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,UAAU,EAAE,CAAC,OAAO,MAAM,CAAC,WAAU,CAA
C,CAAC,KAAK,GAAG,GAAG,GAAG,OAAO,CAAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU
,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,MAAM,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,UAAU,C
AAC,CAAC,GAAG,CAAC,SAAS,CAAC,CAAC,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,MAA
M,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,OAAO,CAAC,CAAC,KAAK,CAAC,SAAS,CAAC,CAAC
,CAAC,UAAU,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,MAAM,CAAC,EAAC,CAAC,KAAK,GAAG,GAAG,G
AAG,MAAM,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,OAAO,EAAE,OAAO,CAAC,IAAI,CAAC,iBA
AiB,EAAE,CAAC,MAAM,CAAC,OAAO,CAAC,gBAAgB,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,Q
AAQ,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CAAC,CAAC,KAAK,GAAG,GAAG,GAAG,
aAAa,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,CAAC,YAAY,CAAC,EAAC,CAAC,MAAM,CAAC,CA
AC,CAAC,GAAG,CAAC,YAAY,UAAU,CAAC,OAAO,MAAM,CAAC,CAAC,CAAC,KAAK,GAAG,GAAG,GA
AG,YAAY,CAAC,CAAC,OAAO,CAAC,kBAAkB,CAAC,MAAM,EAAC,CAAC,KAAK,GAAG,GAAG,GAAG,g
BAAgB,CAAC,CAAC,OAAO,CAAC,qBAAqB,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,KAAK,GAAG,CAAC,
CAAC,IAAI,CAAC,MAAM,GAAG,cAAc,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,IAAI,EA
AC,CAAC,KAAI,CAAC,GAAG,CAAC,iCAAiC,CAAC,GAAG,EAAC,CAAC,OAAO,CAAC,mCAAmC,CAAC,
UAAS,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,CAAC,yBAAyB,CAAC
,CAAC,CAAC,QAAQ,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,OAAO,E
AAC,CAAC,CAAC,GAAG,mBAAmB,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,SAAS,CAAC,SAAS,IAAI,C
AAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,EAAC,CAAC,CAAC,CAAC,MAA
M,CAAC,EAAE,CAAC,OAAO,CAAC,SAAS,IAAI,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC,IAAI,EAAC,C
AAC,CAAC,CAAC,MAAM,CAAC,EAAE,CAAC,MAAM,CAAC,SAAS,IAAI,CAAC,EAAE,EAAC,CAAC,MA
AM,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,WAAW,CAAC,MAAM,CAAC,qBAAqB,CAA
C,EAAE,UAAU,CAAC,YAAY,CAAC,UAAU,CAAC,YAAY,CAAC,UAAU,CAAC,EAAC,CAAC,CAAC,oBAA
oB,CAAC,UAAU,CAAC,IAAI,aAAa,CAAC,UAAU,CAAC,2CAA2C,CAAC,CAAC,OAAO,CAAC,aAAa,CAAC,
IAAI,CAAC,IAAI,MAAM,CAAC,aAAa,CAAC,EAAC,CAAC,CAAC,YAAY,CAAC,UAAU,CAAC,GAAG,OAA
O,CAAC,aAAa,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,oBAAoB,EAAE,CAAC,OAAO,CAA
C,sBAAsB,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,GAAG,OAAO,CAAC,aAAa,CAAC,
MAAM,CAAC,CAAC,CAAC,OAAO,OAAO,CAAC,aAAa,CAAC,GAAG,EAAE,CAAC,KAAK,OAAO,IAAI,CA
AC,CAAC,YAAY,CAAC,SAAS,KAAK,CAAC,CAAC,IAAI,CAAC,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC
,KAAK,CAAC,MAAM,WAAW,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,SAAS,
mBAAmB,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,4BAA4B,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,Y
AAY,CAAC,QAAQ,EAAC,CAAC,MAAM,CAAC,qBAAqB,CAAC,CAAC,mBAAmB,CAAC,SAAS,gBAAgB,E
AAE,CAAC,OAAO,aAAa,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,gBAAgB,CAAC,SAAS,gBAAgB,CAA
C,GAAG,CAAC,GAAG,CAAC,CAAC,OAAO,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,
CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,gBAAgB,CAAC,SAAS,cAAc,CAAC,SAAS,CAAC,QAAQ,CAA
C,IAAI,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,oBAAoB,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,QAAQ,C
AAC,CAAC,QAAQ,CAAC,YAAY,CAAC,QAAQ,CAAC,CAAC,kBAAkB,CAAC,IAAI,CAAC,IAAI,CAAC,YA
AY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,EAAC,CAAC,SAAS,YAAY,CAAC,IAAI,CAAC,IAAI,CAAC,C
AAC,IAAI,UAAU,CAAC,KAAK,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,IAAI,mBAAmB,CAAC,GAAG,mBA
AmB,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,QAAQ,CAAC,EAAE,C
AAC,OAAO,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,GAAG,EA
AC,CAAC,KAAK,GAAG,sBAAsB,CAAC,CAAC,mBAAmB,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,GAA
G,EAAE,CAAC,MAAM,CAAC,+BA+B,CAAC,EAAC,CAAC,KAAK,GAAG,OAAO,OAAO,GAAG,WAAW,C
AAC,CAAC,mBAAmB,CAAC,QAAO,CAAC,KAAK,mBAAmB,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,G
AAG,EAAE,CAAC,CAAC,SAAS,QAAQ,CAAC,KAAK,CAAC,CAAC,iBAAiB,EAAE,CAAC,iBAAiB,EAAE,E
AAE,CAAC,CAAC,CAAC,KAAK,CAAC,OAAO,KAAK,CAAC,SAAS,OAAO,CAAC,IAAI,CAAC,GAAG,CAA
C,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CA

AC,CAAC,SAAS,gCAAgC,CAAC,cAAc,CAAC,YAAY,CAAC,CAAC,GAAG,cAAc,EAAE,YAAY,CAAC,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,6BAA6B,CAAC,EAAC,CAAC,KAAK,GAAG,sBAAsB,CAAC,CAAC,WAAW,CAAC,CAAC,cAAc,CAAC,cAAc,CAAC,KAAK,CAAC,oBAAoB,CAAC,EAAC,CAAC,KAAI,CAAC,IAAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,IAAAI,MAAM,CAAC,OAAO,EAAE,OAAO,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,oBAAoB,CAAC,EAAC,CAAC,OAAO,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,KAAK,GAAE,CAAC,SAAS,yBAAyB,CAAC,IAAAI,MAAM,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAAAI,IAAI,gBAAgB,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,OAAO,UAAU,CAAC,IAAAI,KAAK,CAAC,CAAC,KAAK,CAAC,oBAAoB,CAAC,IAAAI,IAAI,CAAC,CAAC,SAAS,iDAAiD,CAAC,cAAc,SAAS,sBAAsB,CAAC,IAAAI,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,IAAAI,IAAI,EAAE,CAAC,EAAE,IAAAI,IAAI,CAAC,gBAAgB,EAAE,EAAE,CAAC,MAAM,EAAE,IAAAI,IAAI,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,kBAAkB,CAAC,IAAAI,GAAG,CAAC,OAAO,CAAC,IAAAI,IAAI,CAAC,iBAAiB,EAAE,CAAC,IAAAI,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,GAAG,GAAG,WAAW,CAAC,OAAO,CAAC,EAAE,CAAC,CAAC,GAAG,GAAG,GAAG,WAAW,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,GAAG,GAAG,IAAAI,IAAI,CAAC,OAAO,CAAC,CAAC,CAAC,MAAM,4CAA4C,CAAC,GAAG,CAAC,KAAI,CAAC,GAAG,OAAO,CAAC,IAAAI,IAAI,CAAC,iBAAiB,EAAE,CAAC,IAAAI,IAAI,EAAE,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,IAAAI,IAAI,IAAAI,IAAI,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC,IAAAI,IAAI,IAAAI,IAAI,CAAC,IAAAI,IAAI,CAAC,OAAO,CAAC,IAAAI,IAAI,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,IAAAI,MAAM,EAAE,CAAC,CAAC,CAAC,IAAAI,IAAI,WAAW,CAAC,GAAG,EAAE,CAAC,IAAAI,IAAI,IAAAI,IAAI,CAAC,IAAAI,IAAI,CAAC,OAAO,CAAC,IAAAI,IAAI,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,IAAAI,MAAM,EAAE,CAAC,CAAC,CAAC,IAAAI,IAAI,QAAQ,CAAC,OAAO,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,8BAA8B,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,IAAAI,MAAM,EAAE,CAAC,CAAC,CAAC,IAAAI,IAAI

AC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,C
AAC,SAAS,uBAAuB,CAAC,aAAa,CAAC,CAAC,IAAI,OAAO,CAAC,yBAAyB,EAAE,CAAC,GAAG,aAAa,EA
AE,OAAO,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,GAAG,aAAa,CAAC,WAA
W,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,IAAI,OAAO,CAAC,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,O
AAO,EAAE,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,OAAO,EAAE,CAAC,CAAC,EAAE,CAAC,OAAO,CAA
C,CAAC,iBAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,iBAAiB,CAAC,aAAa,CAAC,SAAS,CAAC,CAAC,IAAI,O
AAO,CAAC,IAAI,CAAC,GAAG,CAAC,WAAW,CAAC,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,aAAa,CAAC
,iBAAiB,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,yBAAyB,CAAC,OAAO,CAAC,CAA
C,GAAG,WAAW,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,QAAQ,CAAC,CAAC,c
AAc,CAAC,CAAC,CAAC,uBAAuB,CAAC,UAAU,CAAC,IAAI,IAAI,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC
,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,QAAQ,CAAC,cAAc,C
AAC,CAAC,EAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,GAAE,CAAC
,CAAC,4BAA4B,CAAC,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,8BAA8B,CAAC,CAAmD,QAAQ,CAAC,8
BAA8B,CAAC,KAAI,CAAC,CAAC,CAAC,aAAa,CAAC,EAAE,CAAC,SAAS,CAAC,SAAS,cAAc,CAAC,UAA
U,CAAC,QAAQ,CAAC,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,GAAG,IAAI,CAAC,MA
AM,EAAE,IAAI,CAAC,MAAM,CAAC,OAAO,KAAK,CAAC,IAAI,IAAI,CAAC,IAAI,IAAI,CAAC,CAAC,GAA
G,IAAI,CAAC,CAAC,CAAC,EAAE,IAAI,CAAC,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,OAAO,IAAI,CAA
C,IAAI,IAAI,CAAC,IAAI,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,aAAa,CAAC,CA
AC,CAAC,CAAC,GAAG,IAAI,CAAC,cAAc,EAAE,cAAc,EAAE,sBAAsB,CAAC,IAAI,CAAC,QAAQ,CAAC,Q
AAQ,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,CAAC,cAAc,CAAC
,cAAc,CAAC,UAAU,CAAC,UAAU,CAAC,QAAQ,CAAC,QAAQ,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CA
AC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,CAAC,CAAC,
UAAU,CAAC,EAAC,CAAC,CAAC,mBAAmB,CAAC,SAAS,cAAc,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CA
AC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAA
Q,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,cAAc,EAAE,cAAc,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MA
AM,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,8BAA8B,CAAC,UA
AU,CAAC,OAAO,QAAQ,CAAC,cAAc,EAAE,QAAQ,CAAC,mBAAmB,CAAC,mBAAmB,CAAC,CAAC,gBAA
gB,CAAC,UAAU,CAAC,GAAG,CAAC,QAAQ,CAAC,8BAA8B,EAAE,CAAC,CAAC,MAAM,CAAC,IAAI,IAA
I,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,C
AAC,IAAI,IAAI,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,
CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,cAAc,CAAC,KAAK,CAAC,IAAI,
CAAC,IAAI,CAAC,QAAQ,EAAC,CAAC,CAAC,CAAC,aAAa,CAAC,EAAE,CAAC,yBAAyB,CAAC,SAAS,MA
AM,CAAC,eAAe,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CA
AC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAA
M,EAAE,MAAM,GAAG,CAAC,eAAe,EAAE,eAAe,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,eA
Ae,CAAC,CAAC,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,cAAc,C
AAC,SAAS,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,CAAC,
CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,CAAC,eAAe,CAAC,CAAC,CAAC,iBAAiB,CAAC,CAAC,CAA
C,UAAU,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,EAAC,CAAC,CAAC,
uBAAuB,CAAC,SAAS,YAAY,CAAC,CAAC,IAAI,cAAc,CAAC,SAAS,cAAc,CAAC,KAAK,CAAC,CAAC,EAA
E,QAAQ,CAAC,cAAc,CAAC,QAAQ,CAAC,mBAAmB,CAAC,YAAY,CAAC,QAAQ,CAAC,gBAAgB,EAAE,C
AAC,YAAY,CAAC,WAAW,CAAC,KAAK,CAAC,CAAC,QAAQ,CAAC,gBAAgB,EAAE,CAAC,EAAE,QAAQ,
CAAC,eAAe,CAAC,CAAC,GAAG,YAAY,CAAC,YAAY,CAAC,CAAC,YAAY,CAAC,iBAAiB,CAAC,cAAc,C
AAC,YAAY,CAAC,MAAM,CAAC,gBAAgB,CAAC,YAAY,CAAC,eAAe,CAAC,cAAc,CAAC,YAAY,CAAC,U
AAU,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,IAAI,CAAC,YAAY,CAAC,CAAC,QAAQ,CAAC,4BAA4B,GA
AE,CAAC,KAAI,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,QAAQ,CAAC,aAAa,CAAC,MA
AM,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,MAAM,EAA
E,YAAY,CAAC,MAAM,EAAE,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,CAAC,eAAe,EAAE,YAAY,CAAC,e

AAe,CAAC,CAAC,QAAQ,CAAC,cAAc,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,8BAA
8B,CAAC,SAAS,YAAY,CAAC,gBAAgB,CAAC,WAAW,CAAC,SAAS,CAAC,QAAQ,CAAC,CAAC,IAAI,QAA
Q,CAAC,SAAS,EAAE,CAAC,IAAI,OAAO,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,iBAAiB,EAAE,CAAC,O
AAO,EAAE,CAAC,CAAC,CAAC,WAAW,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,C
AAC,CAAC,SAAS,CAAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,QAAQ,CA
AC,2BAA2B,CAAC,CAAC,CAAC,YAAY,CAAC,SAAS,CAAC,gBAAgB,CAAC,SAAS,CAAC,OAAO,CAAC,C
AAC,YAAY,CAAC,QAAQ,EAAC,CAAC,CAAC,+BAA+B,CAAC,SAAS,YAAY,CAAC,CAAC,OAAO,YAAY,E
AAE,KAAK,CAAC,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,mCAAmC,CAAC
,QAAQ,OAAO,YAAY,CAAC,CAAC,CAAC,oBAAoB,CAAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,MAA
M,CAAC,OAAM,EAAE,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC,OAAM,SAAS,CAAC,GAAG,MAAM,EA
AE,MAAM,CAAC,OAAM,SAAS,CAAC,OAAO,MAAM,EAAE,MAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,Q
AAQ,CAAC,EAAE,CAAC,CAAC,iBAAiB,CAAC,UAAU,CAAC,OAAO,QAAQ,CAAC,iBAAiB,EAAE,QAAQ,
CAAC,uBAAuB,CAAC,CAAC,CAAC,SAAS,eAAe,CAAC,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,eAAe,CA
AC,QAAQ,CAAC,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,YAAY,CAA
C,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,OAAO,OAAO,CAAC,SAAS,wDAAwD,CAAC,YAAY,C
AAC,YAAY,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,EAAE,CAAC,IAAI,OAAO
,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,IAAI,eAAe,CAAC,CAAC,CAAC,GAAG,YAAY,CAAC,CAAC,eAA
e,CAAC,eAAe,CAAC,YAAY,EAAC,CAAC,iBAAiB,EAAE,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,eAAe,C
AAC,iBAAiB,EAAE,CAAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,iBAAiB,EAAE,C
AAC,OAAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,MAAM,CAAC,2BAA2B,CAAC,CAAC,CAAC,YAAY,
CAAC,SAAS,CAAC,CAAC,CAAC,eAAe,CAAC,OAAO,CAAC,CAAC,YAAY,CAAC,QAAQ,EAAC,CAAC,SA
AS,qDAAqD,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,YAAY,CAAC,YAAY,C
AAC,YAAY,CAAC,YAAY,CAAC,CAAC,EAAE,CAAC,wDAAwD,CAAC,YAAY,CAAC,YAAY,CAAC,KAAK,
CAAC,MAAM,EAAC,CAAC,SAAS,sBAAsB,CAAC,OAAO,CAAC,CAAC,OAAO,OAAO,CAAC,CAAC,CAAC,
YAAY,CAAC,OAAO,CAAC,CAAC,OAAO,CAAC,IAAI,kBAAkB,CAAC,CAAC,CAAC,CAAC,OAAO,QAAQ,
GAAG,WAAW,CAAC,QAAQ,CAAC,CAAC,CAAC,OAAO,MAAM,GAAG,WAAW,CAAC,MAAM,CAAC,CA
AC,CAAC,CAAC,SAAS,eAAe,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,C
AAC,IAAI,UAAU,CAAC,kBAAkB,CAAC,MAAM,CAAC,GAAG,OAAO,QAAQ,GAAG,WAAW,CAAC,QAAQ,
CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,CAAC,OAAO,UAAU,CAAC,SAAS,qBAAqB,CAAC,
MAAM,CAAC,CAAC,OAAO,eAAe,CAAC,MAAM,CAAC,CAAC,SAAS,kDAAkD,CAAC,MAAM,CAAC,KAA
K,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,MA
AM,CAAC,OAAM,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,eAAe,CAAC,CAAC,iBAAiB,EAAE,CAAC,MA
AM,CAAC,eAAe,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,eAAe,CAA
C,CAAC,EAAE,CAAC,CAAC,CAAC,OAAM,CAAC,GAAG,MAAM,CAAC,eAAe,EAAE,CAAC,MAAM,CAAC
,2BAA2B,CAAC,CAAC,GAAG,MAAM,CAAC,eAAe,CAAC,MAAM,CAAC,MAAM,CAAC,eAAe,CAAC,IAAI,
kBAAkB,CAAC,KAAK,CAAC,GAAG,MAAM,CAAC,WAAW,EAAE,MAAM,CAAC,WAAW,CAAC,KAAK,C
AAC,CAAC,IAAI,YAAY,CAAC,MAM,CAAC,WAAW,CAAC,KAAK,CAAC,YAAY,CAAC,IAAI,CAAC,CA
AC,kBAAkB,CAAC,YAAY,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,YAAY,CAAC,CAAC,CAAC,GAAG,CA
AC,EAAE,YAAY,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,KAAK,EAAE,YAAY,CAAC,CAAC,CAAC,GA
AG,MAAM,CAAC,OAAM,CAAC,MAAM,CAAC,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,
MAAM,CAAC,GAAG,kBAAkB,CAAC,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,KAAK,CAAC,QAAQ,CAAC,CA
AC,CAAC,CAAC,CAAC,KAAK,CAAC,MAM,EAAC,CAAC,CAAC,CAAC,KAAK,GAAG,CAAC,MAAM,CAAC,eAAe,CA
AC,CAAC,IAAI,YAAY,CAAC,iBAAiB,EAAE,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,EAAE,CAAC,CAAC
,qDAAqD,CAAC,YAAY,CAAC,MAM,CAAC,KAAK,CAAC,MAM,CAAC,CAAC,OAAO,CAAC,CAAC,CA
AC,KAAI,CAAC,OAM,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,SAAS,+CA+C,CAAC,MAM,CAAC,K
AAK,CAAC,MAM,CAAC,CAAC,GAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CA
AC,MAM,CAAC,KAK,CAAC,MAM,CAAC,CAAC,OAO,kDAAkD,CAAC,MAM,CAAC,KAK,CAAC
,MAM,CAAC,CAAC,SAAS,mCAAmC,CAAC,MAM,CAAC,KAK,CAAC,MAM,CAAC,CAAC,IAAI,MA

AM,CAAC,qBAAqB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,OAAO,kDAAkD,CAAC,MAA
M,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,KAAI,CAAC,OAAO,+CAA+C,CAAC,MAAM,CAAC,KAAK,C
AAC,MAAM,CAAC,CAAC,CAAC,SAAS,qCAAqC,CAAC,SAAS,CAAC,EAAE,SAAS,2BAA2B,CAAC,QAAQ,
CAAC,IAAI,CAAC,EAAE,SAAS,qCAAqC,CAAC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,YA
AY,CAAC,wBAAwB,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,GAAG,CAAC,qBAAqB,CAAC,CAAC,SAAS,
KAAK,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,0BAA0B,CAAC,CAAC,KAAK,CAAC,OAAO,EAAC,CAAC
,CAAC,GAAG,CAAC,qBAAqB,CAAC,CAAC,SAAS,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,CAAC,C
AAC,GAAG,CAAC,0BAA0B,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,SAAS,EAAC,CAAC,CA
AC,GAAG,CAAC,uBAAuB,CAAC,CAAC,SAAS,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,OAAO,CAAC,SAAS,
CAAC,CAAC,GAAG,CAAC,4BAA4B,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,OAAO,CAAC,SA
AS,EAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,sCAAsC,CAAC,GAAG,CAAC,CAAC,IAAI,GAA
G,CAAC,GAAG,CAAC,YAAY,CAAC,yBAAyB,CAAC,CAAC,GAAG,GAAG,CAAC,CAAC,GAAG,CAAC,mB
AAmB,CAAC,CAAC,UAAU,CAAC,OAAO,GAAG,CAAC,sBAAsB,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,
mBAAmB,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,CAAC,GAAG,EAAC,CA
AC,CAAC,GAAG,CAAC,iBAAiB,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,GAAG,CAAC,oBAAoB,CAAC,C
AAC,GAAG,EAAC,CAAC,CAAC,GAAG,CAAC,eAAe,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,OAAO,GAA
G,CAAC,kBAAkB,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,iCAAiC,CA
AC,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,oBAAoB,CAAC,CAAC,GAAG,GA
AG,CAAC,CAAC,GAAG,CAAC,aAAa,CAAC,CAAC,SAAS,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,k
BAAkB,CAAC,CAAC,CAAC,CAAC,IAAI,EAAC,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,SAAS,+BAA+B,
CAAC,GAAG,CAAC,CAAC,OAAM,CAAC,EAAE,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,YAAY,CAAC,kB
AAkB,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,OAAO,CAAC,EAAE,CAA
C,QAAQ,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,aAAa,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE,C
AAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,EAAE,CAAC,IAAI,CAAC,EAAE,CAAC,QAAQ,CAAC,EAAE
,CAAC,iBAAiB,CAAC,EAAE,CAAC,eAAe,CAAC,EAAE,CAAC,YAAY,CAAC,EAAE,CAAC,WAAW,CAAC,E
AAE,CAAC,eAAe,CAAC,CAAC,CAAC,WAAW,CAAC,SAAS,WAAW,CAAC,SAAS,CAAC,CAAC,GAAG,CA
AC,EAAE,CAAC,SAAS,CAAC,CAAC,EAAE,CAAC,SAAS,CAAC,UAAU,CAAC,CAAC,CAAC,QAAQ,CAAC,
SAAS,KAAK,CAAC,CAAC,IAAI,GAAG,CAAC,EAAE,CAAC,OAAO,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,
KAAK,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,KAAK,CAAC,CAAC,CAAC,C
AAC,CAAC,KAAI,CAAC,OAAO,GAAG,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,KAAK,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,C
AAC,CAAC,KAAK,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,iBAAiB,EAAE,CA
AC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,EAAE,YA
AY,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,CA
AC,CAAC,CAAC,SAAS,CAAC,GAAG,EAAC,CAAC,OAAO,MAAM,CAAC,CAAC,aAAa,CAAC,SAAS,MAA
M,CAAC,sBAAsB,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,OAAO,CAAC,sBAAsB,CA
AC,CAAC,GAAG,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,eAAe,CAAC,
GAAG,CAAC,sBAAsB,CAAC,CAAC,OAAO,MAAM,CAAC,CAAC,eAAe,CAAC,SAAS,GAAG,CAAC,sBAAs
B,CAAC,CAAC,IAAI,MAAM,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAA
C,CAAC,EAAE,CAAC,CAAC,CAAC,aAAa,EAAE,CAAC,IAAI,OAAO,CAAC,CAAC,MAAM,CAAC,MAAM,C
AAC,UAAU,CAAC,sBAAsB,CAAC,OAAO,CAAC,sBAAsB,CAAC,YAAY,CAAC,KAAK,CAAC,GAAG,CAAC
,CAAC,GAAG,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,MAAM,CAAC,WAAW,CAAC,OAAO,CAAC,EAA
E,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,GAAG,OAAO,sBAAsB,CAAC,yBAAyB,GAAG,
WAAW,EAAE,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,EAAE,CAAC,cAAc,CAAC,OAAO,EAAC,CAAC,OAA
O,MAAM,CAAC,CAAC,kBAAkB,CAAC,SAAS,aAAa,CAAC,CAAC,EAAE,CAAC,cAAc,CAAC,EAAE,CAAC,
QAAQ,CAAC,aAAa,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,KAAK,CAAC,EAAE,CAAC,cAAc,EAAE,EA
AE,CAAC,cAAc,CAAC,KAAK,CAAC,OAAM,EAAE,aAAa,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,UAAU,
CAAC,SAAS,aAAa,CAAC,CAAC,OAAO,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,CAAC,aAAa,CAAC

,SAAS,aAAa,CAAC,CAAC,GAAG,EAAE,CAAC,cAAc,GAAG,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,EAAE,CAAC,cAAc,CAAC,IAAI,CAAC,GAAG,OAAO,QAAQ,GAAG,QAAQ,CAAC,QAAQ,CAAC,yBAAyB,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,GAAG,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,EAAE,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,WAAW,CAAC,SAAS,,CAAC,KAAK,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,KAAI,CAAC,CAAC,cAAc,CAAC,SAAS,OAAO,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,OAAO,CAAC,EAAE,CAAC,cAAc,CAAC,GAAG,OAAO,CAAC,kBAAkB,CAAC,OAAO,OAAO,CAAC,kBAAkB,CAAC,IAAI,CAAC,IAAI,KAAK,CAAC,OAAO,CAAC,KAAK,CAAC,qCAAqC,CAAC,KAAK,CAAC,CAAC,sCAAsC,CAAC,KAAK,CAAC,CAAC,iCAAiC,CAAC,KAAK,CAAC,CAAC,KAAK,CAAC,qBAAqB,CAAC,KAAK,CAAC,YAAY,CAAC,0BAA0B,CAAC,CAAC,+BAA+B,CAAC,KAAK,CAAC,CAAC,IAAI,IAAI,CAAC,KAAK,CAAC,sBAAsB,EAAE,EAAE,EAAE,CAAC,IAAI,CAAC,OAAO,CAAC,SAAS,GAAG,CAAC,CAAC,GAAG,GAAG,CAAC,OAAO,CAAC,cAAc,CAAC,CAAC,CAAC,EAAE,GAAG,CAAC,OAAO,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,YAAY,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,oBAAoB,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,QAAQ,CAAC,OAAO,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,EAAE,CAAC,YAAY,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,gBAAgB,CAAC,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,IAAI,WAAW,CAAC,KAAK,CAAC,mBAAmB,CAAC,CAAC,CAAC,KAAK,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,WAAW,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,gBAAgB,CAAC,CAAC,CAAC,CAAC,,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,gBAAgB,CAAC,IAAI,CAAC,GAAG,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,GAAG,CAAC,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,WAAW,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC

CAAC,OAAO,CAAC,CAAC,IAAI,aAAa,CAAC,EAAE,CAAC,aAAa,CAAC,MAAM,CAAC,iBAAiB,CAAC,CA
AC,OAAO,aAAa,CAAC,SAAS,gCAAgC,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,OAAO,mCAAmC,CAAC,E
AAE,CAAC,EAAE,CAAC,CAAC,IAAI,QAAQ,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,CAAC,CAA
C,IAAI,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,IAAI,CAAC,CAAC,IAA
I,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,CAAC,EAAE,IAAI,G
AAG,EAAE,CAAC,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,EAAE,iBAAiB,CAAC,
MAM,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,MAM,CAAC,EAC,CAAC,KAAI,CAAC,MAAM
,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,UAAU,CAA
C,QAAQ,CAAC,OAAO,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAiB,EAAE,CAAC,QAAQ,CAAC,OAAO,
CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,MAM,CAAC,SAS,GAAG,CAAC,C
AAC,IAAI,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,KAAK,CAAC,SAA
S,GAAG,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAS,SAS,CAAC,EAAE,CAAC,CA
AC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,OAAO,
CAAC,CAAC,SAS,QAAQ,CAAC,EAAE,CAAC,UAU,CAAC,WAW,CAAC,MAM,CAAC,SAS,CAAC,C
AAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,UAU,CAA
C,WAW,CAAC,MAM,CAAC,SAS,CAAC,CAAC,SAS,SAS,CAAC,EAAE,CAAC,GAAG,CAAC,MAA
M,CAAC,IAAI,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,EA
AE,CAAC,GAAG,CAAC,MAM,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CA
AC,CAAC,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAi
B,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,iBAAiB,
EAAE,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,IAAI
,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,SAS,C
AAC,EAAE,CAAC,gBAAgB,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,GAAG,EAAE,IAAG,CA
AC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,SAS,oBAA
oB,CAAC,OAAO,CAAC,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,kBAAkB,CAAC,GAAG,EAAE,CAAC,GAA
G,OAAO,CAAC,OAAO,GAAE,CAAC,SAS,qBAAqB,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,CA
AC,kBAAkB,CAAC,IAAI,CAAC,UAU,CAAC,SAS,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,EAA
C,CAAC,EAAC,CAAC,SAS,WAW,CAAC,YAY,CAAC,CAAC,GAAG,sBAAsB,CAAC,MAAK,qFAAqF,C
AAC,IAAI,MAM,CAAC,OAAO,CAAC,YAY,EAE,CAAC,GAAG,MAM,CAAC,OAAO,GAAG,SAS,CA
AC,MAAK,iBAAiB,CAAC,GAAG,CAAC,YAY,CAAC,WAW,CAAC,MAAK,iCAAiC,CAAC,OAAO,CAAC,
cAAc,CAAC,IAAI,CAAC,MAM,CAAC,CAAC,CAAC,IAAI,SAS,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC,CAA
C,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAE,CAAC,CAAC,CAAC,iBA
AiB,EAE,CAAC,SAS,CAAC,CAAC,CAAC,CAAC,EAE,CAAC,CAAC,CAAC,EAC,CAAC,IAAI,SAS,C
AAC,YAY,CAAC,SAS,CAAC,YAY,CAAC,SAS,CAAC,IAAI,OAAO,CAAC,OAAO,CAAC,QAAQ,CAA
C,YAY,CAAC,WAW,CAAC,CAAC,CAAC,MAM,CAAC,MAM,CAAC,SAS,CAAC,YAY,CAAC,SAA
S,CAAC,SAS,CAAC,YAY,CAAC,SAS,CAAC,iBAAiB,CAAC,YAY,CAAC,iBAAiB,CAAC,gBAAgB,CA
AC,YAY,CAAC,WAW,CAAC,CAAC,IAAI,GAAG,CAAC,OAAO,CAAC,gBAAgB,EAAE,CAAC,CAAC,OA
AO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,YAY,CAA
C,QAAQ,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAA
C,CAAC,CAAC,SAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,
EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,gBAAgB,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAA
E,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,YAY,CAAC,SAS,CAAC,CAAC,OAAO,CAAC,K
AAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,EAAE,EAAE,CAAC,CAAC,CAAC,SAS,CAAC,CAAC,OA
AO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC,CAAC,YAY,CA
AC,SAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,EAAE,GAAG,CAAC,CAA
C,EAAE,CAAC,CAAC,CAAC,SAS,CAAC,CAAC,OAAO,CAAC,KAAK,CAAC,iBAAiB,EAAE,CAAC,GAAG,
EAAE,GAAG,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,YAY,CAAC,QAAQ,CAAC,CAAC,IAAI,WAW,CA
AC,2BAA2B,EAAE,CAAC,IAAI,aAAa,CAAC,WAW,CAAC,EAAE,CAAC,OAAO,CAAC,KAK,CAAC,iBA

AiB,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,CAAC,CAAC,aAAa,CAAC,CAAC,MAAM,CAAC,OAA
O,CAAC,OAAO,CAAC,IAAI,GAAG,CAAC,CAAC,KAAK,CAAC,KAAK,CAAC,eAAe,CAAC,YAAY,CAAC,Y
AAY,CAAC,KAAK,CAAC,YAAY,CAAC,GAAG,CAAC,kBAAkB,CAAC,YAAY,CAAC,WAAW,CAAC,WAA
W,CAAC,YAAY,CAAC,SAAS,CAAC,WAAW,CAAC,YAAY,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,UAA
U,CAAC,UAAU,CAAC,GAAG,CAAC,IAAI,CAAC,WAAW,CAAC,GAAG,EAAE,CAAC,MAAM,CAAC,WA
W,CAAC,GAAG,CAAC,YAAY,CAAC,YAAY,EAAC,CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CAAC,CA
AC,MAAM,CAAC,UAAU,EAAE,CAAC,OAAO,MAAM,CAAC,WAAU,CAAC,CAAC,SAAS,eAAe,CAAC,WA
AW,CAAC,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,CAAC,GAAG,OAAO,iBAAiB,GAAG,WAAW,CAAC,CA
AC,GAAG,CAAC,qFAAqF,CAAC,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,WAAW,CAAC,CAAC,GAAG,C
AAC,mDAAmD,CAAC,CAAC,OAAO,EAAE,CAAC,IAAI,YAAY,CAAC,EAAE,CAAC,IAAI,KAAK,CAAC,CA
AC,CAAC,GAAG,sBAAsB,GAAG,YAAY,CAAC,MAAM,GAAG,CAAC,EAAE,KAAK,CAAC,CAAC,CAAC,O
AAO,qCAAqC,CAAC,SAAS,CAAC,WAAW,CAAC,IAAI,CAAC,aAAa,CAAC,GAAG,CAAC,CAAuB,IAAI,SA
AS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,CAAC,CAAC,GAAG,IAAI,EA
AE,IAAI,EAAE,CAAC,CAAC,CAAC,CAAC,SAAS,CAAC,iBAAiB,EAAE,CAAC,IAAI,EAAE,CAAC,CAAC,C
AAC,SAAS,EAAE,KAAK,CAAC,SAAS,CAAC,iBAAiB,EAAE,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC
,CAAC,QAAQ,CAAC,iBAAiB,EAAE,CAAC,IAAI,CAAC,EAAE,EAAE,CAAC,CAAC,GAAG,EAAC,CAAC,K
AAI,CAAC,SAAS,CAAC,QAAO,CAAC,IAAI,iBAAiB,CAAC,SAAS,EAAE,CAAC,CAAC,GAAG,iBAAiB,CAA
C,CAAC,SAAS,CAAC,SAAS,CAAC,EAAE,CAAC,SAAS,EAAC,CAAC,KAAI,CAAC,SAAS,EAAE,SAAS,CAA
C,MAAM,CAAC,SAAS,CAAC,CAAC,EAAC,CAAC,IAAI,gBAAgB,CAAC,OAAO,CAAC,GAAG,CAAC,CAA
C,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,iBA
AiB,EAAE,CAAC,CAAC,gBAAgB,EAAE,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,iBAAiB,EAAE,C
AAC,WAAW,EAAE,CAAC,CAAC,CAAC,gBAAgB,CAAC,iBAAiB,EAAE,CAAC,gBAAgB,CAAC,EAAE,EAA
E,CAAC,CAAC,CAAC,gBAAgB,CAAC,IAAI,OAAO,CAAC,gBAAgB,CAAC,GAAG,CAAC,iBAAiB,EAAE,CA
AC,OAAO,EAAE,CAAC,CAAC,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,CAAC,SAAS,CAAC,SAAS,CAAC,S
AAS,CAAC,SAAS,CAAC,iBAAiB,CAAC,iBAAiB,CAAC,QAAQ,CAAC,QAAQ,CAAC,YAAY,CAAC,aAAa,C
AAC,WAAW,CAAC,gBAAgB,CAAC,GAAG,CAAC,GAAG,CAAC,YAAY,CAAC,YAAY,CAAC,CAAC,GAAG
,sBAAsB,CAAC,CAAC,YAAY,CAAC,GAAG,CAAC,aAAa,CAAC,WAAW,CAAC,YAAY,CAAC,YAAY,EAAC
,CAAC,KAAI,CAAC,WAAW,CAAC,YAAY,EAAC,CAAC,OAAO,CAAC,CAAC,SAAS,uBAAuB,EAAE,CAAC,
GAAG,CAAC,sBAAsB,CAAC,OAAO,IAAI,EAAE,CAAC,aAAa,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,OA
AO,IAAI,cAAc,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,EAAE,CAAC,EAAE,EAAE,CAAC,C
AAC,CAAC,GAAG,cAAc,CAAC,OAAO,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC
,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,EAAE,CAAC,CAAC,MAAK,WAAW,CAAC,
SAAS,kCAAkC,EAAE,CAAC,GAAG,mBAAmB,CAAC,OAAO,GAAG,qBAAqB,CAAC,OAAO,QAAQ,CAAC,0
IAA0I,EAAC,CAAC,SAAS,4BAA4B,CAAC,MAAM,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAA
C,MAAM,CAAC,CAAC,GAAG,CAAC,kDAAkD,CAAC,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,GAAG,s
BAAsB,EAAE,aAAa,EAAE,EAAE,MAAM,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,mCAAm
C,CAAC,CAAC,OAAO,WAAW,CAAC,OAAO,CAAC,KAAK,GAAG,CAAC,sBAAsB,EAAE,kCAAkC,EAAE,E
AAE,MAAM,CAAC,CAAC,GAAG,CAAC,cAAc,CAAC,MAAM,CAAC,mCAAmC,CAAC,CAAC,OAAO,WAA
W,CAAC,OAAO,CAAC,IAAI,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,C
AAC,GAAG,IAAI,GAAG,MAAM,CAAC,CAAC,GAAG,CAAC,mCAAmC,CAAC,MAAM,CAAC,sEAAsE,CAA
C,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,IAAI,QAAQ,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,
CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC,CAAC,GAAG,CAAC,2BAA2B
,CAAC,MAAM,CAAC,+BA+B,CAAC,CAAC,OAAO,WAAW,CAAC,MAAM,CAAC,GAAG,KAAK,CAAC,C
AAC,kCAAkC,GAAE,CAAC,OAAO,CAAC,IAAI,YAAY,CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CA
AC,MAAM,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,GAAG,YAAY,EAAE,CAAC,CAAC,CAAC,IAAI,cAAc,
CAAC,OAAO,CAAC,IAAI,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,G
AAG,MAAM,CAAC,iBAAiB,EAAE,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC,cAAc,CAAC,OAAO,CAAC,K
AAK,CAAC,iBAAiB,EAAE,CAAC,MAAM,CAAC,EAAE,EAAE,CAAC,CAAC,CAAC,CAAC,GAAG,C

AAC,sBAAsB,CAAC,aAAa,CAAC,MAAM,CAAC,CAAC,KAAK,WAAW,CAAC,CAAC,KAAK,CAAC,eAAe,C
AAC,QAAQ,CAAC,MAAM,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,O
AAO,WAAW,CAAC,KAAK,CAAC,uBAAuB,EAAE,CAAC,GAAG,CAAC,sBAAsB,CAAC,4CAA4C,EAAE,CA
AC,sBAAsB,CAAC,MAAM,CAAC,CAAC,CAAC,YAAY,CAAC,sBAAsB,CAAC,GAAG,CAAC,CAAC,EAAC,
CAAC,CAAC,SAAS,aAAa,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,OAAO,4BAA4B,CAAC,MAAM,CAA
C,MAAM,CAAC,IAAI,CAAC,CAAC,SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,GAAG,sBAAsB,CAAC,OAAO,
mCAAmC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,IAAI,EAAE,KAAK,EAAE,CAAC,O
AAO,KAAK,CAAC,KAAK,EAAE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,KAAK,C
AAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CA
AC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAA
C,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC
,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,
KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KA
AK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,MAAM,CAAC,KAAK,EAAE,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK
,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,
GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,
GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,G
AAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,G
AAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EA
AE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAM,CAAC,CAAC,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK
,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,
CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,C
AAC,CAAC,OAAO,IAAI,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAA
E,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,UAAU,CAAC,KAAK,EAAE,
CAAC,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,C
AAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAA
C,KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC
,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,
KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,O
AAO,GAAG,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,KAAK,GAAG,CAAC,OAAO,EAAE,CAAC,K
AAK,EAAE,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OA
AO,CAAC,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,GAAG,OAAO,SAA
S,GAAG,QAAQ,CAAC,OAAO,SAAS,CAAC,qBAAqB,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAA
C,QAAQ,CAAC,EAAE,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,GAAG,CAAC,sBAAsB,CAAC,OAAO,CAA
C,mBAAmB,EAAE,CAAC,IAAI,KAAK,CAAC,IAAI,oBAAoB,CAAC,CAAC,IAAI,CAAC,OAAO,CAAC,+CAA
+C,CAAC,SAAS,CAAC,QAAQ,CAAC,SAAS,CAAC,QAAQ,CAAC,CAAC,IAAI,aAAa,CAAC,CAAC,GAAG,C
AAC,cAAc,CAAC,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,gCAAgC,CAAC,GAAG,CAAC,MAAM,CAAC,
GAAG,CAAC,yBAAyB,CAAC,GAAG,CAAC,iDAAiD,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,sB
AAsB,CAAC,GAAG,CAAC,mBAAmB,CAAC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,6BAA6B,CAAC,G
AAG,CAAC,qCAAqC,CAAC,GAAG,CAAC,uBAAuB,CAAC,GAAG,CAAC,mCAAmC,CAAC,GAAG,CAAC,q
CAAqC,CAAC,GAAG,CAAC,2BAA2B,CAAC,GAAG,CAAC,gCAAgC,CAAC,GAAG,CAAC,SAAS,CAAC,GA
AG,CAAC,QAAQ,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,cAAc,CAAC,GAAG,CAAC,UAU,EAAE
,MAM,CAAC,YAY,CAAC,CAAC,GAAG,CAAC,oBAAoB,CAAC,GAAG,CAAC,qBAAqB,CAAC,GAAG,C

AAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,
EAAE,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBA
AkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,
KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAA
C,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BA
0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,
CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAA
C,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,
EAAE,KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,gBAAgB,CAAC,MAAM,CAAC,kBAAkB,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,
aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eA
Ae,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,
CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,Q
AAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAM,
CAAC,MAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,
MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CA
AC,IAI,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,CAAC,KK,CAAC,MA
AM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IA
AI,CAAC,SS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,UU,CAAC,
OM,CAAC,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,
CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MM,CAAC,MA
M,CAAC,CAAC,UU,CAAC,OM,CAAC,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,MM,CAA
C,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OA
AO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OM,CAAC,OO,CAAC,MM,CAAC,SA
AS,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAAC,SS,
CAAC,CAAC,CAAC,IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,Q
AQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,K
AK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,YY,CAAC,MM,CAAC,cA,CAAC,CAAC,
UU,CAAC,OM,CAAC,YY,CAAC,MM,CAAC,cA,CAAC,CAAC,MM,CAAC,KK,CAAC,
CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,KK,CAAC,MA
M,CAAC,OO,CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CA
AC,MM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC
,CAAC,IAI,YY,CAAC,MM,CAAC,cA,CAAC,CAAC,UU,CAAC,OM,CAAC,YY,CAAC,M
AM,CAAC,cA,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IA
AI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,
OM,CAAC,OO,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,
CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,oBAAoB,CAAC,MM,CAAC,sB
AAsB,CAAC,CAAC,UU,CAAC,OM,CAAC,oBAAoB,CAAC,MM,CAAC,sBAAsB,CAAC,CAAC,MA
AM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,
IAI,IAI,CAAC,MM,CAAC,MM,CAAC,CAAC,UU,CAAC,OM,CAAC,IAI,CAAC,MM,CA
AC,MM,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,IAI,CAA
C,SS,CAAC,CAAC,CAAC,IAI,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,UU,CAAC,OM,

CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,sBAAsB,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAAc,CAAC,MAAM,CAAC,gBAAg

CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,aAAa,CAAC
,CAAC,UAAU,CAAC,OAAM,CAAC,WAAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,
MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC
,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OA
AO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IA
AI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MA
AM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,
CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,Q
AAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KA
AK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC
,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAM,
CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAM,CAAC,WAAW,CAAC,CAA
C,MAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,IAAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,
CAAC,MAM,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CA
AC,SAS,CAAC,CAAC,CAAC,IAI,oBAAoB,CAAC,MAM,CAAC,sBAAsB,CAAC,CAAC,UAU,CAAC,O
AAM,CAAC,oBAAoB,CAAC,MAM,CAAC,sBAAsB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAA
I,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,oBAAoB,CAAC,MAM,CAAC,s
BAAsB,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAM,CAAC,sBAAsB,CAAC,CAAC,M
AAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,
IAI,oBAAoB,CAAC,MAM,CAAC,sBAAsB,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,M
AAM,CAAC,sBAAsB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IA
AI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,SAS,CAAC,MAM,CAAC,WAW,CAAC,CAAC,UAU,CAAC,
OAAM,CAAC,SAS,CAAC,MAM,CAAC,WAW,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,
CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,OAO,CAAC,MAM,CAAC,SAA
S,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,OAO,CAAC,MAM,CAAC,SAS,CAAC,CAAC,MAM,CAA
C,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,MAA
M,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,MAM,CAAC,MAM,CAAC,Q
AAQ,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS
,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,IA
AI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,IAI,CAAC,EAE,KAA
K,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,MAM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,MAM,CAAC,MAM,CAAC,QAQ,CAAC,CAAC,MAM,CAAC,KAK,CAAC,
CAAC,IAI,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,KAK,CAAC,MAM,
CAAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,CAAC,KK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,
MAM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EAE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,
CAAC,MAM,CAAC,UU,CAAC,CAAC,MAM,CAAC,KK,CAAC,YY,CAAC,CAAC,UU,CAAC,OM,CAAC,U
UU,CAAC,MM,CAAC,YY,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,
SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,SS,CAAC,MM,
CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,
CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,oBB,CAAC,MM,CAAC,sBB,CAAC,
CAAC,UU,CAAC,OM,CAAC,oBB,CAAC,MM,CAAC,sBB,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,
CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,oBB,CAAC,MM,CAAC,sBB,CAAC,CAAC,U
UU,CAAC,OM,CAAC,oBB,CAAC,MM,CAAC,sBB,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,E
EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,
OM,CAAC,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,I
AI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OM,CAAC,OO
O,CAAC,MM,CAAC,SS,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,S
SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,SS,CAAC,MM,
CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,
CAAC,IAI,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OM,CAAC,OO,CAAC,MM,CAAC,SS,CAAC,M
MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,SS,CAAC,
MM,CAAC,WW,CAAC,CAAC,UU,CAAC,OM,CAAC,SS,CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,
CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,CAAC,SS,
CAAC,MM,CAAC,WW,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,
CAAC,CAAC,CAAC,IAI,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OM,CAAC,OO,CAAC,MM,CAAC,
SS,CAAC,CAAC,MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,
IAI,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,
MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,KK,CAAC,
MM,CAAC,OO,CAAC,CAAC,UU,CAAC,OM,CAAC,KK,CAAC,MM,CAAC,OO,CAAC,CAAC,
MM,CAAC,KK,CAAC,CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,QQ,CAAC,
MM,CAAC,UU,CAAC,CAAC,UU,CAAC,OM,CAAC,QQ,CAAC,MM,CAAC,UU,CAAC,CAAC,MM,CAAC,KK,
CAAC,IAI,CAAC,EE,KK,CAAC,IAI,CAAC,SS,CAAC,CAAC,CAAC,IAI,KK,CAAC,MM,CAAC,OO,CAAC,
CAAC,UU,CAAC,OM,CAAC,OO,CAAC,MM,CAAC,SS,CAAC,CAAC,UU,CAAC,OA

AM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CA
AC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,
CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,eAAe
,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,MAAM,CAAC,iBAAi
B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA
AC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAA
Q,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK
,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,
MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAA
C,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CA
AC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CA
AC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAA
C,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,C
AAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,I
AAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,
WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CA
AC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CA
AC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,
MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CA
AC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CA
C,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I
AAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAA
C,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC
,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,C
AAC,MAAM,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,C
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,
CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAA

M,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAA
C,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,C
AAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAU,
CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY
,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,UAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU
,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAU,C
AAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IA
AI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,S
AAS,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,K
AAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,
OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,UAU,CAAC,OAAM,C
AAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAA
C,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,2BAA2B,CAAC,MAAM,CAAC,6BAA6
B,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,MAAM,
CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,a
AAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eA
Ae,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,C
AAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,UAU,CAAC,OAAM,CAA
C,wBAAwB,CAAC,MAAM,CAAC,0BAA0B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4CA4C,CAAC,MAAM,CAAC,8CA8C,C
AAC,CAAC,UAU,CAAC,OAAM,CAAC,4CA4C,CAAC,MAAM,CAAC,8CA8C,CAAC,CAAC,MAAM,CA
AC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,+C
AA+C,CAAC,MAAM,CAAC,iDAAiD,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,+CAA+C,CAAC,MAAM,CA
AC,iDAAiD,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC
,SAAS,CAAC,CAAC,CAAC,IAAI,2CA2C,CAAC,MAAM,CAAC,6CA6C,CAAC,CAAC,UAU,CAAC,OAA
M,CAAC,2CA2C,CAAC,MAAM,CAAC,6CA6C,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kCAAkC,CAAC,MAAM,CAAC,oCA
AoC,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,kCAAkC,CAAC,MAAM,CAAC,oCAAoC,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,kCAAkC,CAAC,MA
AM,CAAC,oCAAoC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAAC,UAU,CA
AC,OAAM,CAAC,qCAAqC,CAAC,MAAM,CAAC,uCAAuC,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,yCAAyC,CAAC,MAAM,C
AAC,2CA2C,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,yCAAyC,CAAC,MAAM,CAAC,2CA2C,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,2BAA2B,CAAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,2BAA2B,C
AAC,MAAM,CAAC,6BAA6B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,C
AAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,
MAAM,CAAC,0BAA0B,CAAC,CAAC,UAU,CAAC,OAAM,CAAC,wBAAwB,CAAC,MAAM,CAAC,0BAA0
B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA

AC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAA
S,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UA
AU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CA
AC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,4BAA4B,CAAC,MAAM,CAAC,8BAA8B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,4BAA4B,CAAC,M
AAM,CAAC,8BAA8B,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,4CAA4C,CAAC,MAAM,CAAC,8
CAA8C,CAAC,CAAC,KAAK,CAAC,IAAI,8BAA8B,CAAC,MAAM,CAAC,gCAAgC,CAAC,CAAC,KAAK,CA
AC,MAAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,MA
AM,CAAC,SAAS,CAAC,CAAC,OAAO,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,MAAM,CA
AC,YAAY,CAAC,CAAC,UAAU,CAAC,IAAI,SAAS,CAAC,SAAS,UAAU,CAAC,MAAM,CAAC,CAAC,IAAI,C
AAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,OAAO,CAAC,+BAA+B,CAAC,MAAM,CAAC,GAAG,CAAC,IA
AI,CAAC,MAAM,CAAC,OAAM,CAAC,qBAAqB,CAAC,SAAS,SAAS,EAAE,CAAC,GAAG,CAAC,SAAS,CA
AC,GAAG,EAAE,CAAC,GAAG,CAAC,SAAS,CAAC,qBAAqB,CAAC,UAAS,CAAC,CAAC,SAAS,GAAG,CA
AC,IAAI,CAAC,CAAuB,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,sBAAsB,CAAC,CA
AC,mBAAmB,CAAC,MAAM,CAAC,CAAC,WAAW,EAAE,CAAC,WAAW,CAAC,CAAC,KAAK,CAAC,QAA
Q,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAA
M,CAAC,SAAS,KAAK,EAAE,CAAC,GAAG,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CAAC,MAAM,CAAC,
WAAW,CAAC,CAAC,IAAI,CAAC,GAAG,KAAK,CAAC,OAAO,WAAW,EAAE,CAAC,OAAO,EAAE,CAAC,
mBAAmB,CAAC,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,sBA
,CAAC,EAAE,CAAC,OAAO,GAAE,CAAC,GAAG,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAA
C,WAAW,CAAC,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,MAA
M,CAAC,WAAW,CAAC,CAAC,EAAE,EAAC,CAAC,CAAC,CAAC,CAAC,KAK,GAAE,CAAC,CAA
C,CAAC,EAAC,CAAC,KAAI,CAAC,KAK,GAAE,CAAC,CAAC,MAAM,CAAC,KAK,CAAC,CAAC,GAAG,
CAAC,SAS,IAAI,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,GAAG,QAAQ,EAAE,aAAa,EAAE,MAAM,GA
AG,CAAC,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,W
AAW,CAAC,CAAC,KAK,CAAC,aAAa,CAAC,YAY,CAAC,MAM,CAAC,CAAC,CAAC,MAM,IAAI,UA
AU,CAAC,MAM,CAAC,CAAO,CAAC,GAAG,aAAa,CAAC,CAAE,KAI,CAAC,OAO,CAAC,mBAAmB,E
AAE,CAAiC,GAAG,MAM,CAAC,QAAQ,CAAC,CAAC,MAM,CAAC,QAAQ,CAAC,CAAC,MAM,CAAC,
CAAC,KAK,CAAC,KAI,CAAC,KAK,CAAC,MAM,CAAC,IAAI,UAAU,CAAC,MAM,CAAC,EAAC,C
AAC,GAAG,MAM,CAAC,SAS,CAAC,CAAC,CAAC,GAAG,OAO,MAM,CAAC,SAS,CAAC,EAAE,U
AAU,CAAC,MAM,CAAC,SAS,CAAC,CAAC,CAAC,MAM,CAAC,SAS,CAAC,CAAC,CAAC,MAM,M
AAM,CAAC,SAS,CAAC,CAAC,MAM,CAAC,CAAC,CAAC,CAAC,CAAC,MAM,CAAC,SAS,CAAC,CAAC,G
AAG,EAAE,GAAE,CAAC,CAAC,GAAG,sBAAsB,CAAC,CAAC,aAAa,CAAC,KAK,CAAC,OAO,CAAC,U
AAU,GAAE,CAAC,GAAG,EAAE,CAAC;AACn5mE;AACA;EACA,EAAE,OAO,6BAA6B,CAAC,KAK;EAC
5C,CAAC;EACD,EAAE;EACF,CAAC,GAAG,CAAC;EAEH,cAAc,GAAG,6BAA6B;;;EChBzC,MAAM,kBAAkB
,GAAG,ikGAAikG;;;ECCnmG,IAAI,iBAAiB,GAAG,CAAC,WAW;EACpC,EAAE,IAAI,UAAU,GAAG,QAAQ,O,
QAAQ,KAK,WAW,IAAI,QAAQ,CAAC,aAAa,GAAG,QAAQ,CAAC,aAAa,CAAC,GAAG,GAAG,SAAS,CA
AC;EACtH,EAAE,IAAI,OAAO,UAAU,KAK,WAW,EAAE,UAAU,GAAG,UAAU,IAAI,UAAU,CAAC;EAC/
E,EAAE;EACF,SAAS,iBAAiB,EAAE;EAC5B,EAAE,iBAAiB,GAAG,iBAAiB,IAAI,EAAE,EAAE,CAAC;AAC9C;AAC
A,IAAI,MAAM,CAAC,OAAO,iBAAiB,GAAG,WAW,CAAC,iBAAiB,CAAC,EAAE,CAAC,IAAI,mBAAmB,C
AAC,kBAAkB,CAAC,MAAM,CAAC,OAAO,CAAC,IAAI,OAAO,CAAC,SAS,OAAO,CAAC,MAAM,C
AAC,CAAC,mBAAmB,CAAC,OAAO,CAAC,kBAAkB,CAAC,CAAC,OAAM,CAAC,IAAI,eAAe,CAAC,CAAC,

EAAE,CAAC,IAAI,GAAG,CAAC,IAAI,GAAG,IAAI,MAAM,CAAC,CAAC,GAAG,MAAM,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,eAAe,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,GAAG,EAAC,CAAC,CAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,WAAW,CAAC,gBAAgB,CAAC,IAAI,KAAK,CAAC,SAAS,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,OAAO,CAAC,CAAC,IAAI,kBAAkB,CAAC,KAAK,CAAC,IAAI,qBAAqB,CAAC,KAAK,CAAC,IAAI,mBAAmB,CAAC,KAAK,CAAC,IAAI,oBAAoB,CAAC,KAAK,CAAC,kBAAkB,CAAC,OAAO,MAAM,GAAG,QAAQ,CAAC,qBAAqB,CAAC,OAAO,aAAa,GAAG,UAU,CAAC,mBAAmB,CAAC,OAAO,OAAO,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,GAAG,QAAQ,EAAE,OAAO,OAAO,CAAC,QAAQ,CAAC,IAAI,GAAG,QAAQ,CAAC,oBAAoB,CAAC,CAAC,kBAAkB,EAAE,CAAC,mBAAmB,EAAE,CAAC,qBAAqB,CAAC,IAAI,eAAe,CAAC,EAAE,CAAC,SAAS,UAU,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,YAAY,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,eAAe,CAAC,IAAI,KAAK,KAAK,CAAC,SAAS,CAAC,UAU,CAAgB,IAAI,MAAM,CAAC,IAAI,QAAQ,CAAC,GAAG,mBAAmB,CAAC,CAAC,GAAG,qBAAqB,CAAC,CAAC,eAAe,CAACL,IAAe,CAAC,OAAO,CAAC,eAAe,CAAC,CAAC,IAAG,CAAC,CAAC,KAAI,CAAC,eAAe,CAAC,SAAS,CAAC,IAAG,CAAC,KAAK,CAAC,SAAS,UAU,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,MAAM,CAAC,MAAM,CAACC,EAAE,eAAa,CAAC,GAAG,CAAC,QAAQ,CAAC,QAAQ,CAACD,CAAE,QAAQ,CAAC,QAAQ,CAAC,WAAW,CAAC,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,cAAc,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,UAU,CAAC,SAAS,UAU,CAAC,QAAQ,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,GAAG,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,CAAC,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG

AAG,CAAC,IAAI,cAAc,CAAC,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,G
AAG,CAAC,YAAY,CAAC,aAAa,CAAC,GAAG,CAAC,MAAM,CAAC,UAAU,CAAC,GAAG,GAAG,CAAC,M
AAM,EAAE,GAAG,EAAE,GAAG,CAAC,MAAM,EAAE,CAAC,EAAE,GAAG,CAAC,QAAQ,CAAC,CAAC,M
AAM,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,OAAO,GAAE,CAAC,CAAC,GAAG,CAAC,O
AAO,CAAC,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,EAAC,EAAC,CAAqD,CAAO,IAAI,GAAG,CAAC,
MAAM,CAAC,OAAO,CAAC,EAAE,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,IAAI,GA
AG,CAAC,MAAM,CAAC,UAAU,CAAC,EAAE,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC,I
AAI,GAAG,IAAI,eAAe,CAAC,CAAC,GAAG,eAAe,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,
CAAC,GAAG,CAAC,CAAC,eAAe,CAAC,GAAG,EAAC,CAAC,CAAC,eAAe,CAAC,IAAI,CAAC,GAAG,MAA
M,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,GAAG,MAAM,CAAC,a
AAa,CAAC,CAAC,WAAW,CAAC,MAAM,CAAC,aAAa,CAAC,CAAC,GAAG,MAAM,CAAC,MAAM,CAAC,C
AAC,KAAK,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,IAAI,UAAU,CAAC,GAAG,MAAM,CAAC,YAAY,C
AAC,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAA
C,EAAE,IAAI,CAAC,GAAG,OAAO,WAAW,GAAG,QAAQ,CAAC,CAAC,KAAK,CAAC,iCAAAiC,EAAC,CAA
C,IAAI,UAAU,CAAC,IAAI,KAAK,CAAC,KAAK,CAAAgB,SAAS,MAAM,CAAC,SAAS,CAAC,IAAI,CAAC,CA
AC,GAAG,CAAC,SAAS,CAAC,CAAC,KAAK,CAAC,oBAAAoB,CAAC,IAAI,EAAC,CAAC,CAAC,SAAS,QAA
Q,CAAC,KAAK,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,MAAM,
CAAC,IAAI,CAAC,+BAA+B,CAAC,KAAK,CAAC,4BAA4B,CAAC,CAAC,OAAO,IAAI,CAAC,SAAS,KAAK,
CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,IAAI,CAAC,IAAI,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC
,QAAQ,CAAC,SAAS,GAAG,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,CAAC,GAAG,GAAG,GAAG,IAAI,EA
AE,GAAG,GAAG,SAAS,EAAE,GAAG,GAAG,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,CAAC,GAAG,CAAC,
MAAM,EAAE,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,YAAY,CAAC,
GAAG,CAAC,GAAG,CAAC,GAAG,EAAC,CAAC,OAAO,GAAG,CAAC,CAAC,OAAO,CAAC,SAAS,GAAG,C
AAC,CAAC,IAAI,GAAG,CAAC,UAAU,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,kBAAkB,CAAC,GAAG,C
AAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,kBAAkB,CAAC,GAAG,CAAC,CAAC,G
AAG,UAAU,GAAG,QAAQ,CAAC,OAAO,YAAY,CAAC,GAAG,CAAC,CAAC,GAAG,UAAU,GAAG,SAAS,C
AAC,OAAO,OAAO,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,KAA
K,CAAC,CAAC,IAAI,KAAK,CAAC,EAAE,CAAC,IAAI,KAAK,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,CAA
C,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC,CAA
C,IAAI,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,SAAS,CAAC,CAAC,G
AAG,KAAK,GAAG,CAAC,CAAC,KAAK,CAAC,SAAS,EAAE,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,SA
AS,CAAC,IAAI,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,IAAI,CA
AC,CAAC,EAAC,CAAC,CAAC,CAAC,IAAI,GAAG,CAAC,IAAI,CAAC,KAAK,CAAC,IAAI,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,kBAAkB,CAAC,GAAG,CAAC,CAAC,GAAG,KAAK,GAAG,CAAC,CAAC,YAAY,C
AAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CA
AC,IAAI,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAAE,CAAC,IAAI,WAAW,CAAC,QAAQ,CAAC,KAAK,
CAAC,SAAS,IAAI,CAAC,CAAC,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,UAU,
GAAG,QAAQ,CAAC,GAAG,UAAU,EAAE,WAAW,EAAE,CAAC,IAAI,CAAC,CAAC,OAAO,QAAQ,CAAC,K
AAK,CAAC,CAAC,OAAO,UAAU,CAAC,OAAO,KAAK,CAAC,KAAK,CAAC,UAAU,CAAC,QAAQ,CAAC,S
AAc,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,OAAO,WAAW,GAAG,WAAW,CAAC,IAAI,WAAW,CAAC,M
AAM,CAAC,CAAC,SAAS,CAAC,SAAS,iBAAAiB,CAAC,IAAI,CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,IAI,
MAAM,CAAC,GAAG,CAAC,cAAc,CAAC,IAAI,MAAM,CAAC,GAAG,CAAC,MAAM,IAAI,CAAC,CAAC,M
AAC,EAAE,EAAE,MAAM,EAAE,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,GAAG,MAAM,CAAC,GAG,
CAAC,EAAE,EAAE,IAAI,CAAC,QAAQ,EAAE,WAAW,CAAC,CAAC,OAAO,WAAW,CAAC,MAAM,CAAC,I
AAI,CAAC,QAAQ,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,IAAI,GAAG,CAAC,EAA
E,CAAC,MAAM,GAAG,CAAC,MAAM,CAAC,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,CAAC,GAAG,EAAE,CAAC,C
AAC,GAAG,EAAE,EAAE,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,EA
AE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,G

AAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,C
AAC,EAAE,CAAC,EAAE,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,QAAQ,CAAC,IAAI,EAAE,CAAC,IAAI,
CAAC,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,GAAG,GAAG,CAAC,C
AAC,EAAE,CAAC,CAAC,EAAE,CAAC,EAAE,GAAG,EAAE,CAAC,EAAE,EAAE,CAAC,CAAC,GAAE,CAA
C,KAAI,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,EAAE,CAAC,EAAE,EAAE,EAAE,CAAC,E
AAE,EAAE,CAAC,CAAC,IAAI,CAAC,GAAG,EAAE,CAAC,CAAC,GAAE,CAAC,GAAG,EAAE,CAAC,KAA
K,CAAC,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,EAAE,EAAC,CAAC,KAAI,CAAC,IAAI,EAAE,C
AAC,EAAE,CAAC,KAAK,CAAC,GAAG,EAAE,MAAM,CAAC,YAAY,CAAC,KAAK,CAAC,EAAE,EAAE,EA
AE,CAAC,KAAK,CAAC,EAAE,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,SAAS,YAAY,
CAAC,GAAG,CAAC,cAAc,CAAC,CAAC,OAAO,GAAG,CAAC,iBAAiB,CAAC,MAAM,CAAC,GAAG,CAAC,
cAAc,CAAC,CAAC,EAAE,CAAC,SAAS,iBAAiB,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,eAAe,CAA
C,CAAC,GAAG,EAAE,eAAe,CAAC,CAAC,CAAC,CAAC,OAAO,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,C
AAC,IAAI,MAAM,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,
CAAC,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,UA
AU,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,EAAE,CAAC,EAAE,KAAK,CAAC,CAAC,IAAI,
EAAE,CAAC,GAAG,CAAC,UAAU,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,EAAE,CAAC,C
AAC,CAAC,IAAI,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,KAAI,CAAC,GAAG,CAAC,EAAE,GAAG,CAAC
,CAAC,GAAG,MAAM,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,EAAC,CAAC,
KAAK,GAAG,CAAC,EAAE,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,I
AAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,EAA
E,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,KAAK,CAAC,CAAC,
GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,
CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CA
AC,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,GAAE,CAAC,
KAAI,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,CAAC,
KAK,CAAC,EAAE,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,EAAE,CAA
C,CAAC,GAAG,CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,GAAG,
CAAC,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,MA
AM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC,CAAC,GAAE,CAAC,KAAK,GAAG,CAAC,EAAE,
KAK,CAAC,CAAC,GAAG,MAAM,CAAC,CAAC,EAAE,MAAM,CAAC,MAAM,IAAI,CAAC,MAAM,EAAE,
CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CA
AC,EAAE,EAAE,CAAC,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,
CAAC,CAAC,EAAE,EAAE,CAAC,IAAI,CAAC,MAAM,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,GAAE,CA
AC,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,OAAO,MAAM,CAAC,QAAQ,CAAC,SAAS,YAA
Y,CAAC,GAAG,CAAC,MAAM,CAAC,eAAE,CAAC,CAAC,OAAO,iBAAiB,CAAC,GAAG,CAAC,MAAM,CA
AC,MAAM,CAAC,eAAE,CAAC,CAAC,SAAS,kBAAkB,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC,KAAK,C
AAC,GAAG,CAAC,KAAK,CAAC,MAAM,EAAC,CAAC,SAAS,OAAO,CAAC,CAAC,CAAC,QAAQ,CAAC,CA
AC,GAAG,CAAC,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,QAAQ,CAAC,CAAC,CAAC,SAA
Q,CAAC,OAAO,CAAC,CAAC,IAAI,MAAM,CAAC,KAK,CAAC,MAAM,CAAC,MAAM,CAAC,OAAO,CAA
C,MAAM,CAAC,OAAO,CAAC,OAAO,CAAC,OAAO,CAAC,SAAS,0BAA0B,CAAC,GAAG,CAAC,CAAC,MA
AM,CAAC,GAAG,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,KAK,CAAC,IAAI,SAAS,CAAC,GAAG,CAA
C,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAA
M,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,QA
Q,CAAC,CAAC,MAAM,CAAC,IAAI,UAAU,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,
OAO,CAAC,IAAI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,CAAC,I
AI,WAAW,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,CAAC,IAI,YAAY,CA
AC,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,OAO,CAAC,IAI,YAAY,CAAC,GAAG,EAAC
,CAAC,IAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,EAAE,QAAQ,CAAC,IAI,SAAS,CAAC,IAI,YAA
Y,CAAC,EAAE,CAAC,IAI,UAU,CAAC,EAAE,CAAC,IAI,UAU,CAAC,EAAE,CAAC,IAI,aAAa,CAAC
,EAAE,CAA8B,UAU,CAAC,IAI,CAAC,CAAC,IAI,CAAC,UAU,CAAC,kBAAkB,GAE,CAAC,CAAC,C
AAC,CAAC,SAAS,MAAM,EAAE,CAAC,GAAG,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC,GAAG,OAO,M
AAM,CAAC,QAAQ,CAAC,EAAE,UAU,CAAC,MAM,CAAC,QAAQ,CAAC,CAAC,CAAC,MAM,CAAC,
QAAQ,CAAC,CAAC,CAAC,MAM,MAM,CAAC,QAAQ,CAAC,CAAC,MAM,CAAC,CAAC,WAW,CAA

C,MAAM,CAAC,QAAQ,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,YAAY,EAAC,CA
AC,SAAS,WAAW,EAAE,CAAyB,oBAAoB,CAAC,UAAU,EAAC,CAAC,SAAS,OAAO,EAAE,CAAC,oBAAoB,
CAAC,UAAU,EAAC,CAAC,SAAS,OAAO,EAAE,CAAC,GAAG,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,G
AAG,OAAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,M
AAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,CAAC,Y
AAY,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,KAAK,EAAE,EAAC,CAAC,CAAC,oBAAoB,CAAC,aAAa,E
AAC,CAAC,SAAS,WAAW,CAAC,EAAE,CAAC,CAAC,YAAY,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,SA
AS,YAAY,CAAC,EAAE,CAAC,CAAC,aAAa,CAAC,OAAO,CAAC,EAAE,EAAC,CAAC,IAAI,eAAe,CAAC,CA
AC,CAA+B,IAAI,qBAAqB,CAAC,IAAI,CAAC,SAAS,gBAAgB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAA
C,GAAG,MAAM,CAAC,wBAAwB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,
CAAC,CAAC,SAAS,mBAAmB,CAAC,EAAE,CAAC,CAAC,eAAe,EAAE,CAAC,GAAG,MAAM,CAAC,wBAA
wB,CAAC,CAAC,CAAC,MAAM,CAAC,wBAAwB,CAAC,CAAC,eAAe,EAAC,CAAC,GAAG,eAAe,EAAE,CA
AC,CAAC,CAA+F,GAAG,qBAAqB,CAAC,CAAC,IAAI,QAAQ,CAAC,qBAAqB,CAAC,qBAAqB,CAAC,IAAI,
CAAC,QAAQ,GAAE,CAAC,CAAC,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,EAAE,CAAC,MAAM,CAAC
,iBAAiB,CAAC,CAAC,EAAE,CAAC,SAAS,KAAK,CAAC,IAAI,CAAC,CAAC,GAAG,MAAM,CAAC,SAAS,C
AAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,IAAI,EAAC,CAAC,IAAI,EAAE,EAAE,CAAC,GAAG,
CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,IAAI,CAAc,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,8CAA8C,CAAC,
IAAI,CAAC,CAAC,IAAI,WAAW,CAAC,YAAY,CAAC,IAAI,CAAC,CAAC,kBAAkB,CAAC,CAAC,CAAC,CA
AC,MAAM,CAAC,CAAC,SAAS,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,OAAO,MAAM,CAAC,SA
AS,CAAC,UAAU,CAAC,GAAG,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,MA
AM,CAAC,GAAG,CAAC,CAAC,IAAI,aAAa,CAAC,uCAAuC,CAAC,SAAS,SAAS,CAAC,QAAQ,CAAC,CAAC
,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,aAAa,CAAC,SAAS,CAAC,SAAS,SAAS,CAAC,
QAAQ,CAAC,CAAC,OAAO,SAAS,CAAC,QAAQ,CAAC,aAAa,CAAC,CAAC,IAAI,cAAc,CAAC,wBAAwB,C
AAC,GAAG,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,cAAc,CAAC,UAAU,CAAC,cAAc,EAAC,CAAC,
SAAS,SAAS,CAAC,IAAI,CAAC,CAAC,GAAG,CAAC,GAAG,IAAI,EAAE,cAAc,EAAE,UAAU,CAAC,CAAC,
OAAO,IAAI,UAAU,CAAC,UAAU,CAAC,CAAC,GAAG,UAAU,CAAC,CAAC,OAAO,UAAU,CAAC,IAAI,CA
AC,CAAC,KAAI,CAAC,MAAK,iDAAiD,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,KAAK,CAAC,GAAG,E
AAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,GAAG,kBAAkB,EAAE,qBAAqB,CAA
C,CAAC,GAAG,OAAO,KAAK,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,
OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,aAAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAA
Q,CAAC,CAAC,GAAG,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,MAAK,sCAAsC,CAAC,cAAc,CAAC,
GAAG,CAAC,OAAO,QAAQ,CAAC,aAAa,CAAC,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,UAAU,CAAC,O
AAO,SAAS,CAAC,cAAc,CAAC,CAAC,CAAC,KAAI,CAAC,GAAG,OAAO,IAAI,
OAAO,CAAC,SAAS,OAAO,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,cAAc,CAAC,SAAS,QAAQ,CAAC,CA
AC,OAAO,CAAC,IAAI,UAAU,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,MAAM,EAAE,CAAC,CAAC,CAA
C,CAAC,CAAC,OAAO,OAAO,CAAC,OAAO,EAAE,CAAC,IAAI,CAAC,UAAU,CAAC,OAAO,SAAS,CAAC,c
AAc,CAAC,CAAC,CAAC,SAAS,UAAU,EAAE,CAAC,IAAI,IAAI,CAAC,CAAC,GAAG,CAAC,aAAa,C
AAC,CAAC,SAAS,eAAe,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,IAAI,OAAO,CAAC,QAAQ,CAAC,OAA
O,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,CAAC,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,GAAG,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,SAAS,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,GAAG,CAAC,CAAC,mBAAmB,CAAmB,EAAE,CAAC,gBAAgB,CAAmB,CAAC,CAAC,S
AAS,yBAAyB,CAAC,MAAM,CAAC,CAAC,eAAe,CAAC,MAAM,CAAC,UAAU,CAAC,EAAC,CAAC,SAAS,s
BAAsB,CAAC,QAAQ,CAAC,CAAC,OAAO,gBAAgB,EAAE,CAAC,IAAI,CAAC,SAAS,MAAM,CAAC,CAAC,
OAAO,WAAW,CAAC,WAAW,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,IAAI,CAAC,QAAQ,C
AAC,SAAS,MAAM,CAAC,CAAC,GAAG,CAAC,yCAAyC,CAAC,MAAM,CAAC,CAAC,KAAK,CAAC,MAA
M,EAAC,CAAC,CAAC,CAAC,SAAS,gBAAgB,EAAE,CAAC,GAAG,CAAC,UAAU,EAAE,OAAO,WAAW,CA
AC,oBAAoB,GAAG,UAAU,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,EAAE,CAAC,SAAS,CAAC,cAAc,CAAC,
EAAE,OAAO,KAAK,GAAG,UAAU,CAAC,CAAC,OAAO,KAAK,CAAC,cAAc,CAAC,CAAC,WAAW,CAAC,a

AAa,CAAC,CAAC,CAAC,IAAI,CAAC,SAAS,QAAQ,CAAC,CAAC,IAAI,MAAM,CAAC,WAAW,CAAC,oBAA
oB,CAAC,QAAQ,CAAC,IAAI,CAAC,CAAC,OAAO,MAAM,CAAC,IAAI,CAAC,yBAAyB,CAAC,SAAS,MAA
M,CAAC,CAAC,GAAG,CAAC,iCAAiC,CAAC,MAAM,CAAC,CAAC,GAAG,CAAC,2CAA2C,CAAC,CAAC,O
AAO,sBAAsB,CAAC,yBAAyB,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAI,CAAC,OAAO,sBAAsB,CAA
C,yBAAyB,CAAC,CAAC,CAAC,GAAG,MAAM,CAAC,iBAAiB,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,OA
AO,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,IAAI,CAAC,eAAe,CAAC,CAAC,OAAO,OAAO,CAAC,MAA
M,CAAC,CAAC,CAAC,GAAG,CAAC,qDAAqD,CAAC,CAAC,CAAC,CAAC,OAAO,KAAK,CAAC,CAAC,gB
AAgB,EAAE,CAAC,KAAK,CAAC,kBAAkB,CAAC,CAAC,OAAM,EAAE,CAAC,SAAS,oBAAoB,CAAC,SAAS
,CAAC,CAAC,MAAM,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,SAAS,CAAC,K
AAK,EAAE,CAAC,GAAG,OAAO,QAAQ,EAAE,UAAU,CAAC,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC,Q
AAQ,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,GAAG,OAAO,IAAI,GAAG,QAAQ,CAAC,CAAC,G
AAG,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,GAAE,CAA
C,KAAI,CAAC,SAAS,CAAC,GAAG,CAAC,IAAI,CAAC,CAAC,QAAQ,CAAC,GAAG,EAAC,CAAC,CAAC,K
AAI,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,GAAG,SAAS,CAAC,IAAI,CAAC,QAAQ,CAAC,GAAG,EAAC,
CAAC,CAAC,CAAC,SAAS,MAAM,EAAE,CAAC,KAAK,GAAE,CAAC,SAAS,sBAAsB,CAAC,IAAI,CAAC,G
AAG,CAAC,GAAG,CAAC,CAAC,MAAM,CAAC,UAAU,CAAC,IAAI,CAAC,GAAG,CAAC,GAAG,CAAC,GA
AG,EAAC,CAAC,SAAS,yBAAyB,EAAE,CAAC,OAAO,MAAM,CAAC,MAAM,CAAC,SAAS,yBAAyB,CAAC,
IAAI,CAAC,CAAC,GAAG,CAAC,UAAU,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,UAAU,CAAC,KAA
K,GAAG,EAAE,CAAC,CAAC,0BAA0B,CAAC,UAAU,CAAC,MAAM,CAAC,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,CAAC,EAAE,CAAC,SAAS,uBAAuB,CAAC,aAAa,CAAC,CAAC,IAAI,OAAO,CAAC,yBAAyB,EA
AE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,GAAG,aAAa,CAAC,WAAW,CAAC,CAAC,OAAO,KAAK,CAA
C,IAAI,IAAI,OAAO,CAAC,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,OAAO,EAAE,CAAC,CAAC,CAAC,IA
AI,iBAAiB,CAAC,OAAO,EAAE,CAAC,CAAC,EAAE,CAAC,OAAO,CAAC,CAAC,iBAAiB,CAAC,IAAI,CAA
C,GAAG,CAAC,iBAAiB,CAAC,aAAa,CAAC,SAAS,CAAC,CAAC,IAAI,OAAO,CAAC,IAAI,CAAC,GAAG,CA
AC,WAAW,CAAC,OAAO,CAAC,IAAI,CAAC,GAAG,CAAC,aAAa,CAAC,iBAAiB,CAAC,CAAC,KAAK,CAA
C,CAAC,CAAC,IAAI,WAAW,CAAC,yBAAyB,CAAC,OAAO,CAAC,CAAC,GAAG,WAAW,CAAC,CAAC,OA
AO,IAAI,CAAC,CAAC,OAAO,KAAK,CAAC,IAAI,QAAQ,CAAC,CAAC,CAAC,QAAQ,CAAC,EAAE,CAAC,OAAO,
CAAC,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE,CAAC,CAAC,SAAS,CAAC,SAAS,MAAM,CAAC,IAAI,CAAC
,CAAC,IAAI,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC,GAAG,IAAI,GAAG,CAAC,E
AAE,IAAI,GAAG,EAAE,CAAC,CAAC,CAAC,MAAM,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,EAAE,iBA
AiB,CAAC,MAAM,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,EAAC,CAAC,KAAI,CA
AC,MAAM,CAAC,IAAI,CAAC,IAAI,EAAC,CAAC,CAAC,CAAC,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,
UAAU,CAAC,QAAQ,CAAC,OAAO,EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,QAAQ,CAAC,O
AAO,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,MAAM,CAAC,SAAS,GAAG,CA
AC,CAAC,IAAI,GAAG,CAAC,YAAY,CAAC,GAAG,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,KAAK,CAA
C,SAAS,GAAG,CAAC,IAAI,CAAC,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,SAAS,SAAS,CAAC,EAAE,CA
AC,CAAC,OAAO,CAAC,CAAC,SAAS,QAAQ,CAAC,EAAE,CAAC,UAAU,CAAC,WAAW,CAAC,MAAM,CA
AC,SAAS,CAAC,EAAE,SAAS,SAAS,CAAC,EAAE,CAAC,GAAG,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC,I
AAI,GAAG,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC,
EAAE,CAAC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CA
AC,CAAC,IAAI,GAAG,CAAC,MAAM,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE
,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE,CAA
C,CAAC,QAAQ,CAAC,SAAS,CAAC,EAAE,CAAC,MAAM,CAAC,GAAG,CAAC,CAAC,CAAC,EAAC,CAAC,
GAAG,EAAE,IAAG,CAAC,MAAM,CAAC,IAAI,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,OAAO,CAAC,CA
AC,SAAS,eAAe,EAAE,CAAC,OAAO,CAAC,CAAC,SAAS,aAAa,EAAE,CAAC,OAAO,EAAE,CAAC,SAAS,Q
AAQ,CAAC,KAAK,CAAC,CAAC,MAAM,CAAC,iBAAiB,EAAE,EAAE,CAAC,CAAC,CAAC,KAAK,CAAC,O
AAO,KAAK,CAAC,SAAS,QAAQ,CAAC,IAAI,CAAC,CAAC,CAAC,OAAO,IAAI,EAAE,KAAK,EAAE,CAAC,O
KAK,CAAC,KAAK,EAAE,CAAC,IAAI,WAAW,CAAC,UAAU,CAAC,OAAO,WAAW,CAAC,KAAK,CAAC,

KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,
KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KA
AK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAA
K,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK
,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,E
AAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,MAAM,CAAC,KAAK,EAAE,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG
,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,
CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,C
AAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,C
AAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CA
AC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAM,CAAC,CAAC,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAAG,CAAC,KAAK,CAAC,CAAC,KAAK,GAA
G,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,GAAG
,CAAC,KAAK,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,
CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,CAAC,C
AAC,OAAO,IAAI,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAA
C,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,UAAU,CAAC,KAAK,EAAE,CAAC,
KAAK,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,EAAE,CAAC,K
AAK,EAAE,CAAC,KAAK,EAAE,CAAC,OAAO,IAAI,CAAC,KAAK,CAAC,CAAC,OAAO,OAAO,CAAC,KAA
K,CAAC,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO
,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,KAAK,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,
EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,GAAG,CAAC,KAAK,EAAE,CAAC,OAAO,G
AAG,CAAC,KAAK,CAAC,CAAC,OAAO,GAAG,CAAC,KAAK,GAAG,CAAC,KAAK,EAAE,CAAC,KAAK,EA
AE,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,EAAE,CAAC,KAAK,CAAC,CAAC,OAAO,CAA
C,CAAC,KAAK,EAAE,CAAC,OAAO,CAAC,CAAC,KAAK,EAAE,CAAC,CAAC,GAAG,OAAO,SAAS,GAAG,
QAAQ,CAAC,OAAO,SAAS,CAAC,qBAAqB,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,QAAQ,
CAAC,EAAE,CAAC,CAAC,OAAM,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,CAAC,GAAG,CAAC,MAAM,CA
AC,GAAG,CAAC,sBAAsB,CAAC,GAAG,CAAC,uBAAuB,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,Q
AAQ,CAAC,GAAG,CAAC,SAAS,CAAC,GAAG,CAAC,eAAe,CAAC,GAAG,CAAC,aAAa,CAAC,GAAG,CAA
C,QAAQ,CAAC,CAAC,IAAI,GAAG,CAAC,UAAU,EAAE,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAo
B,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,
CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAA
I,KAAK,CAAC,MAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAM,CAA
C,OAAO,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,wBAAwB,CAAC,MAM,CAAC,0BAA0B,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,wBAAwB,CAAC,MAM,CAAC,0BAA0B,CAAC,CAAC,MAM,CAAC,KAAK,CAAC,CAAC,GAA
G,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAM,CAAC,o
BAAoB,CAAC,CAAC,UAAU,CAAC,OAM,CAAC,kBAAkB,CAAC,MAM,CAAC,oBAAoB,CAAC,CAAC,M
AM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAA
C,IAI,gBAAgB,CAAC,MAM,CAAC,kBAAkB,CAAC,CAAC,UAAU,CAAC,OAM,CAAC,gBAAgB,CAAC,
MAM,CAAC,kBAAkB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAK,CAAC,CAA
C,IAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAI,aAAa,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,UAU,CAA
C,OAM,CAAC,aAAa,CAAC,MAM,CAAC,eAAe,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAAG
,CAAC,EAAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,QAAQ,CAAC,MAM,CAAC,UA

AU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,I
AAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,M
AAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SA
AS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC
,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,
KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAS,CAAC,CAAC
,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAS,CAAC,CAAC,CAAC,IAAI,OAO,CAAC,MAAM,CAAC,SAS,CAAC,CAAC,UAAU,CAAC,
OAM,CAAC,OAO,CAAC,MAM,CAAC,SAS,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAG,
CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,QAQ,CAAC,MAM,CAAC,UAA
U,CAAC,CAAC,UAU,CAAC,OAM,CAAC,QAQ,CAAC,MAM,CAAC,UAU,CAAC,CAAC,MAM,CA
AC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,Y
AAY,CAAC,MAM,CAAC,cAAc,CAAC,CAAC,UAU,CAAC,OAM,CAAC,YAY,CAAC,MAM,CAAC,c
AAc,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAI,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,CAAC,
KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,
KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,YAY,CAAC,MAM,CAAC,cAAc,CAAC,CAA
C,UAU,CAAC,OAM,CAAC,YAY,CAAC,MAM,CAAC,cAAc,CAAC,CAAC,MAM,CAAC,KAK,CAA
C,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,OAO,CAAC,MA
AM,CAAC,SAS,CAAC,CAAC,UAU,CAAC,OAM,CAAC,OAO,CAAC,MAM,CAAC,SAS,CAAC,CA
AC,MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC
,CAAC,IAI,oBAAoB,CAAC,MAM,CAAC,sBAAsB,CAAC,CAAC,UAU,CAAC,OAM,CAAC,oBAAoB,C
AAC,MAM,CAAC,sBAAsB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,
CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAA
U,CAAC,OAM,CAAC,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAA
C,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,KAK,CAAC,MAM,C
AAC,OAO,CAAC,CAAC,UAU,CAAC,OAM,CAAC,KAK,CAAC,MAM,CAAC,OAO,CAAC,CAAC,
MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CA
AC,IAI,cAAc,CAAC,MAM,CAAC,gBAAgB,CAAC,CAAC,UAU,CAAC,OAM,CAAC,cAAc,CAAC,MAA
M,CAAC,gBAAgB,CAAC,CAAC,MAM,CAAC,KAK,CAAC,CAAC,GAG,CAAC,EAE,KAK,CAAC,IA
AI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,OAO,CAAC,MAM,CAAC,SAS,CAAC,CAAC,UAU,CAAC,
OAM,CAAC,OAO,CAAC,MAM,CAAC,SAS,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,GAG,
CAAC,EAE,KK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,aAa,CAAC,MAM,CAAC,eAe,
CAAC,CAAC,UAU,CAAC,OAM,CAAC,aAa,CAAC,MAM,CAAC,eAe,CAAC,CAAC,MAM,CAAC,K
AK,CAAC,CAAC,GAG,CAAC,EAE,KK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,sBAAs
B,CAAC,MAM,CAAC,wBAAwB,CAAC,CAAC,UAU,CAAC,OAM,CAAC,sBAAsB,CAAC,MAM,CAAC
,wBAAwB,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,GAG,CAAC,EAE,KK,CAAC,IAI,CAA
C,SAS,CAAC,CAAC,CAAC,IAI,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,UAU,CAAC,OAM,C
AAC,IAI,CAAC,MAM,CAAC,MAM,CAAC,CAAC,MAM,CAAC,KK,CAAC,CAAC,GAG,CAAC,E
AAE,KK,CAAC,IAI,CAAC,SAS,CAAC,CAAC,CAAC,IAI,MAM,CAAC,MAM,CAAC,QQ,CAA
C,CAAC,UAU,CAAC,OAM,CAAC,MM,CAAC,MM,CAAC,QQ,CAAC,CAAC,MM,CAAC,KA
AK,CAAC,CAAC,GG,CAAC,EE,KK,CAAC,II,CAAC,SS,CAAC,CAAC,CAAC,II,II,CA

AC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,cAAc,CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,cAc,
CAAC,MAAM,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAA
K,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,U
AAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,
CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAA
M,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CA
AC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC
,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAe,CAAC,M
AAM,CAAC,iBAAiB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAc,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,qBAAqB,CAAC,MAAM,CAAC,uB
AAuB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,qBAAqB,CAAC,MAAM,CAAC,uBAAuB,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,C
AAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAA
C,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC
,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CA
AC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,C
AAC,MAAM,CAAC,eAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAa,CAAC,MAAM,CAAC,eAe,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC
,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAU,
CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CA
AC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,
CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,
MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,
CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,C
AAC,SAAS,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,aAa,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,WAAW,CAAC,MAAM,CAAC,aAa,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CA
AC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,C
AAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAU,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,IAAI,IAAI,CAAC,MAAM,CAAC,QAAQ,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,
CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,C
AAC,SAAS,CAAC,CAAC,CAAC,IAAI,WAAW,CAAC,MAAM,CAAC,aAa,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,WAAW,CAAC,MAAM,CAAC,aAa,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CA
AC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,C
AAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,K
AAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,C
AAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAU,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC

AI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CA
AC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EA
AE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,
MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC
,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAA
C,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,
CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,
UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,KAAK,C
AAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,oBAAoB,CAAC,
MAAM,CAAC,sBAAsB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,oBAAoB,CAAC,MAAM,CAAC,sBAAsB,
CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,SAAS,
CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CA
AC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,M
AAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,
IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAAM,CA
AC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,C
AAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC
,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAA
K,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAA
C,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CA
AC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,C
AAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,CA
AC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,
IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,C
AAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,
IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,eAAe,CAAC,MAAM,CAAC,i
BAAiB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,eAAe,CAAC,MAAM,CAAC,iBAAiB,CAAC,CAAC,MAA
M,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IA
AI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CA
AC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,
SAAS,CAAC,CAAC,CAAC,IAAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAA
M,CAAC,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MAAM,CAAC,MAAM,CAAC,QAA
Q,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,MAAM,CA
AC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,MA
AM,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,MAAM,CAAC,MAAM,CAAC,
QAAQ,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA

S,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,
UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,K
AAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAA
C,UAAU,CAAC,OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CA
AC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MA
AM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,C
AAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MA
AM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI
,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,UAAU,CAAC,O
AAM,CAAC,QAAQ,CAAC,MAAM,CAAC,UAAU,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,C
AAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO
,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAA
C,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAA
O,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SA
S,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CA
AC,CAAC,CAAC,IAAI,kBAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,k
BAAkB,CAAC,MAAM,CAAC,oBAAoB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAA
E,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,C
AAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,M
AAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAA
C,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CA
AC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,
CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CA
AC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,UAAU,CAAC,OAAM,
CAAC,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,E
AAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC,
CAAC,UAAU,CAAC,OAAM,CAAC,IAAI,CAAC,MAM,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,KAAK,
CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,
CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,
CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,
MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,I
AAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,UAAU,CAA
C,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAA
I,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,CAAC,MAAM,CAAC,YA
AY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,MAAM,C
AAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,U
AAU,CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,
YAAY,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAA
S,CAAC,CAAC,CAAC,IAAI,aAAa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,aA
Aa,CAAC,MAAM,CAAC,eAAe,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,
CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,UAA
U,CAAC,OAAM,CAAC,OAAO,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAA
C,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,KAAK,CAAC,MAAM,CAA
C,OAAO,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,KAAK,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,MA
AM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,I

AAI,iBAAiB,CAAC,MAAM,CAAC,mBAAmB,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,iBAAiB,CAAC,MA
AM,CAAC,mBAAmB,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IA
AI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,UAAU,CAAC,
OAAM,CAAC,SAAS,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,
CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,YAAY,CAAC,MAAM,CAAC,cAAc
,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,YAAY,CAAC,MAAM,CAAC,cAAc,CAAC,CAAC,MAAM,CAAC,
KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,IAAI,UAAU,
CAAC,MAAM,CAAC,YAAY,CAAC,CAAC,UAAU,CAAC,OAAM,CAAC,UAAU,CAAC,MAAM,CAAC,YAAY
,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,IAAI,CAAC,EAAE,KAAK,CAAC,IAAI,CAAC,SAAS,CAA
C,CAAC,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC,KAAK,CAAC,IAAI,SAAS,CAAC,SAAS,UAAU,CAAC,
MAAM,CAAC,CAAC,IAAI,CAAC,IAAI,CAAC,YAAY,CAAC,IAAI,CAAC,OAAO,CAAC,+BAA+B,CAAC,M
AAM,CAAC,GAAG,CAAC,IAAI,CAAC,MAAM,CAAC,OAAM,CAAC,qBAAqB,CAAC,SAAS,SAAS,EAAE,C
AAC,GAAG,CAAC,SAAS,CAAC,GAAG,EAAE,CAAC,GAAG,CAAC,SAAS,CAAC,qBAAqB,CAAC,UAAS,C
AAC,CAAC,SAAS,GAAG,CAAC,IAAI,CAAC,CAAuB,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAA
C,MAAM,EAAE,CAAC,GAAG,eAAe,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,KAAK,EAAE,CAAC,
GAAG,SAAS,CAAC,OAAO,SAAS,CAAC,IAAI,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,IAAI,CAAC,GA
AG,KAAK,CAAC,OAAO,WAAW,EAAE,CAAC,OAAO,EAAE,CAAC,mBAAmB,CAAC,MAAM,CAAC,CAAC,
GAAG,MAAM,CAAC,sBAAsB,CAAC,CAAC,MAAM,CAAC,sBAAsB,CAAC,EAAE,CAAC,OAAO,GAAE,CA
AC,GAAG,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,YAAY,CAAC,
CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,UAAU,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,EAAE,
EAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,GAAE,CAAC,CAAC,CAAC,EAAC,CAAC,KAAI,CAAC,KA
AK,GAAE,CAAC,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,GAAG,CAAC,GAAG,MAAM,CAAC,SAAS,CA
AC,CAAC,CAAC,GAAG,OAAO,MAAM,CAAC,SAAS,CAAC,EAAE,UAAU,CAAC,MAAM,CAAC,SAAS,CA
AC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,CAAC,MAAM,MAAM,CAAC,SAAS,CAAC,CAAC,MA
AM,CAAC,CAAC,CAAC,CAAC,MAAM,CAAC,SAAS,CAAC,CAAC,GAAG,EAAE,GAAE,CAAC,CAAC,GAA
G,EAAE,CAAC;AAC334B;AACA;EACA,EAAE,OAAO,iBAAiB,CAAC,KAK;EAChC,CAAC;EACD,EAAE;E
ACF,CAAC,GAAG,CAAC;EAEH,cAAc,GAAG,iBAAiB;;;EChBpC;;;;;;;;;;;;;;;QAuCa,WAAY,SAAQM,sBAAa;
MAK5C,YAAmB,IAAqD;UACtE,KAAK,EAAE,CAAC;UADS,SAAI,GAAJ,IAAI,CAAiD;;UAHhE,qBAAgB,GA
AG,CAAC,CAAC;UAK3B,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,oBAAoB,CAAC,YAAY,CAAC,CAAC;UACl
D,kBAAkB,GAAG,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC,eAAe,EAAE,CAAC;UACtD,IAAI,CAAC,SAAS,GAA
G,IAAIC,oBAAW,CAAC,IAAI,EAAEC,CAAC,CAAC;OAClD;MAED,KAAK,CAAC,MAAkC,EA
AE,KAAe,EAAE,KAAe;UAExE,MAAM,MAAM,GAAG,EAAC,EAAE,CAAC,EAAE,EAAE,IAAI,CAAC,gBAAgB,EAAE,EA
AC,CAAC;UAC7C,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,MAAM,EAAE,KAAK,EAAE,KAAK,EAAE,CAAC
,CAAC,CAAC;UAC3C,OAAO,MAAM,CAAC;OACf;MAED,UAAU;UACR,OAAO,IAAI,CAAC,SAAS,UAAU,EAAE,CAAC;OACpC;MAED,MAM,IAAI,CAAC,CAAa;UACtB,MAAM,KAAK,IAAI,CAAC,gBAAgB,EAAE,CAAC;UACnC,IAAI,CAAC,EAAE,CAAC;UACR,IAAI,CAAC,SAAS,CAAC,CAAC;OACjB;MAED,IAAI,CAAC,IAAI,CAAC,IAAI,CAAC

AAI,CAAC,MAAc;UACvB,OAAO,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC,CAAC;OAC9B;MAED,QAAQ,CAAC,MAAc;UACrB,MAAM,EAAC,YAAY,EAAE,KAAK,EAAE,KAAK,EAAE,WAAW,EAAC,GAC3C,IAAI,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC;UAC/B,IAAI,KAAK,KAAK,QAAQ,EAAE;cACtB,OAAO,WAAW,CAAC;WACpB;UACD,MAAM,KAAK,GAAG,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,KAAK,CAChC,YAAY,EACZ,YAAY,GAAGA,aAAI,CAAC,aAAa,CAAC,KAAK,CAAC,GAAGA,aAAI,CAAC,eAAe,CAAC,KAAK,CAAC,CAAC,CAAC;UAC5E,OAAO,oBAAoB,CAAC,KAAK,CAAC,MAAM,EAAE,KAAK,CAAC,CAAC,CAAC;OAClD;;;;;;;MAQD,WAAW,CAAC,MAAc,EAAE,KAAK,GAAG,KAAK;UACvC,IAAI,IAAI,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC;UACrC,OAAO,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,KAAK,CAAC,GAAG,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,CAAC;OACz

MAED,OAAO,gBAAgB,GAAG,IAAI,CAAC;EACjC,CAAC;EAED;;;;;;;EAOO,eAAe,IAAI;MACxB,MAAM,CAAC,aAAa,EAAE,gBAAgB,CAAC,GAAG,MAAM,OAAO,CAAC,GAAG,CAAC;UAC1D8G,YAAG,EAAE,CAAC,QAAQ,CAAC,uBAAAuB,CAAC;UACvCA,YAAG,EAAE,CAAC,QAAQ,CAAC,8BAA8B,CAAC;OAC/C,CAAC,CAAC;MAEH,OAAO,IAAI,OAAO,CAAC,CAAC,OAAO,EAAE,MAAM;UACjC,MAAM,aAAa,GAAAsB,EAAE,CAAC;;;;;UAO5C,aAAa,CAAC,UAAU,GAAG,CAAC,IAAI,EAAE,MAAM;cACtC,IAAI,IAAI,CAAC,QAAQ,CAAC,YAAY,CAAC,QAAQ,CAAC,YAAY,CAAC;kBAC1C/B,MAAM,QAAQ,GAAG,kBAAkB,yBAAAyB,yB,CAAC,mBAAAmB,mB,CAAC,zC,aAAa,wB,EAAE,gBAAA2B,EAAE,CAAC,cAAc,IAAI,IAAI,GAAG,CAAC,cAAc,GAAG,MAAM,CAAC,CAAC,CAAC;WAAC,CAAC,CAAC,C

OAAO,kBAAkB,CAAC;EAC5B;;ECxfA;EAEA;QACM,OAAO,GAAG;;ECHhB;;;;;;;;;;;;;;;EA0BA,MAAM,aAAa,GAAG,CAAC,CAAC;AACxBC,0BAAe,CAAC,MAAM,EAAE;MACtB,MAAM,EAAC,IAAI,EAAC,GAAG,MAAM,IAAI,EAAE,CAAC;MAC5B,OAAO,IAAI,WAAW,CAAC,IAAI,CAAC,CAAC;EAC/B,CAAC,CAAC;;;;;;;;;;;;;;;;"}

Found
in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.es2017.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Softmax.js","sourceRoot":"","sources":["../../src/kernels/Softmax.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,OAAO,EAA2C,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIvH,QAAQ,CAAC;AAET,SAAS,KAAK,CAAC,OAAO,oB;IACjC,QAAQ,GAAG,OAAO,CAAC,KAAK,CAAC,KAAK,CAAC,OAAO,EAAE,IAAI

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"base.js","sourceRoot":"","sources":["../src/base.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,cAAc,CAAC;AAEtB,OAAO,EAAC,eAAe,EAAC,MAAM,uBAAuB,CAAC;AAEtD,OAAO,EAAC,WAAW,EAAE,IAAI,EAAC,MAAM,gBAAgB,CAAC;AAEjD,OAAO,EAAC,WAAW,EAAE,eAAe,EAAE,eAAe,EAAE,eAAe,EAAE,WAAW,EAAE,eAAe,EAAE,YAAY,EAAC,MAAM,gBAAgB,CAAC;AAExI,OAAO,EAAC,WAAW,EAAE,OAAO,EAAE,OAAO,EAAE,IAAI,EAAE,YAAY,EAAC,MAAM,gBAAgB,CAAC;AAEjF,OAAO,EAAC,WAAW,EAAE,eAAe,EAAE,eAAe,EAAE,eAAe

AAC,MAAM,CAAC,CAAC;IAC3D,MAAM,iBAAiB,GACnB,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,gBAAgB,CAAC,CAAC,MAAM,CAAC,CAAC;IAE5D,SAAS,CACL,GAAG,EAAE,WAAW,EAAE,CAAC,CAAC,KAAK,CAAC,MAAM,EAAE,QAAQ,CAAC,CAAC,CAAC,KAAK,CAAC,EAAE,gBAAgB,EACrE,iBAAiB,EAAE,aAAa,EAAE,KAAK,CAAC,CAAC,CAAC;IAC7C,OAAO,GAAG,CAAC;AACb,CAAC;AAED,MAAM,CAAC,MAAM,WAAW,GAAG,iBAAiB,CAAC,WAAW,EAAE,GAAG,CAAC,CAAC;AAC/D,MAAM,CAAC,MAAM,WAAW,GAAG,iBAAiB,CAAC,WAAW,EAAE,GAAG,CAAC,CAAC;AAC/D,MAAM,UAAU,iBAAiB,CAAC,IAAY,EAAE,GAAW;IACzD,MAAM,MAAM,GAAG,IAAI,UAAU,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC;IAC3C,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,MAAM,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;QACtC,MAAM,CAAC,CAAC,CAAC,GAAG,IAAI,CAAC,UAAU,CAAC,CAAC,CAAC,GAAG,GAAG,CAAC;KACrC;IACD,OAAO,MAAM,CAAC;AAChB

ernels/Ceil.ts","../src/kernels/ClipByValue.ts","../src/kernels/Concat.ts","../node_modules/@tensorflow/tfjs-backend-
cpu/dist/kernels/Concat_impl.js","../src/kernels/Conv2D.ts","../src/kernels/Conv2DBackpropInput.ts","../src/kernels/Cos.ts","../src/kernels/Cosh.ts","../src/kernels/CropAndResize.ts","../src/kernels/Cumsum.ts","../src/kernels/DepthToSpace.ts","../src/kernels/DepthwiseConv2dNative.ts","../src/kernels/Elu.ts","../src/kernels/Equal.ts","../src/kernels/Exp.ts","../src/kernels/ExpandDims.ts","../src/kernels/Fill.ts","../src/kernels/FlipLeftRight.ts","../src/kernels/Floor.ts","../src/kernels/FloorDiv.ts","../src/kernels/FusedBatchNorm.ts","../src/kernels/FusedConv2D.ts","../src/kernels/FusedDepthwiseConv2D.ts","../src/kernels/GatherNd.ts","../src/kernels/GatherV2.ts","../src/kernels/Greater.ts","../src/kernels/GreaterEqual.ts","../src/kernels/LeakyRelu.ts","../src/kernels/Less.ts","../src/kernels/LessEqual.ts","../src/kernels/Log.ts","../src/kernels/LogicalAnd.ts","../src/kernels/Max.ts","../src/kernels/Maximum.ts","../src/kernels/MaxPool.ts","../src/kernels/Mean.ts","../src/kernels/Min.ts","../src/kernels/Minimum.ts","../src/kernels/MirrorPad.ts","../src/kernels/Multiply.ts","../src/kernels/Neg.ts","../src/kernels/NonMaxSuppression_util.ts","../src/kernels/NonMaxSuppressionV3.ts","../src/kernels/NonMaxSuppressionV4.ts","../src/kernels/NonMaxSuppressionV5.ts","../src/kernels/NotEqual.ts","../src/kernels/OneHot.ts","../src/kernels/OnesLike.ts","../src/kernels/Pack.ts","../src/kernels/PadV2.ts","../src/kernels/Pow.ts","../src/kernels/Prelu.ts","../src/kernels/Prod.ts","../src/kernels/Range.ts","../node_modules/@tensorflow/tfjs-backend-
cpu/dist/kernels/Range_impl.js","../src/kernels/RealDiv.ts","../src/kernels/Relu.ts","../src/kernels/Relu6.ts","../src/kernels/ResizeBilinear.ts","../src/kernels/Reverse.ts","../src/kernels/RotateWithOffset.ts","../src/kernels/Round.ts","../src/kernels/Rsqrt.ts","../src/kernels/ScatterNd.ts","../src/kernels/Select.ts","../src/kernels/Sigmoid.ts","../src/kernels/Sin.ts","../src/kernels/Softmax.ts","../src/kernels/SpaceToBatchND.ts","../src/kernels/SplitV.ts","../src/kernels/Sqrt.ts","../src/kernels/Square.ts","../src/kernels/SquaredDifference.ts","../src/kernels/Step.ts","../src/kernels/StridedSlice.ts","../src/kernels/Sub.ts","../src/kernels/Sum.ts","../src/kernels/Tan.ts","../src/kernels/Tanh.ts","../src/kernels/Tile.ts","../src/kernels/TopK.ts","../src/kernels/Transform.ts","../src/kernels/ZerosLike.ts","../src/register_all_kernels.ts","../src/kernels/Unpack.ts","../src/flags_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.js","../wasm-out/tfjs-backend-wasm.js","../src/backend_wasm.ts","../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js","../src/version.ts","../src/base.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// This enum must align with the enum defined in cc/backend.h.\nexport enum CppDType {\n float32 = 0,\n int32 = 1,\n bool = 2,\n string = 3,\n complex64 = 4\n}\n\n// Must match enum in cc/fusable_activations.h.\nexport enum FusableActivation {\n linear = 0,\n relu = 1,\n relu6 = 2,\n prelu = 3,\n leakyrelu = 4,\n sigmoid = 5,\n elu = 6\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
* distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedMatMul:\n   (aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n

bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, activation: number, biasId: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedMatMul = backend.wasm.cwrap(_FusedMatMul, null /* void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number', // activation\n 'number', // biasId\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number' // out_id\n]);\n}\n\nfunction fusedBatchMatMul(args: {\n inputs: _FusedMatMulInputs,\n backend: BackendWasm,\n attrs: _FusedMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `_FusedMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n let biasId = 0;\n if (bias != null)
{\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `_FusedMatMul only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n biasId = biasData.id;\n }\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const leftDim = transposeA ? a.shape[2] : a.shape[1];\n const rightDim = transposeB ? b.shape[1] : b.shape[2];\n const batchDim = a.shape[0];\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new
Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n\n wasmFusedMatMul(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n transposeA, transposeB, fusedActivation, biasId, preluActivationWeightsId,\n leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null /* void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n
const out = backend.makeOutput(x.shape, outType || x.dtype);\n const outId =
backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==========\n
*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {backend_util, BinaryInputs, DataType, KernelConfig, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createBinaryKernelConfig(\n kernelName: string, supportsFullBroadcast: boolean,\n dtype?: DataType): KernelConfig {\n let wasmFunc:\n (aId: number, aShape: Uint8Array, aShapeLen: number, bId: number,\n bShape: Uint8Array, bShapeLen: number, dtype: number, outId: number) =>\n void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null / void */, [\n 'number', // a_id,\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // dtype\n 'number' // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs:
BinaryInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {a, b} = inputs;\n const aId = backend.dataIdMap.get(a.dataId).id;\n const bId = backend.dataIdMap.get(b.dataId).id;\n\n const outputType = dtype != null ? dtype : a.dtype;\n const newShape = backend_util.assertAndGetBroadcastShape(a.shape, b.shape);\n const out = backend.makeOutput(newShape, outputType);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(newShape) === 0) {\n return out;\n }\n\n const aShapeBytes = new Uint8Array(new Int32Array(a.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b.shape).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const kernelFunc = () => wasmFunc(\n aId, aShapeBytes, a.shape.length, bId, bShapeBytes, b.shape.length,\n CppDType[a.dtype], outId);\n\n // Currently only some float operations support full broadcast.\n if (supportsFullBroadcast && a.dtype ===
'float32') {\n kernelFunc();\n return out;\n }\n\n const aBroadcastDims =
backend_util.getBroadcastDims(a.shape, newShape);\n const bBroadcastDims =
backend_util.getBroadcastDims(b.shape, newShape);\n const loopsOverAllOfA = aBroadcastDims.every((v, i) => v === i);\n const loopsOverAllOfB = bBroadcastDims.every((v, i) => v === i);\n if (loopsOverAllOfA && loopsOverAllOfB) {\n kernelFunc();\n return out;\n } else {\n throw new Error(\n `Broadcasting along outer dims is not yet ` +\n `supported for ${a.dtype} ${kernelName}.`);\n }\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from

'./binary_kernel';\n\nconst supportsFullBroadcast = true;\n\nexport const addConfig: KernelConfig =\n createBinaryKernelConfig(Add, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {AddN, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc:\n (inputIds: Uint8Array, inputIdsLen: number, dtype: number, outId: number) =>\n void;\n\nfunction setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(AddN, null / void */, [\n 'array', // input_ids\n 'number', // input_ids.length\n 'number', // dtype\n 'number', // out_id\n]);\n}\n\nfunction addn(args: {inputs: TensorInfo[], backend: BackendWasm}) {\n const
{inputs, backend} = args;\n const out = backend.makeOutput(inputs[0].shape, inputs[0].dtype);\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n const inputIds = inputs.map(x => backend.dataIdMap.get(x.dataId).id);\n const inputIdsBytes = new Uint8Array(new Int32Array(inputIds).buffer);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmFunc(inputIdsBytes, inputIds.length, CppDType[out.dtype], outId);\n\n return out;\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'wasm',\n setupFunc,\n kernelFunc: addn as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function identity(args: {inputs: IdentityInputs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const inVals = backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'wasm',\n
kernelFunc: identity as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {CppDType}
from './types';\n\nlet wasmTranspose: (\n xId: number, xShape: Uint8Array, xShapeLength: number, dtype: CppDType,\n outId: number, perm: Uint8Array, permLength: number) => void;\n\nfunction setup(backend:

BackendWasm) {\n wasmTranspose = backend.wasm.cwrap(Transpose, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // dtype\n   'number', // outId\n   'array',   // perm\n   'number', // perm.length\n]);\n}\n\nexport function transpose(\n   args:\n   {inputs: TransposeInputs, backend: BackendWasm, attrs: TransposeAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n // Reduce any dimensions with size one. Lower-rank transpose kernel performs\n // better due to simpler memory access pattern.\n const [reducedShape, perm] = removeOneSizeDims(inputs.x.shape, attrs.perm);\n\n let permIsNoOp = true;\n for (let i = 0; i < perm.length; i++) {\n   if (perm[i] !== i) {\n   permIsNoOp = false;\n   }\n }\n const outShape = computeOutShape(inputs.x.shape, attrs.perm);\n const x = {\n   dataId: inputs.x.dataId,\n   shape: reducedShape,\n   dtype: inputs.x.dtype\n };\n\n if (permIsNoOp) {\n   const cloned = identity({inputs, backend});\n   cloned.shape = outShape;\n   return cloned;\n }\n\n const out = backend.makeOutput(outShape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n const permBytes = new Uint8Array(new Int32Array(perm).buffer);\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmTranspose(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], outId, permBytes,\n   perm.length);\n return out;\n}\n\nfunction computeOutShape(inShape: number[], perm: number[]): number[] {\n const outShape = new Array(inShape.length);\n for (let i = 0; i < outShape.length; i++) {\n   outShape[i] = inShape[perm[i]];\n }\n return outShape;\n}\n\nfunction
  removeOneSizeDims(\n   shape: number[], perm: number[]): [number[], number[]] {\n const newShape: number[] = [];\n const newPerm: number[] = [];\n for (let i = 0; i < shape.length; ++i) {\n   if (shape[i] !== 1) {\n   newShape.push(shape[i]);\n   }\n   if (shape[perm[i]] !== 1) {\n   newPerm.push(perm[i]);\n   }\n }\n for (let i = 0; i < newPerm.length; ++i) {\n   let minValIdx = -1;\n   for (let j = 0; j < newPerm.length; ++j) {\n   if (newPerm[j] >= i &&\n   (minValIdx === -1 || newPerm[minValIdx] > newPerm[j])) {\n   minValIdx = j;\n   }\n   }\n   newPerm[minValIdx] = i;\n }\n return [newShape, newPerm];\n}\n\nexport const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'wasm',\n kernelFunc: transpose as {} as KernelFunc,\n setupFunc: setup,\n};\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use
  this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
  http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
  ==\n
  */\n\nimport {backend_util, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {BackendWasm} from '../backend_wasm';\nimport {transpose} from './Transpose';\n\n/**\n * Compute permutation axes and do a transpose if necessary.\n *\n * Used by reduction ops.\n * @param x input TensorInfo\n * @param axis reduction axes\n * @param backend wasm backend instance\n */\nexport function permuteAxesAndTranspose(\n   x: TensorInfo, axis: number|number[],
  backend: BackendWasm): {\n transposed: TensorInfo|null,\n axes: number[],\n originalAxes: number[],\n inputWasTransposed: boolean\n} {\n const xShape = x.shape;\n const xRank = x.shape.length;\n\n const originalAxes = util.parseAxisParam(axis, xShape);\n let axes = originalAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let xTransposed = null;\n let inputWasTransposed = false;\n if (permutedAxes != null) {\n   const newShape: number[] = new Array(xRank);\n   for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = xShape[permutedAxes[i]];\n   }\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n   xTransposed =\n   transpose({inputs: {x}, attrs: {perm: permutedAxes}, backend});\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const transposedId = backend.dataIdMap.get(xTransposed.dataId).id;\n   if (transposedId !== xId) {\n   inputWasTransposed = true;\n   }\n }\n\n return {transposed:

xTransposed, originalAxes, axes, inputWasTransposed};\n}\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAll: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAll = backend.wasm.cwrap(All, null /*void*/, ['number, number, number']);\n}\n\nfunction all(args: {backend: BackendWasm, inputs: AllInputs, attrs: AllAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape,\n axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmAny: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmAny = backend.wasm.cwrap(Any, null /*void*/, ['number, number, number']);\n}\n\nfunction any(args: {backend: BackendWasm, inputs: AnyInputs, attrs: AnyAttrs}):\n TensorInfo {\n const {backend,\n inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId = transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('any', axes, inputRank);\n const [outShape, reduceShape] =\n

backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAny(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
 License.\n *
==\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n   xId: number, dtype: number, outerSize: number, innerSize: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFunc = backend.wasm.cwrap(ArgMax, null /* void */, [\n   'number', // x_id\n   'number', // dtype\n 'number', // outer_size\n   'number', // inner_size\n   'number'   // out_id\n]);\n}\n\nfunction argmax(\n   args: {inputs: ArgMaxInputs, backend: BackendWasm, attrs: ArgMaxAttrs}) {\n const {backend, inputs, attrs} = args;\n const {axis} = attrs as {} as ArgMaxAttrs;\n const {x} = inputs as {} as ArgMaxInputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let
 inputId = xId;\n let input = x;\n\n const {transposed, axes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const outShape = input.shape.slice(0, -1);\n const out = backend.makeOutput(outShape, 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const outerSize = util.sizeFromShape(out.shape);\n const innerSize = input.shape[axes[0]];\n wasmFunc(inputId, CppDType[input.dtype], outerSize, innerSize, outId);\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'wasm',\n
  kernelFunc: argmax as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmAvgPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n   padBottom: number, padLeft: number, strideHeight: number,\n stride Width: number, channels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n

wasmAvgPool = backend.wasm.cwrap(AvgPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // channels\n 'number', // outId\n]);\n}\n\nfunction avgPool(\n args: {inputs: AvgPoolInputs, backend: BackendWasm, attrs: AvgPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const channels = convInfo.inChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n if (convInfo.dilationWidth !== 1 || convInfo.dilationHeight !== 1) {\n throw new Error(\n `was backend only supports average pooling with dilation = [1, 1],
` +\n `got [${convInfo.dilationHeight}, ${convInfo.dilationWidth}].`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmAvgPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, strideHeight, strideWidth, channels,\n outId);\n return out;\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function reshape(\n args: {inputs: ReshapeInputs, attrs: ReshapeAttrs, backend: BackendWasm}) {\n const {inputs, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n\n util.assert(\n xSize === util.sizeFromShape($shape),\n () => `new shape: ${$shape}, old shape: ${x.shape}. New shape and old ` +\n `shape must have the same number of elements.`);\n\n // Backend needs to track refCount
for the dataId for reshape op\n args.backend.incRef(x.dataId);\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'wasm',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

/\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\n\nlet wasmBatchMatMul: (\n aId: number, aShape: Uint8Array, aShapeSize: number, bId: number,\n bShape: Uint8Array, bShapeSize: number, transposeA: boolean,\n transposeB: boolean, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmBatchMatMul = backend.wasm.cwrap(BatchMatMul, null / void */, [\n 'number', // a_id\n 'array', // a_shape\n 'number', // a_shape.length\n 'number', // b_id\n 'array', // b_shape\n 'number', // b_shape.length\n 'number', // transpose_a\n 'number', // transpose_b\n 'number' // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const
{transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n throw new Error(\n `BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n () => `Error in matMul: the input batch dimensions
must either be the ` +\n `same or at least one input batch dimension must be 1. Got input ` +\n `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n innerShapeA === innerShapeB,\n () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n `${b.shape} and transposeA=${transposeA}` +\n ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation
is designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n b3d.shape.length, transposeA, transposeB, outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape
= outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the

License.\n *
==========\n
*/\nimport { backend_util, buffer, Slice, slice_util, util } from '@tensorflow/tfjs-core';\nimport
{ assertNotComplex } from '../cpu_util';\nexport function sliceImpl(vals, begin, size, shape, dtype) {\n const
isContinous = slice_util.isSliceContinous(shape, begin, size);\n const length = util.sizeFromShape(size);\n const
xStrides = util.computeStrides(shape);\n if (isContinous) {\n const flatOffset =
slice_util.computeFlatOffset(begin, xStrides);\n if (dtype === 'string') {\n return vals.slice(flatOffset,
flatOffset + length);\n }\n return vals.subarray(flatOffset, flatOffset + length);\n }\n const decodedData
= dtype === 'string' ?\n backend_util.fromUint8ToStringArray(vals) :\n vals;\n const inBuf =
buffer(shape, dtype, decodedData);\n const outBuf = buffer(size, dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n
const outLoc = outBuf.indexToLoc(i);\n const inLoc = outLoc.map((idx, j) => idx + begin[j]);\n
outBuf.set(inBuf.get(...inLoc), ...outLoc);\n
}\n if (dtype === 'string') {\n return backend_util.fromStringArrayToUint8(outBuf.values);\n }\n return
outBuf.values;\n}\nexport function slice(args) {\n const { inputs, backend, attrs } = args;\n const { x } =
inputs;\n const { begin, size } = attrs;\n assertNotComplex(x, 'slice');\n const [$begin, $size] =
slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n const vals =
backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return
backend.makeTensorInfo($size, x.dtype, outVals);\n}\nexport const sliceConfig = {\n kernelName: Slice,\n
backendName: 'cpu',\n kernelFunc: slice\n};\n//#
sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiU2xpY2UuanMiLCJzb3VyY2
VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL
1NsaWNlLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7Ozs7Ozs7Ozs7R0FlRztBQUVILE9BQ
BQU8sRUFBQyxVQUFVLEVBQUUsTUFBTSxFQUFFLEtBQUssRUFBRSxVQUFVLEVBQUUsSUFBSSxFQUFDLE1BQU0sdUJ
FQUFDLE1BQU0sdUJBQXVCLENBQUM7QUFFdEQsTUFBTSxVQUFVLFNsaWNlSW1wbChcbiAgICB2YWxzLCBiZWdpbiwgc2l6ZSwgc2hhcGUsIGR0eXBlKSB7XG4gICAgY29uc3QgaXNDb250aW5vdXMgPSBzbGljZV91dGlsLmlzU2xpY2VDb250aW5vdXMoc2hhcGUsIGJlZ2luLCBzaXplKTtcbiAgICBjb25zdCBsZW5ndGggPSB1dGlsLnNpemVGcm9tU2hhcGUoc2l6ZSk7XG4gICAgY29uc3QgeFN0cmlkZXMgPSB1dGlsLmNvbXB1dGVTdHJpZGVzKHNoYXBlKTtcbiAgICBpZiAoaXNDb250aW5vdXMpIHtcbiAgICAgICAgY29uc3QgZmxhdE9mZnNldCA9IHNsaWNlX3V0aWwuY29tcHV0ZUZsYXRPZmZzZXQoYmVnaW4sIHhTdHJpZGVzKTtcbiAgICAgICAgaWYgKGR0eXBlID09PSAnc3RyaW5nJykge1xuICAgICAgICAgICAgcmV0dXJuIHZhbHMuc2xpY2UoZmxhdE9mZnNldCwgZmxhdE9mZnNldCArIGxlbmd0aCk7XG4gICAgICAgIH1cbiAgICAgICAgcmV0dXJuIHZhbHMuc3ViYXJyYXkoZmxhdE9mZnNldCwgZmxhdE9mZnNldCArIGxlbmd0aCk7XG4gICAgfVxuICAgIGNvbnN0IGRlY29kZWREYXRhID0gZHR5cGUgPT09ICdzdHJpbmcnID9cbiAgICAgICAgYmFja2VuZF91dGlsLmZyb21VaW50OFRvU3RyaW5nQXJyYXkodmFscykgOlxuICAgICAgICB2YWxzO1xuICAgIGNvbnN0IGluQnVmID0gYnVmZmVyKHNoYXBlLCBkdHlwZSwgZGVjb2RlZERhdGEpO1xuICAgIGNvbnN0IG91dEJ1ZiA9IGJ1ZmZlcihzaXplLCBkdHlwZSk7XG4gICAgZm9yIChsZXQgaSA9IDA7IGkgPCBvdXRCdWYuc2l6ZTsgKytpKSB7XG4gICAgICAgIGNvbnN0IG91dExvYyA9IG91dEJ1Zi5pbmRleFRvTG9jKGkpO1xuICAgICAgICBjb25zdCBpbkxvYyA9IG91dExvYy5tYXAoKGlkeCwgaikgPT4gaWR4ICsgYmVnaW5bal0pO1xuICAgICAgICBvdXRCdWYuc2V0KGluQnVmLmdldCguLi5pbkxvYyksIC4uLm91dExvYyk7XG4gICAgfVxuICAgIGlmIChkdHlwZSA9PT0gJ3N0cmluZycpIHtcbiAgICAgICAgcmV0dXJuIGJhY2tlbmRfdXRpbC5mcm9tU3RyaW5nQXJyYXlUb1VpbnQ4KG91dEJ1Zi52YWx1ZXMpO1xuICAgIH1cbiAgICByZXR1cm4gb3V0QnVmLnZhbHVlcztcbn1cbmV4cG9ydCBmdW5jdGlvbiBzbGljZShhcmdzKSB7XG4gICAgY29uc3QgeyBpbnB1dHMsIGJhY2tlbmQsIGF0dHJzIH0gPSBhcmdzO1xuICAgIGNvbnN0IHsgeCB9ID0gaW5wdXRzO1xuICAgIGNvbnN0IHsgYmVnaW4sIHNpemUgfSA9IGF0dHJzO1xuICAgIGFzc2VydE5vdENvbXBsZXgoeCwgJ3NsaWNlJyk7XG4gICAgY29uc3QgWyRiZWdpbiwgJHNpemVdID0gc2xpY2VfdXRpbC5wYXJzZVNsaWNlUGFyYW1zKHgsIGJlZ2luLCBzaXplKTtcbiAgICBzbGljZV91dGlsLmFzc2VydFBhcmFtc1ZhbGlkKHgsICRiZWdpbiwgJHNpemUpO1xuICAgIGNvbnN0IHZhbHMgPSBiYWNrZW5kLmRhdGEuZ2V0KHguZGF0YUlkKS52YWx1ZXM7XG4gICAgY29uc3Qgb3V0VmFscyA9IHNsaWNlSW1wbCh2YWxzLCAkYmVnaW4sICRzaXplLCB4LnNoYXBlLCB4LmR0eXBlKTtcbiAgICByZXR1cm4gYmFja2VuZC5tYWtlVGVuc29ySW5mbygkc2l6ZSwgeC5kdHlwZSwgb3V0VmFscyk7XG59XG5leHBvcnQgY29uc3Qgc2xpY2VDb25maWcgPSB7XG4gICAga2VybmVsTmFtZTogU2xpY2UsXG4gICAgYmFja2VuZE5hbWU6ICdjcHUnLFxuICAgIGtlcm5lbEZ1bmM6IHNsaWNlXG59O1xuLy8jIHNvdXJjZU1hcHBpbmdVUkw9ZGF0YTphcHBsaWNhdGlvbi9qc29uO2Jhc2U2NCxleUoyWlhKemFXOXVJam96TENKbWFXeHpaWElqb2lVMnhwWTJWdVkyVnRiRzkzY3lJNld5SXVMaTR2TGk0dUxpOHVMaTR2TGk0dUxpOHVMaTR2TGk0dUxpOTBhWFJzWlhNdlkyOXlaUzlqYjI1MFpXNTBMWE4wWVhKMEwzTmxiR1l0WTI5eVpTOXpkbWN0WTI5dWRHVnVkQzF

sQ0FBQyxFQUFDLEdBQUcsTUFBTSxDQUFDO0lBQ25CLE1BQU0sRUFBQyxLQUFLLEVBQUUsSUFBSSx
FQUFDLEdBQUcsS0FBSyxDQUFDO0lBRTVCLGdCQUFnQixDQUFDLENBQUMsRUFBRSxPQUFPLENBQ
UMsQ0FBQztJQUU3QixNQUFNLENBQUMsTUFBTSxFQUFFLEtBQUssQ0FBQyxHQUFHLFVBQVUsQ0FB
QyxnQkFBZ0IsQ0FBQyxDQUFDLEVBQUUsS0FBSyxFLElBQUksQ0FBQyxDQUFDLEVBQUUsQ3BFLFVBQ
VUsQ0FBQyxpQkFBaUIsQ0FBQyxDQUFDLEVBQUUsTUFBTSxFQUFFLEtBQUssQ0FBQyxDQUFDLEVBQUUsQ3BFLFVBQ
9DLE1BQU0sSUFBSSxHQUE9BQU8sQ0FBQyxDQUFDLEVBQUUsSU0FBTyxDQUFDLENBQUMsRUFBRSxDQUFDLENBQUMsQ
yxNQUFNLENBQUMsQ0FBQyxEQUFDLENBQUMsRUFBRSxDQUFDLENBQUMsQ0FBQyxEQUFDLENBQUMsQ
DLElBQUksRUFBRSxNQUFNLEVBQUUsS0FBSyxFQUFFLENBQUMsQ0FBQyxEQUFDLENBQUMsQ
xDQUFDLEtBQUssQ0FBQyxDQUFDLEVBQUUsQ0FBQyxDQUFDLEVBQUUsQ3pFLE9BQU8sT0FBTyxDQ
VBQUUsQ0FBQyxDQUFDLEVBQUUsQ0FBQyxDQUFDLEVBQUUsQ0FBQyxDQUFDLEVBQUUsQ3pFLE9BQ
UFBTSxDQUFDLE1BQU0sV0FBVyxHQUFHLFFBQVEsQ2tyVQUFVLEVBQUUsS0FBSztJQUNqQixXQUFXLE
VBQUUsS0FBSztJQUNsQixXQUFXLEVBQUUsS0FBSyBeUI7Q0FDdEMsQ0FBQyxDQUFDLEVBQUUsQ3pFLE9BQ
bIi8qKlxuICogQGxpY2Vuc2VcbiAqIENvcHlyaWdodCAyMDIwIEdvb2dsZSBMTEMuIEFsbCBSaWdodHMgUm
VzZXJ2ZWQuXG4gKiBMaWNlbnNlZCB1bmRlciB0aGUgQXBhY2hlIExpY2Vuc2UsIFZlcnNpb24gMi4wIHh0a
GUgXCJMaWNlbnNlXCIpO1xuICogeW91IG1heSBub3QgdXNlIHRoaXMgZmlsZSBleGNlcHQgaW4gY29tcGxp
YW5jZSB3aXRoIHRoZSBMaWNlbnNlLlxuICogWW91IG1heSBvYnRhaW4gYSBjb3B5IG9mIHRoZSBMaWNlb
nNlIGF0XG4gKlxuICogaHR0cDovL3d3dy5hcGFjaGUub3JnL2xpY2Vuc2VzL0xJQ0VOU0UtMi4wXG4gKlxuICo
ogVW5sZXNzIHJlcXVpcmVkIGJ5IGFwcGxpcGUgbGF3IG9yIGFncmVlZCB0byBpbiB3cml0aW5nLCBzb2
Z0d2FyZVxuICogZGlzdHJpYnV0ZWQgdW5kZXIgdGhlIExpY2Vuc2UgaXMgZGlzdHJpYnV0ZWQgb24gYW4g
XCJBUyBJU1wiIEJBU0lTLFxuICogV0lUSE9VVCBXQVJSQU5USUVTIE9SIENPTkRJVElPTlMgT0YgQU5ZI
EtJTkQsIGVpdGhlciBleHByZXNzIG9yIGltcGxpZWQuXG4gKiBTZWUgdGhlIExpY2Vuc2UgZm9yIHRoZSBzc
GVjaWZpYyBsYW5ndWFnZSBnb3Zlcm5pbmcgcGVybWlzc2lvbnMgYW5kXG4gKiBpbWl0YXRpb25zIHVuZGVy
dGhlIExpY2Vuc2UuXG4gKi9cblxuaW1wb3J0IHtiYWNrZW5kX3V0aWwsIE
JhY2tlbmRWYWx1ZXMsIGJ1ZmZlciwgRGF0YVR5cGUsIEtlcm5lbENvbmZpZywgS2VybmVuRnVuYywgU2xp
Y2UsIHNsaWNlX3V0aWwsIFNsaWNlQXR0cnMsIFNsaWNlSW5wdXRzLCBUZW5zb3JJbmZvLCBUeXBlZEF
ycmF5LCB1dGlsfSBmcm9tICcuAdGVuc29yZmxvdy90ZmpzLWNvcmUnO1xuXG5pbXBvcnQge01hdGhCYWNr
ZW5kQ1BVfSBmcm9tICcuLi9iYWNrZW5kX2NwdSc7XG5pbXBvcnQge2Fzc2VydE5vdENvbXBsZXh9IGZyb2
0gJy4uL2NwdV91dGlsJztcblxuZXhwb3J0IGZ1bmN0aW9uIHNsaWNlSW1wbChcbiAgICB2YWxzOiBCYWNrZ
W5kVmFsdWVzLCBiZWdpbjogbnVtYmVyW10sIHNpemU6IG51bWJlcltdLCBzaGFwZTogbnVtYmVyW10sXG
4gICAgZHR5cGU6IERhdGFUeXBlKTogQmFja2VuZFZhbHVlcyB7XG4gIGNvbnN0IGlzQ29udGlub3VzID0gc2
xpY2VfdXRpbC5pc1NsaWNlQ29udGlub3VzKHNoYXBlLCBiZWdpbiwgc2l6ZSk7XG4gIGNvbnN0IGxlbmd0aC
A9IHV0aWwuc2l6ZUZyb21TaGFwZShzaXplKTtcbiAgY29uc3QgeFN0cmlkZXMgPSB1dGlsLmNvbXB1dGVTd
HJpZGVzKHNoYXBlKTtcbiAgY29uc3QgeDNDb250aW5vdXMpIHtcbiAgICBjb25zdCBmbGF0T2Zmc2V0ID0gc
2xpY2VfdXRpbC5jb21wdXRlRmxhdE9mZnNldChiZWdpbiwgeFN0cmlkZXMpO1xuICAgIGNvbnN0IHhWYWx
BlID09PSAnc3RyaW5nJykge1xuICAgICAgY29uc3QgeFN0cmlkZXMgPSB1dGlsLmNvbXB1dGVTd
HJpZGVzKHNoYXBlKTtcbiAgICAgIGNvbnN0IHhWYWx1ZXMgPSB1dGlsLmNvbXB1dGVTd
R5cGVkQXJyYXkpLnN1YmFycmF5KGZsYXRPZmZzZXQsIGFzIFVpbnQ4QXJyYXlbXSkuc2xpY2UoZmx
hdE9mZnNldCwgZmxhdE9mZnNldCArIGxlbmd0aCk7XG4gICAgICBjb25zdCBzaGFwZSA9IHV0aWwuc
R5cGVkQXJyYXkpLnN1YmFycmF5KGZsYXRPZmZzZXQsIGFzIFVpbnQ4QXJyYXlbXSkuc2xpY2UoZmx
XG5cbiAgY29uc3QgZGVjb2RlZERhdGEgPSB0aWZSA9PT0gJ3N0cmluZycgP1xuICAgICAgICAg

ICAgIGFyZ3M6IHtpbnB1dHM6IFNsaWNlSW5wdXRzLCBiYWNrZW5kOiBNYXRoQmFja2VuZENQVSwgYXR0cnM6IFNsaWNlQXR0cnN9KTpcbiAgICBUZW5zb3JJbmZvIHtcbiAgY29uc3Qge2lucHV0cywgYmFja2VuZCwgYXR0cnN9ID0gaW5wdXRzO1xuICBjb25zdCB7YmVnaW4sIHNpemV9ID0gYXR0cnM7XG5cbiAgY29uc3QgW2JlZ2luXywgc2l6ZV9dID0gc2xpY2VfdXRpbC5wYXJzZVNsaWNlUGFyYW1zKHgsIGJlZ2luLCBzaXplKTtcblxuICBjb25zdCBpc0NvbnRpbm91cyA9IHNsaWNlX3V0aWwuaXNTbGljZUNvbnRpbm91cyh4LnNoYXBlLCBiZWdpbl8sIHNpemVfKTtcbiAgY29uc3QgeFZhbHMgPSBiYWNrZW5kLnJlYWRTeW5jKHguZGF0YUlkKTtcbiAgY29uc3Qgb3V0ID0gYmFja2VuZC5tYWtlT3V0cHV0KHNpemVfLCB4LmR0eXBlKTtcbiAgY29uc3QgeFN0cmlkZXMgPSB1dGlsLmNvbXB1dGVTdHJpZGVzKHguc2hhcGUpO1xuICBjb25zdCBvdXREYXRhID0gYmFja2VuZC5kYXRhSWRNYXAuZ2V0KG91dC5kYXRhSWQpO1xuXG4gIGlmIChpc0NvbnRpbm91cykge1xuICAgIGNvbnN0IGZsYXRPZmZzZXQgPSBzbGljZV91dGlsLmNvbXB1dGVGbGF0T2Zmc2V0KGJlZ2luXywgeFN0cmlkZXMpO1xuXG4gICAgaWYgKHguZHR5cGUgPT09ICdzdHJpbmcnKSB7XG4gICAgICBvdXREYXRhLnN0cmluZ0J5dGVzID1cbiAgICAgICAgICAoeFZhbHMgYXMgVWludDhBcnJheVtdKVxuICAgICAgICAgICAgICAuc2xpY2UoZmxhdE9mZnNldCwgZmxhdE9mZnNldCArIHV0aWwuc2l6ZUZyb21TaGFwZShzaXplXykpO1xuICAgIH0gZWxzZSB7XG4gICAgICBjb25zdCBvdXRWYWxzID0gYmFja2VuZC50eXBlZEFycmF5RnJvbUhlYXAob3V0KTtcbiAgICAgIG91dFZhbHMuc2V0KFxuICAgICAgICAgICh4VmFscyBhcyBUeXBlZEFycmF5KVxuICAgICAgICAgICAgICAuc3ViYXJyYXkoZmxhdE9mZnNldCwgZmxhdE9mZnNldCArIHV0aWwuc2l6ZUZyb21TaGFwZShzaXplXykpKTtcbiAgICB9XG5cbiAgICByZXR1cm4gb3V0O1xuICB9XG5cbiAgaWYgKHguZHR5cGUgPT09ICdzdHJpbmcnKSB7XG4gICAgY29uc3QgcmVzID0gc2xpY2VJbXBsQ1BVKHhWYWxzLCBiZWdpbl8sIHNpemVfLCB4LnNoYXBlLCB4LmR0eXBlKTtcbiAgICBvdXREYXRhLnN0cmluZ0J5dGVzID0gcmVzIGFzIFVpbnQ4QXJyYXlbXTtcbiAgICByZXR1cm4gb3V0O1xuICB9XG5cbiAgY29uc3Qgb3V0VmFscyA9IGJhY2tlbmQudHlwZWRBcnJheUZyb21IZWFwKG91dCk7XG4gIGNvbnN0IHJhbmsgPSB4LnNoYXBlLmxlbmd0aDtcbiAgaWYgKHJhbmsgPT09IDIpIHtcbiAgICBzbGljZTJkKFxuICAgICAgICB4VmFscyBhcyBUeXBlZEFycmF5LCB4U3RyaWRlc1swXSwgb3V0VmFscywgYmVnaW5fIGFzIFtudW1iZXIsIG51bWJlcl0sXG4gICAgICAgIHNpemVfIGFzIFtudW1iZXIsIG51bWJlcl0pO1xuICB9IGVsc2UgaWYgKHJhbmsgPT09IDMpIHtcbiAgICBzbGljZTNkKFxuICAgICAgICB4VmFscyBhcyBUeXBlZEFycmF5LCB4U3RyaWRlc1swXSwgeFN0cmlkZXNbMV0sIG91dFZhbHMsXG4gICAgICAgIGJlZ2luXyBhcyBbbnVtYmVyLCBudW1iZXIsIG51bWJlcl0sIHNpemVfIGFzIFtudW1iZXIsIG51bWJlciwgbnVtYmVyXSk7XG4gIH0gZWxzZSBpZiAocmFuayA9PT0gNCkge1xuICAgIHNsaWNlNGQoXG4gICAgICAgIHhWYWxzIGFzIFR5cGVkQXJyYXksIHhTdHJpZGVzWzBdLCB4U3RyaWRlc1sxXSxcbiAgICAgICAgeFN0cmlkZXNbMl0sIG91dFZhbHMsXG4gICAgICAgIGJlZ2luXyBhcyBbbnVtYmVyLCBudW1iZXIsIG51bWJlciwgbnVtYmVyXSxcbiAgICAgICAgc2l6ZV8gYXMgW251bWJlciwgbnVtYmVyLCBudW1iZXIsIG51bWJlcl0pO1xuICB9IGVsc2Uge1xuICAgIGNvbnN0IHJlcyA9XG4gICAgICAgIHNsaWNlSW1wbENQVSh4VmFscywgYmVnaW5fLCBzaXplXywgeC5zaGFwZSwgeC5kdHlwZSkgYXMgVHlwZWRBcnJheTtcbiAgICBvdXRWYWxzLnNldChyZXMpO1xuICB9XG5cbiAgcmV0dXJuIG91dDtcbn1cblxuZnVuY3Rpb24gc2xpY2UyZChcbiAgICB4VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksIHhTdHJpZGU6IG51bWJlcixcbiAgICBvdXRWYWxzOiBiYWNrZW5kX3V0aWwuVHlwZWRBcnJheSwgYmVnaW46IFtudW1iZXIsIG51bWJlcl0sXG4gICAgc2l6ZTogW251bWJlciwgbnVtYmVyXSk6IHZvaWQge1xuICBsZXQgb3V0T2Zmc2V0ID0gMDtcbiAgY29uc3QgYmVnaW5JID0gYmVnaW5bMF07XG4gIGNvbnN0IGJlZ2luSiA9IGJlZ2luWzFdO1xuICBjb25zdCBlbmRJID0gYmVnaW5JICsgc2l6ZVswXTtcbiAgZm9yIChsZXQgaSA9IGJlZ2luSTsgaSA8IGVuZEk7IGkrKykge1xuICAgIGNvbnN0IHhPZmZzZXQgPSBpICogeFN0cmlkZSArIGJlZ2luSjtcbiAgICBvdXRWYWxzLnNldCh4VmFscy5zdWJhcnJheSh4T2Zmc2V0LCB4T2Zmc2V0ICsgc2l6ZVsxXSksIG91dE9mZnNldCk7XG4gICAgb3V0T2Zmc2V0ICs9IHNpemVbMV07XG4gIH1cbn1cblxuZnVuY3Rpb24gc2xpY2UzZChcbiAgICB4VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksIHhTdHJpZGUxOiBudW1iZXIsIHhTdHJpZGUyOiBudW1iZXIsXG4gICAgb3V0VmFsczogYmFja2VuZF91dGlsLlR5cGVkQXJyYXksIGJlZ2luOiBbbnVtYmVyLCBudW1iZXIsIG51bWJlcl0sXG4gICAgc2l6ZTogW251bWJlciwgbnVtYmVyLCBudW1iZXJdKTogdm9pZCB7XG4gIGxldCBvdXRPZmZzZXQgPSAwO1xuICBjb25zdCBiZWdpbkkgPSBiZWdpblswXTtcbiAgY29uc3QgYmVnaW5KID0gYmVnaW5bMV07XG4gIGNvbnN0IGJlZ2luSyA9IGJlZ2luWzJdO1xuICBjb25zdCBlbmRJID0gYmVnaW5JICsgc2l6ZVswXTtcbiAgY29uc3QgZW5kSiA9IGJlZ2luSiArIHNpemVbMV07XG4gIGZvciAobGV0IGkgPSBiZWdpbkk7IGkgPCBlbmRJOyBpKyspIHtcbiAgICBmb3IgKGxldCBqID0gYmVnaW5KOyBqIDwgZW5kSjsgaisrKSB7XG4gICAgICBjb25zdCB4T2Zmc2V0ID0gaSAqIHhTdHJpZGUxICsgaiAqIHhTdHJpZGUyICsgYmVnaW5LO1xuICAgICAgb3V0VmFscy5zZXQoeFZhbHMuc3ViYXJyYXkoeE9mZnNldCwgeE9mZnNldCArIHNpemVbMl0pLCBvdXRPZmZzZXQpO1xuICAgICAgb3V0T2Zmc2V0ICs9IHNpemVbMl07XG4gICAgfVxuICB9XG59XG5cbmV4cG9ydCBjb25zdCBzbGljZUNvbmZpZzogS2VybmVsQ29uZmlnID0ge1xuICBrZXJuZWxOYW1lOiBTbGljZSxcbiAgYmFja2VuZE5hbWU6ICdjcHUnLFxuICBrZXJuZWxGdW5jOiBzbGljZSBhcyB7fSBhcyBLZXJuZWxGdW5jLFxufTtcbiJ9
/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Slice, slice_util, SliceAttrs, SliceInputs, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {sliceImplCPU} from '../kernel_utils/shared';\n\nexport function slice(\n   args: {inputs: SliceInputs, attrs: SliceAttrs, backend: BackendWasm}) {\n const {inputs: {x}, attrs: {begin, size}, backend} = args;\n\n const [begin_, size_] = slice_util.parseSliceParams(x, begin, size);\n\n const isContinous = slice_util.isSliceContinous(x.shape, begin_, size_);\n const xVals = backend.readSync(x.dataId);\n const out = backend.makeOutput(size_, x.dtype);\n const xStrides = util.computeStrides(x.shape);\n const outData = backend.dataIdMap.get(out.dataId);\n\n if (isContinous) {\n   const flatOffset = slice_util.computeFlatOffset(begin_, xStrides);\n\n   if (x.dtype === 'string') {\n   outData.stringBytes =\n   (xVals as Uint8Array[])\n   .slice(flatOffset, flatOffset + util.sizeFromShape(size_));\n   } else {\n   const outVals = backend.typedArrayFromHeap(out);\n   outVals.set(\n   (xVals as TypedArray)\n   .subarray(flatOffset, flatOffset + util.sizeFromShape(size_)));\n   }\n\n   return out;\n }\n\n if (x.dtype === 'string') {\n   const res = sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype);\n   outData.stringBytes = res as Uint8Array[];\n   return out;\n }\n\n const outVals = backend.typedArrayFromHeap(out);\n const rank = x.shape.length;\n if (rank === 2) {\n   slice2d(\n   xVals as TypedArray, xStrides[0], outVals, begin_ as [number, number],\n   size_ as [number, number]);\n } else if (rank === 3) {\n   slice3d(\n   xVals as TypedArray, xStrides[0], xStrides[1], outVals,\n   begin_ as [number, number, number], size_ as [number, number, number]);\n } else if (rank === 4) {\n   slice4d(\n   xVals as TypedArray, xStrides[0], xStrides[1], xStrides[2], outVals,\n   begin_ as [number, number, number, number],\n   size_ as [number, number, number, number]);\n } else {\n   const res =\n   sliceImplCPU(xVals, begin_, size_, x.shape, x.dtype) as TypedArray;\n   outVals.set(res);\n }\n\n return out;\n}\n\nfunction slice2d(\n   xVals: backend_util.TypedArray, xStride: number,\n   outVals: backend_util.TypedArray, begin: [number, number],\n   size: [number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const endI = beginI + size[0];\n for (let i = beginI; i < endI; i++) {\n   const xOffset = i * xStride + beginJ;\n   outVals.set(xVals.subarray(xOffset, xOffset + size[1]), outOffset);\n   outOffset += size[1];\n }\n}\n\nfunction slice3d(\n   xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n   outVals: backend_util.TypedArray, begin: [number, number, number],\n   size: [number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n for (let i = beginI; i < endI; i++) {\n   for (let j = beginJ; j < endJ; j++) {\n   const xOffset = i * xStride1 + j * xStride2 + beginK;\n   outVals.set(xVals.subarray(xOffset,

xOffset + size[2]), outOffset);\n outOffset += size[2];\n }\n }\n}\n\nfunction slice4d(\n xVals: backend_util.TypedArray, xStride1: number, xStride2: number,\n xStride3: number, outVals: backend_util.TypedArray,\n
begin: [number, number, number, number],\n size: [number, number, number, number]): void {\n let outOffset = 0;\n const beginI = begin[0];\n const beginJ = begin[1];\n const beginK = begin[2];\n const endI = beginI + size[0];\n const endJ = beginJ + size[1];\n const endK = beginK + size[2];\n const beginL = begin[3];\n\n for (let i = beginI; i < endI; i++) {\n for (let j = beginJ; j < endJ; j++) {\n for (let k = beginK; k < endK; k++) {\n const xOffset = i * xStride1 + j * xStride2 + k * xStride3 + beginL;\n outVals.set(xVals.subarray(xOffset, xOffset + size[3]), outOffset);\n outOffset += size[3];\n }\n }\n }\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'wasm',\n kernelFunc: slice as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nfunction batchToSpaceND(args: {\n inputs: BatchToSpaceNDInputs,\n backend: BackendWasm,\n attrs: BatchToSpaceNDAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const xReshaped = reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const xTransposed =\n transpose({inputs: {x: xReshaped}, backend, attrs: {perm: permuted}});\n const xTransposedReshaped = reshape({\n inputs: {x: xTransposed}, backend, attrs: {shape: reshapedPermuted}});\n const result = slice({\n inputs: {x: xTransposedReshaped},\n backend,\n attrs: {begin: sliceBeginCoords,
size: sliceSize}\n });\n\n backend.disposeData(xReshaped.dataId);\n backend.disposeData(xTransposed.dataId);\n backend.disposeData(xReshaped.dataId);\n\n return result;\n}\n\nexport const batchToSpaceNDConfig: KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'wasm',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function cast(\n args: {inputs: CastInputs, attrs: CastAttrs, backend: BackendWasm}):\n TensorInfo {\n const {inputs: {x}, attrs: {dtype}, backend} = args;\n const out = backend.makeOutput(x.shape, dtype);\n const inVals =

backend.typedArrayFromHeap(x);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(inVals);\n return out;\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'wasm',\n kernelFunc: cast as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
 obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Ceil} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\n\nexport const ceilConfig: KernelConfig = createUnaryKernelConfig(Ceil);\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, KernelConfig, KernelFunc} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmClip: (xId: number, min:
number, max: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmClip =
backend.wasm.cwrap(ClipByValue, null /* void */, [\n   'number', // x_id\n   'number', // min\n   'number', //
max\n   'number'   // out_id\n]);\n}\n\nfunction clip(args: {\n inputs: ClipByValueInputs,\n backend:
BackendWasm,\n attrs: ClipByValueAttrs\n}) {\n const
 {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n const xId
= backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId =
backend.dataIdMap.get(out.dataId).id;\n wasmClip(xId, clipValueMin, clipValueMax, outId);\n return
out;\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName:
'wasm',\n setupFunc: setup,\n kernelFunc: clip as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n *
limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {concatImplCPU} from
'../kernel_utils/shared';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nexport function
concat(\n   args: {inputs: ConcatInputs, backend: BackendWasm, attrs: ConcatAttrs}) {\n const {inputs, backend}
= args;\n\n const axis = util.parseAxisParam(args.attrs.axis, inputs[0].shape)[0];\n\n let outShape =
backend_util.computeOutShape(inputs.map(t => t.shape), axis);\n\n // Keep only non-empty tensors (ignore tensors
with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length ===
 1) {\n   return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const out = backend.makeOutput(outShape,
inputs[0].dtype);\n\n if (util.sizeFromShape(outShape) === 0) {\n   return out;\n }\n\n const shapes =

$inputs.map(t => t.shape);\n backend_util.assertParamsConsistent(shapes, axis);\n\n if ($inputs[0].dtype === 'string') {\n   // Any concat of n-dimensional tensors across any axis can be reduced to\n   // a concatenation of two-dimensional tensors across the axis 1 by first\n   // partitioning the axes of the original tensors into those less than the\n   // axis to be concatenated and the rest. Then reshape the tensors\n   // into a two-dimensional tensor by collapsing these two sets of axes and\n   // concatenate the resulting matrices across the axis 1, finally reshaping\n   // the result to have the proper shape.\n   const inputs2D = $inputs.map(t => {\n   const innerSize = util.sizeFromShape(t.shape.slice(axis));\n   const shape = [-1, innerSize];\n   return reshape({inputs: {x: t}, backend, attrs: {shape}});\n   });\n\n   const inputsValShapes = inputs2D.map(t => {\n   return {vals: backend.readSync(t.dataId), shape: t.shape};\n   });\n\n   // Concats 2d tensors along axis=1.\n   outShape =\n   backend_util.computeOutShape(inputs2D.map(t => t.shape), 1 /* axis */);\n   const simplyConcat = inputs2D[0].shape[0] === 1;\n   const outVals = concatImplCPU(\n inputsValShapes, outShape, inputs[0].dtype,\n   simplyConcat) as string[];\n\n   const finalOutShape =\n   backend_util.computeOutShape($inputs.map(t => t.shape), axis);\n\n   out.shape = finalOutShape;\n   const outData = backend.dataIdMap.get(out.dataId);\n   outData.stringBytes = backend_util.fromStringArrayToUint8(outVals);\n\n   inputs2D.forEach(t => backend.disposeData(t.dataId));\n\n   return out;\n }\n\n const batchDim = util.sizeFromShape($inputs[0].shape.slice(0, axis));\n let sumInnerDims = 0;\n const innerDims = $inputs.map(input => {\n   const innerDim = util.sizeFromShape(input.shape.slice(axis));\n   sumInnerDims += innerDim;\n   return innerDim;\n });\n const inVals = $inputs.map(input => backend.typedArrayFromHeap(input));\n const outVals = backend.typedArrayFromHeap(out);\n for (let b = 0; b < batchDim; b++) {\n   let outOffset = b * sumInnerDims;\n   for (let i = 0; i < inVals.length; i++) {\n   const innerDim = innerDims[i];\n   const inOffset = b * innerDim;\n   const vals = inVals[i].subarray(inOffset, inOffset + innerDim);\n   outVals.set(vals, outOffset);\n   outOffset += innerDim;\n   }\n }\n return out;\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'wasm',\n kernelFunc: concat as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport { backend_util, util } from '@tensorflow/tfjs-core';\nexport function concatImpl(inputs, outShape, dtype, simplyConcat) {\n   const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n   if (simplyConcat && dtype !== 'string') {\n   // Use built-in TypedArray.set() method for speed.\n   let offset = 0;\n   inputs.forEach(input => {\n   const size = util.sizeFromShape(input.shape);\n   outVals.set(input.vals, offset);\n   offset += size;\n   });\n   }\n   else {\n   let colOffset = 0;\n   inputs.forEach(input => {\n   const decodedData = dtype === 'string' ?\n   backend_util.fromUint8ToStringArray(input.vals) :\n   input.vals;\n   let tIdx = 0;\n   for (let row = 0; row < input.shape[0]; ++row) {\n   const resIdx = row * outShape[1] + colOffset;\n   for (let col = 0; col < input.shape[1]; ++col) {\n   outVals[resIdx + col] = decodedData[tIdx++];\n   }\n   }\n   colOffset += input.shape[1];\n   });\n   }\n   return outVals;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiQ29uY2F0X2ltcGwuanMiLCJzb3VyY2VSb290IjoiIiwic291cmNlcyI6WyIuLi8uLi8uLi8uLi8uLi8uLi90ZmpzLWJhY2tlbmQtY3B1L3NyYy9rZXJuZWxzL0NvbmNhdF9pbXBsLnRzIl0sIm5hbWVzIjpbXSwibWFwcGluZ3MiOiJBQUFBOzs7OztzOzs7OzsyOzs7OzsyOzs7Ozsy

xFQUFFLFlBQXFCO0lBQ3hDLE1BQU0sT0FBTyxHQUFHLElBQUksQ0FBQyxpQkFBaUIsQ0FBQyxLQUFLL
EVBQUUsSUFBSSxDQUFDLGFBQWEsQ0FBQyxRQUFRLENBQUMsQ0FBQyxDQUFDO0lBRTVFLElBQUk
sWUFBWSxJQUFJLEtBQUssS0FBSyxRQUFRLEVBQUU7UUFDdEMsa0RBQWtEO1FBQ2xELElBQUksTUFB
TSxHQUFHLENBQUMsQ0FBQztRQUNmLE9BQU0sTUFBTSxHQUFHLENBQUMsQ0FBQyxPQUFPLEVBQUU
U7WUFDckIsTUFBTSxJQUFJLEdBQUcsSUFBSSxDQUFDLGFBQWEsQ0FBQyxLQUFLLENBQUMsS0FBSy
xDQUFDLENBQUM7NUMsT0FBc0IsQ0FBQyxHQUFHLENBQUMsQ0FBQyxDQUFDLElBQUksRUFBRSIsT
QUUsTUFBTSxTQUFTLElBQUksQ0FBQyxhQUFhLENBQUMsS0FBSyxDQUFDLEtBQUssRUFBRSIsT
QUUsTUFBTSxTQUFTLElBQUksQ0FBQyxhQUFhLENBQUMsS0FBSyxDQUFDLEtBQUssRUFBRSIsT
ENBQUM7WUFFNUMsT0FBc0IsQ0FBQyxHQUFHLENBQUMsQ0FBQyxDQUFDLElBQUksRUFBRSIsT
CLElBQUksSUFBSSxHQUFHLENBQUMsQ0FBQztZQUVoQixPQUFPLEVBQUU7WUFDVCxNQUFNLEVBQUU
QUFFLEdBQUcsR0FBRyxxLQUFLLENBQUMsS0FBSyxDQUFDLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQ
BRyxxFQUFFO2dCQUM3QyxNLE1BQU0sR0FBRyxHQUFHLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQyxDQUFDLENBQUMsQ
0FBQyxxHQUFHLFNBQVMsQ0FBQztnQkFDdEIsSUFBSSxHQUFHLENBQUMsR0FBRyxDQUFDLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQyxCQUFBQUUsR
FBRyxxHQUFHLHLEtBQUssQ0FBQyxLQUFLLENBQUMsQ0FBQyxDQUFDLENBQUMsQ0FBQyxCQUFBQUEsRUFBRSIsT
QUU7b0JBQzdDLE9BQU8sR0FBRyxxNQUFNLE1LEdBQUcsR0FBRyxDQUFDLENBQUMsR0FBRyxDQUFDLENBQUMsV0FBRyxDQUFDLENBQUMsV0FBRyxDQUFDLENBQUMsV

gICAgIGZvciAobGV0IGNvbCA9IDA7IGNvbCA8IGlucHV0LnNoYXBlWzFdOyArK2NvbCkge1xuICAgICAgICAgIG91dFZhbHNbcmVzSWR4ICsgY29sXSA9IGRlY29kZWREYXRhW3RJZHgrK107XG4gICAgICAgIH1cbiAgICAgIH1cblxuICAgICAgY29sT2Zmc2V0ICs9IGlucHV0LnNoYXBlWzFdO1xuICAgIH0pO1xuICB9XG5cbiAgcmV0dXJuIG91dFZhbHM7XG59XG4iXX0=","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util,
 Conv2D, Conv2DAttrs, Conv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmConv2d = backend.wasm.cwrap(Conv2D, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n 'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n 'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n
    'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction conv2d(\n   args: {inputs: Conv2DInputs, backend: BackendWasm, attrs: Conv2DAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode, dataFormat} = attrs;\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n   pad, dimRoundingMode, false, $dataFormat);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n
  const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend Conv2D does not support dataFormat:` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight,
 dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport
{backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmConv2DBackpropInput: (\n dyId: number, filterId: number, batchSize: number, filterHeight: number,\n filterWidth: number, inHeight: number, inWidth: number, inChannels: number,\n outHeight: number, outWidth: number, outChannels: number,\n strideHeight: number, strideWidth: number, topPad: number, leftPad: number,\n fltS0: number, fltS1: number, fltS2: number, xBatchStride: number,\n xRowStride: number, xColStride: number, xChannelStride: number,\n yBatchStride: number, yRowStride: number, yColStride: number,\n yChannelStride: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmConv2DBackpropInput = backend.wasm.cwrap(Conv2DBackpropInput, null, [\n 'number', // dyId\n 'number', // filterId\n 'number',
// batchSize\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // inHeight\n 'number', // inWidth\n 'number', // inChannels\n 'number', // outHeight\n 'number', // outWidth\n 'number', // outChannels\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // topPad\n 'number', // leftPad\n 'number', // fltS0\n 'number', // fltS1\n 'number', // fltS2\n 'number', // xBatchStride\n 'number', // xRowStride\n 'number', // xColStride\n 'number', // xChannelStride\n 'number', // yBatchStride\n 'number', // yRowStride\n 'number', // yColStride\n 'number', // yChannelStride\n 'number', // outId\n]);\n}\n\nfunction conv2DBackpropInput(args: {\n backend: BackendWasm,\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, pad, dataFormat,
dimRoundingMode, inputShape} = attrs;\n\n const dilations = 1;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n dilations, pad, dimRoundingMode, false /* depthwise */, $dataFormat);\n const {\n batchSize,\n filterHeight,\n filterWidth,\n inChannels,\n inHeight,\n inWidth,\n outChannels,\n outHeight,\n outWidth,\n strideHeight,\n strideWidth\n } = convInfo;\n\n const topPad = filterHeight - 1 - convInfo.padInfo.top;\n const leftPad = filterWidth - 1 - convInfo.padInfo.left;\n\n const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n const dxStrides = util.computeStrides(convInfo.inShape);\n const dyStrides = util.computeStrides(dy.shape);\n const [fltS0, fltS1, fltS2] = util.computeStrides(filter.shape);\n const xBatchStride = dxStrides[0];\n const xRowStride = isChannelsLast
? dxStrides[1] : dxStrides[2];\n const xColStride = isChannelsLast ? dxStrides[2] : 1;\n const xChannelStride = isChannelsLast ? 1 : dxStrides[1];\n const yBatchStride = dyStrides[0];\n const yRowStride = isChannelsLast ? dyStrides[1] : dyStrides[2];\n const yColStride = isChannelsLast ? dyStrides[2] : 1;\n const yChannelStride = isChannelsLast ? 1 : dyStrides[1];\n\n const out = backend.makeOutput(convInfo.inShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const dyId = backend.dataIdMap.get(dy.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n wasmConv2DBackpropInput(\n dyId, filterId, batchSize,
filterHeight, filterWidth, inHeight, inWidth,\n inChannels, outHeight, outWidth, outChannels, strideHeight,
strideWidth,\n topPad, leftPad, fltS0, fltS1, fltS2, xBatchStride, xRowStride,\n xColStride, xChannelStride,
yBatchStride, yRowStride, yColStride,\n yChannelStride, outId);\n return out;\n}\n\nexport
const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: conv2DBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or

agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const cosConfig: KernelConfig = createUnaryKernelConfig(Cos);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const coshConfig: KernelConfig = createUnaryKernelConfig(Cosh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\n// Must match enum in CropAndResize.cc\nenum InterpolationMethod {\n bilinear = 0,\n nearest = 1\n}\n\nlet wasmCropAndResize: (\n imagesId: number, boxesId: number, boxIndId: number, numBoxes: number,\n imagesShape: Uint8Array, cropHeight: number, cropWidth: number,\n method: number, extrapolationValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmCropAndResize = backend.wasm.cwrap(CropAndResize, null /*void*/, [\n 'number', // imagesId\n 'number', // boxesId\n 'number', // boxIndId\n 'number', // numBoxes\n 'array', // images shape\n 'number', // cropHeight\n 'number', // cropWidth\n 'number', // method\n 'number', // extrapolation value\n 'number' // out id\n]);\n}\n\nfunction cropAndResize(args: {\n backend: BackendWasm,\n inputs: CropAndResizeInputs,\n attrs: CropAndResizeAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {method, extrapolationValue, cropSize} = attrs;\n const {image, boxes, boxInd} = inputs;\n\n const numBoxes = boxes.shape[0];\n\n const [cropHeight, cropWidth] = cropSize as [number, number];\n const outShape = [numBoxes, cropHeight, cropWidth, image.shape[3]];\n\n let imagesData = backend.dataIdMap.get(image.dataId);\n let castedData;\n if (image.dtype !== 'float32') {\n castedData = cast({backend, inputs: {x: image}, attrs: {dtype: 'float32'}});\n imagesData = backend.dataIdMap.get(castedData.dataId);\n }\n\n const imagesId = imagesData.id;\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const boxIndId = backend.dataIdMap.get(boxInd.dataId).id;\n\n const out = backend.makeOutput(outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imagesShapeBytes = new Uint8Array(new Int32Array(image.shape).buffer);\n\n wasmCropAndResize(\n imagesId, boxesId, boxIndId, numBoxes, imagesShapeBytes, cropHeight,\n cropWidth,\n InterpolationMethod[method as {} as keyof typeof InterpolationMethod],\n extrapolationValue, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const cropAndResizeConfig: KernelConfig = {\n kernelName: CropAndResize,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version

2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Cumsum, CumsumAttrs, CumsumInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nimport {transpose} from './Transpose';\n\nlet wasmCumsum: (xId: number, exclusive: number, reverse: number,\n finalDim: number, outId: number, dtype: CppDType) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmCumsum = backend.wasm.cwrap(Cumsum, null /* void */, [\n 'number', // x_id\n 'number', // exclusive\n 'number', // reverse\n 'number', // final_dim\n 'number', // out_id\n 'number' // dtype\n]);\n}\n\nexport function cumsum(\n args: {inputs: CumsumInputs, backend: BackendWasm, attrs: CumsumAttrs}):\nTensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n const xRank = x.shape.length;\n\n util.assert(x.dtype === 'float32' || x.dtype === 'int32',\n () => `cumsum does not support ${x.dtype} tensors in the WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n out = transpose(\n {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthToSpace: (\n xId: number, blockSize: number, channelsLast: number, xStrides: Uint8Array,\n xStridesLength: number, outputShape: Uint8Array, outputStrides: Uint8Array,\n outSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmDepthToSpace = backend.wasm.cwrap(DepthToSpace, null /*void*/, [\n 'number', // xId\n 'number', // blockSize\n 'number', // channelsLast\n 'array', // xStrides\n 'number', // xStridesLength\n 'array', // outputShape\n 'array', // outputStrides\n 'number', // outSize\n 'number', // outId\n]);\n}\n\nexport function depthToSpace(args: {\n backend: BackendWasm,\n inputs: DepthToSpaceInputs,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n const

{blockSize, dataFormat} = attrs;\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n   [batchSize, outputHeight, outputWidth, outputDepth] :\n   [batchSize, outputDepth, outputHeight, outputWidth];\n\n const out = backend.makeOutput(outputShape, 'float32');\n\n const xData = backend.dataIdMap.get(x.dataId);\n const xId = xData.id;\n const xStridesBytes
 =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n\n const outputShapeBytes = new Uint8Array(new Int32Array(outputShape).buffer);\n const outStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(outputShape)).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n const channelsLast = dataFormat === 'NHWC' ? 1 : 0;\n wasmDepthToSpace(\n   xId, blockSize, channelsLast, xStridesBytes, x.shape.length - 1,\n   outputShapeBytes, outStridesBytes, outputShape.length, outId);\n\n return out;\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n   xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n   filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n   padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n   dilationHeight: number, dilationWidth:
 number, strideHeight: number,\n   strideWidth: number, inputChannels: number, outputChannels: number,\n   outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n   backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n   'number', // xId\n   'number', // batchSize\n   'number', // inputHeight\n   'number', // inputWidth\n   'number', // filterId\n   'number', // filterHeight\n   'number', // filterWidth\n   'number', // padTop\n   'number', // padRight\n   'number', // padBottom\n   'number', // padLeft\n   'number', // isSamePad\n   'number', // dilationHeight\n   'number', // dilationWidth\n   'number', // strideHeight\n   'number', // strideWidth\n   'number', // inputChannels\n   'number', // outputChannels\n   'number', // outId\n   ]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n
  backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs, backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n   (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n   ($dilations as number | [number, number]), pad, dimRoundingMode,\n   true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n

const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n   throw new Error(\n   `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n   `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n   xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n   filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n   dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n   outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Elu, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const eluConfig: KernelConfig = createUnaryKernelConfig(Elu);\n","/**\n * @license\n * Copyright
 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Equal, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const equalConfig: KernelConfig =\n createBinaryKernelConfig(Equal, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright
 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const expConfig: KernelConfig = createUnaryKernelConfig(Exp, 'float32');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache
 License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from

'./Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: BackendWasm\n}) {\n const {inputs, attrs, backend} = args;\n const {input} = inputs;\n const {dim} = attrs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n   // Negative value is counted from the tail of rank.\n util.assert(\n   -(inputRank + 1) <= dim,\n   () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n    inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'wasm',\n kernelFunc: expandDims as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {Fill, FillAttrs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nexport function fill(args: {attrs: FillAttrs, backend: BackendWasm}) {\n const {attrs: {shape, value, dtype}, backend} = args;\n const out = backend.makeOutput(shape, dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(value as number);\n return out;\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'wasm',\n kernelFunc: fill as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {FlipLeftRight, FlipLeftRightInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFlipLeftRight: (\n   xId: number, batch: number, imageHeight: number, imageWidth: number,\n   numChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmFlipLeftRight = backend.wasm.cwrap(FlipLeftRight, null /* void */, [\n   'number', // xId\n   'number', // batch\n   'number', // imageHeight\n   'number', // imageWidth\n   'number', // numChannels\n   'number', // outId\n]);\n}\n\nexport function flipLeftRight(\n   args: {inputs: FlipLeftRightInputs, backend: BackendWasm}): TensorInfo {\n const {inputs, backend} = args;\n const {image} = inputs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n wasmFlipLeftRight(\n   imageId, batch, imageHeight, imageWidth, numChannels, outId);\n return out;\n}\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'wasm',\n kernelFunc: flipLeftRight as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

==========\n*/\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const floorConfig: KernelConfig = createUnaryKernelConfig(Floor);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {FloorDiv, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const floorDivConfig: KernelConfig =\n createBinaryKernelConfig(FloorDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\n\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmBatchNorm: (\n xId: number, meanId: number, varianceId: number, offsetId: number,\n scaleId: number, varianceEpsilon: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmBatchNorm = backend.wasm.cwrap(\n FusedBatchNorm, null /* void */,\n ['number', 'number', 'number', 'number', 'number', 'number', 'number']);\n}\n\nfunction fusedBatchNorm(args: {\n backend: BackendWasm,\n inputs: FusedBatchNormInputs,\n attrs: FusedBatchNormAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {varianceEpsilon} = attrs;\n const {x, mean, variance, offset, scale} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const meanId = backend.dataIdMap.get(mean.dataId).id;\n const varianceId = backend.dataIdMap.get(variance.dataId).id;\n const offsetId = offset != null ? backend.dataIdMap.get(offset.dataId).id : 0;\n const scaleId = scale != null ? backend.dataIdMap.get(scale.dataId).id : 0;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(x.shape) === 0) {\n return out;\n }\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmBatchNorm(\n xId, meanId, varianceId, offsetId, scaleId, varianceEpsilon, outId);\n return out;\n}\n\nexport const fusedBatchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedBatchNorm as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations\n under the License.\n *\n==========\n*/\n\n\nimport {backend_util, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport

{FusableActivation} from './types';\n\nlet wasmFusedConv2d:\n (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number,\n biasId: number, padTop: number, padRight: number, padBottom: number,\n padLeft: number, isSamePad: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, activation: number,\n preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n wasmFusedConv2d = backend.wasm.cwrap(FusedConv2D, null /*
void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // biasId\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // activation\n 'number', // preluActivationWeightsId\n 'number', // leakyreluAlpha\n 'number', // outId\n]);\n}\n\nfunction fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n backend: BackendWasm,\n attrs: FusedConv2DAttrs\n}) {\n const {inputs, attrs, backend} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n strides,\n pad,\n dilations,\n dataFormat,\n
dimRoundingMode,\n activation,\n leakyreluAlpha\n } = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode);\n\n const fusedActivation =\n FusableActivation[activation as {} as keyof typeof FusableActivation];\n if (fusedActivation == null) {\n throw new Error(\n `${activation} activation not yet supported for FusedConv2D ` +\n `in the wasm backend.`);\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n let biasId = 0;\n if (bias != null) {\n const biasData = backend.dataIdMap.get(bias.dataId);\n if (biasData.shape.length !== 1) {\n throw new Error(\n `FusedConv2D only supports rank-1 bias but got ` +\n `rank ${biasData.shape.length}.`);\n }\n if (biasData.shape[0] !== outputChannels)
{\n throw new Error(\n `FusedConv2D bias shape (${biasData.shape}) does not ` +\n `match the number of output channels (${outputChannels})`);\n }\n biasId = biasData.id;\n }\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n const batchSize = convInfo.batchSize;\n const inHeight = convInfo.inHeight;\n const inWidth = convInfo.inWidth;\n\n if (dataFormat !== 'NHWC') {\n throw new Error(\n `wasm backend FusedConv2D does not
support dataFormat:'` +\n `${dataFormat}'. Please use 'NHWC'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n const preluActivationWeightsId = preluActivationWeights == null ?\n 0 :\n backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedConv2d(\n xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n kernelName: FusedConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable

```
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport {backend_util, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {FusableActivation} from './types';\n\nlet wasmFusedDepthwiseConv2d:\n  (xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number,
 filterHeight: number, filterWidth: number,\n  biasId: number, padTop: number, padRight: number, padBottom: number,\n  padLeft: number, isSamePad: number, dilationHeight: number,\n  dilationWidth: number, strideHeight: number, strideWidth: number,\n  inputChannels: number, outputChannels: number, activation: number,\n  preluActivationWeightsId: number, leakyreluAlpha: number, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm) {\n  wasmFusedDepthwiseConv2d =\n backend.wasm.cwrap(FusedDepthwiseConv2D, null /* void */, [\n  'number',  // xId\n  'number',  // batchSize\n  'number',  // inputHeight\n  'number',  // inputWidth\n  'number',  // filterId\n  'number',  // filterHeight\n  'number',  // filterWidth\n  'number',  // biasId\n  'number',  // padTop\n  'number',  // padRight\n  'number',  // padBottom\n  'number',  // padLeft\n  'number',  // isSamePad\n  'number',
  // dilationHeight\n  'number',  // dilationWidth\n  'number',  // strideHeight\n  'number',  // strideWidth\n  'number',  // inputChannels\n  'number',  // outputChannels\n  'number',  // activation\n  'number',  // preluActivationWeightsId\n  'number',  // leakyreluAlpha\n  'number',  // outId\n ]);\n}\n\nfunction fusedDepthwiseConv2d(args: {\n  inputs: FusedDepthwiseConv2DInputs,\n  backend: BackendWasm,\n  attrs: FusedDepthwiseConv2DAttrs\n}) {\n  const {inputs, attrs, backend} = args;\n  const {x, filter, bias, preluActivationWeights} = inputs;\n  const {\n    strides,\n    pad,\n    dilations,\n    dataFormat,\n    dimRoundingMode,\n    activation,\n    leakyreluAlpha\n  } = attrs;\n\n  const convInfo = backend_util.computeConv2DInfo(\n      (x as Tensor4D).shape, (filter as Tensor4D).shape, strides, dilations,\n pad, dimRoundingMode, true /* depthwise */);\n\n  const fusedActivation =\n      FusableActivation[activation
  as {} as keyof typeof FusableActivation];\n  if (fusedActivation == null) {\n    throw new Error(\n `${activation} activation not yet supported for FusedDepthwiseConv2D ` +\n        `in the wasm backend.`);\n  }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n  const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const outputChannels = convInfo.outChannels;\n\n  let biasId = 0;\n  if (bias != null) {\n    const biasData = backend.dataIdMap.get(bias.dataId);\n    if (biasData.shape.length !== 1) {\n      throw new Error(\n `FusedDepthwiseConv2D only supports rank-1 bias but got ` +\n          `rank ${biasData.shape.length}.`);\n    }\n if (biasData.shape[0] !== outputChannels) {\n      throw new Error(\n          `FusedDepthwiseConv2D bias shape (${biasData.shape}) does not ` +\n          `match the number of output channels (${outputChannels})`);\n    }\n biasId = biasData.id;\n  }\n\n  const filterHeight = convInfo.filterHeight;\n  const
  filterWidth = convInfo.filterWidth;\n  const padTop = convInfo.padInfo.top;\n  const padRight = convInfo.padInfo.right;\n  const padBottom = convInfo.padInfo.bottom;\n  const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth = convInfo.dilationWidth;\n  const strideHeight = convInfo.strideHeight;\n  const strideWidth = convInfo.strideWidth;\n  const inputChannels = convInfo.inChannels;\n  const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n  const batchSize = convInfo.batchSize;\n  const inHeight = convInfo.inHeight;\n  const inWidth = convInfo.inWidth;\n\n  if (dataFormat !== 'NHWC') {\n    throw new Error(\n        `wasm backend FusedDepthwiseConv2D does not support dataFormat:'` +\n        `${dataFormat}'. Please use 'NHWC'.`);\n  }\n\n  const out = backend.makeOutput(convInfo.outShape, 'float32');\n  const outId = backend.dataIdMap.get(out.dataId).id;\n  const preluActivationWeightsId = preluActivationWeights ==
  null ?\n      0 :\n      backend.dataIdMap.get(preluActivationWeights.dataId).id;\n\n wasmFusedDepthwiseConv2d(\n      xId, batchSize, inHeight, inWidth, filterId, filterHeight, filterWidth,\n
```

biasId, padTop, padRight, padBottom, padLeft, isSamePad, dilationHeight,\n dilationWidth, strideHeight, strideWidth, inputChannels, outputChannels,\n fusedActivation, preluActivationWeightsId, leakyreluAlpha || 0, outId);\n\n return out;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: fusedDepthwiseConv2d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {gather_util, GatherNd, GatherNdInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmGatherNd: (\n xId: number, dtype: CppDType, indicesId: number, numSlices: number,\n sliceRank: number, sliceSize: number, strides: Uint8Array, outId: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGatherNd = backend.wasm.cwrap(GatherNd, null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'number', // indicesId\n 'number', // numSlices\n 'number', // sliceRank\n 'number', // sliceSize\n 'array', // strides\n 'number' // outId\n]);\n}\n\nfunction gatherNd(args: {backend: BackendWasm, inputs: GatherNdInputs}):\n TensorInfo {\n const {backend, inputs} = args;\n const {params, indices} = inputs;\n\n const [resultShape, numSlices, sliceSize, strides] =\n gather_util.prepareAndValidate(params, indices);\n\n const out = backend.makeOutput(resultShape, params.dtype);\n if (numSlices === 0) {\n return out;\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const xData = backend.dataIdMap.get(params.dataId);\n const xId = xData.id;\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmGatherNd(\n xId, CppDType[params.dtype], indicesId, numSlices, sliceRank, sliceSize,\n stridesBytes, outId);\n\n return out;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherNd\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, Tensor, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {reshape} from './Reshape';\nimport {CppDType} from './types';\n\nlet wasmGather: (\n xId: number, dtype: CppDType, xStrides: Uint8Array, stridesSize: number,\n indicesId: number, batchSize: number, outStrides: Uint8Array,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmGather = backend.wasm.cwrap('Gather', null /*void*/, [\n 'number', // xId\n 'number', // dtype\n 'array', // xStrides\n 'number', // stridesSize\n 'number', // indicesId\n 'number', // batchSize\n 'array', // outStrides\n 'number' // outId\n]);\n}\n\nfunction gatherV2(\n args: {backend: BackendWasm, inputs: GatherV2Inputs, attrs: GatherV2Attrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x, indices} = inputs;\n const {axis, batchDims} = attrs;\n\n // Throw error when any

index is out of bound.\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const indicesVals = backend.readSync(indices.dataId) as TypedArray;\n const axisDim = x.shape[parsedAxis];\n for (let i = 0; i < indicesVals.length; ++i) {\n   const index = indicesVals[i];\n   util.assert(\n   index <= axisDim - 1 && index >= 0,\n   () =>\n   `GatherV2: the index value ${index} is not in [0, ${axisDim - 1}]`);\n }\n\n const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n   x as Tensor, indices as Tensor, parsedAxis, batchDims);\n\n const flattenX = reshape({\n   inputs: {x},\n   attrs: {\n   shape: [\n   shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n   shapeInfo.sliceSize\n   ]\n   },\n   backend\n });\n const indicesSize = util.sizeFromShape(indices.shape);\n const flattenIndex = reshape({\n   inputs: {x: indices},\n   attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]},\n   backend\n });\n const flattenOutputShape = [\n   shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n   shapeInfo.sliceSize\n];\n\n const out = backend.makeOutput(flattenOutputShape, x.dtype);\n if (util.sizeFromShape(x.shape) === 0) {\n   return out;\n }\n const stridesSize = flattenX.shape.length - 1;\n\n const xData = backend.dataIdMap.get(flattenX.dataId);\n const xId = xData.id;\n\n const indicesData = backend.dataIdMap.get(flattenIndex.dataId);\n const indicesId = indicesData.id;\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const xStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(flattenX.shape)).buffer);\n const outStridesBytes = new Uint8Array(\n   new Int32Array(util.computeStrides(flattenOutputShape)).buffer);\n\n wasmGather(\n   xId, CppDType[x.dtype], xStridesBytes, stridesSize, indicesId,\n   shapeInfo.batchSize, outStridesBytes, outId);\n\n backend.disposeData(flattenX.dataId);\n backend.disposeData(flattenIndex.dataId);\n\n // reshape\n out.shape = shapeInfo.outputShape;\n return out;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterConfig: KernelConfig =\n createBinaryKernelConfig(Greater, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {GreaterEqual, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = false;\nexport const greaterEqualConfig: KernelConfig =\n createBinaryKernelConfig(GreaterEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n */\n\nimport {KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmFunc: (\n    xId: number, dtype: number, leakyreluAlpha: number, outId: number) => void;\n\nfunction setupFunc(backend: BackendWasm): void {\n  wasmFunc = backend.wasm.cwrap(LeakyRelu, null /* void */, [\n    'number',  // x_id\n    'number',  // dtype\n    'number',  // leakyrelu_alpha\n    'number',  // out_id\n  ]);\n}\n\nexport function leakyRelu(\n    args:\n        {inputs: LeakyReluInputs, attrs: LeakyReluAttrs, backend: BackendWasm}):\n    TensorInfo {\n  const {inputs: {x}, attrs: {alpha}, backend} = args;\n\n  const xId = backend.dataIdMap.get(x.dataId).id;\n  // According to TF API, LeakyRelu returns float32 when input is either float32\n  // or int32.\n  const out = backend.makeOutput(x.shape, 'float32');\n\n  if (util.sizeFromShape(x.shape) !== 0) {\n    const outId = backend.dataIdMap.get(out.dataId).id;\n    wasmFunc(xId, CppDType[x.dtype], alpha, outId);\n  }\n\n  return out;\n}\n\nexport const leakyReluConfig: KernelConfig = {\n  kernelName: LeakyRelu,\n  backendName: 'wasm',\n  setupFunc,\n  kernelFunc: leakyRelu as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessConfig: KernelConfig =\n createBinaryKernelConfig(Less, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const lessEqualConfig: KernelConfig =\n createBinaryKernelConfig(LessEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const logConfig: KernelConfig = createUnaryKernelConfig(Log);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
```

==========\n
*/\nimport {KernelConfig, LogicalAnd}
from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst
supportsFullBroadcast = false;\nexport const logicalAndConfig: KernelConfig =\n
createBinaryKernelConfig(LogicalAnd, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util,
KernelConfig, KernelFunc, Max, MaxAttrs, MaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport
{CppDType} from './types';\n\nlet wasmMax: (xId: number, dtype: number, reduceSize: number, outId: number)
=>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMax = backend.wasm.cwrap(Max, null
/*void*/, [\n 'number', // x_id\n 'number', // dtype\n 'number', // reduce_size\n 'number', // out_id\n
]);\n}\n\nfunction max(args: {backend: BackendWasm, inputs: MaxInputs, attrs: MaxAttrs}):\n TensorInfo {\n
const {backend, inputs, attrs} = args;\n const {reductionIndices: axis, keepDims} = attrs;\n const {x} = inputs;\n
const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes,
originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if
(inputWasTransposed)
{\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n input = transposed;\n inputId =
transposedId;\n }\n\n const inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('max',
axes, inputRank);\n const [outShape, reduceShape] =\n
backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize =
util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmMax(inputId, CppDType[x.dtype], reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the
transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const
newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n
return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n
backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig:
KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Mean, MeanAttrs, MeanInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {cast} from './Cast';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nlet wasmMean: (xId: number, reduceSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMean =\n backend.wasm.cwrap(Mean, null /*void*/, ['number, number, number']);\n}\n\nexport function mean(\n args: {backend: BackendWasm, inputs: MeanInputs, attrs: MeanAttrs}):\n TensorInfo {\n const {backend, inputs,

attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n
    // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n
    inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'mean', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput =\n cast({backend, inputs: {x: input}, attrs: {dtype: 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMean(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n
    // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n if (input.dtype !== 'float32') {\n   backend.disposeData(castedInput.dataId);\n }\n\n return out;\n}\n\nexport const meanConfig: KernelConfig = {\n kernelName: Mean,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: mean as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmMin: (xId: number, dtype: number, reduceSize: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmMin = backend.wasm.cwrap(Min, null /*void*/, [\n   'number', // x_id\n 'number', // dtype\n   'number', // reduce_size\n   'number', // out_id\n]);\n}\n\nfunction min(args: {backend: BackendWasm, inputs: MinInputs, attrs: MinAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x}
 = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n   permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   }\n }\n\n const inputRank = input.shape.length;\n\n backend_util.assertAxesAreInnerMostDims('min', axes, inputRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, axes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmMin(inputId, CppDType[x.dtype], reduceSize,
 outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape =

backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const minimumConfig: KernelConfig =\n createBinaryKernelConfig(Minimum, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
 the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\n// Must match enum in MirrorPad.cc\nenum MirrorPaddingMode {\n reflect = 0,\n symmetric = 1\n}\n\nlet wasmMirrorPad: (\n xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array, mode: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMirrorPad = backend.wasm.cwrap(MirrorPad, null / void */, [\n 'number', // xId\n 'array', // x.shape\n 'number', // x.shape.length\n 'number', // x.dtype\n 'array', // pre-paddings\n 'array', // post-paddings\n 'number', //
 mode\n 'number', // outId\n]);\n}\n\nfunction mirrorPad(args: {\n inputs: MirrorPadInputs,\n backend: BackendWasm,\n attrs: MirrorPadAttrs\n}) {\n const {inputs: {x}, backend, attrs: {paddings, mode}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new Int32Array(postPaddingsFlat).buffer);\n\n wasmMirrorPad(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes,
 MirrorPaddingMode[mode], outId);\n return out;\n}\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'wasm',\n kernelFunc: mirrorPad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n*/\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n*/\n\nimport {BackendWasm} from '../backend_wasm';\n\n// Analogous to `struct Result` in `non_max_suppression_impl.h`.\ninterface Result {\n pSelectedIndices: number;\n selectedSize: number;\n pSelectedScores: number;\n pValidOutputs: number;\n}\n\n/**\n * Parse the result of the c++ method, which has the shape equivalent to\n * `Result`.\n */\nexport function parseResultStruct(\n backend: BackendWasm, resOffset: number): Result {\n const result = new Int32Array(backend.wasm.HEAPU8.buffer, resOffset, 4);\n const pSelectedIndices = result[0];\n const selectedSize = result[1];\n const pSelectedScores = result[2];\n const pValidOutputs = result[3];\n // Since the result was allocated on the heap, we have to delete it.\n backend.wasm._free(resOffset);\n return {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs};\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n iouThreshold: number, scoreThreshold: number) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV3,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV3Inputs,\n attrs: NonMaxSuppressionV3Attrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId =

backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset =\n   wasmFunc(boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V3, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor
 =\n   backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n return selectedIndicesTensor;\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 /\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc: (\n boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number,\n padToMaxOutputSize: boolean) => number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n   NonMaxSuppressionV4,\n   'number', // Result\n   [\n   'number', // boxesId\n 'number', // scoresId\n   'number', // maxOutputSize\n   'number', // iouThreshold\n   'number', // scoreThreshold\n   'bool',   // padToMaxOutputSize\n   ]);\n}\n\nfunction nonMaxSuppressionV4(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV4Inputs,\n attrs: NonMaxSuppressionV4Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, padToMaxOutputSize} =\n   attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n   boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n padToMaxOutputSize);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using scores for V4, we have to delete it from the heap.\n backend.wasm._free(pSelectedScores);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n\n const validOutputsTensor = backend.makeOutput([], 'int32', pValidOutputs);\n\n return [selectedIndicesTensor, validOutputsTensor];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {parseResultStruct} from './NonMaxSuppression_util';\n\nlet wasmFunc:\n   (boxesId: number, scoresId: number, maxOutputSize: number,\n   iouThreshold: number,

scoreThreshold: number, softNmsSigma: number) =>\n number;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(\n NonMaxSuppressionV5,\n 'number', // Result*\n [\n 'number', // boxesId\n 'number', // scoresId\n 'number', // maxOutputSize\n 'number', // iouThreshold\n 'number', // scoreThreshold\n 'number', // softNmsSigma\n]);\n}\n\nfunction kernelFunc(args: {\n backend: BackendWasm,\n inputs: NonMaxSuppressionV5Inputs,\n attrs: NonMaxSuppressionV5Attrs\n}): TensorInfo[] {\n const {backend, inputs, attrs} = args;\n const {iouThreshold, maxOutputSize, scoreThreshold, softNmsSigma} = attrs;\n const {boxes, scores} = inputs;\n\n const boxesId = backend.dataIdMap.get(boxes.dataId).id;\n
const scoresId = backend.dataIdMap.get(scores.dataId).id;\n\n const resOffset = wasmFunc(\n boxesId, scoresId, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n\n const {pSelectedIndices, selectedSize, pSelectedScores, pValidOutputs} =\n parseResultStruct(backend, resOffset);\n\n // Since we are not using validOutputs for V5, we have to delete it from the\n // heap.\n backend.wasm._free(pValidOutputs);\n\n const selectedIndicesTensor =\n backend.makeOutput([selectedSize], 'int32', pSelectedIndices);\n const selectedScoresTensor =\n backend.makeOutput([selectedSize], 'float32', pSelectedScores);\n\n return [selectedIndicesTensor, selectedScoresTensor];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: kernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmOneHot: (\n indicesId: number, depth: number, onValue: number, offValue: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmOneHot
= backend.wasm.cwrap(OneHot, null /* void */, [\n 'number', // indices_id\n 'number', // depth,\n 'number', // onValue\n 'number', // offValue\n 'number' // out_id\n]);\n}\n\nfunction oneHot(\n args: {inputs: OneHotInputs, attrs: OneHotAttrs, backend: BackendWasm}) {\n const {inputs, backend, attrs} = args;\n const {indices} = inputs;\n const {depth, onValue, offValue} = attrs;\n\n const out = backend.makeOutput([...indices.shape, depth], 'int32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n wasmOneHot(indicesId, depth, onValue, offValue, outId);\n\n return out;\n}\n\nexport const oneHotConfig: KernelConfig = {\n kernelName: OneHot,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: oneHot as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed

under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction onesLike(args: {inputs: OnesLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(1);\n return
out;\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'wasm',\n kernelFunc: onesLike as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport
{BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n   args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n   return expandDims(\n   {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n   util.assertShapesMatch(\n   shape, t.shape,\n   'All tensors passed to stack must have matching shapes');\n   util.assert(\n   dtype === t.dtype,\n   () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n   const expandedT =\n   expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n   intermediateTensorInfos.push(expandedT);\n   return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==========\n */\n\nimport {KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {fill} from './Fill';\n\nimport {CppDType} from './types';\n\nlet wasmPadV2: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number, xDtype: number,\n   prePaddingsBytes: Uint8Array, postPaddingsBytes: Uint8Array,\n   constantValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPadV2 = backend.wasm.cwrap(PadV2, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n

'array', // pre-paddings\n 'array', // post-paddings\n 'number', // constantValue\n 'number', // outId\n]);\n}\n\nfunction pad(\n args: {inputs: PadV2Inputs, backend: BackendWasm, attrs: PadV2Attrs}) {\n const {inputs: {x}, backend, attrs:
 {paddings, constantValue}} = args;\n\n const outShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + x.shape[i] + p[1] /* afterPad */);\n\n if (util.sizeFromShape(x.shape) === 0) {\n   // Short-circuit the computation, since x doesn't have value, only\n   // the shape is used to compute output shape to pad.\n   return fill({\n backend,\n   attrs: {shape: outShape, value: constantValue, dtype: x.dtype}\n   });\n }\n\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(outShape, x.dtype);\n const outTensorData = backend.dataIdMap.get(out.dataId);\n const outId = outTensorData.id;\n\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n const prePaddingsFlat = paddings.map(padTuple => padTuple[0]);\n const postPaddingsFlat = paddings.map(padTuple => padTuple[1]);\n const prePaddingsBytes =\n   new Uint8Array(new Int32Array(prePaddingsFlat).buffer);\n const postPaddingsBytes =\n   new Uint8Array(new
 Int32Array(postPaddingsFlat).buffer);\n\n wasmPadV2(\n   xId, xShapeBytes, x.shape.length, CppDType[x.dtype], prePaddingsBytes,\n   postPaddingsBytes, constantValue, outId);\n return out;\n}\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'wasm',\n kernelFunc: pad as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\nimport {KernelConfig, Pow} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const powConfig: KernelConfig =\n createBinaryKernelConfig(Pow, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n */\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu = backend.wasm.cwrap(Prelu, null /* void */, [\n   'number', // x_id\n   'number', // weights_id\n   'number'   // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n   castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n   inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n
  const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n   backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the

Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {permuteAxesAndTranspose} from './kernel_utils';\n\nimport {CppDType} from './types';\n\nlet wasmProd: (\n xId: number, reduceSize: number,\n dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmProd = backend.wasm.cwrap(Prod, null /*void*/, [\n 'number',\n 'number',\n 'number',\n 'number'\n]);\n}\n\nfunction prod(args: {\n backend: BackendWasm,\n inputs: ProdInputs,\n attrs: ProdAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const
{transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n 'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmProd(inputId, reduceSize,
CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n (args: {backend: BackendWasm, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} = args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step, dtype);\n\n const out = backend.makeOutput([values.length], dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.set(values);\n return out;\n };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'wasm',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright
2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport { util } from '@tensorflow/tfjs-core';\nexport function rangeImpl(start, stop, step, dtype) {\n   const sameStartStop = start === stop;\n   const increasingRangeNegativeStep = start < stop && step < 0;\n   const decreasingRangePositiveStep = stop < start && step > 1;\n   if (sameStartStop || increasingRangeNegativeStep ||\n   decreasingRangePositiveStep) {\n   return util.makeZerosTypedArray(0, dtype);\n   }\n   const numElements = Math.abs(Math.ceil((stop - start) / step));\n   const values = util.makeZerosTypedArray(numElements, dtype);\n   if (stop < start && step === 1) {\n   // Auto adjust the step's sign if it hasn't been set\n   // (or was set to 1)\n   step = -1;\n   }\n   values[0] = start;\n   for (let i = 1; i < values.length; i++) {\n   values[i] = values[i - 1] + step;\n   }\n   return values;\n}\n//# sourceMappingURL=data:application/json; base64,eyJ2ZXJzaW9uIjozLCJmaWxlIjoiUmFuZ2VfaW1wbC5qcyIsInNvdXJjZVJvb3QiOiIiLCJzb3VyY2VzIjpbIi4uLy4uLy4uLy4uLy4uLy4uL3RmanMtYmFja2VuZC1jcHUvc3JjL3tlcm5lbHMvUmFuZ2VfaW1wbC50cyJdLCJuYW1lcyI6W10sIm1hcHBpbmdzIjoiQUFBQTs7Ozs7Ozs7Ozs7O0dBZUc7QUFFSCxPQUFPLEVBQUUsSUFBSSxFQUFFLE1BQU0sc0JBQXNCLENBQUM7QUFFdEQsTUFBTSxVQUFVLFNBQVMsQ0FBQyxLQUFhLEVBQUUsSUFBWSxFQUFFLElBQVksRUFBRSxLQUFlO0lBQ3BGLE1BQU0sYUFBYSxHQUFHLEtBQUssS0FBSyxJQUFJLENBQUM7SUFDckMsTUFBTSwyQkFBMkIsR0FBRyxLQUFLLEdBQUcsSUFBSSxJQUFJLEdBQUcsQ0FBQyxDQUFDO0lBQ3pELE1BQU0sMkJBQTJCLEdBQUcsSUFBSSxHQUFHLEtBQUssSUFBSSxJQUFJLEdBQUcsQ0FBQyxDQUFDO0lBQzdELElBQUksQ0FBQyxhQUFhO1FBQUcsMkJBQTJCO1FBQUcsMkJBQTJCLEVBQUU7UUFDbEUsT0FBTyxJQUFJLENBQUMsb0JBQW9CLENBQUMsQ0FBQyxFQUFFLEtBQUssQ0FBQyxDQUFDO0tBQzlDO0lBQ0QsTUFBTSxZQUFZLEdBQUcsSUFBSSxDQUFDLEdBQUcsQ0FBQyxJQUFJLENBQUMsSUFBSSxDQUFDLENBQUMsSUFBSSxHQUFHLEtBQUssQ0FBQyxHQUFHLElBQUksQ0FBQyxDQUFDLENBQUM7SUFDOUQsTUFBTSxNQUFNLEdBQUcsSUFBSSxDQUFDLG9CQUFvQixDQUFDLFlBQVksRUFBRSxLQUFLLENBQUMsQ0FBQztJQUM5RCxJQUFJLElBQUksR0FBRyxLQUFLLElBQUksSUFBSSxLQUFLLENBQUMsRUFBRTtRQUM5QixnRUFBZ0U7UUFDaEUsMkJBQTJCO1FBQzNCLElBQUksR0FBRyxDQUFDLENBQUMsQ0FBQztLQUNYO0lBQ0QsTUFBTSxDQUFDLENBQUMsQ0FBQyxHQUFHLEtBQUssQ0FBQztJQUNsQixLQUFLLElBQUksQ0FBQyxHQUFHLENBQUMsRUFBRSxDQUFDLEdBQUcsTUFBTSxDQUFDLE1BQU0sRUFBRSxDQUFDLEVBQUUsRUFBRTtRQUN0QyxNQUFNLENBQUMsQ0FBQyxDQUFDLEdBQUcsTUFBTSxDQUFDLENBQUMsR0FBRyxDQUFDLENBQUMsR0FBRyxJQUFJLENBQUM7S0FDakM7SUFDRCxPQUFPLE1BQU0sQ0FBQztBQUNoQixDQUFDIn0=

2luZ1JhbmdlTmVnYXRpdmVTdGVwID0gc3RhcnQgPCBzdG9wICYmIHN0ZXAgPCAwO1xuICBjb25zdCBkZWNyZWFzaW5nUmFuZ2VQb3NpdGl2ZVN0ZXAgPSBzdG9wIDwgc3RhcnQgJiYgc3RlcCA+IDE7XG5cbiAgaWYgKHNhbWVTdGFydFN0b3AgfHwgaW5jcmVhc2luZ1JhbmdlVmVnYXRpdmVTdGVwIHx8XG4gIGRlY3JlYXNpbmdSYW5nZVBvc2l0aXZlU3RlcCkge1xuICAgIHRcbiAgICByZXR1cm4gW107XG4gIH1cblxuICBjb25zdCBzaXplID0gTWF0aC5hYnMoTWF0aC5jZWlsKChzdG9wIC0gc3RhcnQpIC8gc3RlcCkpO1xuICBjb25zdCB2YWx1ZXMgPSBuZXcgRmxvYXQzMkFycmF5KHNpemUpO1xuXG4gIGZvciAobGV0IGkgPSAwOyBpIDwgc2l6ZTsgKytpKSB7XG4gICAgdmFsdWVzW2ldID0gc3RhcnQgKyBpICogc3RlcDtcbiAgfVxuXG4gIHJldHVybiB2YWx1ZXM7XG59O1xuXG5leHBvcnQgY29uc3QgcmFuZ2VDb25maWcgPSB7XG4gIGtlcm5lbE5hbWU6IFJhbmdlLFxuICBiYWNrZW5kOiAnY3B1JyxcbiAgZnVuYzogcmFuZ2UsXG59O1xuXG5leHBvcnQgY29uc3QgcmFuZ2VDb25maWdHcHUgPSB7XG4gIGtlcm5lbE5hbWU6IFJhbmdlLFxuICBiYWNrZW5kOiAnd2ViZ2wnLFxuICBmdW5jOiByYW5nZSxcbn07
","/**\n
 * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {KernelConfig, RealDiv} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const realDivConfig: KernelConfig =\n createBinaryKernelConfig(RealDiv, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\nimport {KernelConfig, Relu} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const reluConfig: KernelConfig = createUnaryKernelConfig(Relu);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Relu6} from '@tensorflow/tfjs-core';\n\nimport
 {createUnaryKernelConfig} from './unary_kernel';\nexport const relu6Config: KernelConfig =
createUnaryKernelConfig(Relu6);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\n\nimport {KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmResizeBilinear: (\n xId: number, batch: number, oldHeight: number, oldWidth: number,\n numChannels: number, newHeight: number, newWidth: number,\n alignCorners: number, halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n 'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number', // alignCorners\n 'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\nlet wasmReverse: (\n xId: number, axes: Uint8Array, axesLength: number, outShape: Uint8Array,\n outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmReverse = backend.wasm.cwrap(Reverse, null, [\n 'number', // x_id\n 'array', // axes\n 'number', // axes_length\n 'array', // out_shape\n 'number', // out_shape_length\n 'number' // out_id\n]);\n}\n\nexport function reverse(\n args: {inputs: ReverseInputs, backend: BackendWasm, attrs: ReverseAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dims} = attrs;\n\n const axes = util.parseAxisParam(dims, x.shape);\n\n if (x.shape.length === 0) {\n return identity({inputs: {x}, backend});\n }\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const xId = backend.dataIdMap.get(x.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const axesBytes = new Uint8Array(new Int32Array(axes).buffer);\n const outShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n\n wasmReverse(\n xId, axesBytes, axes.length, outShapeBytes, x.shape.length, outId);\n\n const reshaped = reshape({inputs: {x: out}, attrs: {shape: x.shape}, backend});\n\n backend.disposeData(out.dataId);\n return reshaped;\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'wasm',\n kernelFunc: reverse as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, KernelFunc, RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmRotate: (\n xId: number, batch: number, imageHeight: number, imageWidth: number,\n numChannels: number, radians: number, centerX: number, centerY: number,\n fillBytes: Uint8Array, fillLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmRotate = backend.wasm.cwrap(RotateWithOffset, null /* void */, [\n 'number', // xId\n 'number', // batch\n 'number', // imageHeight\n 'number', // imageWidth\n 'number', // numChannels\n 'number', // radians\n 'number', // centerX\n 'number', // centerY\n 'array', // fillBytes\n 'number', // fillLength\n 'number', // outId\n]);\n}\n\nexport function rotateWithOffset(args: {\n inputs: RotateWithOffsetInputs,\n backend: BackendWasm,\n attrs: RotateWithOffsetAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {image} = inputs;\n const {radians, fillValue, center} = attrs;\n\n const out = backend.makeOutput(image.shape, image.dtype);\n const imageId = backend.dataIdMap.get(image.dataId).id;\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n\n const [centerX, centerY] =\n backend_util.getImageCenter(center, imageHeight, imageWidth);\n\n const fillIsBlack = fillValue === 0;\n const fullOpacityValue = 255;\n\n const fillValues = typeof fillValue === 'number' ?\n [fillValue, fillValue, fillValue, fillIsBlack ? 0 : fullOpacityValue] :\n [...fillValue, fullOpacityValue];\n const fillBytes = new Uint8Array(new Int32Array(fillValues).buffer);\n\n wasmRotate(\n imageId, batch, imageHeight, imageWidth, numChannels, radians, centerX,\n centerY, fillBytes, fillValues.length, outId);\n return out;\n}\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'wasm',\n kernelFunc: rotateWithOffset as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR
CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const roundConfig: KernelConfig = createUnaryKernelConfig(Round);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const rsqrtConfig: KernelConfig = createUnaryKernelConfig(Rsqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a

copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\n\nimport {KernelConfig, KernelFunc, scatter_util, ScatterNd, ScatterNdAttrs, ScatterNdInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmScatterNd: (\n indicesId: number, updatesId: number, dtype: CppDType, sliceRank: number,\n numUpdates: number, sliceSize: number, strides: Uint8Array,\n outputSize: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmScatterNd = backend.wasm.cwrap(ScatterNd, null /*void*/, [\n   'number', // indicesId\n   'number', // updatesId\n   'number', // dtype\n   'number', // sliceRank\n   'number', // numUpdates\n   'number', // sliceSize\n   'array',   // strides\n   'number', // outputSize\n   'number'   // outId\n]);\n}\n\nfunction scatterNd(\n args:\n   {backend: BackendWasm, inputs: ScatterNdInputs, attrs:
 ScatterNdAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const out = backend.makeOutput(shape, updates.dtype);\n if (util.sizeFromShape(shape) === 0) {\n   return out;\n }\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n   scatter_util.calculateShapes(updates, indices, shape);\n\n const indicesData = backend.dataIdMap.get(indices.dataId);\n const indicesId = indicesData.id;\n\n const updatesData = backend.dataIdMap.get(updates.dataId);\n const updatesId = updatesData.id;\n\n const stridesBytes = new Uint8Array(new Int32Array(strides).buffer);\n\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmScatterNd(\n   indicesId, updatesId, CppDType[updates.dtype], sliceRank, numUpdates,\n   sliceSize, stridesBytes, outputSize, outId);\n\n return out;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'wasm',\n
  setupFunc: setup,\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 * ==\n
*/\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmSelect: (\n conditionId: number, tId: number,
  eId: number, offset: number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmSelect = backend.wasm.cwrap('SelectV2', null, [\n   'number', // conditionId\n   'number', // tId\n   'number', // eId\n   'number', // offset\n   'number', // outId\n]);\n}\n\nfunction select(args: {inputs: SelectInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const conditionId = backend.dataIdMap.get(condition.dataId).id;\n const tId = backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n   1 :\n   util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const
 selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Sigmoid, SigmoidInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm}
from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Sigmoid, null /* void */, ['number', 'number']);\n}\n\nfunction sigmoid(args: {backend: BackendWasm, inputs: SigmoidInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId);\n return out;\n}\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: 'Sigmoid',\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: sigmoid as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sinConfig: KernelConfig = createUnaryKernelConfig(Sin);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n
* http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmFunc: (xId: number, outId: number, channels: number, batch: number) =>\n void;\n\nfunction setup(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(Softmax, null /* void */, [\n 'number', // xId\n 'number', // outId\n 'number', // channels\n 'number' // batch\n]);\n}\n\nfunction softmax(\n args: {backend: BackendWasm,
inputs: SoftmaxInputs, attrs: SoftmaxAttrs}):\n TensorInfo {\n const {backend, inputs: {logits}, attrs: {dim}} = args;\n const xId = backend.dataIdMap.get(logits.dataId).id;\n const out = backend.makeOutput(logits.shape, logits.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const channels = logits.shape[dim];\n const batch = util.sizeFromShape(logits.shape) / channels;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, outId, channels, batch);\n return out;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n

*\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ReshapeAttrs, ReshapeInputs, SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs, TensorInfo, TransposeAttrs, TransposeInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {padV2Config} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nfunction spaceToBatchND(args: {\n inputs: SpaceToBatchNDInputs,\n backend: BackendWasm,\n attrs: SpaceToBatchNDAttrs\n}) {\n const {inputs, backend,\n attrs} = args;\n const {x} = inputs;\n const {blockShape, paddings} = attrs;\n\n const prod = util.sizeFromShape(blockShape);\n\n const completePaddings: Array<[number, number]> = [[0, 0]];\n completePaddings.push(...(paddings as Array<[number, number]>));\n\n for (let i = 1 + blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n   transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed\n under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n   args: {inputs: SplitVInputs, attrs: SplitVAttrs, backend: BackendWasm}) {\n const {inputs,\n attrs, backend} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n const size = x.shape.slice();\n return splitSizes.map(s => {\n   const xSliceSize = [...size];\n   xSliceSize[$axis] = s;\n   const xSlice =\n   slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n   begin[$axis] += s;\n   return xSlice;\n });\n}\n\nexport const splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as

KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const squareConfig: KernelConfig = createUnaryKernelConfig(Square);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = true;\nexport const squaredDifferenceConfig: KernelConfig =\n   createBinaryKernelConfig(SquaredDifference, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, StepInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmStep: (xId: number, alpha: number, dtype: number, outId: number) =>\n   void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStep = backend.wasm.cwrap(Step, null /*void*/, [\n   'number', // x_id\n   'number', // alpha\n   'number', // dtype\n   'number', // out_id\n]);\n}\n\nfunction step(\n   args: {backend: BackendWasm, inputs: StepInputs, attrs: StepAttrs}):\n   TensorInfo {\n const {backend, inputs, attrs} = args;\n const {alpha} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n const out = backend.makeOutput(x.shape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmStep(xId, alpha, CppDType[x.dtype], outId);\n return out;\n}\n\nexport const stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'wasm',\n setupFunc:

setup,\n kernelFunc: step as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
 the License.\n *
==\n *\n\nimport {KernelConfig, KernelFunc, slice_util, StridedSlice, StridedSliceAttrs, StridedSliceInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nlet wasmStridedSlice: (\n   xId: number, xStridesBytes: Uint8Array, xRank: number,\n   beginBytes: Uint8Array, endBytes: Uint8Array, stridesBytes: Uint8Array,\n   outShapeBytes: Uint8Array, outStridesBytes: Uint8Array,\n   outShapeLength: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmStridedSlice = backend.wasm.cwrap(StridedSlice, null /*void*/, [\n   'number', // xId\n   'array',   // xStrides\n   'number', // xRank\n   'array',   // beginBytes\n   'array',   // endBytes\n   'array',   // stridesBytes\n   'array',   // outShapeBytes\n   'array',   // outStridesBytes\n
    'number', // outShapeLength\n   'number', // outId\n]);\n}\n\nexport function stridedSlice(args: {\n backend: BackendWasm,\n inputs: StridedSliceInputs,\n attrs: StridedSliceAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n const {x} = inputs;\n\n const {\n   begin,\n   end,\n   strides,\n   beginMask,\n   endMask,\n   ellipsisMask,\n   newAxisMask,\n   shrinkAxisMask\n } = attrs;\n\n const {\n   finalShapeSparse,\n   finalShape,\n   isIdentity,\n   sliceDim0,\n   isSimpleSlice,\n   begin: $begin,\n   end: $end,\n   strides: $strides\n } =\n   slice_util.sliceInfo(\n   x.shape, begin, end, strides, beginMask, endMask, ellipsisMask,\n   newAxisMask, shrinkAxisMask);\n\n let result;\n\n if (isIdentity) {\n   // Optimization #1, slice is a no-op plus reshape\n   result = reshape({inputs: {x}, backend, attrs: {shape: finalShape}});\n } else if (sliceDim0 || isSimpleSlice) {\n   // Optimization #2, slice is memory contiguous
 (only occurs in dim 0)\n   util.assert(\n   x.shape.length >= 1,\n   () => `Input must have rank at least 1, got: ${x.shape.length}`);\n\n   const size = slice_util.computeOutShape($begin, $end, $strides);\n   // To tolerate begin[0] > end[0] (a 0-output slice), we min(begin, end).\n   const sliced = slice({inputs: {x}, backend, attrs: {begin: $begin, size}});\n   result =\n   reshape({inputs: {x: sliced}, backend, attrs: {shape: finalShape}});\n   backend.disposeData(sliced.dataId);\n } else {\n   const out = backend.makeOutput(finalShapeSparse, 'float32');\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xStridesBytes =\n   new Uint8Array(new Int32Array(util.computeStrides(x.shape)).buffer);\n   const beginBytes = new Uint8Array(new Int32Array($begin).buffer);\n   const endBytes = new Uint8Array(new Int32Array($end).buffer);\n   const stridesBytes = new Uint8Array(new Int32Array($strides).buffer);\n\n   const outputShapeBytes =\n
        new Uint8Array(new Int32Array(finalShapeSparse).buffer);\n   const outStridesBytes = new Uint8Array(\n
 new Int32Array(util.computeStrides(finalShapeSparse)).buffer);\n   const outId =
 backend.dataIdMap.get(out.dataId).id;\n\n   wasmStridedSlice(\n   xId, xStridesBytes, x.shape.length,
 beginBytes, endBytes, stridesBytes,\n   outputShapeBytes, outStridesBytes, finalShapeSparse.length, outId);\n\n   result = reshape({inputs: {x: out}, backend, attrs: {shape: finalShape}});\n\n   backend.disposeData(out.dataId);\n }\n\n return result;\n}\n\nexport const stridedSliceConfig: KernelConfig = {\n kernelName: StridedSlice,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: stridedSlice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific

language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = true;\nexport const subConfig: KernelConfig =\n
createBinaryKernelConfig(Sub, supportsFullBroadcast);\n","/**\n * @license\n * Copyright 2019 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs, TensorInfo, util} from
'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport
{permuteAxesAndTranspose} from './kernel_utils';\nimport {CppDType} from './types';\n\nlet wasmSum: (xId:
number, reduceSize: number, dtype: number, outId: number) =>\n void;\n\nfunction setup(backend:
BackendWasm): void {\n wasmSum = backend.wasm.cwrap(Sum, null /*void*/, [\n 'number', // input_id\n
'number', // reduce_size\n 'number', // dtype\n
  'number', // out_id\n]);\n}\n\nfunction sum(args: {backend: BackendWasm, inputs: SumInputs, attrs:
SumAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {axis, keepDims} = attrs;\n const
{x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const
{transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n
let reductionAxes = axes;\n if (inputWasTransposed) {\n const transposedId =
backend.dataIdMap.get(transposed.dataId).id;\n if (transposedId !== xId) {\n // transpose was not a no-op. We
will need to dispose of this\n // once we are done.\n input = transposed;\n inputId = transposedId;\n
reductionAxes = backend_util.getInnerMostAxes(\n reductionAxes.length, input.shape.length);\n }\n }\n\n
backend_util.assertAxesAreInnerMostDims(\n 'sum', reductionAxes, input.shape.length);\n const [outShape,
reduceShape] =\n backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize
= util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if
(util.sizeFromShape(input.shape) !== 0) {\n const outId = backend.dataIdMap.get(out.dataId).id;\n
wasmSum(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n // dispose of
the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n // reshape\n const
newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n out.shape = newShape;\n }\n\n
return out;\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'wasm',\n
setupFunc: setup,\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2021 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tan} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const tanConfig: KernelConfig = createUnaryKernelConfig(Tan);\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the

License at\n *\n
 * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, KernelFunc, Tile, TileAttrs, TileInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nlet wasmTile: (\n   xId: number, xShape: Uint8Array, xShapeSize: number, newShape: Uint8Array,\n   newShapeSize: number, dtype: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTile = backend.wasm.cwrap(Tile, null / void */, [\n   'number', // x_id\n   'array',   // x_shape\n   'number', // x_shape.length\n   'array',   // new_shape\n   'number', // new_shape.length\n   'number'   // out_id\n]);\n}\n\nfunction tile(\n   args: {inputs: TileInputs, backend: BackendWasm, attrs: TileAttrs}) {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const {reps} = attrs;\n\n const newShape: number[] = new Array(x.shape.length);\n for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = x.shape[i] * reps[i];\n }\n const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n const newShapeBytes = new Uint8Array(new Int32Array(newShape).buffer);\n\n const out = backend.makeOutput(newShape, x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmTile(\n   xId, xShapeBytes, x.shape.length, newShapeBytes, newShape.length,\n   CppDType[out.dtype], outId);\n return out;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: tile as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC.
 All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, TopK, TopKAttrs, TopKInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\nimport {CppDType} from './types';\n\nlet wasmTopK: (\n   xId: number, xShapeBytes: Uint8Array, xShapeLength: number,\n   xDtype: CppDType, k: number, sorted: boolean,
 outValuesId: number,\n   outIndicesId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmTopK = backend.wasm.cwrap(TopK, null /* void */, [\n   'number', // xId\n   'array',   // x.shape\n   'number', // x.shape.length\n   'number', // x.dtype\n   'number', // k\n   'bool',   // sorted\n   'number', // outValuesId\n   'number', // outIndicesId\n]);\n}\n\nexport const topk:\n   (args: {inputs: TopKInputs, backend: BackendWasm, attrs: TopKAttrs}) =>\n   TensorInfo[] | TensorInfo = ({inputs, backend, attrs}) => {\n   const {x} = inputs;\n   const {k, sorted} = attrs;\n\n   const xId = backend.dataIdMap.get(x.dataId).id;\n   const xShapeBytes = new Uint8Array(new Int32Array(x.shape).buffer);\n   const outputShape = x.shape.slice();\n

outputShape[outputShape.length - 1] = k;\n const outValues = backend.makeOutput(outputShape, x.dtype);\n const outValuesId = backend.dataIdMap.get(outValues.dataId).id;\n const outIndices = backend.makeOutput(outputShape, 'int32');\n const outIndicesId = backend.dataIdMap.get(outIndices.dataId).id;\n\n wasmTopK(\n xId, xShapeBytes, x.shape.length, CppDType[x.dtype], k, sorted,\n outValuesId, outIndicesId);\n\n return [outValues, outIndices];\n };\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: topk as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2021 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR
CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transform, TransformAttrs, TransformInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmTransform: (\n imageId: number, transformsId: number, isBatchTransform: boolean,\n batch: number, outHeight: number, outWidth: number, numChannels: number,\n imageWidth: number, imageHeight: number, strides: Uint8Array,\n stridesLength: number, interpolationModeId: number, fillModeId: number,\n fillValue: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmTransform = backend.wasm.cwrap(Transform, null /*void*/, [\n 'number', // imageId\n 'number', // transformsId\n 'bool', // isBatchTransform\n 'number', // batch\n 'number', // outHeight\n 'number', // outWidth\n 'number', // numChannels\n 'number', // imageWidth\n 'number', // imageHeight\n 'array', // strides\n 'number', // stridesLength\n 'number', // interpolationModeId\n 'number', // fillModeId\n 'number', // fillValue\n 'number' // outId\n]);\n}\n\nfunction transform(\n args:\n {backend: BackendWasm, inputs: TransformInputs, attrs: TransformAttrs}):\n TensorInfo {\n const {backend, inputs, attrs} = args;\n const {image, transforms} = inputs;\n const {interpolation, fillMode, fillValue, outputShape} = attrs;\n\n const [batch, imageHeight, imageWidth, numChannels] = image.shape;\n const [outHeight, outWidth] =\n outputShape != null ? outputShape : [imageHeight, imageWidth];\n const outShape =\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out = backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n case 'constant':\n fillModeId = 1;\n break;\n case 'reflect':\n fillModeId = 2;\n break;\n case 'wrap':\n fillModeId = 3;\n break;\n case 'nearest':\n fillModeId = 4;\n break;\n default:\n fillModeId = 1;\n break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId, fillModeId, fillValue,\n outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: transform as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport
{BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend:
BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n
const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const
zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike
as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n//
We explicitly import the modular kernels so they get registered in the\n// global registry when we compile the
library. A modular build would replace\n// the contents of this file and import only the kernels that are
needed.\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {fusedMatMulConfig}
from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {addConfig} from
'./kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport
{anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {avgPoolConfig}
from './kernels/AvgPool';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport
{batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport
{castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from
'./kernels/ClipByValue';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from
'./kernels/Conv2D';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport
{cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig}
from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport
{depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from
'./kernels/DepthwiseConv2dNative';\nimport {eluConfig} from './kernels/Elu';\nimport {equalConfig} from
'./kernels/Equal';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from
'./kernels/ExpandDims';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from
'./kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig}
from './kernels/FloorDiv';\nimport {fusedBatchNormConfig} from './kernels/FusedBatchNorm';\nimport
{fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from
'./kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport
{gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport
{greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport
{leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport
{lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport
{logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport
{maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport
{meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from
'./kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from
'./kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from
'./kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from
'./kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from
'./kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig}

from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport
{resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig}
from './kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from './kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from './kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from './kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n
floorDivConfig,\n fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n
sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ===\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs} from

'@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {slice} from './Slice';\n\nfunction unpack(\n args: {inputs: UnpackInputs, backend: BackendWasm, attrs: UnpackAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n axis += value.shape.length;\n }\n\n const numOutputs = value.shape[axis];\n const rank = value.shape.length;\n const outShape: number[] = new Array(rank - 1);\n let outIndex = 0;\n for (let i = 0; i < rank; i++) {\n if (i !== axis) {\n outShape[outIndex++] = value.shape[i];\n }\n }\n const outs: TensorInfo[] = new Array(numOutputs);\n const begin = new Array(rank).fill(0);\n const size = value.shape.slice();\n size[axis] = 1;\n for (let i = 0; i < outs.length; i++) {\n begin[axis] = i;\n outs[i] = slice({inputs: {x: value}, attrs: {begin, size}, backend});\n }\n return outs.map(({dataId, dtype}) => ({dataId, dtype, shape: outShape}));\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'wasm',\n kernelFunc: unpack as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nconst ENV = env();\n\n/**\n * True if SIMD is supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag(\n // This typed array passed in to WebAssembly.validate is WebAssembly binary\n // code. In this case it is a small program that contains SIMD\n // instructions.\n 'WASM_HAS_SIMD_SUPPORT', async () => WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3,\n 2, 1, 0, 10, 9, 1, 7, 0, 65, 0, 253, 15, 26, 11\n])));\n\n/**\n * True if threads are supported.\n */\n// From: https://github.com/GoogleChromeLabs/wasm-feature-detect\nENV.registerFlag('WASM_HAS_MULTITHREAD_SUPPORT', async () => {\n // TODO(annxingyuan): Enable node support once this is resolved:\n // https://github.com/tensorflow/tfjs/issues/3830\n if (ENV.get('IS_NODE')) {\n return false;\n }\n\n try {\n // Test for transferability of SABs (needed for Firefox)\n // https://groups.google.com/forum/#!msg/mozilla.dev.platform/IHkBZlHETpA/dwsMNchWEQAJ\n new MessageChannel().port1.postMessage(new SharedArrayBuffer(1));\n // This typed array is a WebAssembly program containing threaded\n // instructions.\n return WebAssembly.validate(new Uint8Array([\n 0, 97, 115, 109, 1, 0, 0, 0, 1, 4, 1, 96, 0, 0, 3, 2, 1, 0, 5,\n 4, 1, 3, 1, 1, 10, 11, 1, 9, 0, 65, 0, 254, 16, 2, 0, 26, 11\n]));\n } catch (e) {\n return false;\n }\n});\n","\nvar WasmBackendModuleThreadedSimd = (function() {\n var _scriptDir = typeof document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof __filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModuleThreadedSimd) {\n WasmBackendModuleThreadedSimd = WasmBackendModuleThreadedSimd || {};\n\nfunction GROWABLE_HEAP_I8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP8}function GROWABLE_HEAP_U8(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU8}function GROWABLE_HEAP_I32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAP32}function GROWABLE_HEAP_U32(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPU32}function GROWABLE_HEAP_F64(){if(wasmMemory.buffer!=buffer){updateGlobalBufferAndViews(wasmMemory.buffer)}return HEAPF64}var Module=typeof

WasmBackendModuleThreadedSimd!==\"undefined\"?WasmBackendModuleThreadedSimd:{};var readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var moduleOverrides={};var key;for(key in Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof window===\"object\";ENVIRONMENT_IS_WORKER=typeof importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONMENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var ENVIRONMENT_IS_PTHREAD=Module[\"ENVIRONMENT_IS_PTHREAD\"]||false;if(ENVIRONMENT_IS_PTHREAD){buffer=Module[\"buffer\"]}var scriptDirectory=\"\";function locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"};var nodeWorkerThreads;try{nodeWorkerThreads=require(\"worker_threads\")}catch(e){console.error('The \"worker_threads\" module is not supported in this node.js build - perhaps a newer version is needed?');throw e}global.Worker=nodeWorkerThreads.Worker}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(typeof _scriptDir !== \"undefined\" && _scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}if(ENVIRONMENT_IS_NODE){read_=function shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=nodePath[\"normalize\"](filename);return nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var

ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return ret}}else{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}if(ENVIRONMENT_IS_NODE){if(typeof performance===\"undefined\"){global.performance=require(\"perf_hooks\").performance}}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];function warnOnce(text){if(!warnOnce.shown)warnOnce.shown={};if(!warnOnce.shown[text]){warnOnce.shown[text]=1;err(text)}}var Atomics_load=Atomics.load;var Atomics_store=Atomics.store;var Atomics_compareExchange=Atomics.compareExchange;var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var wasmModule;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return function(){return ccall(ident,returnType,argTypes,arguments,opts)}}function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var str=\"\";while(!(idx>=endIdx)){var u0=heap[idx++];if(!u0)return str;if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(GROWABLE_HEAP_U8(),ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var

u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,GROWABLE_HEAP_U8(),outPtr,maxBytesToWrite)}function lengthBytesUTF8(str){var len=0;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343)u=65536+((u&1023)<<10)|str.charCodeAt(++i)&1023;if(u<=127)++len;else if(u<=2047)len+=2;else if(u<=65535)len+=3;else len+=4}return len}function writeArrayToMemory(array,buffer){GROWABLE_HEAP_I8().set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;if(ENVIRONMENT_IS_PTHREAD){wasmMemory=Module[\"wasmMemory\"];buffer=Module[\"buffer\"]}else{if(Module[\"wasmMemory\"]){wasmMemory=Module[\"wasmMemory\"]}else{wasmMemory=new WebAssembly.Memory({\"initial\":INITIAL_MEMORY/65536,\"maximum\":2147483648/65536,\"shared\":true});if(!(wasmMemory.buffer instanceof SharedArrayBuffer)){err(\"requested a shared WebAssembly.Memory but the returned buffer is not a SharedArrayBuffer, indicating that while the browser has SharedArrayBuffer it does not have WebAssembly threads support - you may need to set a flag\");if(ENVIRONMENT_IS_NODE){console.log(\"(on node you may need: --experimental-wasm-threads --experimental-wasm-bulk-memory and also use a recent version)\")}throw Error(\"bad memory\")}}}if(wasmMemory){buffer=wasmMemory.buffer}INITIAL_MEMORY=buffer.byteLength;updateGlobalBufferAndViews(buffer);var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATEXIT__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;var runtimeExited=false;if(!ENVIRONMENT_IS_PTHREAD)__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATINIT__)}function preMain(){if(ENVIRONMENT_IS_PTHREAD)return;callRuntimeCallbacks(__ATMAIN__)}function exitRuntime(){if(ENVIRONMENT_IS_PTHREAD)return;runtimeExited=true}function postRun(){if(ENVIRONMENT_IS_PTHREAD)return;if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){assert(!ENVIRONMENT_IS_PTHREAD,\"addRunDependency cannot be used in a pthread worker\");runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](ru

nDependencies)}}function removeRunDependency(id){runDependencies--
;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=null}if(dependenciesFulfilled){var
callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module[\"preloadedAudios\"]={};function
abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}if(ENVIRONMENT_IS_PTHREAD)console.error(\"Pthread aborting at \"+(new
Error).stack);what+=\"\";err(what);ABORT=true;EXITSTATUS=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return
String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var
dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-wasm-threaded-simd.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the wasm failed\"}}catch(err){abort(err)}}function
getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at '\"+wasmBinaryFile+\"'\"}return
response[\"arrayBuffer\"]()}).catch(function(){return getBinary(wasmBinaryFile)})}else{if(readAsync){return new Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function receiveInstance(instance,module){var
exports=instance.exports;Module[\"asm\"]=exports;wasmTable=Module[\"asm\"][\"I\"];wasmModule=module;if(!ENVIRONMENT_IS_PTHREAD){var
numWorkersToLoad=PThread.unusedWorkers.length;PThread.unusedWorkers.forEach(function(w){PThread.loadWasmModuleToWorker(w,function(){if(!--numWorkersToLoad)removeRunDependency(\"wasm-instantiate\")})})}if(!ENVIRONMENT_IS_PTHREAD){addRunDependency(\"wasm-instantiate\")}function receiveInstantiatedSource(output){receiveInstance(output[\"instance\"],output[\"module\"])}function instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return
WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFile)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}var ASM_CONSTS={10520:function(){throw\"Canceled!\"},10538:function($0,$1){setTimeout(function(){__emscripten_do_dispatch_to_thread($0,$1)},0)}};function initPthreadsJS(){PThread.initRuntime()}function callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof

callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof
func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)
}}else{func(callback.arg===undefined?null:callback.arg)}}}var
ERRNO_CODES={EPERM:63,ENOENT:44,ESRCH:71,EINTR:27,EIO:29,ENXIO:60,E2BIG:1,ENOEXEC:45,E
BADF:8,ECHILD:12,EAGAIN:6,EWOULDBLOCK:6,ENOMEM:48,EACCES:2,EFAULT:21,ENOTBLK:105,EB
USY:10,EEXIST:20,EXDEV:75,ENODEV:43,ENOTDIR:54,EISDIR:31,EINVAL:28,ENFILE:41,EMFILE:33,EN
OTTY:59,ETXTBSY:74,EFBIG:22,ENOSPC:51,ESPIPE:70,EROFS:69,EMLINK:34,EPIPE:64,EDOM:18,ERAN
GE:68,ENOMSG:49,EIDRM:24,ECHRNG:106,EL2NSYNC:156,EL3HLT:107,EL3RST:108,ELNRNG:109,EUNA
TCH:110,ENOCSI:111,EL2HLT:112,EDEADLK:16,ENOLCK:46,EBADE:113,EBADR:114,EXFULL:115,ENOA
NO:104,EBADRQC:103,EBADSLT:102,EDEADLOCK:16,EBFONT:101,ENOSTR:100,ENODATA:116,ETIME:
117,ENOSR:118,ENONET:119,ENOPKG:120,EREMOTE:121,ENOLINK:47,EADV:122,ESRMNT:123,ECOMM
:124,EPROTO:65,EMULTIHOP:36,EDOTDOT:125,EBADMSG:9,ENOTUNIQ:126,EBADFD:127,EREMCHG:1
28,ELIBACC:129,ELIBBAD:130,ELIBSCN:131,ELIBMAX:132,ELIBEXEC:133,ENOSYS:52,ENOTEMPTY:55,
ENAMETOOLONG:37,ELOOP:32,EOPNOTSUPP:138,EPFNOSUPPORT:139,ECONNRESET:15,ENOBUFS:42,
EAFNOSUPPORT:5,EPROTOTYPE:67,ENOTSOCK:57,ENOPROTOOPT:50,ESHUTDOWN:140,ECONNREFU
SED:14,EADDRINUSE:3,ECONNABORTED:13,ENETUNREACH:40,ENETDOWN:38,ETIMEDOUT:73,EHOS
TDOWN:142,EHOSTUNREACH:23,EINPROGRESS:26,EALREADY:7,EDESTADDRREQ:17,EMSGSIZE:35,E
PROTONOSUPPORT:66,ESOCKTNOSUPPORT:137,EADDRNOTAVAIL:4,ENETRESET:39,EISCONN:30,EN
OTCONN:53,ETOOMANYREFS:141,EUSERS:136,EDQUOT:19,ESTALE:72,ENOTSUP:138,ENOMEDIUM:14
8,EILSEQ:25,EOVERFLOW:61,ECANCELED:11,ENOTRECOVERABLE:56,EOWNERDEAD:62,ESTRPIPE:13
5};function
_emscripten_futex_wake(addr,count){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0||count<0)retu
rn-28;if(count==0)return 0;if(count>=2147483647)count=Infinity;var
mainThreadWaitAddress=Atomics.load(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2);var
mainThreadWoken=0;if(mainThreadWaitAddress==addr){var
loadedAddr=Atomics.compareExchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,mainTh
readWaitAddress,0);if(loadedAddr==mainThreadWaitAddress){--count;mainThreadWoken=1;if(count<=0)return
1}}var ret=Atomics.notify(GROWABLE_HEAP_I32(),addr>>2,count);if(ret>=0)return
ret+mainThreadWoken;throw\"Atomics.notify returned an unexpected value
\"+ret}Module[\"_emscripten_futex_wake\"]=_emscripten_futex_wake;function
killThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! killThread() can only ever be
called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in
killThread!\";GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var
pthread=PThread.pthreads[pthread_ptr];pthread.worker.terminate();PThread.freeThreadData(pthread);PThread.runni
ngWorkers.splice(PThread.runningWorkers.indexOf(pthread.worker),1);pthread.worker.pthread=undefined}functio
n cancelThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cancelThread() can only
ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in
cancelThread!\";var
pthread=PThread.pthreads[pthread_ptr];pthread.worker.postMessage({\"cmd\":\"cancel\"})}function
cleanupThread(pthread_ptr){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! cleanupThread() can only
ever be called from main application thread!\";if(!pthread_ptr)throw\"Internal Error! Null pthread_ptr in
cleanupThread!\";var
pthread=PThread.pthreads[pthread_ptr];if(pthread){GROWABLE_HEAP_I32()[pthread_ptr+12>>2]=0;var
worker=pthread.worker;PThread.returnWorkerToPool(worker)}}var
PThread={unusedWorkers:[],runningWorkers:[],initMainThreadBlock:function(){var
pthreadPoolSize=8;for(var
i=0;i<pthreadPoolSize;++i){PThread.allocateUnusedWorker()}},initRuntime:function(){var
tb=_malloc(228);for(var

```
i=0;i<228/4;++i)GROWABLE_HEAP_U32()[tb/4+i]=0;GROWABLE_HEAP_I32()[tb+12>>2]=tb;var
headPtr=tb+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var tlsMemory=_malloc(512);for(var
i=0;i<128;++i)GROWABLE_HEAP_U32()[tlsMemory/4+i]=0;Atomics.store(GROWABLE_HEAP_U32(),tb+100
>>2,tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tb+40>>2,tb);__emscripten_thread_init(tb,!ENVIRON
MENT_IS_WORKER,1);_emscripten_register_main_browser_thread_id(tb)},initWorker:function(){},pthreads:{},t
hreadExitHandlers:[],setThreadStatus:function(){},runExitHandlers:function(){while(PThread.threadExitHandlers.l
ength>0){PThread.threadExitHandlers.pop()()}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self())___pthread
_tsd_run_dtors()},runExitHandlersAndDeinitThread:function(tb,exitCode){Atomics.store(GROWABLE_HEAP_U
32(),tb+56>>2,1);Atomics.store(GROWABLE_HEAP_U32(),tb+60>>2,0);PThread.runExitHandlers();Atomics.stor
e(GROWABLE_HEAP_U32(),tb+4>>2,exitCode);Atomics.store(GROWABLE_HEAP_U32(),tb+0>>2,1);_emscri
pten_futex_wake(tb+0,2147483647);__emscripten_thread_init(0,0,0)},threadExit:function(exitCode){var
tb=_pthread_self();if(tb){PThread.runExitHandlersAndDeinitThread(tb,exitCode);if(ENVIRONMENT_IS_PTHRE
AD){postMessage({\"cmd\":\"exit\"})}}},threadCancel:function(){PThread.runExitHandlersAndDeinitThread(_pthr
ead_self(),-1);postMessage({\"cmd\":\"cancelDone\"})},terminateAllThreads:function(){for(var t in
PThread.pthreads){var
pthread=PThread.pthreads[t];if(pthread&&pthread.worker){PThread.returnWorkerToPool(pthread.worker)}}PThre
ad.pthreads={};for(var i=0;i<PThread.unusedWorkers.length;++i){var
worker=PThread.unusedWorkers[i];worker.terminate()}PThread.unusedWorkers=[];for(var
i=0;i<PThread.runningWorkers.length;++i){var worker=PThread.runningWorkers[i];var
pthread=worker.pthread;PThread.freeThreadData(pthread);worker.terminate()}PThread.runningWorkers=[]},freeTh
readData:function(pthread){if(!pthread)return;if(pthread.threadInfoStruct){var
tlsMemory=GROWABLE_HEAP_I32()[pthread.threadInfoStruct+100>>2];GROWABLE_HEAP_I32()[pthread.thr
eadInfoStruct+100>>2]=0;_free(tlsMemory);_free(pthread.threadInfoStruct)}pthread.threadInfoStruct=0;if(pthread.
allocatedOwnStack&&pthread.stackBase)_free(pthread.stackBase);pthread.stackBase=0;if(pthread.worker)pthread.
worker.pthread=null},returnWorkerToPool:function(worker){PThread.runWithoutMainThreadQueuedCalls(functio
n(){delete
PThread.pthreads[worker.pthread.threadInfoStruct];PThread.unusedWorkers.push(worker);PThread.runningWorker
s.splice(PThread.runningWorkers.indexOf(worker),1);PThread.freeThreadData(worker.pthread);worker.pthread=un
defined})},runWithoutMainThreadQueuedCalls:function(func){GROWABLE_HEAP_I32()[__emscripten_allow_m
ain_runtime_queued_calls>>2]=0;try{func()}finally{GROWABLE_HEAP_I32()[__emscripten_allow_main_runti
me_queued_calls>>2]=1}},receiveObjectTransfer:function(data){},loadWasmModuleToWorker:function(worker,o
nFinishedLoading){worker.onmessage=function(e){var
 d=e[\"data\"];var
cmd=d[\"cmd\"];if(worker.pthread)PThread.currentProxiedOperationCallerThread=worker.pthread.threadInfoStruct;
if(d[\"targetThread\"]&&d[\"targetThread\"]!=_pthread_self()){var
thread=PThread.pthreads[d.targetThread];if(thread){thread.worker.postMessage(e.data,d[\"transferList\"])}else{con
sole.error('Internal error! Worker sent a message \"'+cmd+'\" to target pthread '+d[\"targetThread\"]+\", but that
thread no longer
exists!\")}PThread.currentProxiedOperationCallerThread=undefined;return}if(cmd===\"processQueuedMainThread
Work\"){_emscripten_main_thread_process_queued_calls()}else
if(cmd===\"spawnThread\"){spawnThread(e.data)}else
if(cmd===\"cleanupThread\"){cleanupThread(d[\"thread\"])}else
if(cmd===\"killThread\"){killThread(d[\"thread\"])}else
if(cmd===\"cancelThread\"){cancelThread(d[\"thread\"])}else
if(cmd===\"loaded\"){worker.loaded=true;if(onFinishedLoading)onFinishedLoading(worker);if(worker.runPthread)
{worker.runPthread();delete
 worker.runPthread}}else if(cmd===\"print\"){out(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else
if(cmd===\"printErr\"){err(\"Thread \"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"alert\"){alert(\"Thread
```

\"+d[\"threadId\"]+\": \"+d[\"text\"])}else if(cmd===\"exit\"){var
detached=worker.pthread&&Atomics.load(GROWABLE_HEAP_U32(),worker.pthread.threadInfoStruct+64>>2);if
(detached){PThread.returnWorkerToPool(worker)}}else
if(cmd===\"exitProcess\"){try{exit(d[\"returnCode\"])}catch(e){if(e instanceof ExitStatus)return;throw e}}else
if(cmd===\"cancelDone\"){PThread.returnWorkerToPool(worker)}else
if(cmd===\"objectTransfer\"){PThread.receiveObjectTransfer(e.data)}else
if(e.data.target===\"setimmediate\"){worker.postMessage(e.data)}else{err(\"worker sent an unknown command
\"+cmd)}PThread.currentProxiedOperationCallerThread=undefined};worker.onerror=function(e){err(\"pthread sent
an error! \"+e.filename+\":\"+e.lineno+\":
\"+e.message)};if(ENVIRONMENT_IS_NODE){worker.on(\"message\",function(data){worker.onmessage({data:d
ata})});worker.on(\"error\",function(data){worker.onerror(data)});worker.on(\"exit\",function(data){})}worker.post
Message({\"cmd\":\"load\",\"urlOrBlob\":Module[\"mainScriptUrlOrBlob\"]||_scriptDir,\"wasmMemory\":wasmMe
mory,\"wasmModule\":wasmModule})},allocateUnusedWorker:function(){var
pthreadMainJs=locateFile(\"tfjs-backend-wasm-threaded-simd.worker.js\");PThread.unusedWorkers.push(new
Worker(pthreadMainJs))},getNewWorker:function(){if(PThread.unusedWorkers.length==0){PThread.allocateUnus
edWorker();PThread.loadWasmModuleToWorker(PThread.unusedWorkers[0])}if(PThread.unusedWorkers.length>
0)return PThread.unusedWorkers.pop();else return null},busySpinWait:function(msecs){var
t=performance.now()+msecs;while(performance.now()<t){}}};function
establishStackSpace(stackTop,stackMax){_emscripten_stack_set_limits(stackTop,stackMax);stackRestore(stackTop
)}Module[\"establishStackSpace\"]=establishStackSpace;function
getNoExitRuntime(){return noExitRuntime}Module[\"getNoExitRuntime\"]=getNoExitRuntime;function
invokeEntryPoint(ptr,arg){return
wasmTable.get(ptr)(arg)}Module[\"invokeEntryPoint\"]=invokeEntryPoint;function
___assert_fail(condition,filename,line,func){abort(\"Assertion failed: \"+UTF8ToString(condition)+\", at:
\"+[filename?UTF8ToString(filename):\"unknown filename\",line,func?UTF8ToString(func):\"unknown
function\"])}function ___call_main(argc,argv){var returnCode=_main(argc,argv)}var
_emscripten_get_now;if(ENVIRONMENT_IS_NODE){_emscripten_get_now=function(){var
t=process[\"hrtime\"]();return t[0]*1e3+t[1]/1e6}}else
if(ENVIRONMENT_IS_PTHREAD){_emscripten_get_now=function(){return performance.now()-
Module[\"__performance_now_clock_drift\"]}}else if(typeof
dateNow!==\"undefined\"){_emscripten_get_now=dateNow}else _emscripten_get_now=function(){return
performance.now()};function setErrNo(value){GROWABLE_HEAP_I32()[___errno_location()>>2]=value;return
value}function _atexit(func,arg){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(1,1,func,arg)}function
__emscripten_notify_thread_queue(targetThreadId,mainThreadId){if(targetThreadId==mainThreadId){postMessag
e({\"cmd\":\"processQueuedMainThreadWork\"})}else
if(ENVIRONMENT_IS_PTHREAD){postMessage({\"targetThread\":targetThreadId,\"cmd\":\"processThreadQueu
e\"})}else{var pthread=PThread.pthreads[targetThreadId];var
worker=pthread&&pthread.worker;if(!worker){return}worker.postMessage({\"cmd\":\"processThreadQueue\"})}ret
urn 1}function _abort(){abort()}function _emscripten_asm_const_int(code,sigPtr,argbuf){var
args=readAsmConstArgs(sigPtr,argbuf);return ASM_CONSTS[code].apply(null,args)}function
_emscripten_conditional_set_current_thread_status(expectedStatus,newStatus){}function
_emscripten_futex_wait(addr,val,timeout){if(addr<=0||addr>GROWABLE_HEAP_I8().length||addr&3!=0)return-
28;if(!ENVIRONMENT_IS_WEB){var
ret=Atomics.wait(GROWABLE_HEAP_I32(),addr>>2,val,timeout);if(ret===\"timed-out\")return-
73;if(ret===\"not-equal\")return-6;if(ret===\"ok\")return
0;throw\"Atomics.wait returned an unexpected value
\"+ret}else{if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}var

tNow=performance.now();var tEnd=tNow+timeout;var lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr);while(1){tNow=performance.now();if(tNow>tEnd){lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);return-73}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,0);if(lastAddr==0){break}_emscripten_main_thread_process_queued_calls();if(Atomics.load(GROWABLE_HEAP_I32(),addr>>2)!=val){return-6}lastAddr=Atomics.exchange(GROWABLE_HEAP_I32(),__emscripten_main_thread_futex>>2,addr)}return 0}}function _emscripten_memcpy_big(dest,src,num){GROWABLE_HEAP_U8().copyWithin(dest,src,src+num)}function _emscripten_num_logical_cores(){if(ENVIRONMENT_IS_NODE)return require(\"os\").cpus().length;return navigator[\"hardwareConcurrency\"]}function _emscripten_proxy_to_main_thread_js(index,sync){var numCallArgs=arguments.length-2;var stack=stackSave();var serializedNumCallArgs=numCallArgs;var args=stackAlloc(serializedNumCallArgs*8);var b=args>>3;for(var i=0;i<numCallArgs;i++){var arg=arguments[2+i];GROWABLE_HEAP_F64()[b+i]=arg}var ret=_emscripten_run_in_main_runtime_thread_js(index,serializedNumCallArgs,args,sync);stackRestore(stack);return ret}var _emscripten_receive_on_main_thread_js_callArgs=[];var readAsmConstArgsArray=[];function readAsmConstArgs(sigPtr,buf){readAsmConstArgsArray.length=0;var ch;buf>>=2;while(ch=GROWABLE_HEAP_U8()[sigPtr++]){var double=ch<105;if(double&&buf&1)buf++;readAsmConstArgsArray.push(double?GROWABLE_HEAP_F64()[buf++>>1]:GROWABLE_HEAP_I32()[buf]);++buf}return readAsmConstArgsArray}function _emscripten_receive_on_main_thread_js(index,numCallArgs,args){_emscripten_receive_on_main_thread_js_callArgs.length=numCallArgs;var b=args>>3;for(var i=0;i<numCallArgs;i++){_emscripten_receive_on_main_thread_js_callArgs[i]=GROWABLE_HEAP_F64()[b+i]}var isEmAsmConst=index<0;var func=!isEmAsmConst?proxiedFunctionTable[index]:ASM_CONSTS[-index-1];return func.apply(null,_emscripten_receive_on_main_thread_js_callArgs)}function _emscripten_get_heap_size(){return GROWABLE_HEAP_U8().length}function emscripten_realloc_buffer(size){try{wasmMemory.grow(size-buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return 1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();if(requestedSize<=oldSize){return false}var maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var JSEvents={inEventHandler:0,removeAllEventListeners:function(){for(var i=JSEvents.eventHandlers.length-1;i>=0;--i){JSEvents._removeHandler(i)}JSEvents.eventHandlers=[];JSEvents.deferredCalls=[]},registerRemoveEventListeners:function(){if(!JSEvents.removeEventListenersRegistered){__ATEXIT__.push(JSEvents.removeAllEventListeners);JSEvents.removeEventListenersRegistered=true}},deferredCalls:[],deferCall:function(targetFunction,precedence,argsList){function arraysHaveEqualContent(arrA,arrB){if(arrA.length!=arrB.length)return false;for(var i in arrA){if(arrA[i]!=arrB[i])return false}return true}for(var i in JSEvents.deferredCalls){var call=JSEvents.deferredCalls[i];if(call.targetFunction==targetFunction&&arraysHaveEqualContent(call.argsList,argsList)){return}}JSEvents.deferredCalls.push({targetFunction:targetFunction,precedence:precedence,argsList:argsList});JSEvents.deferredCalls.sort(function(x,y){return

x.precedence<y.precedence})},removeDeferredCalls:function(targetFunction){for(var i=0;i<JSEvents.deferredCalls.length;++i){if(JSEvents.deferredCalls[i].targetFunction==targetFunction){JSEvents.deferredCalls.splice(i,1);--i}}},canPerformEventHandlerRequests:function(){return JSEvents.inEventHandler&&JSEvents.currentEventHandler.allowsDeferredCalls},runDeferredCalls:function(){if(!JSEvents.canPerformEventHandlerRequests()){return}for(var i=0;i<JSEvents.deferredCalls.length;++i){var call=JSEvents.deferredCalls[i];JSEvents.deferredCalls.splice(i,1);--i;call.targetFunction.apply(null,call.argsList)}},eventHandlers:[],removeAllHandlersOnTarget:function(target,eventTypeString){for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==target&&(!eventTypeString||eventTypeString==JSEvents.eventHandlers[i].eventTypeString)){JSEvents._removeHandler(i--)}}},_removeHandler:function(i){var h=JSEvents.eventHandlers[i];h.target.removeEventListener(h.eventTypeString,h.eventListenerFunc,h.useCapture);JSEvents.eventHandlers.splice(i,1)},registerOrRemoveHandler:function(eventHandler){var jsEventHandler=function jsEventHandler(event){++JSEvents.inEventHandler;JSEvents.currentEventHandler=eventHandler;JSEvents.runDeferredCalls();eventHandler.handlerFunc(event);JSEvents.runDeferredCalls();--JSEvents.inEventHandler};if(eventHandler.callbackfunc){eventHandler.eventListenerFunc=jsEventHandler;eventHandler.target.addEventListener(eventHandler.eventTypeString,jsEventHandler,eventHandler.useCapture);JSEvents.eventHandlers.push(eventHandler);JSEvents.registerRemoveEventListeners()}else{for(var i=0;i<JSEvents.eventHandlers.length;++i){if(JSEvents.eventHandlers[i].target==eventHandler.target&&JSEvents.eventHandlers[i].eventTypeString==eventHandler.eventTypeString){JSEvents._removeHandler(i--)}}}},queueEventHandlerOnThread_iiii:function(targetThread,eventHandlerFunc,eventTypeId,eventData,userData){var stackTop=stackSave();var varargs=stackAlloc(12);GROWABLE_HEAP_I32()[varargs>>2]=eventTypeId;GROWABLE_HEAP_I32()[varargs+4>>2]=eventData;GROWABLE_HEAP_I32()[varargs+8>>2]=userData;__emscripten_call_on_thread(0,targetThread,637534208,eventHandlerFunc,eventData,varargs);stackRestore(stackTop)},getTargetThreadForEventCallback:function(targetThread){switch(targetThread){case 1:return 0;case 2:return PThread.currentProxiedOperationCallerThread;default:return targetThread}},getNodeNameForTarget:function(target){if(!target)return\"\";if(target==window)return\"#window\";if(target==screen)return\"#screen\";return target&&target.nodeName?target.nodeName:\"\"},fullscreenEnabled:function(){return document.fullscreenEnabled||document.webkitFullscreenEnabled}};function stringToNewUTF8(jsString){var length=lengthBytesUTF8(jsString)+1;var cString=_malloc(length);stringToUTF8(jsString,cString,length);return cString}function _emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height){var stackTop=stackSave();var varargs=stackAlloc(12);var targetCanvasPtr=0;if(targetCanvas){targetCanvasPtr=stringToNewUTF8(targetCanvas)}GROWABLE_HEAP_I32()[varargs>>2]=targetCanvasPtr;GROWABLE_HEAP_I32()[varargs+4>>2]=width;GROWABLE_HEAP_I32()[varargs+8>>2]=height;__emscripten_call_on_thread(0,targetThread,657457152,0,targetCanvasPtr,varargs);stackRestore(stackTop)}function _emscripten_set_offscreencanvas_size_on_target_thread(targetThread,targetCanvas,width,height){targetCanvas=targetCanvas?UTF8ToString(targetCanvas):\"\";_emscripten_set_offscreencanvas_size_on_target_thread_js(targetThread,targetCanvas,width,height)}function maybeCStringToJsString(cString){return cString>2?UTF8ToString(cString):cString}var specialHTMLTargets=[0,typeof document!==\"undefined\"?document:0,typeof window!==\"undefined\"?window:0];function findEventTarget(target){target=maybeCStringToJsString(target);var domElement=specialHTMLTargets[target]||(typeof document!==\"undefined\"?document.querySelector(target):undefined);return domElement}function

```
findCanvasEventTarget(target){return findEventTarget(target)}function
_emscripten_set_canvas_element_size_calling_thread(target,width,height){var
 canvas=findCanvasEventTarget(target);if(!canvas)return-
4;if(canvas.canvasSharedPtr){GROWABLE_HEAP_I32()[canvas.canvasSharedPtr>>2]=width;GROWABLE_HEA
P_I32()[canvas.canvasSharedPtr+4>>2]=height}if(canvas.offscreenCanvas||!canvas.controlTransferredOffscreen){if
(canvas.offscreenCanvas)canvas=canvas.offscreenCanvas;var
autoResizeViewport=false;if(canvas.GLctxObject&&canvas.GLctxObject.GLctx){var
prevViewport=canvas.GLctxObject.GLctx.getParameter(2978);autoResizeViewport=prevViewport[0]===0&&prev
Viewport[1]===0&&prevViewport[2]===canvas.width&&prevViewport[3]===canvas.height}canvas.width=width;
canvas.height=height;if(autoResizeViewport){canvas.GLctxObject.GLctx.viewport(0,0,width,height)}}else
if(canvas.canvasSharedPtr){var
targetThread=GROWABLE_HEAP_I32()[canvas.canvasSharedPtr+8>>2];_emscripten_set_offscreencanvas_size_o
n_target_thread(targetThread,target,width,height);return 1}else{return-4}return 0}function
_emscripten_set_canvas_element_size_main_thread(target,width,height){if(ENVIRONMENT_IS_PTHREAD)retur
n
 _emscripten_proxy_to_main_thread_js(2,1,target,width,height);return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}function
_emscripten_set_canvas_element_size(target,width,height){var
canvas=findCanvasEventTarget(target);if(canvas){return
_emscripten_set_canvas_element_size_calling_thread(target,width,height)}else{return
_emscripten_set_canvas_element_size_main_thread(target,width,height)}}function
_emscripten_set_current_thread_status(newStatus){}function
_emscripten_set_thread_name(threadId,name){}function __webgl_enable_ANGLE_instanced_arrays(ctx){var
ext=ctx.getExtension(\"ANGLE_instanced_arrays\");if(ext){ctx[\"vertexAttribDivisor\"]=function(index,divisor){ex
t[\"vertexAttribDivisorANGLE\"](index,divisor)};ctx[\"drawArraysInstanced\"]=function(mode,first,count,primcou
nt){ext[\"drawArraysInstancedANGLE\"](mode,first,count,primcount)};ctx[\"drawElementsInstanced\"]=function(
mode,count,type,indices,primcount){ext[\"drawElementsInstancedANGLE\"](mode,count,type,indices,primcount)};
return
 1}}function __webgl_enable_OES_vertex_array_object(ctx){var
ext=ctx.getExtension(\"OES_vertex_array_object\");if(ext){ctx[\"createVertexArray\"]=function(){return
ext[\"createVertexArrayOES\"]()};ctx[\"deleteVertexArray\"]=function(vao){ext[\"deleteVertexArrayOES\"](vao)};
ctx[\"bindVertexArray\"]=function(vao){ext[\"bindVertexArrayOES\"](vao)};ctx[\"isVertexArray\"]=function(vao)
{return ext[\"isVertexArrayOES\"](vao)};return 1}}function __webgl_enable_WEBGL_draw_buffers(ctx){var
ext=ctx.getExtension(\"WEBGL_draw_buffers\");if(ext){ctx[\"drawBuffers\"]=function(n,bufs){ext[\"drawBuffers
WEBGL\"](n,bufs)};return 1}}function
__webgl_enable_WEBGL_multi_draw(ctx){return!!(ctx.multiDrawWebgl=ctx.getExtension(\"WEBGL_multi_dra
w\"))}var
GL={counter:1,buffers:[],programs:[],framebuffers:[],renderbuffers:[],textures:[],uniforms:[],shaders:[],vaos:[],cont
exts:{},offscreenCanvases:{},timerQueriesEXT:[],programInfos:{},stringCache:{},unpackAlignment:4,recordError:
function
 recordError(errorCode){if(!GL.lastError){GL.lastError=errorCode}},getNewId:function(table){var
ret=GL.counter++;for(var i=table.length;i<ret;i++){table[i]=null}return
ret},getSource:function(shader,count,string,length){var source=\"\";for(var i=0;i<count;++i){var
len=length?GROWABLE_HEAP_I32()[length+i*4>>2]:-
1;source+=UTF8ToString(GROWABLE_HEAP_I32()[string+i*4>>2],len<0?undefined:len)}return
source},createContext:function(canvas,webGLContextAttributes){var
ctx=canvas.getContext(\"webgl\",webGLContextAttributes);if(!ctx)return 0;var
handle=GL.registerContext(ctx,webGLContextAttributes);return
```

handle},registerContext:function(ctx,webGLContextAttributes){var
handle=_malloc(8);GROWABLE_HEAP_I32()[handle+4>>2]=_pthread_self();var
context={handle:handle,attributes:webGLContextAttributes,version:webGLContextAttributes.majorVersion,GLctx:
ctx};if(ctx.canvas)ctx.canvas.GLctxObject=context;GL.contexts[handle]=context;if(typeof
webGLContextAttributes.enableExtensionsByDefault===\"undefined\"||webGLContextAttributes.enableExtensions
ByDefault){GL.initExtensions(context)}return
handle},makeContextCurrent:function(contextHandle){GL.currentContext=GL.contexts[contextHandle];Module.ctx
=GLctx=GL.currentContext&&GL.currentContext.GLctx;return!(contextHandle&&!GLctx)},getContext:function(c
ontextHandle){return
GL.contexts[contextHandle]},deleteContext:function(contextHandle){if(GL.currentContext===GL.contexts[context
Handle])GL.currentContext=null;if(typeof
JSEvents===\"object\")JSEvents.removeAllHandlersOnTarget(GL.contexts[contextHandle].GLctx.canvas);if(GL.co
ntexts[contextHandle]&&GL.contexts[contextHandle].GLctx.canvas)GL.contexts[contextHandle].GLctx.canvas.GL
ctxObject=undefined;_free(GL.contexts[contextHandle].handle);GL.contexts[contextHandle]=null},initExtensions:f
unction(context){if(!context)context=GL.currentContext;if(context.initExtensionsDone)return;context.initExtension
sDone=true;var
GLctx=context.GLctx;__webgl_enable_ANGLE_instanced_arrays(GLctx);__webgl_enable_OES_vertex_array_obj
ect(GLctx);__webgl_enable_WEBGL_draw_buffers(GLctx);GLctx.disjointTimerQueryExt=GLctx.getExtension(\"
EXT_disjoint_timer_query\");__webgl_enable_WEBGL_multi_draw(GLctx);var
exts=GLctx.getSupportedExtensions()||[];exts.forEach(function(ext){if(ext.indexOf(\"lose_context\")<0&&ext.inde
xOf(\"debug\")<0){GLctx.getExtension(ext)}})},populateUniformTable:function(program){var
p=GL.programs[program];var
ptable=GL.programInfos[program]={uniforms:{},maxUniformLength:0,maxAttributeLength:-
1,maxUniformBlockNameLength:-1};var utable=ptable.uniforms;var
numUniforms=GLctx.getProgramParameter(p,35718);for(var i=0;i<numUniforms;++i){var
u=GLctx.getActiveUniform(p,i);var
name=u.name;ptable.maxUniformLength=Math.max(ptable.maxUniformLength,name.length+1);if(name.slice(-
1)==\"]\"){name=name.slice(0,name.lastIndexOf(\"[\"))}var loc=GLctx.getUniformLocation(p,name);if(loc){var
id=GL.getNewId(GL.uniforms);utable[name]=[u.size,id];GL.uniforms[id]=loc;for(var
j=1;j<u.size;++j){var
n=name+\"[\"+j+\"]\";loc=GLctx.getUniformLocation(p,n);id=GL.getNewId(GL.uniforms);GL.uniforms[id]=loc}}}
}};var __emscripten_webgl_power_preferences=[\"default\",\"low-power\",\"high-performance\"];function
_emscripten_webgl_do_create_context(target,attributes){var a=attributes>>2;var
powerPreference=GROWABLE_HEAP_I32()[a+(24>>2)];var
contextAttributes={\"alpha\":!!GROWABLE_HEAP_I32()[a+(0>>2)],\"depth\":!!GROWABLE_HEAP_I32()[a+(4
>>2)],\"stencil\":!!GROWABLE_HEAP_I32()[a+(8>>2)],\"antialias\":!!GROWABLE_HEAP_I32()[a+(12>>2)],\"p
remultipliedAlpha\":!!GROWABLE_HEAP_I32()[a+(16>>2)],\"preserveDrawingBuffer\":!!GROWABLE_HEAP_
I32()[a+(20>>2)],\"powerPreference\":__emscripten_webgl_power_preferences[powerPreference],\"failIfMajorPerf
ormanceCaveat\":!!GROWABLE_HEAP_I32()[a+(28>>2)],majorVersion:GROWABLE_HEAP_I32()[a+(32>>2)],
minorVersion:GROWABLE_HEAP_I32()[a+(36>>2)],enableExtensionsByDefault:GROWABLE_HEAP_I32()[a+(
40>>2)],explicitSwapControl:GROWABLE_HEAP_I32()[a+(44>>2)],proxyContextToMainThread:GROWABLE_
HEAP_I32()[a+(48>>2)],renderViaOffscreenBackBuffer:GROWABLE_HEAP_I32()[a+(52>>2)]};var
canvas=findCanvasEventTarget(target);if(!canvas){return 0}if(contextAttributes.explicitSwapControl){return
0}var contextHandle=GL.createContext(canvas,contextAttributes);return contextHandle}function
_emscripten_webgl_create_context(a0,a1){return _emscripten_webgl_do_create_context(a0,a1)}var
SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var
buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));
buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var

ret=GROWABLE_HEAP_I32()[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(3,1,fd);return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(4,1,fd,offset_low,offset_high,whence,newOffset)}function _fd_write(fd,iov,iovcnt,pnum){if(ENVIRONMENT_IS_PTHREAD)return _emscripten_proxy_to_main_thread_js(5,1,fd,iov,iovcnt,pnum);var num=0;for(var i=0;i<iovcnt;i++){var ptr=GROWABLE_HEAP_I32()[iov+i*8>>2];var len=GROWABLE_HEAP_I32()[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,GROWABLE_HEAP_U8()[ptr+j])}num+=len}GROWABLE_HEAP_I32()[pnum>>2]=num;return 0}function _pthread_cleanup_pop(execute){var routine=PThread.threadExitHandlers.pop();if(execute)routine()}function _pthread_cleanup_push(routine,arg){PThread.threadExitHandlers.push(function(){wasmTable.get(routine)(arg)})}function spawnThread(threadParams){if(ENVIRONMENT_IS_PTHREAD)throw\"Internal Error! spawnThread() can only ever be called from main application thread!\";var worker=PThread.getNewWorker();if(worker.pthread!==undefined)throw\"Internal error!\";if(!threadParams.pthread_ptr)throw\"Internal error, no pthread ptr!\";PThread.runningWorkers.push(worker);var tlsMemory=_malloc(128*4);for(var i=0;i<128;++i){GROWABLE_HEAP_I32()[tlsMemory+i*4>>2]=0}var stackHigh=threadParams.stackBase+threadParams.stackSize;var pthread=PThread.pthreads[threadParams.pthread_ptr]={worker:worker,stackBase:threadParams.stackBase,stackSize:threadParams.stackSize,allocatedOwnStack:threadParams.allocatedOwnStack,threadInfoStruct:threadParams.pthread_ptr};var tis=pthread.threadInfoStruct>>2;Atomics.store(GROWABLE_HEAP_U32(),tis+(64>>2),threadParams.detached);Atomics.store(GROWABLE_HEAP_U32(),tis+(100>>2),tlsMemory);Atomics.store(GROWABLE_HEAP_U32(),tis+(40>>2),pthread.threadInfoStruct);Atomics.store(GROWABLE_HEAP_U32(),tis+(80>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(76>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104>>2),threadParams.stackSize);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+8>>2),stackHigh);Atomics.store(GROWABLE_HEAP_U32(),tis+(104+12>>2),threadParams.detached);var global_libc=_emscripten_get_global_libc();var global_locale=global_libc+40;Atomics.store(GROWABLE_HEAP_U32(),tis+(172>>2),global_locale);worker.pthread=pthread;var msg={\"cmd\":\"run\",\"start_routine\":threadParams.startRoutine,\"arg\":threadParams.arg,\"threadInfoStruct\":threadParams.pthread_ptr,\"stackBase\":threadParams.stackBase,\"stackSize\":threadParams.stackSize};worker.runPthread=function(){msg.time=performance.now();worker.postMessage(msg,threadParams.transferList)};if(worker.loaded){worker.runPthread();delete worker.runPthread}}function _pthread_create(pthread_ptr,attr,start_routine,arg){if(typeof SharedArrayBuffer===\"undefined\"){err(\"Current environment does not support SharedArrayBuffer, pthreads are not available!\");return 6}if(!pthread_ptr){err(\"pthread_create called with a null thread pointer!\");return 28}var transferList=[];var error=0;if(ENVIRONMENT_IS_PTHREAD&&(transferList.length===0||error)){return _emscripten_sync_run_in_main_thread_4(687865856,pthread_ptr,attr,start_routine,arg)}if(error)return error;var stackSize=0;var stackBase=0;var detached=0;if(attr&&attr!=-1){stackSize=GROWABLE_HEAP_I32()[attr>>2];stackSize+=81920;stackBase=GROWABLE_HEAP_I32()[attr+8>>2];detached=GROWABLE_HEAP_I32()[attr+12>>2]!==0}else{stackSize=2097152}var allocatedOwnStack=stackBase==0;if(allocatedOwnStack){stackBase=_memalign(16,stackSize)}else{stackBase-=stackSize;assert(stackBase>0)}var threadInfoStruct=_malloc(228);for(var i=0;i<228>>2;++i)GROWABLE_HEAP_U32()[(threadInfoStruct>>2)+i]=0;GROWABLE_HEAP_I32()[pthread_ptr>>2]=threadInfoStruct;GROWABLE_HEAP_I32()[threadInfoStruct+12>>2]=threadInfoStruct;var headPtr=threadInfoStruct+152;GROWABLE_HEAP_I32()[headPtr>>2]=headPtr;var

threadParams={stackBase:stackBase,stackSize:stackSize,allocatedOwnStack:allocatedOwnStack,detached:detached
,startRoutine:start_routine,pthread_ptr:threadInfoStruct,arg:arg,transferList:transferList};if(ENVIRONMENT_IS_P
THREAD){threadParams.cmd=\"spawnThread\";postMessage(threadParams,transferList)}else{spawnThread(thread
Params)}return
0}function __pthread_testcancel_js(){if(!ENVIRONMENT_IS_PTHREAD)return;var
tb=_pthread_self();if(!tb)return;var
cancelDisabled=Atomics.load(GROWABLE_HEAP_U32(),tb+56>>2);if(cancelDisabled)return;var
canceled=Atomics.load(GROWABLE_HEAP_U32(),tb+0>>2);if(canceled==2)throw\"Canceled!\"}function
_emscripten_check_blocking_allowed(){if(ENVIRONMENT_IS_NODE)return;if(ENVIRONMENT_IS_WORKE
R)return;warnOnce(\"Blocking on the main thread is very dangerous, see
https://emscripten.org/docs/porting/pthreads.html#blocking-on-the-main-browser-thread\")}function
__emscripten_do_pthread_join(thread,status,block){if(!thread){err(\"pthread_join attempted on a null thread
pointer!\");return
ERRNO_CODES.ESRCH}if(ENVIRONMENT_IS_PTHREAD&&_pthread_self()==thread){err(\"PThread
\"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}else
if(!ENVIRONMENT_IS_PTHREAD&&_emscripten_main_browser_thread_id()==thread){err(\"Main
thread \"+thread+\" is attempting to join to itself!\");return ERRNO_CODES.EDEADLK}var
self=GROWABLE_HEAP_I32()[thread+12>>2];if(self!==thread){err(\"pthread_join attempted on thread
\"+thread+\", which does not point to a valid thread, or does not exist anymore!\");return
ERRNO_CODES.ESRCH}var
detached=Atomics.load(GROWABLE_HEAP_U32(),thread+64>>2);if(detached){err(\"Attempted to join thread
\"+thread+\", which was already detached!\");return
ERRNO_CODES.EINVAL}if(block){_emscripten_check_blocking_allowed()}for(;;){var
threadStatus=Atomics.load(GROWABLE_HEAP_U32(),thread+0>>2);if(threadStatus==1){var
threadExitCode=Atomics.load(GROWABLE_HEAP_U32(),thread+4>>2);if(status)GROWABLE_HEAP_I32()[sta
tus>>2]=threadExitCode;Atomics.store(GROWABLE_HEAP_U32(),thread+64>>2,1);if(!ENVIRONMENT_IS_PT
HREAD)cleanupThread(thread);else postMessage({\"cmd\":\"cleanupThread\",\"thread\":thread});return
0}if(!block){return
ERRNO_CODES.EBUSY}__pthread_testcancel_js();if(!ENVIRONMENT_IS_PTHREAD)_emscripten_main_thre
ad_process_queued_calls();_emscripten_futex_wait(thread+0,threadStatus,ENVIRONMENT_IS_PTHREAD?100:1
)}}function
_pthread_join(thread,status){return __emscripten_do_pthread_join(thread,status,true)}function
_sysconf(name){if(ENVIRONMENT_IS_PTHREAD)return
_emscripten_proxy_to_main_thread_js(6,1,name);switch(name){case 30:return 16384;case 85:var
maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case
235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case
159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case
48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case
161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case
49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case
97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case
157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case
69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case
34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return
65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case
71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case
6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return
navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-

1}if(!ENVIRONMENT_IS_PTHREAD)PThread.initMainThreadBlock();var GLctx;var
proxiedFunctionTable=[null,_atexit,_emscripten_set_canvas_element_size_main_thread,_fd_close,_fd_seek,_fd_wr
ite,_sysconf];var
asmLibraryArg={\"e\":___assert_fail,\"r\":___call_main,\"x\":__emscripten_notify_thread_queue,\"b\":_abort,\"y\":
_emscripten_asm_const_int,\"j\":_emscripten_conditional_set_current_thread_status,\"d\":_emscripten_futex_wait,\
"c\":_emscripten_futex_wake,\"f\":_emscripten_get_now,\"p\":_emscripten_memcpy_big,\"A\":_emscripten_num_l
ogical_cores,\"u\":_emscripten_receive_on_main_thread_js,\"q\":_emscripten_resize_heap,\"v\":_emscripten_set_ca
nvas_element_size,\"i\":_emscripten_set_current_thread_status,\"s\":_emscripten_set_thread_name,\"w\":_emscript
en_webgl_create_context,\"l\":_fd_close,\"n\":_fd_seek,\"g\":_fd_write,\"o\":initPthreadsJS,\"a\":wasmMemory||Mo
dule[\"wasmMemory\"],\"z\":_pthread_cleanup_pop,\"k\":_pthread_cleanup_push,\"h\":_pthread_create,\"m\":_pthr
ead_join,\"t\":_sysconf};var asm=createWasm();var
___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm
_call_ctors\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};
var
_init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Mod
ule[\"_init_with_threads_count\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads
_count\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=M
odule[\"asm\"][\"F\"]).apply(null,arguments)};var
_dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"
asm\"][\"G\"]).apply(null,arguments)};var
_dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"H\"]).apply(
null,arguments)};var
_Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"J\"]).apply(null,arguments
)};var
_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"K\"]).apply(null,argumen
ts)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"L\"]).apply(null,ar
guments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};
var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"N\"]).apply(null,argumen
ts)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"O\"]).ap
ply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"P\"]).a
pply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Modu
le[\"asm\"][\"Q\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"R\"]).apply(null,argument
s)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\
"asm\"][\"S\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"T\"]).app
ly(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Modul

e[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"V\"]).apply(null,arguments
)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"W\"]).apply(null,argu
ments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]
=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"Y\"]).a
pply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=M
odule[\"asm\"][\"Z\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=M
odule[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)}
;var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"aa\"]).apply(null,ar
guments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"ba\"]).apply(null,argument
s)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Modul
e[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"da\"]).apply(null,arg
uments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"ea\"]).
apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchN
orm\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Mod
ule[\"asm\"][\"ga\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=M
odule[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"ia\"]).apply(nul
l,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"ja\"
]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"ka\"]).apply(
null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\
"asm\"][\"la\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\
"ma\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"na\"]).apply(null,argume
nts)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"o
a\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"pa\"]).apply(null,argument
s)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm

\"][\"qa\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"ra\"]).apply(null,argume
nts)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"sa\"]).
apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ta\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"ua\"]).apply(null,ar
guments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"va\"]).apply(null,argumen
ts)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"wa
\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ya\"]).a
pply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"za\"]).apply(null,argumen
ts)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Mod
ule[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"Aa\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Mod
ule[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"Ba\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Mod
ule[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"Ca\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"Da\"
]).apply(null,arguments)};var
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"Ea\"]).appl
y(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"Fa\"]).apply(nu
ll,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"Ga\"]).apply(null,argume
nts)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"Ia\"]).apply(null,argum
ents)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"Ja\"]).app
ly(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"Ka\"]).apply(null,argum
ents)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"La\"]).apply(null,a
rguments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Mo
dule[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"Na\"]).app
ly(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWith

Offset\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"Pa\"]).apply(nul
l,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"Qa\"]).apply(null,arg
uments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Ra
\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Sa\"]).
apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ta\"]).ap
ply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)
};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Va\"]).a
pply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Wa\"]).apply(null,argume
nts)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Xa\"]).apply(n
ull,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_Squared
Difference\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Za\"]).apply(null,argume
nts)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"as
m\"][\"_a\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"$a\"]).apply(null,argument
s)};var
_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"ab\"]).apply(null,argume
nts)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"bb\"]).apply(null,argument
s)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"cb\"]).apply(null,argu
ments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"db\"]).apply(null,argument
s)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"eb\"]).apply(null,ar
guments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"f
b\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"g
b\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=
Module[\"asm\"][\"hb\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"ib\"]).apply(nul
l,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"jb\"]).apply(null,arguments
)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_locati

on\"]=Module[\"asm\"][\"kb\"]).apply(null,arguments)};var
_emscripten_get_global_libc=Module[\"_emscripten_get_global_libc\"]=function(){return(_emscripten_get_global
_libc=Module[\"_emscripten_get_global_libc\"]=Module[\"asm\"][\"lb\"]).apply(null,arguments)};var
_pthread_self=Module[\"_pthread_self\"]=function(){return(_pthread_self=Module[\"_pthread_self\"]=Module[\"as
m\"][\"mb\"]).apply(null,arguments)};var
___pthread_tsd_run_dtors=Module[\"___pthread_tsd_run_dtors\"]=function(){return(___pthread_tsd_run_dtors=M
odule[\"___pthread_tsd_run_dtors\"]=Module[\"asm\"][\"nb\"]).apply(null,arguments)};var
_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_queued_calls\"]=fu
nction(){return(_emscripten_main_thread_process_queued_calls=Module[\"_emscripten_main_thread_process_que
ued_calls\"]=Module[\"asm\"][\"ob\"]).apply(null,arguments)};var
_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_process_queued_calls\"]
=function(){return(_emscripten_current_thread_process_queued_calls=Module[\"_emscripten_current_thread_proc
ess_queued_calls\"]=Module[\"asm\"][\"pb\"]).apply(null,arguments)};var
_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_id\"]=functi
on(){return(_emscripten_register_main_browser_thread_id=Module[\"_emscripten_register_main_browser_thread_
id\"]=Module[\"asm\"][\"qb\"]).apply(null,arguments)};var
_emscripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=function(){return(_ems
cripten_main_browser_thread_id=Module[\"_emscripten_main_browser_thread_id\"]=Module[\"asm\"][\"rb\"]).app
ly(null,arguments)};var
__emscripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=function(){return(__emsc
ripten_do_dispatch_to_thread=Module[\"__emscripten_do_dispatch_to_thread\"]=Module[\"asm\"][\"sb\"]).apply(n
ull,arguments)};var
_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=function(){retur
n(_emscripten_sync_run_in_main_thread_4=Module[\"_emscripten_sync_run_in_main_thread_4\"]=Module[\"asm\
"][\"tb\"]).apply(null,arguments)};var
_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=function(
){return(_emscripten_run_in_main_runtime_thread_js=Module[\"_emscripten_run_in_main_runtime_thread_js\"]=
Module[\"asm\"][\"ub\"]).apply(null,arguments)};var
__emscripten_call_on_thread=Module[\"__emscripten_call_on_thread\"]=function(){return(__emscripten_call_on_t
hread=Module[\"__emscripten_call_on_thread\"]=Module[\"asm\"][\"vb\"]).apply(null,arguments)};var
_emscripten_tls_init=Module[\"_emscripten_tls_init\"]=function(){return(_emscripten_tls_init=Module[\"_emscript
en_tls_init\"]=Module[\"asm\"][\"wb\"]).apply(null,arguments)};var
__emscripten_thread_init=Module[\"__emscripten_thread_init\"]=function(){return(__emscripten_thread_init=Mod
ule[\"__emscripten_thread_init\"]=Module[\"asm\"][\"xb\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"yb\"]).a
pply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"
][\"zb\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ab\"
]).apply(null,arguments)};var
_emscripten_stack_set_limits=Module[\"_emscripten_stack_set_limits\"]=function(){return(_emscripten_stack_set_
limits=Module[\"_emscripten_stack_set_limits\"]=Module[\"asm\"][\"Bb\"]).apply(null,arguments)};var
_memalign=Module[\"_memalign\"]=function(){return(_memalign=Module[\"_memalign\"]=Module[\"asm\"][\"Cb
\"]).apply(null,arguments)};var
__emscripten_allow_main_runtime_queued_calls=Module[\"__emscripten_allow_main_runtime_queued_calls\"]=1
0512;var
__emscripten_main_thread_futex=Module[\"__emscripten_main_thread_futex\"]=12148;Module[\"cwrap\"]=cwrap
;Module[\"PThread\"]=PThread;Module[\"PThread\"]=PThread;Module[\"wasmMemory\"]=wasmMemory;Module

[\"ExitStatus\"]=ExitStatus;var
calledRun;function ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}if(ENVIRONMENT_IS_PTHREAD){readyPromis
eResolve(Module);initRuntime();postMessage({\"cmd\":\"loaded\"});return}preRun();if(runDependencies>0){retur
n}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain(
);readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun(
)}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Mo
dule[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;function
exit(status,implicit){if(implicit&&noExitRuntime&&status===0){return}if(!implicit){if(ENVIRONMENT_IS_PT
HREAD){postMessage({\"cmd\":\"exitProcess\",\"returnCode\":status});throw
new
ExitStatus(status)}else{}}if(noExitRuntime){}else{PThread.terminateAllThreads();EXITSTATUS=status;exitRunti
me();if(Module[\"onExit\"])Module[\"onExit\"](status);ABORT=true}quit_(status,new
ExitStatus(status))}if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}}if(ENVIRONMENT_IS_PTHREAD){noExitRuntime=false;PThread.initWorker()}run
();\n\n\n return WasmBackendModuleThreadedSimd.ready\n}\n);\n})();\nif (typeof exports === 'object' && typeof
module === 'object')\n module.exports = WasmBackendModuleThreadedSimd;\nelse if (typeof define ===
'function' && define['amd'])\n define([], function() { return WasmBackendModuleThreadedSimd; });\nelse if
(typeof exports === 'object')\n exports[\"WasmBackendModuleThreadedSimd\"]
= WasmBackendModuleThreadedSimd;\n","\nvar WasmBackendModule = (function() {\n var _scriptDir = typeof
document !== 'undefined' && document.currentScript ? document.currentScript.src : undefined;\n if (typeof
__filename !== 'undefined') _scriptDir = _scriptDir || __filename;\n return (\nfunction(WasmBackendModule) {\n
WasmBackendModule = WasmBackendModule || {};\n\nvar Module=typeof
WasmBackendModule!==\"undefined\"?WasmBackendModule:{};var
readyPromiseResolve,readyPromiseReject;Module[\"ready\"]=new
Promise(function(resolve,reject){readyPromiseResolve=resolve;readyPromiseReject=reject});var
moduleOverrides={};var key;for(key in
Module){if(Module.hasOwnProperty(key)){moduleOverrides[key]=Module[key]}}var arguments_=[];var
thisProgram=\"./this.program\";var quit_=function(status,toThrow){throw toThrow};var
ENVIRONMENT_IS_WEB=false;var ENVIRONMENT_IS_WORKER=false;var
ENVIRONMENT_IS_NODE=false;var ENVIRONMENT_IS_SHELL=false;ENVIRONMENT_IS_WEB=typeof
window===\"object\";ENVIRONMENT_IS_WORKER=typeof
importScripts===\"function\";ENVIRONMENT_IS_NODE=typeof process===\"object\"&&typeof
process.versions===\"object\"&&typeof
process.versions.node===\"string\";ENVIRONMENT_IS_SHELL=!ENVIRONMENT_IS_WEB&&!ENVIRONM
ENT_IS_NODE&&!ENVIRONMENT_IS_WORKER;var scriptDirectory=\"\";function
locateFile(path){if(Module[\"locateFile\"]){return Module[\"locateFile\"](path,scriptDirectory)}return
scriptDirectory+path}var read_,readAsync,readBinary,setWindowTitle;var nodeFS;var
nodePath;if(ENVIRONMENT_IS_NODE){if(ENVIRONMENT_IS_WORKER){scriptDirectory=require(\"path\").
dirname(scriptDirectory)+\"/\"}else{scriptDirectory=__dirname+\"/\"}read_=function
shell_read(filename,binary){if(!nodeFS)nodeFS=require(\"fs\");if(!nodePath)nodePath=require(\"path\");filename=n
odePath[\"normalize\"](filename);return
nodeFS[\"readFileSync\"](filename,binary?null:\"utf8\")};readBinary=function readBinary(filename){var
ret=read_(filename,true);if(!ret.buffer){ret=new Uint8Array(ret)}assert(ret.buffer);return

ret};if(process[\"argv\"].length>1){thisProgram=process[\"argv\"][1].replace(/\\\\/g,\"/\")}arguments_=process[\"argv\"].slice(2);process[\"on\"](\"uncaughtException\",function(ex){if(!(ex instanceof ExitStatus)){throw ex}});process[\"on\"](\"unhandledRejection\",abort);quit_=function(status){process[\"exit\"](status)};Module[\"inspect\"]=function(){return\"[Emscripten Module object]\"}}else if(ENVIRONMENT_IS_SHELL){if(typeof read!=\"undefined\"){read_=function shell_read(f){return read(f)}}readBinary=function readBinary(f){var data;if(typeof readbuffer===\"function\"){return new Uint8Array(readbuffer(f))}data=read(f,\"binary\");assert(typeof data===\"object\");return data};if(typeof scriptArgs!=\"undefined\"){arguments_=scriptArgs}else if(typeof arguments!=\"undefined\"){arguments_=arguments}if(typeof quit===\"function\"){quit_=function(status){quit(status)}}if(typeof print!==\"undefined\"){if(typeof console===\"undefined\")console={};console.log=print;console.warn=console.error=typeof printErr!==\"undefined\"?printErr:print}}else if(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER){if(ENVIRONMENT_IS_WORKER){scriptDirectory=self.location.href}else if(typeof document!==\"undefined\"&&document.currentScript){scriptDirectory=document.currentScript.src}if(_scriptDir){scriptDirectory=_scriptDir}if(scriptDirectory.indexOf(\"blob:\")!==0){scriptDirectory=scriptDirectory.substr(0,scriptDirectory.lastIndexOf(\"/\")+1)}else{scriptDirectory=\"\"}{read_=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.send(null);return xhr.responseText};if(ENVIRONMENT_IS_WORKER){readBinary=function(url){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,false);xhr.responseType=\"arraybuffer\";xhr.send(null);return new Uint8Array(xhr.response)}}readAsync=function(url,onload,onerror){var xhr=new XMLHttpRequest;xhr.open(\"GET\",url,true);xhr.responseType=\"arraybuffer\";xhr.onload=function(){if(xhr.status==200||xhr.status==0&&xhr.response){onload(xhr.response);return}onerror()};xhr.onerror=onerror;xhr.send(null)}}setWindowTitle=function(title){document.title=title}}else{}var out=Module[\"print\"]||console.log.bind(console);var err=Module[\"printErr\"]||console.warn.bind(console);for(key in moduleOverrides){if(moduleOverrides.hasOwnProperty(key)){Module[key]=moduleOverrides[key]}}moduleOverrides=null;if(Module[\"arguments\"])arguments_=Module[\"arguments\"];if(Module[\"thisProgram\"])thisProgram=Module[\"thisProgram\"];if(Module[\"quit\"])quit_=Module[\"quit\"];var wasmBinary;if(Module[\"wasmBinary\"])wasmBinary=Module[\"wasmBinary\"];var noExitRuntime=Module[\"noExitRuntime\"]||true;if(typeof WebAssembly!==\"object\"){abort(\"no native wasm support detected\")}var wasmMemory;var ABORT=false;var EXITSTATUS;function assert(condition,text){if(!condition){abort(\"Assertion failed: \"+text)}}function getCFunc(ident){var func=Module[\"_\"+ident];assert(func,\"Cannot call unknown function \"+ident+\", make sure it is exported\");return func}function ccall(ident,returnType,argTypes,args,opts){var toC={\"string\":function(str){var ret=0;if(str!==null&&str!==undefined&&str!==0){var len=(str.length<<2)+1;ret=stackAlloc(len);stringToUTF8(str,ret,len)}return ret},\"array\":function(arr){var ret=stackAlloc(arr.length);writeArrayToMemory(arr,ret);return ret}};function convertReturnValue(ret){if(returnType===\"string\")return UTF8ToString(ret);if(returnType===\"boolean\")return Boolean(ret);return ret}var func=getCFunc(ident);var cArgs=[];var stack=0;if(args){for(var i=0;i<args.length;i++){var converter=toC[argTypes[i]];if(converter){if(stack===0)stack=stackSave();cArgs[i]=converter(args[i])}else{cArgs[i]=args[i]}}}var ret=func.apply(null,cArgs);ret=convertReturnValue(ret);if(stack!==0)stackRestore(stack);return ret}function cwrap(ident,returnType,argTypes,opts){argTypes=argTypes||[];var numericArgs=argTypes.every(function(type){return type===\"number\"});var numericRet=returnType!==\"string\";if(numericRet&&numericArgs&&!opts){return getCFunc(ident)}return

function(){return ccall(ident,returnType,argTypes,arguments,opts)}}var UTF8Decoder=typeof TextDecoder!==\"undefined\"?new TextDecoder(\"utf8\"):undefined;function UTF8ArrayToString(heap,idx,maxBytesToRead){var endIdx=idx+maxBytesToRead;var endPtr=idx;while(heap[endPtr]&&!(endPtr>=endIdx))++endPtr;if(endPtr-idx>16&&heap.subarray&&UTF8Decoder){return UTF8Decoder.decode(heap.subarray(idx,endPtr))}else{var str=\"\";while(idx<endPtr){var u0=heap[idx++];if(!(u0&128)){str+=String.fromCharCode(u0);continue}var u1=heap[idx++]&63;if((u0&224)==192){str+=String.fromCharCode((u0&31)<<6|u1);continue}var u2=heap[idx++]&63;if((u0&240)==224){u0=(u0&15)<<12|u1<<6|u2}else{u0=(u0&7)<<18|u1<<12|u2<<6|heap[idx++]&63}if(u0<65536){str+=String.fromCharCode(u0)}else{var ch=u0-65536;str+=String.fromCharCode(55296|ch>>10,56320|ch&1023)}}}return str}function UTF8ToString(ptr,maxBytesToRead){return ptr?UTF8ArrayToString(HEAPU8,ptr,maxBytesToRead):\"\"}function stringToUTF8Array(str,heap,outIdx,maxBytesToWrite){if(!(maxBytesToWrite>0))return 0;var startIdx=outIdx;var endIdx=outIdx+maxBytesToWrite-1;for(var i=0;i<str.length;++i){var u=str.charCodeAt(i);if(u>=55296&&u<=57343){var u1=str.charCodeAt(++i);u=65536+((u&1023)<<10)|u1&1023}if(u<=127){if(outIdx>=endIdx)break;heap[outIdx++]=u}else if(u<=2047){if(outIdx+1>=endIdx)break;heap[outIdx++]=192|u>>6;heap[outIdx++]=128|u&63}else if(u<=65535){if(outIdx+2>=endIdx)break;heap[outIdx++]=224|u>>12;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}else{if(outIdx+3>=endIdx)break;heap[outIdx++]=240|u>>18;heap[outIdx++]=128|u>>12&63;heap[outIdx++]=128|u>>6&63;heap[outIdx++]=128|u&63}}heap[outIdx]=0;return outIdx-startIdx}function stringToUTF8(str,outPtr,maxBytesToWrite){return stringToUTF8Array(str,HEAPU8,outPtr,maxBytesToWrite)}function writeArrayToMemory(array,buffer){HEAP8.set(array,buffer)}function alignUp(x,multiple){if(x%multiple>0){x+=multiple-x%multiple}return x}var buffer,HEAP8,HEAPU8,HEAP16,HEAPU16,HEAP32,HEAPU32,HEAPF32,HEAPF64;function updateGlobalBufferAndViews(buf){buffer=buf;Module[\"HEAP8\"]=HEAP8=new Int8Array(buf);Module[\"HEAP16\"]=HEAP16=new Int16Array(buf);Module[\"HEAP32\"]=HEAP32=new Int32Array(buf);Module[\"HEAPU8\"]=HEAPU8=new Uint8Array(buf);Module[\"HEAPU16\"]=HEAPU16=new Uint16Array(buf);Module[\"HEAPU32\"]=HEAPU32=new Uint32Array(buf);Module[\"HEAPF32\"]=HEAPF32=new Float32Array(buf);Module[\"HEAPF64\"]=HEAPF64=new Float64Array(buf)}var INITIAL_MEMORY=Module[\"INITIAL_MEMORY\"]||16777216;var wasmTable;var __ATPRERUN__=[];var __ATINIT__=[];var __ATMAIN__=[];var __ATPOSTRUN__=[];var runtimeInitialized=false;__ATINIT__.push({func:function(){___wasm_call_ctors()}});function preRun(){if(Module[\"preRun\"]){if(typeof Module[\"preRun\"]==\"function\")Module[\"preRun\"]=[Module[\"preRun\"]];while(Module[\"preRun\"].length){addOnPreRun(Module[\"preRun\"].shift())}}callRuntimeCallbacks(__ATPRERUN__)}function initRuntime(){runtimeInitialized=true;callRuntimeCallbacks(__ATINIT__)}function preMain(){callRuntimeCallbacks(__ATMAIN__)}function postRun(){if(Module[\"postRun\"]){if(typeof Module[\"postRun\"]==\"function\")Module[\"postRun\"]=[Module[\"postRun\"]];while(Module[\"postRun\"].length){addOnPostRun(Module[\"postRun\"].shift())}}callRuntimeCallbacks(__ATPOSTRUN__)}function addOnPreRun(cb){__ATPRERUN__.unshift(cb)}function addOnPostRun(cb){__ATPOSTRUN__.unshift(cb)}var runDependencies=0;var runDependencyWatcher=null;var dependenciesFulfilled=null;function addRunDependency(id){runDependencies++;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}}function removeRunDependency(id){runDependencies--;if(Module[\"monitorRunDependencies\"]){Module[\"monitorRunDependencies\"](runDependencies)}if(runDependencies==0){if(runDependencyWatcher!==null){clearInterval(runDependencyWatcher);runDependencyWatcher=nul

l}if(dependenciesFulfilled){var
callback=dependenciesFulfilled;dependenciesFulfilled=null;callback()}}}Module[\"preloadedImages\"]={};Module
[\"preloadedAudios\"]={};function
abort(what){if(Module[\"onAbort\"]){Module[\"onAbort\"](what)}what+=\"\";err(what);ABORT=true;EXITSTAT
US=1;what=\"abort(\"+what+\"). Build with -s ASSERTIONS=1 for more info.\";var e=new
WebAssembly.RuntimeError(what);readyPromiseReject(e);throw e}function hasPrefix(str,prefix){return
String.prototype.startsWith?str.startsWith(prefix):str.indexOf(prefix)===0}var
dataURIPrefix=\"data:application/octet-stream; base64,\";function isDataURI(filename){return
hasPrefix(filename,dataURIPrefix)}var fileURIPrefix=\"file://\";function isFileURI(filename){return
hasPrefix(filename,fileURIPrefix)}var wasmBinaryFile=\"tfjs-backend-
wasm.wasm\";if(!isDataURI(wasmBinaryFile)){wasmBinaryFile=locateFile(wasmBinaryFile)}function
getBinary(file){try{if(file==wasmBinaryFile&&wasmBinary){return new
Uint8Array(wasmBinary)}if(readBinary){return readBinary(file)}else{throw\"both async and sync fetching of the
wasm failed\"}}catch(err){abort(err)}}function
getBinaryPromise(){if(!wasmBinary&&(ENVIRONMENT_IS_WEB||ENVIRONMENT_IS_WORKER)){if(typeof
fetch===\"function\"&&!isFileURI(wasmBinaryFile)){return fetch(wasmBinaryFile,{credentials:\"same-
origin\"}).then(function(response){if(!response[\"ok\"]){throw\"failed to load wasm binary file at
'\"+wasmBinaryFile+\"'\"}return response[\"arrayBuffer\"]()}).catch(function(){return
getBinary(wasmBinaryFile)})}else{if(readAsync){return new
Promise(function(resolve,reject){readAsync(wasmBinaryFile,function(response){resolve(new
Uint8Array(response))},reject)})}}}return Promise.resolve().then(function(){return
getBinary(wasmBinaryFile)})}function createWasm(){var info={\"a\":asmLibraryArg};function
receiveInstance(instance,module){var
exports=instance.exports;Module[\"asm\"]=exports;wasmMemory=Module[\"asm\"][\"j\"];updateGlobalBufferAnd
Views(wasmMemory.buffer);wasmTable=Module[\"asm\"][\"r\"];removeRunDependency(\"wasm-
instantiate\")}addRunDependency(\"wasm-instantiate\");function
receiveInstantiatedSource(output){receiveInstance(output[\"instance\"])}function
instantiateArrayBuffer(receiver){return getBinaryPromise().then(function(binary){return
WebAssembly.instantiate(binary,info)}).then(receiver,function(reason){err(\"failed to asynchronously prepare
wasm: \"+reason);abort(reason)})}function instantiateAsync(){if(!wasmBinary&&typeof
WebAssembly.instantiateStreaming===\"function\"&&!isDataURI(wasmBinaryFile)&&!isFileURI(wasmBinaryFil
e)&&typeof fetch===\"function\"){return fetch(wasmBinaryFile,{credentials:\"same-
origin\"}).then(function(response){var result=WebAssembly.instantiateStreaming(response,info);return
result.then(receiveInstantiatedSource,function(reason){err(\"wasm streaming compile failed: \"+reason);err(\"falling
back to ArrayBuffer instantiation\");return instantiateArrayBuffer(receiveInstantiatedSource)})})}else{return
instantiateArrayBuffer(receiveInstantiatedSource)}}if(Module[\"instantiateWasm\"]){try{var
exports=Module[\"instantiateWasm\"](info,receiveInstance);return exports}catch(e){err(\"Module.instantiateWasm
callback failed with error: \"+e);return false}}instantiateAsync().catch(readyPromiseReject);return{}}function
callRuntimeCallbacks(callbacks){while(callbacks.length>0){var callback=callbacks.shift();if(typeof
callback==\"function\"){callback(Module);continue}var func=callback.func;if(typeof
func===\"number\"){if(callback.arg===undefined){wasmTable.get(func)()}else{wasmTable.get(func)(callback.arg)
}}else{func(callback.arg===undefined?null:callback.arg)}}}function _abort(){abort()}function
_emscripten_memcpy_big(dest,src,num){HEAPU8.copyWithin(dest,src,src+num)}function
_emscripten_get_heap_size(){return HEAPU8.length}function
emscripten_realloc_buffer(size){try{wasmMemory.grow(size-
buffer.byteLength+65535>>>16);updateGlobalBufferAndViews(wasmMemory.buffer);return
1}catch(e){}}function _emscripten_resize_heap(requestedSize){var oldSize=_emscripten_get_heap_size();var
maxHeapSize=2147483648;if(requestedSize>maxHeapSize){return false}for(var

cutDown=1;cutDown<=4;cutDown*=2){var overGrownHeapSize=oldSize*(1+.2/cutDown);overGrownHeapSize=Math.min(overGrownHeapSize,requestedSize+100663296);var newSize=Math.min(maxHeapSize,alignUp(Math.max(requestedSize,overGrownHeapSize),65536));var replacement=emscripten_realloc_buffer(newSize);if(replacement){return true}}return false}var SYSCALLS={mappings:{},buffers:[null,[],[]],printChar:function(stream,curr){var buffer=SYSCALLS.buffers[stream];if(curr===0||curr===10){(stream===1?out:err)(UTF8ArrayToString(buffer,0));buffer.length=0}else{buffer.push(curr)}},varargs:undefined,get:function(){SYSCALLS.varargs+=4;var ret=HEAP32[SYSCALLS.varargs-4>>2];return ret},getStr:function(ptr){var ret=UTF8ToString(ptr);return ret},get64:function(low,high){return low}};function _fd_close(fd){return 0}function _fd_seek(fd,offset_low,offset_high,whence,newOffset){}function _fd_write(fd,iov,iovcnt,pnum){var num=0;for(var i=0;i<iovcnt;i++){var ptr=HEAP32[iov+i*8>>2];var len=HEAP32[iov+(i*8+4)>>2];for(var j=0;j<len;j++){SYSCALLS.printChar(fd,HEAPU8[ptr+j])}num+=len}HEAP32[pnum>>2]=num;return 0}function _pthread_create(){return 6}function _pthread_join(){return 28}function setErrNo(value){HEAP32[___errno_location()>>2]=value;return value}function _sysconf(name){switch(name){case 30:return 16384;case 85:var maxHeapSize=2147483648;return maxHeapSize/16384;case 132:case 133:case 12:case 137:case 138:case 15:case 235:case 16:case 17:case 18:case 19:case 20:case 149:case 13:case 10:case 236:case 153:case 9:case 21:case 22:case 159:case 154:case 14:case 77:case 78:case 139:case 82:case 68:case 67:case 164:case 11:case 29:case 47:case 48:case 95:case 52:case 51:case 46:return 200809;case 27:case 246:case 127:case 128:case 23:case 24:case 160:case 161:case 181:case 182:case 242:case 183:case 184:case 243:case 244:case 245:case 165:case 178:case 179:case 49:case 50:case 168:case 169:case 175:case 170:case 171:case 172:case 97:case 76:case 32:case 173:case 35:case 80:case 81:case 79:return-1;case 176:case 177:case 7:case 155:case 8:case 157:case 125:case 126:case 92:case 93:case 129:case 130:case 131:case 94:case 91:return 1;case 74:case 60:case 69:case 70:case 4:return 1024;case 31:case 42:case 72:return 32;case 87:case 26:case 33:return 2147483647;case 34:case 1:return 47839;case 38:case 36:return 99;case 43:case 37:return 2048;case 0:return 2097152;case 3:return 65536;case 28:return 32768;case 44:return 32767;case 75:return 16384;case 39:return 1e3;case 89:return 700;case 71:return 256;case 40:return 255;case 2:return 100;case 180:return 64;case 25:return 20;case 5:return 16;case 6:return 6;case 73:return 4;case 84:{if(typeof navigator===\"object\")return navigator[\"hardwareConcurrency\"]||1;return 1}}setErrNo(28);return-1};var asmLibraryArg={\"a\":_abort,\"d\":_emscripten_memcpy_big,\"e\":_emscripten_resize_heap,\"f\":_fd_close,\"c\":_fd_seek,\"b\":_fd_write,\"h\":_pthread_create,\"g\":_pthread_join,\"i\":_sysconf};var asm=createWasm();var ___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=function(){return(___wasm_call_ctors=Module[\"___wasm_call_ctors\"]=Module[\"asm\"][\"k\"]).apply(null,arguments)};var _init=Module[\"_init\"]=function(){return(_init=Module[\"_init\"]=Module[\"asm\"][\"l\"]).apply(null,arguments)};var _init_with_threads_count=Module[\"_init_with_threads_count\"]=function(){return(_init_with_threads_count=Module[\"_init_with_threads_count\"]=Module[\"asm\"][\"m\"]).apply(null,arguments)};var _get_threads_count=Module[\"_get_threads_count\"]=function(){return(_get_threads_count=Module[\"_get_threads_count\"]=Module[\"asm\"][\"n\"]).apply(null,arguments)};var _register_tensor=Module[\"_register_tensor\"]=function(){return(_register_tensor=Module[\"_register_tensor\"]=Module[\"asm\"][\"o\"]).apply(null,arguments)};var _dispose_data=Module[\"_dispose_data\"]=function(){return(_dispose_data=Module[\"_dispose_data\"]=Module[\"asm\"][\"p\"]).apply(null,arguments)};var _dispose=Module[\"_dispose\"]=function(){return(_dispose=Module[\"_dispose\"]=Module[\"asm\"][\"q\"]).apply(null,arguments)};var _Abs=Module[\"_Abs\"]=function(){return(_Abs=Module[\"_Abs\"]=Module[\"asm\"][\"s\"]).apply(null,arguments)};var

_Add=Module[\"_Add\"]=function(){return(_Add=Module[\"_Add\"]=Module[\"asm\"][\"t\"]).apply(null,arguments)};var
_AddN=Module[\"_AddN\"]=function(){return(_AddN=Module[\"_AddN\"]=Module[\"asm\"][\"u\"]).apply(null,arguments)};var
_All=Module[\"_All\"]=function(){return(_All=Module[\"_All\"]=Module[\"asm\"][\"v\"]).apply(null,arguments)};var
_Any=Module[\"_Any\"]=function(){return(_Any=Module[\"_Any\"]=Module[\"asm\"][\"w\"]).apply(null,arguments)};var
_ArgMax=Module[\"_ArgMax\"]=function(){return(_ArgMax=Module[\"_ArgMax\"]=Module[\"asm\"][\"x\"]).apply(null,arguments)};var
_AvgPool=Module[\"_AvgPool\"]=function(){return(_AvgPool=Module[\"_AvgPool\"]=Module[\"asm\"][\"y\"]).apply(null,arguments)};var
_BatchMatMul=Module[\"_BatchMatMul\"]=function(){return(_BatchMatMul=Module[\"_BatchMatMul\"]=Module[\"asm\"][\"z\"]).apply(null,arguments)};var
_Ceil=Module[\"_Ceil\"]=function(){return(_Ceil=Module[\"_Ceil\"]=Module[\"asm\"][\"A\"]).apply(null,arguments)};var
_ClipByValue=Module[\"_ClipByValue\"]=function(){return(_ClipByValue=Module[\"_ClipByValue\"]=Module[\"asm\"][\"B\"]).apply(null,arguments)};var
_Conv2D=Module[\"_Conv2D\"]=function(){return(_Conv2D=Module[\"_Conv2D\"]=Module[\"asm\"][\"C\"]).apply(null,arguments)};var
_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=function(){return(_Conv2DBackpropInput=Module[\"_Conv2DBackpropInput\"]=Module[\"asm\"][\"D\"]).apply(null,arguments)};var
_Cos=Module[\"_Cos\"]=function(){return(_Cos=Module[\"_Cos\"]=Module[\"asm\"][\"E\"]).apply(null,arguments)};var
_Cosh=Module[\"_Cosh\"]=function(){return(_Cosh=Module[\"_Cosh\"]=Module[\"asm\"][\"F\"]).apply(null,arguments)};var
_CropAndResize=Module[\"_CropAndResize\"]=function(){return(_CropAndResize=Module[\"_CropAndResize\"]=Module[\"asm\"][\"G\"]).apply(null,arguments)};var
_Cumsum=Module[\"_Cumsum\"]=function(){return(_Cumsum=Module[\"_Cumsum\"]=Module[\"asm\"][\"H\"]).apply(null,arguments)};var
_DepthToSpace=Module[\"_DepthToSpace\"]=function(){return(_DepthToSpace=Module[\"_DepthToSpace\"]=Module[\"asm\"][\"I\"]).apply(null,arguments)};var
_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=function(){return(_DepthwiseConv2dNative=Module[\"_DepthwiseConv2dNative\"]=Module[\"asm\"][\"J\"]).apply(null,arguments)};var
_Elu=Module[\"_Elu\"]=function(){return(_Elu=Module[\"_Elu\"]=Module[\"asm\"][\"K\"]).apply(null,arguments)};var
_Equal=Module[\"_Equal\"]=function(){return(_Equal=Module[\"_Equal\"]=Module[\"asm\"][\"L\"]).apply(null,arguments)};var
_Exp=Module[\"_Exp\"]=function(){return(_Exp=Module[\"_Exp\"]=Module[\"asm\"][\"M\"]).apply(null,arguments)};var
_FlipLeftRight=Module[\"_FlipLeftRight\"]=function(){return(_FlipLeftRight=Module[\"_FlipLeftRight\"]=Module[\"asm\"][\"N\"]).apply(null,arguments)};var
_Floor=Module[\"_Floor\"]=function(){return(_Floor=Module[\"_Floor\"]=Module[\"asm\"][\"O\"]).apply(null,arguments)};var
_FloorDiv=Module[\"_FloorDiv\"]=function(){return(_FloorDiv=Module[\"_FloorDiv\"]=Module[\"asm\"][\"P\"]).apply(null,arguments)};var
_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=function(){return(_FusedBatchNorm=Module[\"_FusedBatchNorm\"]=Module[\"asm\"][\"Q\"]).apply(null,arguments)};var

_FusedConv2D=Module[\"_FusedConv2D\"]=function(){return(_FusedConv2D=Module[\"_FusedConv2D\"]=Module[\"asm\"][\"R\"]).apply(null,arguments)};var
_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=function(){return(_FusedDepthwiseConv2D=Module[\"_FusedDepthwiseConv2D\"]=Module[\"asm\"][\"S\"]).apply(null,arguments)};var
_Gather=Module[\"_Gather\"]=function(){return(_Gather=Module[\"_Gather\"]=Module[\"asm\"][\"T\"]).apply(null,arguments)};var
_GatherNd=Module[\"_GatherNd\"]=function(){return(_GatherNd=Module[\"_GatherNd\"]=Module[\"asm\"][\"U\"]).apply(null,arguments)};var
_Greater=Module[\"_Greater\"]=function(){return(_Greater=Module[\"_Greater\"]=Module[\"asm\"][\"V\"]).apply(null,arguments)};var
_GreaterEqual=Module[\"_GreaterEqual\"]=function(){return(_GreaterEqual=Module[\"_GreaterEqual\"]=Module[\"asm\"][\"W\"]).apply(null,arguments)};var
_LeakyRelu=Module[\"_LeakyRelu\"]=function(){return(_LeakyRelu=Module[\"_LeakyRelu\"]=Module[\"asm\"][\"X\"]).apply(null,arguments)};var
_Less=Module[\"_Less\"]=function(){return(_Less=Module[\"_Less\"]=Module[\"asm\"][\"Y\"]).apply(null,arguments)};var
_LessEqual=Module[\"_LessEqual\"]=function(){return(_LessEqual=Module[\"_LessEqual\"]=Module[\"asm\"][\"Z\"]).apply(null,arguments)};var
_Log=Module[\"_Log\"]=function(){return(_Log=Module[\"_Log\"]=Module[\"asm\"][\"_\"]).apply(null,arguments)};var
_LogicalAnd=Module[\"_LogicalAnd\"]=function(){return(_LogicalAnd=Module[\"_LogicalAnd\"]=Module[\"asm\"][\"$\"]).apply(null,arguments)};var
_Max=Module[\"_Max\"]=function(){return(_Max=Module[\"_Max\"]=Module[\"asm\"][\"aa\"]).apply(null,arguments)};var
_MaxPool=Module[\"_MaxPool\"]=function(){return(_MaxPool=Module[\"_MaxPool\"]=Module[\"asm\"][\"ba\"]).apply(null,arguments)};var
_Maximum=Module[\"_Maximum\"]=function(){return(_Maximum=Module[\"_Maximum\"]=Module[\"asm\"][\"ca\"]).apply(null,arguments)};var
_Mean=Module[\"_Mean\"]=function(){return(_Mean=Module[\"_Mean\"]=Module[\"asm\"][\"da\"]).apply(null,arguments)};var
_Min=Module[\"_Min\"]=function(){return(_Min=Module[\"_Min\"]=Module[\"asm\"][\"ea\"]).apply(null,arguments)};var
_Minimum=Module[\"_Minimum\"]=function(){return(_Minimum=Module[\"_Minimum\"]=Module[\"asm\"][\"fa\"]).apply(null,arguments)};var
_MirrorPad=Module[\"_MirrorPad\"]=function(){return(_MirrorPad=Module[\"_MirrorPad\"]=Module[\"asm\"][\"ga\"]).apply(null,arguments)};var
_Multiply=Module[\"_Multiply\"]=function(){return(_Multiply=Module[\"_Multiply\"]=Module[\"asm\"][\"ha\"]).apply(null,arguments)};var
_Neg=Module[\"_Neg\"]=function(){return(_Neg=Module[\"_Neg\"]=Module[\"asm\"][\"ia\"]).apply(null,arguments)};var
_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=function(){return(_NonMaxSuppressionV3=Module[\"_NonMaxSuppressionV3\"]=Module[\"asm\"][\"ja\"]).apply(null,arguments)};var
_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=function(){return(_NonMaxSuppressionV4=Module[\"_NonMaxSuppressionV4\"]=Module[\"asm\"][\"ka\"]).apply(null,arguments)};var
_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=function(){return(_NonMaxSuppressionV5=Module[\"_NonMaxSuppressionV5\"]=Module[\"asm\"][\"la\"]).apply(null,arguments)};var
_NotEqual=Module[\"_NotEqual\"]=function(){return(_NotEqual=Module[\"_NotEqual\"]=Module[\"asm\"][\"ma\"]).apply(null,arguments)};var

```
_OneHot=Module[\"_OneHot\"]=function(){return(_OneHot=Module[\"_OneHot\"]=Module[\"asm\"][\"na\"]).appl
y(null,arguments)};var
_PadV2=Module[\"_PadV2\"]=function(){return(_PadV2=Module[\"_PadV2\"]=Module[\"asm\"][\"oa\"]).apply(nul
l,arguments)};var
_Pow=Module[\"_Pow\"]=function(){return(_Pow=Module[\"_Pow\"]=Module[\"asm\"][\"pa\"]).apply(null,argume
nts)};var
_Prelu=Module[\"_Prelu\"]=function(){return(_Prelu=Module[\"_Prelu\"]=Module[\"asm\"][\"qa\"]).apply(null,argu
ments)};var
_Prod=Module[\"_Prod\"]=function(){return(_Prod=Module[\"_Prod\"]=Module[\"asm\"][\"ra\"]).apply(null,argum
ents)};var
_RealDiv=Module[\"_RealDiv\"]=function(){return(_RealDiv=Module[\"_RealDiv\"]=Module[\"asm\"][\"sa\"]).app
ly(null,arguments)};var
_Relu=Module[\"_Relu\"]=function(){return(_Relu=Module[\"_Relu\"]=Module[\"asm\"][\"ta\"]).apply(null,argume
nts)};var
_Relu6=Module[\"_Relu6\"]=function(){return(_Relu6=Module[\"_Relu6\"]=Module[\"asm\"][\"ua\"]).apply(null,ar
guments)};var
_ResizeBilinear=Module[\"_ResizeBilinear\"]=function(){return(_ResizeBilinear=Module[\"_ResizeBilinear\"]=Mo
dule[\"asm\"][\"va\"]).apply(null,arguments)};var
_Reverse=Module[\"_Reverse\"]=function(){return(_Reverse=Module[\"_Reverse\"]=Module[\"asm\"][\"wa\"]).app
ly(null,arguments)};var
_RotateWithOffset=Module[\"_RotateWithOffset\"]=function(){return(_RotateWithOffset=Module[\"_RotateWith
Offset\"]=Module[\"asm\"][\"xa\"]).apply(null,arguments)};var
_Round=Module[\"_Round\"]=function(){return(_Round=Module[\"_Round\"]=Module[\"asm\"][\"ya\"]).apply(nul
l,arguments)};var
_Rsqrt=Module[\"_Rsqrt\"]=function(){return(_Rsqrt=Module[\"_Rsqrt\"]=Module[\"asm\"][\"za\"]).apply(null,arg
uments)};var
_ScatterNd=Module[\"_ScatterNd\"]=function(){return(_ScatterNd=Module[\"_ScatterNd\"]=Module[\"asm\"][\"Aa
\"]).apply(null,arguments)};var
_SelectV2=Module[\"_SelectV2\"]=function(){return(_SelectV2=Module[\"_SelectV2\"]=Module[\"asm\"][\"Ba\"])
.apply(null,arguments)};var
_Sigmoid=Module[\"_Sigmoid\"]=function(){return(_Sigmoid=Module[\"_Sigmoid\"]=Module[\"asm\"][\"Ca\"]).ap
ply(null,arguments)};var
_Sin=Module[\"_Sin\"]=function(){return(_Sin=Module[\"_Sin\"]=Module[\"asm\"][\"Da\"]).apply(null,arguments)
};var
_Softmax=Module[\"_Softmax\"]=function(){return(_Softmax=Module[\"_Softmax\"]=Module[\"asm\"][\"Ea\"]).ap
ply(null,arguments)};var
_Sqrt=Module[\"_Sqrt\"]=function(){return(_Sqrt=Module[\"_Sqrt\"]=Module[\"asm\"][\"Fa\"]).apply(null,argumen
ts)};var
_Square=Module[\"_Square\"]=function(){return(_Square=Module[\"_Square\"]=Module[\"asm\"][\"Ga\"]).apply(n
ull,arguments)};var
_SquaredDifference=Module[\"_SquaredDifference\"]=function(){return(_SquaredDifference=Module[\"_Squared
Difference\"]=Module[\"asm\"][\"Ha\"]).apply(null,arguments)};var
_Step=Module[\"_Step\"]=function(){return(_Step=Module[\"_Step\"]=Module[\"asm\"][\"Ia\"]).apply(null,argume
nts)};var
_StridedSlice=Module[\"_StridedSlice\"]=function(){return(_StridedSlice=Module[\"_StridedSlice\"]=Module[\"as
m\"][\"Ja\"]).apply(null,arguments)};var
_Sub=Module[\"_Sub\"]=function(){return(_Sub=Module[\"_Sub\"]=Module[\"asm\"][\"Ka\"]).apply(null,argument
s)};var
```

_Sum=Module[\"_Sum\"]=function(){return(_Sum=Module[\"_Sum\"]=Module[\"asm\"][\"La\"]).apply(null,arguments)};var
_Tan=Module[\"_Tan\"]=function(){return(_Tan=Module[\"_Tan\"]=Module[\"asm\"][\"Ma\"]).apply(null,arguments)};var
_Tanh=Module[\"_Tanh\"]=function(){return(_Tanh=Module[\"_Tanh\"]=Module[\"asm\"][\"Na\"]).apply(null,arguments)};var
_Tile=Module[\"_Tile\"]=function(){return(_Tile=Module[\"_Tile\"]=Module[\"asm\"][\"Oa\"]).apply(null,arguments)};var
_TopK=Module[\"_TopK\"]=function(){return(_TopK=Module[\"_TopK\"]=Module[\"asm\"][\"Pa\"]).apply(null,arguments)};var
_Transform=Module[\"_Transform\"]=function(){return(_Transform=Module[\"_Transform\"]=Module[\"asm\"][\"Qa\"]).apply(null,arguments)};var
_Transpose=Module[\"_Transpose\"]=function(){return(_Transpose=Module[\"_Transpose\"]=Module[\"asm\"][\"Ra\"]).apply(null,arguments)};var
__FusedMatMul=Module[\"__FusedMatMul\"]=function(){return(__FusedMatMul=Module[\"__FusedMatMul\"]=Module[\"asm\"][\"Sa\"]).apply(null,arguments)};var
_malloc=Module[\"_malloc\"]=function(){return(_malloc=Module[\"_malloc\"]=Module[\"asm\"][\"Ta\"]).apply(null,arguments)};var
_free=Module[\"_free\"]=function(){return(_free=Module[\"_free\"]=Module[\"asm\"][\"Ua\"]).apply(null,arguments)};var
___errno_location=Module[\"___errno_location\"]=function(){return(___errno_location=Module[\"___errno_location\"]=Module[\"asm\"][\"Va\"]).apply(null,arguments)};var
stackSave=Module[\"stackSave\"]=function(){return(stackSave=Module[\"stackSave\"]=Module[\"asm\"][\"Wa\"]).apply(null,arguments)};var
stackRestore=Module[\"stackRestore\"]=function(){return(stackRestore=Module[\"stackRestore\"]=Module[\"asm\"][\"Xa\"]).apply(null,arguments)};var
stackAlloc=Module[\"stackAlloc\"]=function(){return(stackAlloc=Module[\"stackAlloc\"]=Module[\"asm\"][\"Ya\"]).apply(null,arguments)};Module[\"cwrap\"]=cwrap;var calledRun;function
ExitStatus(status){this.name=\"ExitStatus\";this.message=\"Program terminated with
exit(\"+status+\")\";this.status=status}dependenciesFulfilled=function
runCaller(){if(!calledRun)run();if(!calledRun)dependenciesFulfilled=runCaller};function
run(args){args=args||arguments_;if(runDependencies>0){return}preRun();if(runDependencies>0){return}function
doRun(){if(calledRun)return;calledRun=true;Module[\"calledRun\"]=true;if(ABORT)return;initRuntime();preMain();readyPromiseResolve(Module);if(Module[\"onRuntimeInitialized\"])Module[\"onRuntimeInitialized\"]();postRun()}if(Module[\"setStatus\"]){Module[\"setStatus\"](\"Running...\");setTimeout(function(){setTimeout(function(){Module[\"setStatus\"](\"\")},1);doRun()},1)}else{doRun()}}Module[\"run\"]=run;if(Module[\"preInit\"]){if(typeof
Module[\"preInit\"]==\"function\")Module[\"preInit\"]=[Module[\"preInit\"]];while(Module[\"preInit\"].length>0){
Module[\"preInit\"].pop()()}}run();\n\n\n return WasmBackendModule.ready\n}\n);\n})();\nif (typeof exports ===
'object' && typeof module === 'object')\n module.exports = WasmBackendModule;\nelse if (typeof define ===
'function' && define['amd'])\n define([], function() { return WasmBackendModule; });\nelse if (typeof exports ===
'object')\n exports[\"WasmBackendModule\"] = WasmBackendModule;\n","/**\n * @license\n * Copyright 2019
Google LLC. All Rights Reserved.\n * Licensed under the
 Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *

```
==========\n*/\nimport './flags_wasm';\n\nimport {backend_util, BackendTimingInfo, DataStorage, DataType, deprecationWarn, engine, env, KernelBackend, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasmModule, WasmFactoryConfig} from '../wasm-out/tfjs-backend-wasm';\nimport {BackendWasmThreadedSimdModule} from '../wasm-out/tfjs-backend-wasm-threaded-simd';\nimport wasmFactoryThreadedSimd from '../wasm-out/tfjs-backend-wasm-threaded-simd.js';\n// @ts-ignore\nimport {wasmWorkerContents} from '../wasm-out/tfjs-backend-wasm-threaded-simd.worker.js';\nimport wasmFactory from '../wasm-out/tfjs-backend-wasm.js';\n\ninterface TensorData {\n id: number;\n memoryOffset: number;\n shape: number[];\n dtype: DataType;\n refCount: number;\n /** Only used for string tensors, storing encoded bytes. */\n stringBytes?: Uint8Array[];\n}\n\nexport type DataId = object;  // object instead of {} to force non-primitive.\n\nexport class BackendWasm extends KernelBackend {\n // 0 is reserved for null data ids.\n private dataIdNextNumber = 1;\n dataIdMap: DataStorage<TensorData>;\n\n constructor(public wasm: BackendWasmModule|BackendWasmThreadedSimdModule) {\n super();\n this.wasm.tfjs.initWithThreadsCount(threadsCount);\n actualThreadsCount = this.wasm.tfjs.getThreadsCount();\n this.dataIdMap = new DataStorage(this, engine());\n }\n\n write(values: backend_util.BackendValues, shape: number[], dtype: DataType):\n DataId {\n const dataId = {id: this.dataIdNextNumber++};\n this.move(dataId, values, shape, dtype, 1);\n return dataId;\n }\n\n numDataIds(): number {\n return this.dataIdMap.numDataIds();\n }\n\n async time(f: () => void): Promise<BackendTimingInfo> {\n const start = util.now();\n f();\n const kernelMs = util.now() - start;\n return {kernelMs};\n }\n\n move(\n dataId: DataId, values: backend_util.BackendValues, shape: number[],\n dtype: DataType, refCount: number): void {\n const id = this.dataIdNextNumber++;\n if (dtype === 'string') {\n const stringBytes = values as Uint8Array[];\n this.dataIdMap.set(\n dataId,\n {id, stringBytes, shape, dtype, memoryOffset: null, refCount});\n return;\n }\n\n const size = util.sizeFromShape(shape);\n const numBytes = size * util.bytesPerElement(dtype);\n const memoryOffset = this.wasm._malloc(numBytes);\n\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount});\n\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n\n if (values != null) {\n this.wasm.HEAPU8.set(\n new Uint8Array(\n (values as backend_util.TypedArray).buffer,\n (values as backend_util.TypedArray).byteOffset, numBytes),\n memoryOffset);\n }\n }\n\n async read(dataId: DataId): Promise<backend_util.BackendValues> {\n return this.readSync(dataId);\n }\n\n readSync(dataId: DataId): backend_util.BackendValues {\n const {memoryOffset, dtype, shape, stringBytes} =\n this.dataIdMap.get(dataId);\n if (dtype === 'string') {\n return stringBytes;\n }\n const bytes = this.wasm.HEAPU8.slice(\n memoryOffset,\n memoryOffset + util.sizeFromShape(shape) * util.bytesPerElement(dtype));\n return typedArrayFromBuffer(bytes.buffer, dtype);\n }\n\n /**\n * Dispose the memory if the dataId has 0 refCount. Return true if the memory\n * is released, false otherwise.\n * @param dataId\n * @oaram force Optional, remove the data regardless of refCount\n */\n disposeData(dataId: DataId, force = false): boolean {\n if (this.dataIdMap.has(dataId)) {\n const data = this.dataIdMap.get(dataId);\n data.refCount--;\n if (!force && data.refCount > 0) {\n return false;\n }\n\n this.wasm._free(data.memoryOffset);\n this.wasm.tfjs.disposeData(data.id);\n this.dataIdMap.delete(dataId);\n }\n return true;\n }\n\n /** Return refCount of a `TensorData`. */\n refCount(dataId: DataId): number {\n if (this.dataIdMap.has(dataId)) {\n const tensorData = this.dataIdMap.get(dataId);\n return tensorData.refCount;\n }\n return 0;\n }\n\n incRef(dataId: DataId) {\n const data = this.dataIdMap.get(dataId);\n if (data != null) {\n data.refCount++;\n }\n }\n\n floatPrecision(): 32 {\n return 32;\n }\n\n // Returns the memory offset of a tensor. Useful for debugging and unit\n // testing.\n getMemoryOffset(dataId: DataId): number {\n return this.dataIdMap.get(dataId).memoryOffset;\n }\n\n dispose() {\n this.wasm.tfjs.dispose();\n if ('PThread' in this.wasm) {\n this.wasm.PThread.terminateAllThreads();\n }\n this.wasm = null;\n }\n\n memory() {\n return {unreliable: false};\n }\n\n /**\n * Make a tensor info for the output of an op. If `memoryOffset` is not\n * present, this method allocates memory on the WASM heap. If
```

`memoryOffset`\n * is present, the memory was allocated elsewhere (in c++) and we just record\n * the pointer where that memory lives.\n */\n makeOutput(shape: number[], dtype: DataType, memoryOffset?: number):\n TensorInfo {\n let dataId: {};\n if (memoryOffset == null) {\n dataId = this.write(null /* values */, shape, dtype);\n } else {\n const id = this.dataIdNextNumber++;\n dataId = {id};\n this.dataIdMap.set(dataId, {id, memoryOffset, shape, dtype, refCount: 1});\n const size = util.sizeFromShape(shape);\n this.wasm.tfjs.registerTensor(id, size, memoryOffset);\n }\n return {dataId, shape, dtype};\n }\n\n typedArrayFromHeap({shape, dtype, dataId}: TensorInfo):\n backend_util.TypedArray {\n const buffer = this.wasm.HEAPU8.buffer;\n const {memoryOffset} = this.dataIdMap.get(dataId);\n const size = util.sizeFromShape(shape);\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer, memoryOffset, size);\n case 'int32':\n return new Int32Array(buffer, memoryOffset, size);\n case 'bool':\n return new Uint8Array(buffer, memoryOffset, size);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n }\n}\n\nfunction createInstantiateWasmFunc(path: string) {\n // this will be replace by rollup plugin patchWechatWebAssembly in\n // minprogram's output.\n // tslint:disable-next-line:no-any\n return (imports: any, callback: any) => {\n util.fetch(path, {credentials: 'same-origin'}).then((response) => {\n if (!response['ok']) {\n imports.env.a(`failed to load wasm binary file at '${path}'`);\n }\n response.arrayBuffer().then(binary => {\n WebAssembly.instantiate(binary, imports).then(output => {\n callback(output.instance, output.module);\n });\n });\n });\n return {};\n };\n}\n\n/**\n * Returns the path of the WASM binary.\n * @param simdSupported whether SIMD is supported\n * @param threadsSupported whether multithreading is supported\n * @param wasmModuleFolder the directory containing the WASM binaries.\n */\nfunction getPathToWasmBinary(\n simdSupported: boolean, threadsSupported: boolean,\n wasmModuleFolder: string) {\n if (wasmPath != null) {\n // If wasmPath is defined, the user has supplied a full path to\n // the vanilla .wasm binary.\n return wasmPath;\n }\n\n let path: WasmBinaryName = 'tfjs-backend-wasm.wasm';\n if (simdSupported && threadsSupported) {\n path = 'tfjs-backend-wasm-threaded-simd.wasm';\n } else if (simdSupported) {\n path = 'tfjs-backend-wasm-simd.wasm';\n }\n\n if (wasmFileMap != null) {\n if (wasmFileMap[path] != null) {\n return wasmFileMap[path];\n }\n }\n\n return wasmModuleFolder + path;\n}\n\n/**\n * Initializes the wasm module and creates the js <--> wasm bridge.\n *\n * NOTE: We wrap the wasm module in a object with property 'wasm' instead of\n * returning Promise<BackendWasmModule> to avoid freezing Chrome (last tested\n * in Chrome 76).\n */\nexport async function init(): Promise<{wasm: BackendWasmModule}> {\n const [simdSupported, threadsSupported] = await Promise.all([\n env().getAsync('WASM_HAS_SIMD_SUPPORT'),\n env().getAsync('WASM_HAS_MULTITHREAD_SUPPORT')\n]);\n\n return new Promise((resolve, reject) => {\n const factoryConfig: WasmFactoryConfig = {};\n\n /**\n * This function overrides the Emscripten module locateFile utility.\n * @param path The relative path to the file that needs to be loaded.\n * @param prefix The path to the main JavaScript file's directory.\n */\n factoryConfig.locateFile = (path, prefix) => {\n if (path.endsWith('.worker.js')) {\n const response = wasmWorkerContents;\n const blob = new Blob([response], {type: 'application/javascript'});\n return URL.createObjectURL(blob);\n }\n\n if (path.endsWith('.wasm')) {\n return getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : prefix);\n }\n return prefix + path;\n };\n\n // Use the instantiateWasm override when system fetch is not available.\n // Reference:\n // https://github.com/emscripten-core/emscripten/blob/2bca083cbbd5a4133db61fbd74d04f7feecfa907/tests/manual_wasm_instantiate.html#L170\n if (customFetch) {\n factoryConfig.instantiateWasm =\n createInstantiateWasmFunc(getPathToWasmBinary(\n simdSupported as boolean, threadsSupported as boolean,\n wasmPathPrefix != null ? wasmPathPrefix : ''));\n }\n\n let initialized = false;\n factoryConfig.onAbort = () => {\n if (initialized) {\n // Emscripten already called console.warn so no need to double log.\n return;\n }\n if (initAborted) {\n // Emscripten calls `onAbort` twice, resulting in double error\n // messages.\n return;\n }\n initAborted = true;\n const rejectMsg =\n 'Make sure the server can serve the `.wasm` file relative to the ' +\n

'bundled js file. For more details see https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers';\n reject({message: rejectMsg});\n };\n\n let wasm: Promise<BackendWasmModule>;\n // If `wasmPath` has been defined we must initialize the vanilla module.\n if (threadsSupported && simdSupported && wasmPath == null) {\n factoryConfig.mainScriptUrlOrBlob = new Blob(\n [`var WasmBackendModuleThreadedSimd = ` +\n wasmFactoryThreadedSimd.toString()],\n {type: 'text/javascript'});\n wasm = wasmFactoryThreadedSimd(factoryConfig);\n } else {\n // The wasmFactory works for both vanilla and SIMD binaries.\n wasm = wasmFactory(factoryConfig);\n }\n\n // The WASM module has been successfully created by the factory.\n // Any error will be caught by the onAbort callback defined above.\n wasm.then((module) => {\n initialized = true;\n initAborted = false;\n\n const voidReturnType: string = null;\n // Using the tfjs namespace to avoid conflict with emscripten's API.\n module.tfjs = {\n init: module.cwrap('init', null, []),\n initWithThreadsCount:\n module.cwrap('init_with_threads_count', null, ['number']),\n getThreadsCount: module.cwrap('get_threads_count', 'number', []),\n registerTensor: module.cwrap(\n 'register_tensor', null,\n [\n 'number', // id\n 'number', // size\n 'number', // memoryOffset\n]),\n disposeData: module.cwrap('dispose_data', voidReturnType, ['number']),\n dispose: module.cwrap('dispose', voidReturnType, []),\n };\n\n resolve({wasm: module});\n });\n });\n}\n\nfunction typedArrayFromBuffer(\n buffer: ArrayBuffer, dtype: DataType): backend_util.TypedArray {\n switch (dtype) {\n case 'float32':\n return new Float32Array(buffer);\n case 'int32':\n return new Int32Array(buffer);\n case 'bool':\n return new Uint8Array(buffer);\n default:\n throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n\nconst wasmBinaryNames = [\n 'tfjs-backend-wasm.wasm', 'tfjs-backend-wasm-simd.wasm',\n 'tfjs-backend-wasm-threaded-simd.wasm'\n] as const;\ntype WasmBinaryName = typeof wasmBinaryNames[number];\n\nlet wasmPath: string = null;\nlet wasmPathPrefix: string = null;\nlet wasmFileMap: {[key in WasmBinaryName]?: string} = {};\nlet initAborted = false;\nlet customFetch = false;\n\n/**\n * @deprecated Use `setWasmPaths` instead.\n * Sets the path to the `.wasm` file which will be fetched when the wasm\n * backend is initialized. See\n * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers\n * for more details.\n * @param path wasm file path or url\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPath(path: string, usePlatformFetch = false): void {\n deprecationWarn(\n 'setWasmPath has been deprecated in favor of setWasmPaths and' +\n ' will be removed in a future release.');\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPath()` before you call `tf.setBackend()` or `tf.ready()`');\n }\n wasmPath = path;\n customFetch = usePlatformFetch;\n}\n\n/**\n * Configures the locations of the WASM binaries.\n *\n * ```js\n * setWasmPaths({\n * 'tfjs-backend-wasm.wasm': 'renamed.wasm',\n * 'tfjs-backend-wasm-simd.wasm': 'renamed-simd.wasm',\n * 'tfjs-backend-wasm-threaded-simd.wasm': 'renamed-threaded-simd.wasm'\n * });\n * tf.setBackend('wasm');\n * ```\n *\n * @param prefixOrFileMap This can be either a string or object:\n * - (string) The path to the directory where the WASM binaries are located.\n * Note that this prefix will be used to load each binary (vanilla,\n * SIMD-enabled, threading-enabled, etc.).\n * - (object) Mapping from names of WASM binaries to custom\n * full paths specifying the locations of those binaries. This is useful if\n * your WASM binaries are not all located in the same directory,
or if your\n * WASM binaries have been renamed.\n * @param usePlatformFetch optional boolean to use platform fetch to download\n * the wasm file, default to false.\n *\n * @doc {heading: 'Environment', namespace: 'wasm'}\n */\nexport function setWasmPaths(\n prefixOrFileMap: string|{[key in WasmBinaryName]?: string},\n usePlatformFetch = false): void {\n if (initAborted) {\n throw new Error(\n 'The WASM backend was already initialized. Make sure you call ' +\n '`setWasmPaths()` before you call `tf.setBackend()` or ' +\n '`tf.ready()`');\n }\n\n if (typeof prefixOrFileMap === 'string') {\n wasmPathPrefix = prefixOrFileMap;\n } else

{\n wasmFileMap = prefixOrFileMap;\n const missingPaths =\n wasmBinaryNames.filter(name => wasmFileMap[name] == null);\n if (missingPaths.length > 0) {\n throw new Error(\n `There were no entries found for the following binaries: ` +\n `${missingPaths.join(',')}. Please either call setWasmPaths with a ` +\n `map providing a path for each binary, or with a string indicating ` +\n `the directory where all the binaries can be found.`);\n }\n }\n\n customFetch = usePlatformFetch;\n}\n\n/** Used in unit tests. */\nexport function resetWasmPath(): void {\n wasmPath = null;\n wasmPathPrefix = null;\n wasmFileMap = {};\n customFetch = false;\n initAborted = false;\n}\n\nlet threadsCount = -1;\nlet actualThreadsCount = -1;\n\n/**\n * Sets the number of threads that will be used by XNNPACK to create\n * threadpool (default to the number of logical CPU cores).\n *\n * This must be called before calling `tf.setBackend('wasm')`.\n */\nexport function setThreadsCount(numThreads: number) {\n threadsCount = numThreads;\n}\n\n/**\n * Gets the actual threads count that is used by XNNPACK.\n *\n * It is set after the backend is intialized.\n */\nexport function getThreadsCount(): number {\n if (actualThreadsCount === -1) {\n throw new Error(`WASM backend not initialized.`);\n }\n return actualThreadsCount;\n}\n","export const wasmWorkerContents = 'var Module={};function threadPrintErr(){var text=Array.prototype.slice.call(arguments).join(\" \");console.error(text)}function threadAlert(){var text=Array.prototype.slice.call(arguments).join(\" \");postMessage({cmd:\"alert\",text:text,threadId:Module[\"_pthread_self\"]()})}var err=threadPrintErr;this.alert=threadAlert;Module[\"instantiateWasm\"]=function(info,receiveInstance){var instance=new WebAssembly.Instance(Module[\"wasmModule\"],info);Module[\"wasmModule\"]=null;receiveInstance(instance);return instance.exports};function moduleLoaded(){}this.onmessage=function(e){try{if(e.data.cmd===\"load\"){Module[\"wasmModule\"]=e.data.wasmModule;Module[\"wasmMemory\"]=e.data.wasmMemory;Module[\"buffer\"]=Module[\"wasmMemory\"].buffer;Module[\"ENVIRONMENT_IS_PTHREAD\"]=true;if(typeof e.data.urlOrBlob===\"string\"){importScripts(e.data.urlOrBlob)}else{var objectUrl=URL.createObjectURL(e.data.urlOrBlob);importScripts(objectUrl);URL.revokeObjectURL(objectUrl)}WasmBackendModuleThreadedSimd(Module).then(function(instance){Module=instance;moduleLoaded()})}else if(e.data.cmd===\"objectTransfer\"){Module[\"PThread\"].receiveObjectTransfer(e.data)}else if(e.data.cmd===\"run\"){Module[\"__performance_now_clock_drift\"]=performance.now()-e.data.time;Module[\"__emscripten_thread_init\"](e.data.threadInfoStruct,0,0);var max=e.data.stackBase;var top=e.data.stackBase+e.data.stackSize;Module[\"establishStackSpace\"](top,max);Module[\"_emscripten_tls_init\"]();Module[\"PThread\"].receiveObjectTransfer(e.data);Module[\"PThread\"].setThreadStatus(Module[\"_pthread_self\"](),1);try{var result=Module[\"invokeEntryPoint\"](e.data.start_routine,e.data.arg);if(!Module[\"getNoExitRuntime\"]())Module[\"PThread\"].threadExit(result)}catch(ex){if(ex===\"Canceled!\"){Module[\"PThread\"].threadCancel()}else if(ex!=\"unwind\"){if(ex instanceof Module[\"ExitStatus\"]){if(Module[\"getNoExitRuntime\"]()){}else{Module[\"PThread\"].threadExit(ex.status)}}else{Module[\"PThread\"].threadExit(-2);throw ex}}}}else if(e.data.cmd===\"cancel\"){if(Module[\"_pthread_self\"]()){Module[\"PThread\"].threadCancel()}}else if(e.data.target===\"setimmediate\"){}else if(e.data.cmd===\"processThreadQueue\"){if(Module[\"_pthread_self\"]()){Module[\"_emscripten_current_thread_process_queued_calls\"]()}}else{err(\"worker.js received unknown command \"+e.data.cmd);err(e.data)}}catch(ex){err(\"worker.js onmessage() captured an uncaught exception: \"+ex);if(ex&&ex.stack)err(ex.stack);throw ex}};if(typeof process===\"object\"&&typeof process.versions===\"object\"&&typeof process.versions.node===\"string\"){self={location:{href:__filename}};var onmessage=this.onmessage;var nodeWorkerThreads=require(\"worker_threads\");global.Worker=nodeWorkerThreads.Worker;var

parentPort=nodeWorkerThreads.parentPort;parentPort.on(\"message\",function(data){onmessage({data:data})});var nodeFS=require(\"fs\");var nodeRead=function(filename){return nodeFS.readFileSync(filename,\"utf8\")};function globalEval(x){global.require=require;global.Module=Module;eval.call(null,x)}importScripts=function(f){globalEval(nodeRead(f))};postMessage=function(msg){parentPort.postMessage(msg)};if(typeof performance===\"undefined\"){performance={now:function(){return Date.now()}}}';","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '3.11.0';\nexport {version};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport './flags_wasm';\n\nimport {registerBackend} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm, init} from './backend_wasm';\n\nexport {BackendWasm, getThreadsCount, setThreadsCount, setWasmPath, setWasmPaths} from './backend_wasm';\nexport {version as version_wasm} from './version';\n\nconst WASM_PRIORITY = 2;\nregisterBackend('wasm', async () => {\n const {wasm} = await init();\n return new BackendWasm(wasm);\n}, WASM_PRIORITY);\n"],"names":["CppDType","FusableActivation","wasmFusedMatMul","fusedMatMulConfig","kernelName","_FusedMatMul","backendName","setupFunc","backend","wasm","cwrap","kernelFunc","args","inputs","attrs","a","b","bias","preluActivationWeights","dtype","Error","transposeA","transposeB","activation","leakyreluAlpha","aId","dataIdMap","get","dataId","id","bId","biasId","biasData","shape","length","preluActivationWeightsId","fusedActivation","leftDim","rightDim","batchDim","out","makeOutput","outId","aShapeBytes","Uint8Array","Int32Array","buffer","bShapeBytes","createUnaryKernelConfig","outType","wasmFunc","x","xId","util","sizeFromShape","absConfig","Abs","createBinaryKernelConfig","supportsFullBroadcast","outputType","newShape","backend_util","assertAndGetBroadcastShape","aBroadcastDims","getBroadcastDims","bBroadcastDims","loopsOverAllOfA","every","v","i","loopsOverAllOfB","addConfig","Add","addNConfig","AddN","inputIds","map","inputIdsBytes","identity","inVals","typedArrayFromHeap","set","identityConfig","Identity","wasmTranspose","transpose","reducedShape","perm","newPerm","push","minValIdx","j","removeOneSizeDims","permIsNoOp","outShape","inShape","Array","computeOutShape","cloned","permBytes","xShapeBytes","transposeConfig","Transpose","permuteAxesAndTranspose","axis","xShape","xRank","originalAxes","parseAxisParam","axes","permutedAxes","getAxesPermutation","xTransposed","inputWasTransposed","getInnerMostAxes","transposed","wasmAll","allConfig","All","keepDims","inputId","input","inputRank","assertAxesAreInnerMostDims","reduceShape","computeOutAndReduceShapes","reduceSize","disposeData","expandShapeToKeepDim","wasmAny","anyConfig","Any","argMaxConfig","ArgMax","transposedId","slice","outerSize","innerSize","wasmAvgPool","avgPoolConfig","AvgPool","filterSize","strides","pad","dimRoundingMode","convInfo","computePool2DInfo","filterHeight","filterWidth","padTop","padInfo","top","padRight","right","padBottom","bottom","padLeft","left","strideHeight","strideWidth","channels","inChannels","dataFormat","dilationWidth","dilationHeight","reshape","xSize","$shape","inferFromImplicitShape","assert","incRef","reshapeConfig","Reshape","wasmBatchMatMul","batchMatMulConfig","BatchMatMul","aRank","bRank","innerShapeA","innerShapeB","outerShapeA","outerShapeB","outerDimsA","outerDimsB","batchDimA","batchDimB","batchDimsCompatible","concat","b3dShape","a3d","b3d","a3dId","b3dId","Math","max","sliceImpl","vals","begin","size","isContinous","slice_util","isSliceContinous","xStrides","computeStrides","flatOffset","computeFlatOffset","subarray","decodedData","fromUint8ToStringArray","inBuf","outBuf","outLoc","indexToLoc","inLoc","idx","fromStringArrayToUint8","values","begin_","size_","parseSliceParams","xVals","readSync","outData","stringBytes","res","sliceImplCPU","outVals","rank","xStride","outOffset","beginI","beginJ","endI","xOffset","slice2d","xStride1","xStride2","beginK","endJ","slice3d","xStride3","endK","beginL","k","slice4d","sliceConfig","Slice","batchT

oSpaceNDConfig","BatchToSpaceND","blockShape","crops","prod","reduce","reshaped","getReshaped","permuted","getPermuted","reshapedPermuted","getReshapedPermuted","sliceBeginCoords","getSliceBeginCoords","sliceSize","getSliceSize","xReshaped","result","cast","castConfig","Cast","ceilConfig","Ceil","wasmClip","clipByValueConfig","ClipByValue","clipValueMin","clipValueMax","t","$inputs","filter","shapes","assertParamsConsistent","inputs2D","inputsValShapes","simplyConcat","getArrayFromDType","offset","forEach","colOffset","tIdx","row","resIdx","col","concatImplCPU","finalOutShape","sumInnerDims","innerDims","innerDim","inOffset","concatConfig","Concat","wasmConv2d","conv2DConfig","Conv2D","filterId","dilations","$dataFormat","convertConv2DDataFormat","computeConv2DInfo","inputChannels","outputChannels","outChannels","isSamePad","type","wasmConv2DBackpropInput","conv2DBackpropInputConfig","Conv2DBackpropInput","dy","inputShape","batchSize","inHeight","inWidth","outHeight","outWidth","topPad","leftPad","isChannelsLast","dxStrides","dyStrides","fltS0","fltS1","fltS2","xBatchStride","xRowStride","xColStride","xChannelStride","yBatchStride","yRowStride","yColStride","yChannelStride","dyId","cosConfig","Cos","coshConfig","Cosh","InterpolationMethod","wasmCropAndResize","cropAndResizeConfig","CropAndResize","method","extrapolationValue","cropSize","image","boxes","boxInd","numBoxes","cropHeight","cropWidth","castedData","imagesData","imagesId","boxesId","boxIndId","imagesShapeBytes","wasmCumsum","cumsumConfig","Cumsum","exclusive","reverse","permutation","permutedX","permutedAxis","permutedOut","finalDim","permutedXId","permutedOutId","getUndoAxesPermutation","wasmDepthToSpace","depthToSpaceConfig","DepthToSpace","blockSize","outputHeight","outputWidth","outputDepth","outputShape","xStridesBytes","outputShapeBytes","outStridesBytes","wasmDepthwiseConv2d","depthwiseConv2dNativeConfig","DepthwiseConv2dNative","$dilations","eluConfig","Elu","equalConfig","Equal","expConfig","Exp","expandDims","dim","$dim","splice","expandDimsConfig","ExpandDims","fill","value","fillConfig","Fill","wasmFlipLeftRight","flipLeftRightConfig","FlipLeftRight","imageId","batch","imageHeight","imageWidth","numChannels","floorConfig","Floor","floorDivConfig","FloorDiv","wasmBatchNorm","fusedBatchNormConfig","FusedBatchNorm","varianceEpsilon","mean","variance","scale","meanId","varianceId","offsetId","scaleId","wasmFusedConv2d","fusedConv2DConfig","FusedConv2D","wasmFusedDepthwiseConv2d","fusedDepthwiseConv2DConfig","FusedDepthwiseConv2D","wasmGatherNd","gatherNdConfig","GatherNd","params","indices","resultShape","numSlices","gather_util","prepareAndValidate","indicesShape","sliceRank","indicesId","stridesBytes","wasmGather","gatherV2Config","GatherV2","batchDims","parsedAxis","indicesVals","axisDim","index","shapeInfo","segment_util","collectGatherOpShapeInfo","flattenX","dimSize","indicesSize","flattenIndex","flattenOutputShape","stridesSize","greaterConfig","Greater","greaterEqualConfig","GreaterEqual","leakyReluConfig","LeakyRelu","alpha","lessConfig","Less","lessEqualConfig","LessEqual","logConfig","Log","logicalAndConfig","LogicalAnd","wasmMax","maxConfig","Max","reductionIndices","maximumConfig","Maximum","wasmMaxPool","maxPoolConfig","MaxPool","wasmMean","meanConfig","Mean","reductionAxes","castedInput","wasmMin","minConfig","Min","minimumConfig","Minimum","MirrorPaddingMode","wasmMirrorPad","mirrorPadConfig","MirrorPad","paddings","mode","p","prePaddingsFlat","padTuple","postPaddingsFlat","prePaddingsBytes","postPaddingsBytes","multiplyConfig","Multiply","negConfig","Neg","parseResultStruct","resOffset","HEAPU8","pSelectedIndices","selectedSize","pSelectedScores","pValidOutputs","_free","nonMaxSuppressionV3Config","NonMaxSuppressionV3","iouThreshold","maxOutputSize","scoreThreshold","scores","scoresId","nonMaxSuppressionV4Config","NonMaxSuppressionV4","padToMaxOutputSize","nonMaxSuppressionV5Config","NonMaxSuppressionV5","softNmsSigma","notEqualConfig","NotEqual","wasmOneHot","oneHotConfig","OneHot","depth","onValue","offValue","onesLikeConfig","OnesLike","packConfig","Pack","assertShapesMatch","intermediateTensorInfos","expandedT","wasmPadV2","padV2Config","PadV2","constantValue","powConfig","Pow","wasmPrelu","preluConfig","Prelu","weightsId","wasmProd","prodConfig","Prod","rangeConfig","Range","start","stop","step","makeZerosTypedArray","numElements","abs","ceil","rangeImplCPU","realDivConfig","RealDiv","reluConfig","Relu","relu6Config","Relu6","wasmResizeBilinear","resizeBilinearConfig","ResizeBilinear","images","alignCorners","halfPixelCenters","newHeight","newWidth","oldHeight","oldWidth","xData","wasmReverse","reverseConfig","Reverse","dims","axesBytes","outShapeBytes","wasmRotate","rotateWithOffsetConfig","RotateWithOffset","radians","fillValue","center","centerX","centerY","getImageCenter","fillValues","fillBytes","roundConfig","Round","rsqrtConfig","Rsqrt","wasmScatterNd","scatterNdConfig","ScatterNd","updates","numUpdates","outputSize","scatter_util","calculateShapes","updatesId","wasmSelect","selectConfig","Select","conditi

on","e","conditionId","tId","eId","cRank","tRank","sigmoidConfig","Sigmoid","sinConfig","Sin","softmaxConfig","Softmax","logits","spaceToBatchNDConfig","SpaceToBatchND","completePaddings","paddedX","reshapedPaddedShape","permutedReshapedPaddedPermutation","flattenShape","paddedXReshaped","paddedXT","splitVConfig","SplitV","numOrSizeSplits","$axis","splitSizes","prepareSplitSize","s","xSliceSize","xSlice","sqrtConfig","Sqrt","squareConfig","Square","squaredDifferenceConfig","SquaredDifference","wasmStep","stepConfig","Step","wasmStridedSlice","stridedSliceConfig","StridedSlice","end","beginMask","endMask","ellipsisMask","newAxisMask","shrinkAxisMask","finalShapeSparse","finalShape","isIdentity","sliceDim0","isSimpleSlice","$begin","$end","$strides","sliceInfo","sliced","beginBytes","endBytes","subConfig","Sub","wasmSum","sumConfig","Sum","tanConfig","Tan","tanhConfig","Tanh","wasmTile","wasmTopK","wasmTransform","kernelConfigs","Tile","reps","newShapeBytes","TopK","sorted","outValues","outValuesId","outIndices","outIndicesId","Transform","transforms","interpolation","fillMode","transformsId","interpolationModeId","fillModeId","Unpack","numOutputs","outIndex","outs","ZerosLike","kernelConfig","registerKernel","ENV","env","registerFlag","async","WebAssembly","validate","MessageChannel","port1","postMessage","SharedArrayBuffer","_scriptDir","WasmBackendModuleThreadedSimd","document","currentScript","src","undefined","__filename","GROWABLE_HEAP_I8","wasmMemory","updateGlobalBufferAndViews","HEAP8","GROWABLE_HEAP_U8","GROWABLE_HEAP_I32","HEAP32","GROWABLE_HEAP_U32","HEAPU32","GROWABLE_HEAP_F64","HEAPF64","readyPromiseResolve","readyPromiseReject","Module","Promise","resolve","reject","key","moduleOverrides","hasOwnProperty","quit_","status","toThrow","ENVIRONMENT_IS_WEB","ENVIRONMENT_IS_WORKER","ENVIRONMENT_IS_NODE","ENVIRONMENT_IS_SHELL","window","importScripts","process","versions","node","ENVIRONMENT_IS_PTHREAD","read_","readAsync","readBinary","nodeFS","nodePath","scriptDirectory","locateFile","path","nodeWorkerThreads","require$$0","dirname","__dirname","filename","binary","require$$1","ret","replace","ex","ExitStatus","abort","require$$2","console","error","global","Worker","read","f","data","readbuffer","scriptArgs","quit","print","log","warn","printErr","self","location","href","indexOf","substr","lastIndexOf","url","xhr","XMLHttpRequest","open","send","responseText","responseType","response","onload","onerror","performance","require$$3","wasmBinary","bind","err","warnOnce","text","shown","wasmModule","noExitRuntime","ABORT","getCFunc","ident","func","ccall","returnType","argTypes","opts","toC","string","str","len","stringToUTF8","stackAlloc","array","arr","writeArrayToMemory","cArgs","stack","converter","stackSave","apply","UTF8ToString","Boolean","convertReturnValue","stackRestore","numericArgs","arguments","UTF8ArrayToString","heap","maxBytesToRead","endIdx","u0","u1","u2","String","fromCharCode","ch","ptr","stringToUTF8Array","outIdx","maxBytesToWrite","startIdx","u","charCodeAt","outPtr","lengthBytesUTF8","alignUp","multiple","buf","Int8Array","Int16Array","Uint16Array","Uint32Array","Float32Array","Float64Array","wasmTable","INITIAL_MEMORY","Memory","initial","maximum","shared","byteLength","__ATPRERUN__","__ATINIT__","__ATMAIN__","__ATPOSTRUN__","preRun","addOnPreRun","shift","callRuntimeCallbacks","initRuntime","preMain","postRun","addOnPostRun","cb","unshift","___wasm_call_ctors","runDependencies","dependenciesFulfilled","addRunDependency","removeRunDependency","callback","what","RuntimeError","hasPrefix","prefix","prototype","startsWith","dataURIPrefix","isDataURI","fileURIPrefix","isFileURI","wasmBinaryFile","getBinary","file","getBinaryPromise","fetch","credentials","then","catch","createWasm","info","asmLibraryArg","receiveInstance","instance","module","exports","numWorkersToLoad","PThread","unusedWorkers","w","loadWasmModuleToWorker","receiveInstantiatedSource","output","instantiateArrayBuffer","receiver","instantiate","reason","instantiateStreaming","ASM_CONSTS","10520","10538","$0","$1","setTimeout","__emscripten_do_dispatch_to_thread","initPthreadsJS","callbacks","arg","ERRNO_CODES","EPERM","ENOENT","ESRCH","EINTR","EIO","ENXIO","E2BIG","ENOEXEC","EBADF","ECHILD","EAGAIN","EWOULDBLOCK","ENOMEM","EACCES","EFAULT","ENOTBLK","EBUSY","EEXIST","EXDEV","ENODEV","ENOTDIR","EISDIR","EINVAL","ENFILE","EMFILE","ENOTTY","ETXTBSY","EFBIG","ENOSPC","ESPIPE","EROFS","EMLINK","EPIPE","EDOM","ERANGE","ENOMSG","EIDRM","ECHRNG","EL2NSYNC","EL3HLT","EL3RST","ELNRNG","EUNATCH","ENOCSI","EL2HLT","EDEADLK","ENOLCK","EBADE","EBADR","EXFULL","ENOANO","EBADRQC","EBADSLT","EDEADLOCK","EBFONT","ENOSTR","ENODATA","ETIME","ENOSR","ENONET","ENOPKG","EREMOTE","ENOLINK","EADV","ESRMNT","ECOMM","EPROTO","EMULTIHOP","EDOTDOT","EBADMSG","ENOTUNIQ","EBADFD","EREMCHG","ELIBACC","ELIBBAD","ELIBSCN","ELIBMAX","ELIBEXE

C","ENOSYS","ENOTEMPTY","ENAMETOOLONG","ELOOP","EOPNOTSUPP","EPFNOSUPPORT","ECONNRESET","ENOBUFS","EAFNOSUPPORT","EPROTOTYPE","ENOTSOCK","ENOPROTOOPT","ESHUTDOWN","ECONNREFUSED","EADDRINUSE","ECONNABORTED","ENETUNREACH","ENETDOWN","ETIMEDOUT","EHOSTDOWN","EHOSTUNREACH","EINPROGRESS","EALREADY","EDESTADDRREQ","EMSGSIZE","EPROTONOSUPPORT","ESOCKTNOSUPPORT","EADDRNOTAVAIL","ENETRESET","EISCONN","ENOTCONN","ETOOMANYREFS","EUSERS","EDQUOT","ESTALE","ENOTSUP","ENOMEDIUM","EILSEQ","EOVERFLOW","ECANCELED","ENOTRECOVERABLE","EOWNERDEAD","ESTRPIPE","_emscripten_futex_wake","addr","count","Infinity","mainThreadWaitAddress","Atomics","load","__emscripten_main_thread_futex","mainThreadWoken","compareExchange","notify","killThread","pthread_ptr","pthread","pthreads","worker","terminate","freeThreadData","runningWorkers","cancelThread","cmd","cleanupThread","returnWorkerToPool","_emscripten_get_now","initMainThreadBlock","allocateUnusedWorker","tb","_malloc","headPtr","tlsMemory","store","__emscripten_thread_init","_emscripten_register_main_browser_thread_id","initWorker","threadExitHandlers","setThreadStatus","runExitHandlers","pop","_pthread_self","___pthread_tsd_run_dtors","runExitHandlersAndDeinitThread","exitCode","threadExit","threadCancel","terminateAllThreads","threadInfoStruct","allocatedOwnStack","stackBase","runWithoutMainThreadQueuedCalls","__emscripten_allow_main_runtime_queued_calls","receiveObjectTransfer","onFinishedLoading","onmessage","d","currentProxiedOperationCallerThread","thread","targetThread","_emscripten_main_thread_process_queued_calls","spawnThread","loaded","runPthread","alert","exit","target","lineno","message","on","urlOrBlob","pthreadMainJs","getNewWorker","busySpinWait","msecs","now","establishStackSpace","stackTop","stackMax","_emscripten_stack_set_limits","getNoExitRuntime","invokeEntryPoint","___assert_fail","line","___call_main","argc","argv","_main","setErrNo","___errno_location","_atexit","_emscripten_proxy_to_main_thread_js","__emscripten_notify_thread_queue","targetThreadId","mainThreadId","_abort","_emscripten_asm_const_int","code","sigPtr","argbuf","readAsmConstArgs","_emscripten_conditional_set_current_thread_status","expectedStatus","newStatus","_emscripten_futex_wait","val","timeout","tNow","tEnd","exchange","wait","_emscripten_memcpy_big","dest","num","copyWithin","_emscripten_num_logical_cores","require$$4","cpus","navigator","sync","numCallArgs","serializedNumCallArgs","_emscripten_run_in_main_runtime_thread_js","dateNow","_emscripten_receive_on_main_thread_js_callArgs","readAsmConstArgsArray","double","_emscripten_receive_on_main_thread_js","proxiedFunctionTable","_emscripten_get_heap_size","emscripten_realloc_buffer","grow","_emscripten_resize_heap","requestedSize","oldSize","maxHeapSize","cutDown","overGrownHeapSize","min","JSEvents","inEventHandler","removeAllEventListeners","eventHandlers","_removeHandler","deferredCalls","registerRemoveEventListeners","removeEventListenersRegistered","deferCall","targetFunction","precedence","argsList","arraysHaveEqualContent","arrA","arrB","call","sort","y","removeDeferredCalls","canPerformEventHandlerRequests","currentEventHandler","allowsDeferredCalls","runDeferredCalls","removeAllHandlersOnTarget","eventTypeString","h","removeEventListener","eventListenerFunc","useCapture","registerOrRemoveHandler","eventHandler","jsEventHandler","event","handlerFunc","callbackfunc","addEventListener","queueEventHandlerOnThread_iiii","eventHandlerFunc","eventTypeId","eventData","userData","varargs","__emscripten_call_on_thread","getTargetThreadForEventCallback","getNodeNameForTarget","screen","nodeName","fullscreenEnabled","webkitFullscreenEnabled","stringToNewUTF8","jsString","cString","_emscripten_set_offscreencanvas_size_on_target_thread_js","targetCanvas","width","height","targetCanvasPtr","_emscripten_set_offscreencanvas_size_on_target_thread","maybeCStringToJsString","specialHTMLTargets","findEventTarget","querySelector","findCanvasEventTarget","_emscripten_set_canvas_element_size_calling_thread","canvas","canvasSharedPtr","offscreenCanvas","controlTransferredOffscreen","autoResizeViewport","GLctxObject","GLctx","prevViewport","getParameter","viewport","_emscripten_set_canvas_element_size_main_thread","_emscripten_set_canvas_element_size","_emscripten_set_current_thread_status","_emscripten_set_thread_name","threadId","name","__webgl_enable_ANGLE_instanced_arrays","ctx","ext","getExtension","divisor","first","primcount","__webgl_enable_OES_vertex_array_object","vao","__webgl_enable_WEBGL_draw_buffers","n","bufs","__webgl_enable_WEBGL_multi_draw","multiDrawWebgl","GL","counter","buffers","programs","framebuffers","renderbuffers","textures","uniforms","shaders","vaos","contexts","offscreenCanvases","timerQueriesEXT","programInfos","stringCache","unpackAlignment","recordError","errorCode","lastError","getNewId","table","getSource","shader","source","createContext","webGLContextAttributes","getContext","registerContext","handle",

"context","attributes","version","majorVersion","enableExtensionsByDefault","initExtensions","makeContextCurrent","contextHandle","currentContext","deleteContext","initExtensionsDone","disjointTimerQueryExt","getSupportedExtensions","populateUniformTable","program","ptable","maxUniformLength","maxAttributeLength","maxUniformBlockNameLength","utable","numUniforms","getProgramParameter","getActiveUniform","loc","getUniformLocation","__emscripten_webgl_power_preferences","_emscripten_webgl_do_create_context","powerPreference","contextAttributes","stencil","antialias","premultipliedAlpha","preserveDrawingBuffer","failIfMajorPerformanceCaveat","minorVersion","explicitSwapControl","proxyContextToMainThread","renderViaOffscreenBackBuffer","_emscripten_webgl_create_context","a0","a1","SYSCALLS","mappings","printChar","stream","curr","getStr","get64","low","high","_fd_close","fd","_fd_seek","offset_low","offset_high","whence","newOffset","_fd_write","iov","iovcnt","pnum","_pthread_cleanup_pop","execute","routine","_pthread_cleanup_push","threadParams","stackHigh","stackSize","tis","detached","global_locale","_emscripten_get_global_libc","msg","start_routine","startRoutine","time","transferList","_pthread_create","attr","_emscripten_sync_run_in_main_thread_4","_memalign","__pthread_testcancel_js","_emscripten_check_blocking_allowed","__emscripten_do_pthread_join","block","_emscripten_main_browser_thread_id","threadStatus","threadExitCode","_pthread_join","_sysconf","calledRun","r","c","A","q","l","g","o","z","m","this","run","doRun","implicit","returnCode","runCaller","ready","WasmBackendModule","UTF8Decoder","TextDecoder","endPtr","decode","BackendWasm","KernelBackend","[object
Object]","super","tfjs","initWithThreadsCount","threadsCount","actualThreadsCount","getThreadsCount","DataStorage","engine","dataIdNextNumber","move","numDataIds","kernelMs","refCount","memoryOffset","numBytes","bytesPerElement","registerTensor","byteOffset","typedArrayFromBuffer","force","has","delete","dispose","unreliable","write","getPathToWasmBinary","simdSupported","threadsSupported","wasmModuleFolder","wasmPath","wasmFileMap","init","all","getAsync","factoryConfig","endsWith","blob","Blob","URL","createObjectURL","wasmPathPrefix","customFetch","instantiateWasm","imports","arrayBuffer","createInstantiateWasmFunc","initialized","onAbort","initAborted","mainScriptUrlOrBlob","wasmFactoryThreadedSimd","toString","wasmFactory","wasmBinaryNames","setWasmPath","usePlatformFetch","deprecationWarn","setWasmPaths","prefixOrFileMap","missingPaths","join","setThreadsCount","numThreads","registerBackend"],"mappings":";;;;;;;;;;;;;;;;0rDAkBA,IAAYA,GASC,GCJZ,IAAIC,IDLJ,SAAYF,GACVA,EAAUA,EAAUG,QAAaA,OACjCH,EAAUA,EAAUI,QAAaA,OACjCJ,EAAUA,EAAUK,QAAaA,OACjCL,EAAUA,EAAUM,QAAaA,OACjCN,EAAUA,EAAUO,QAAaA,OACjCP,EAAUA,EAAUQ,QAAaA,OACjCR,EAAUA,EAAUS,QAAaA,OACjCT,EAAUA,EAAUU,QAAaA,OACjCV,EAAUA,EAAUW,QAAaA,OACjCX,EAAUA,EAAUY,QAAaA,OACjCZ,EAAUA,EAAUa,QAAaA,OACjCb,EAAUA,EAAUc,QAAaA,OACjCd,EAAUA,EAAUe,QAAaA,OACjCf,EAAUA,EAAUgB,QAAaA,OACjChB,EAAUA,EAAUiB,QAAaA,OACjCjB,EAAUA,EAAUkB,QAAaA,OACjClB,EAAUA,EAAUmB,QAAaA,OACjCnB,EAAUA,EAAUoB,QAAaA,OACjCpB,EAAUA,EAAUqB,QAAaA,OACjCrB,EAAUA,EAAUsB,QAAaA,OACjCtB,EAAUA,EAAUuB,QAAaA,OACjCvB,EAAUA,EAAUwB,QAAaA,OACjCxB,EAAUA,EAAUyB,QAAaA,OACjCzB,EAAUA,EAAU0B,QAAaA,OACjC1B,EAAUA,EAAU2B,QAAaA,OACjC3B,EAAUA,EAAU4B,QAAaA,OACjC5B,EAAUA,EAAU6B,QAAaA,OACjC7B,EAAUA,EAAU8B,QAAaA,OACjC9B,EAAUA,EAAU+B,QAAaA,OACjC/B,EAAUA,EAAUgC,QAAaA,OACjChC,EAAUA,EAAUiC,QAAaA,OACjCjC,EAAUA,EAAUkC,QAAaA,OACjClC,EAAUA,EAAUmC,QAAaA,OACjCnC,EAAUA,EAAUoC,QAAaA,OACjCpC,EAAUA,EAAUqC,QAAaA,OACjCrC,EAAUA,EAAUsC,QAAaA,OACjCtC,EAAUA,EAAUuC,QAAaA,OACjCvC,EAAUA,EAAUwC,QAAaA,OACjCxC,EAAUA,EAAUyC,QAAaA,OACjCzC,EAAUA,EAAU0C,QAAaA,OACjC1C,EAAUA,EAAU2C,QAAaA,OACjC3C,EAAUA,EAAU4C,QAAaA,OACjC5C,EAAUA,EAAU6C,QAAaA,OACjC7C,EAAUA,EAAU8C,QAAaA,OACjC9C,EAAUA,EAAU+C,QAAaA,OACjC/C,EAAUA,EAAUgD,QAAaA,OACjChD,EAAUA,EAAUiD,QAAaA,OACjCjD,EAAUA,EAAUkD,QAAaA,OACjClD,EAAUA,EAAUmD,QAAaA,OACjCnD,EAAUA,EAAUoD,QAAaA,OACjCpD,EAAUA,EAAUqD,QAAaA,OACjCrD,EAAUA,EAAUsD,QAAaA,OACjCtD,EAAUA,EAAUuD,QAAaA,OACjCvD,EAAUA,EAAUwD,QAAaA,OACjCxD,EAAUA,EAAUyD,QAAaA,OACjCzD,EAAUA,EAAU0D,QAAaA,OACjC1D,EAAUA,EAAU2D,QAAaA,OACjC3D,EAAUA,EAAU4D,QAAaA,OACjC5D,EAAUA,EAAU6D,QAAaA,OACjC7D,EAAUA,EAAU8D,QAAaA,OACjC9D,EAAUA,EAAU+D,QAAaA,OACjC/D,EAAUA,EAAUgE,QAAaA,OACjChE,EAAUA,EAAUiE,QAAaA,OACjCjE,EAAUA,EAAUkE,QAAaA,OACjClE,EAAUA,EAAUmE,QAAaA,OACjCnE,EAAUA,EAAUoE,QAAaA,OACjCpE,EAAUA,EAAUqE,QAAaA,OACjCrE,EAAUA,EAAUsE,QAAaA,OACjCtE,EAAUA,EAAUuE,QAAaA,OACjCvE,EAAUA,EAAUwE,QAAaA,OACjCxE,EAAUA,EAAUyE,QAAaA,OACjCzE,EAAUA,EAAU0E,QAAaA,OACjC1E,EAAUA,EAAU2E,QAAaA,OACjC3E,EAAUA,EAAU4E,QAAaA,OACjC5E,EAAUA,EAAU6E,QAAaA,OACjC7E,EAAUA,EAAU8E,QAAaA,OACjC9E,EAAUA,EAAU+E,QAAaA,OACjC/E,EAAUA,EAAUgF,QAAaA,OACjChF,EAAUA,EAAUiF,QAAaA,OACjCjF,EAAUA,EAAUkF,QAAaA,OACjClF,EAAUA,EAAUmF,QAAaA,OACjCnF,EAAUA,EAAUoF,QAAaA,OACjCpF,EAAUA,EAAUqF,QAAaA,OACjCrF,EAAUA,EAAUsF,QAAaA,OACjCtF,EAAUA,EAAUuF,QAAaA,OACjCvF,EAAUA,EAAUwF,QAAaA,OACjCxF,EAAUA,EAAUyF,QAAaA,OACjCzF,EAAUA,EAAU0F,QAAaA,OACjC1F,EAAUA,EAAU2F,QAAaA,OACjC3F,EAAUA,EAAU4F,QAAaA,OACjC5F,EAAUA,EAAU6F,QAAaA,OACjC7F,EAAUA,EAAU8F,QAAaA,OACjC9F,EAAUA,EAAU+F,QAAaA,OACjC/F,EAAUA,EAAUgG,QAAaA,OACjChG,EAAUA,EAAUiG,QAAaA,OACjCjG,EAAUA,EAAUkG,QAAaA,OACjClG,EAAUA,EAAUmG,QAAaA,OACjCnG,EAAUA,EAAUoG,QAAaA,OACjCpG,EAAUA,EAAUqG,QAAaA,OACjCrG,EAAUA,EAAUsG,QAAaA,OACjCtG,EAAUA,EAAUuG,QAAaA,OACjCvG,EAAUA,EAAUwG,QAAaA,OACjCxG,EAAUA,EAAUyG,QAAaA,OACjCzG,EAAUA,EAAU0G,QAAaA,OACjC1G,EAAUA,EAAU2G,QAAaA,OACjC3G,EAAUA,EAAU4G,QAAaA,OACjC5G,EAAUA,EAAU6G,QAAaA,OACjC7G,EAAUA,EAAU8G,QAAaA,OACjC9G,EAAUA,EAAU+G,QAAaA,OACjC/G,EAAUA,EAAUgH,QAAaA,OACjChH,EAAUA,EAAUiH,QAAaA,OACjCjH,EAAUA,EAAUkH,QAAaA,OACjClH,EAAUA,EAAUmH,QAAaA,OACjCnH,EAAUA,EAAUoH,QAAaA,OACjCpH,EAAUA,EAAUqH,QAAaA,OACjCrH,EAAUA,EAAUsH,QAAaA,OACjCtH,EAAUA,EAAUuH,QAAaA,OACjCvH,EAAUA,EAAUwH,QAAaA,OACjCxH,EAAUA,EAAUyH,QAAaA,OACjCzH,EAAUA,EAAU0H,QAAaA,OACjC1H,EAAUA,EAAU2H,QAAaA,OACjC3H,EAAUA,EAAU4H,QAAaA,OACjC5H,EAAUA,EAAU6H,QAAaA,OACjC7H,EAAUA,EAAU8H,QAAaA,OACjC9H,EAAUA,EAAU+H,QAAaA,OACjC/H,EAAUA,EAAUgI,QAAaA,OACjChI,EAAUA,EAAUiI,QAAaA,OACjCjI,EAAUA,EAAUkI,QAAaA,OACjClI,EAAUA,EAAUmI,QAAaA,OACjCnI,EAAUA,EAAUoI,QAAaA,OACjCpI,EAAUA,EAAUqI,QAAaA,OACjCrI,EAAUA,EAAUsI,QAAaA,OACjCtI,EAAUA,EAAUuI,QAAaA,OACjCvI,EAAUA,EAAUwI,QAAaA,OACjCxI,EAAUA,EAAUyI,QAAaA,OACjCzI,EAAUA,EAAU0I,QAAaA,OACjC1I,EAAUA,EAAU2I,QAAaA,OACjC3I,EAAUA,EAAU4I,QAAaA,OACjC5I,EAAUA,EAAU6I,QAAaA,OACjC7I,EAAUA,EAAU8I,QAAaA,OACjC9I,EAAUA,EAAU+I,QAAaA,OACjC/I,EAAUA,EAAUgJ,QAAaA,OACjChJ,EAAUA,EAAUiJ,QAAaA,OACjCjJ,EAAUA,EAAUkJ,QAAaA,OACjClJ,EAAUA,EAAUmJ,QAAaA,OACjCnJ,EAAUA,EAAUoJ,QAAaA,OACjCpJ,EAAUA,EAAUqJ,QAAaA,OACjCrJ,EAAUA,EAAUsJ,QAAaA,OACjCtJ,EAAUA,EAAUuJ,QAAaA,OACjCvJ,EAAUA,EAAUwJ,QAAaA,OACjCxJ,EAAUA,EAAUyJ,QAAaA,OACjCzJ,EAAUA,EAAU0J,QAAaA,OACjC1J,EAAUA,EAAU2J,QAAaA,OACjC3J,EAAUA,EAAU4J,QAAaA,OACjC5J,EAAUA,EAAU6J,QAAaA,OACjC7J,EAAUA,EAAU8J,QAAaA,OACjC9J,EAAUA,EAAU+J,QAAaA,OACjC/J,EAAUA,EAAUgK,QAAaA,OACjChK,EAAUA,EAAUiK,QAAaA,OACjCjK,EAAUA,EAAUkK,QAAaA,OACjClK,EAAUA,EAAUmK,QAAaA,OACjCnK,EAAUA,EAAUoK,QAAaA,OACjCpK,EAAUA,EAAUqK,QAAaA,OACjCrK,EAAUA,EAAUsK,QAAaA,OACjCtK,EAAUA,EAAUuK,QAAaA,OACjCvK,EAAUA,EAAUwK,QAAaA,OACjCxK,EAAUA,EAAUyK,QAAaA,OACjCzK,EAAUA,EAAU0K,QAAaA,OACjC1K,EAAUA,EAAU2K,QAAaA,OACjC3K,EAAUA,EAAU4K,QAAaA,OACjC5K,EAAUA,EAAU6K,QAAaA,OACjC7K,EAAUA,EAAU8K,QAAaA,OACjC9K,EAAUA,EAAU+K,QAAaA,OACjC/K,EAAUA,EAAUgL,QAAaA,OACjChL,EAAUA,EAAUiL,QAAaA,OACjCjL,EAAUA,EAAUkL,QAAaA,OACjClL,EAAUA,EAAUmL,QAAaA,OACjCnL,EAAUA,EAAUoL,QAAaA,OACjCpL,EAAUA,EAAUqL,QAAaA,OACjCrL,EAAUA,EAAUsL,QAAaA,OACjCtL,EAAUA,EAAUuL,QAAaA,OACjCvL,EAAUA,EAAUwL,QAAaA,OACjCxL,EAAUA,EAAUyL,QAAaA,OACjCzL,EAAUA,EAAU0L,QAAaA,OACjC1L,EAAUA,EAAU2L,QAAaA,OACjC3L,EAAUA,EAAU4L,QAAaA,OACjC5L,EAAUA,EAAU6L,QAAaA,OACjC7L,EAAUA,EAAU8L,QAAaA,OACjC9L,EAAUA,EAAU+L,QAAaA,OACjC/L,EAAUA,EAAUgM,QAAaA,OACjChM,EAAUA,EAAUiM,QAAaA,OACjCjM,EAAUA,EAAUkM,QAAaA,OACjClM,EAAUA,EAAUmM,QAAaA,OACjCnM,EAAUA,EAAUoM,QAAaA,OACjCpM,EAAUA,EAAUqM,QAAaA,OACjCrM,EAAUA,EAAUsM,QAAaA,OACjCtM,EAAUA,EAAUuM,QAAaA,OACjCvM,EAAUA,EAAUwM,QAAaA,OACjCxM,EAAUA,EAAUyM,QAAaA,OACjCzM,EAAUA,EAAU0M,QAAaA,OACjC1M,EAAUA,EAAU2M,QAAaA,OACjC3M,EAAUA,EAAU4M,QAAaA,OACjC5M,EAAUA,EAAU6M,QAAaA,OACjC7M,EAAUA,EAAU8M,QAAaA,OACjC9M,EAAUA,EAAU+M,QAAaA,OACjC/M,EAAUA,EAAUgN,QAAaA,OACjChN,EAAUA,EAAUiN,QAAaA,OACjCjN,EAAUA,EAAUkN,QAAaA,OACjClN,EAAUA,EAAUmN,QAAaA,OACjCnN,EAAUA,EAAUoN,QAAaA,OACjCpN,EAAUA,EAAUqN,QAAaA,OACjCrN,EAAUA,EAAUsN,QAAaA,OACjCtN,EAAUA,EAAUuN,QAAaA,OACjCvN,EAAUA,EAAUwN,QAAaA,OACjCxN,EAAUA,EAAUyN,QAAaA,OACjCzN,EAAUA,EAAU0N,QAAaA,OACjC1N,EAAUA,EAAU2N,QAAaA,OACjC3N,EAAUA,EAAU4N,QAAaA,OACjC5N,EAAUA,EAAU6N,QAAaA,OACjC7N,EAAUA,EAAU8N,QAAaA,OACjC9N,EAAUA,EAAU+N,QAAaA,OACjC/N,EAAUA,EAAUgO,QAAaA,OACjChO,EAAUA,EAAUiO,QAAaA,OACjCjO,EAAUA,EAAUkO,QAAaA,OACjClO,EAAUA,EAAUmO,QAAaA,OACjCnO,EAAUA,EAAUoO,QAAaA,OACjCpO,EAAUA,EAAUqO,QAAaA,OACjCrO,EAAUA,EAAUsO,QAAaA,OACjCtO,EAAUA,EAAUuO,QAAaA,OACjCvO,EAAUA,EAAUwO,QAAaA,OACjCxO,EAAUA,EAAUyO,QAAaA,OACjCzO,EAAUA,EAAU0O,QAAaA,OACjC1O,EAAUA,EAAU2O,QAAaA,OACjC3O,EAAUA,EAAU4O,QAAaA,OACjC5O,EAAUA,EAAU6O,QAAaA,OACjC7O,EAAUA,EAAU8O,QAAaA,OACjC9O,EAAUA,EAAU+O,QAAaA,OACjC/O,EAAUA,EAAUgP,QAAaA,OACjChP,EAAUA,EAAUiP,QAAaA,OACjCjP,EAAUA,EAAUkP,QAAaA,OACjClP,EAAUA,EAAUmP,QAAaA,OACjCnP,EAAUA,EAAUoP,QAAaA,OACjCpP,EAAUA,EAAUqP,QAAaA,OACjCrP,EAAUA,EAAUsP,QAAaA,OACjCtP,EAAUA,EAAUuP,QAAaA,OACjCvP,EAAUA,EAAUwP,QAAaA,OACjCxP,EAAUA,EAAUyP,QAAaA,OACjCzP,EAAUA,EAAU0P,QAAaA,OACjC1P,EAAUA,EAAU2P,QAAaA,OACjC3P,EAAUA,EAAU4P,QAAaA,OACjC5P,EAAUA,EAAU6P,QAAaA,OACjC7P,EAAUA,EAAU8P,QAAaA,OACjC9P,EAAUA,EAAU+P,QAAaA,OACjC/P,EAAUA,EAAUgQ,QAAaA,OACjChQ,EAAUA,EAAUiQ,QAAaA,OACjCjQ,EAAUA,EAAUkQ,QAAaA,OACjClQ,EAAUA,EAAUmQ,QAAaA,OACjCnQ,EAAUA,EAAUoQ,QAAaA,OACjCpQ,EAAUA,EAAUqQ,QAAaA,OACjCrQ,EAAUA,EAAUsQ,QAAaA,OACjCtQ,EAAUA,EAAUuQ,QAAaA,OACjCvQ,EAAUA,EAAUwQ,QAAaA,OACjCxQ,EAAUA,EAAUyQ,QAAaA,OACjCzQ,EAAUA,EAAU0Q,QAAaA,OACjC1Q,EAAUA,EAAU2Q,QAAaA,OACjC3Q,EAAUA,EAAU4Q,QAAaA,OACjC5Q,EAAUA,EAAU6Q,QAAaA,OACjC7Q,EAAUA,EAAU8Q,QAAaA,OACjC9Q,EAAUA,EAAU+Q,QAAaA,OACjC/Q,EAAUA,EAAUgR,QAAaA,OACjChR,EAAUA,EAAUiR,QAAaA,OACjCjR,EAAUA,EAAUkR,QAAaA,OACjClR,EAAUA,EAAUmR,QAAaA,OACjCnR,EAAUA,EAAUoR,QAAaA,OACjCpR,EAAUA,EAAUqR,QAAaA,OACjCrR,EAAUA,EAAUsR,QAAaA,OACjCtR,EAAUA,EAAUuR,QAAaA,OACjCvR,EAAUA,EAAUwR,QAAaA,OACjCxR,EAAUA,EAAUyR,QAAaA,OACjCzR,EAAUA,EAAU0R,QAAaA,OACjC1R,EAAUA,EAAU2R,QAAaA,OACjC3R,EAAUA,EAAU4R,QAAaA,OACjC5R,EAAUA,EAAU6R,QAAaA,OACjC7R,EAAUA,EAAU8R,QAAaA,OACjC9R,EAAUA,EAAU+R,QAAaA,OACjC/R,EAAUA,EAAUgS,QAAaA,OACjChS,EAAUA,EAAUiS,QAAaA,OACjCjS,EAAUA,EAAUkS,QAAaA,OACjClS,EAAUA,EAAUmS,QAAaA,OACjCnS,EAAUA,EAAUoS,QAAaA,OACjCpS,EAAUA,EAAUqS,QAAaA,OACjCrS,EAAUA,EAAUsS,QAAaA,OACjCtS,EAAUA,EAAUuS,QAAaA,OACjCvS,EAAUA,EAAUwS,QAAaA,OACjCxS,EAAUA,EAAUyS,QAAaA,OACjCzS,EAAUA,EAAU0S,QAAaA,OACjC1S,EAAUA,EAAU2S,QAAaA,OACjC3S,EAAUA,EAAU4S,QAAaA,OACjC5S,EAAUA,EAAU6S,QAAaA,OACjC7S,EAAUA,EAAU8S,QAAaA,OACjC9S,EAAUA,EAAU+S,QAAaA,OACjC/S,EAAUA,EAAUgT,QAAaA,OACjChT,EAAUA,EAAUiT,QAAaA,OACjCjT,EAAUA,EAAUkT,QAAaA,OACjClT,EAAUA,EAAUmT,QAAaA,OACjCnT,EAAUA,EAAUoT,QAAaA,OACjCpT,EAAUA,EAAUqT,QAAaA,OACjCrT,EAAUA,EAAUsT,QAAaA,OACjCtT,EAAUA,EAAUuT,QAAaA,OACjCvT,EAAUA,EAAUwT,QAAaA,OACjCxT,EAAUA,EAAUyT,QAAaA,OACjCzT,EAAUA,EAAU0T,QAAaA,OACjC1T,EAAUA,EAAU2T,QAAaA,OACjC3T,EAAUA,EAAU4T,QAAaA,OACjC5T,EAAUA,EAAU6T,QAAaA,OACjC7T,EAAUA,EAAU8T,QAAaA,OACjC9T,EAAUA,EAAU+T,QAAaA,OACjC/T,EAAUA,EAAUgU,QAAaA,OACjChU,EAAUA,EAAUiU,QAAaA,OACjCjU,EAAUA,EAAUkU,QAAaA,OACjClU,EAAUA,EAAUmU,QAAaA,OACjCnU,EAAUA,EAAUoU,QAAaA,OACjCpU,EAAUA,EAAUqU,QAAaA,OACjCrU,EAAUA,EAAUsU,QAAaA,OACjCtU,EAAUA,EAAUuU,QAAaA,OACjCvU,EAAUA,EAAUwU,QAAaA,OACjCxU,EAAUA,EAAUyU,QAAaA,OACjCzU,EAAUA,EAAU0U,QAAaA,OACjC1U,EAAUA,EAAU2U,QAAaA,OACjC3U,EAAUA,EAAU4U,QAAaA,OACjC5U,EAAUA,EAAU6U,QAAaA,OACjC7U,EAAUA,EAAU8U,QAAaA,OACjC9U,EAAUA,EAAU+U,QAAaA,OACjC/U,EAAUA,EAAUgV,QAAaA,OACjChV,EAAUA,EAAUiV,QAAaA,OACjCjV,EAAUA,EAAUkV,QAAaA,OACjClV,EAAUA,EAAUmV,QAAaA,OACjCnV,EAAUA,EAAUoV,QAAaA,OACjCpV,EAAUA,EAAUqV,QAAaA,OACjCrV,EAAUA,EAAUsV,QAAaA,OACjCtV,EAAUA,EAAUuV,QAAaA,OACjCvV,EAAUA,EAAUwV,QAAaA,OACjCxV,EAAUA,EAAUyV,QAAaA,OACjCzV,EAAUA,EAAU0V,QAAaA,OACjC1V,EAAUA,EAAU2V,QAAaA,OACjC3V,EAAUA,EAAU4V,QAAaA,OACjC5V,EAAUA,EAAU6V,QAAaA,OACjC7V,EAAUA,EAAU8V,QAAaA,OACjC9V,EAAUA,EAAU+V,QAAaA,OACjC/V,EAAUA,EAAUgW,QAAaA,OACjChW,EAAUA,EAAUiW,QAAaA,OACjCjW,EAAUA,EAAUkW,QAAaA,OACjClW,EAAUA,EAAUmW,QAAaA,OACjCnW,EAAUA,EAAUoW,QAAaA,OACjCpW,EAAUA,EAAUqW,QAAaA,OACjCrW,EAAUA,EAAUsW,QAAaA,OACjCtW,EAAUA,EAAUuW,QAAaA,OACjCvW,EAAUA,EAAUwW,QAAaA,OACjCxW,EAAUA,EAAUyW,QAAaA,OACjCzW,EAAUA,EAAU0W,QAAaA,OACjC1W,EAAUA,EAAU2W,QAAaA,OACjC3W,EAAUA,EAAU4W,QAAaA,OACjC5W,EAAUA,EAAU6W,QAAaA,OACjC7W,EAAUA,EAAU8W,QAAaA,OACjC9W,EAAUA,EAAU+W,QAAaA,OACjC/W,EAAUA,EAAUgX,QAAaA,OACjChX,EAAUA,EAAUiX,QAAaA,OACjCjX,EAAUA,EAAUkX,QAAaA,OACjClX,EAAUA,EAAUmX,QAAaA,OACjCnX,EAAUA,EAAUoX,QAAaA,OACjCpX,EAAUA,EAAUqX,QAAaA,OACjCrX,EAAUA,EAAUsX,QAAaA,OACjCtX,EAAUA,EAAUuX,QAAaA,OACjCvX,EAAUA,EAAUwX,QAAaA,OACjCxX,EAAUA,EAAUyX,QAAaA,OACjCzX,EAAUA,EAAU0X,QAAaA,OACjC1X,EAAUA,EAAU2X,QAAaA,OACjC3X,EAAUA,EAAU4X,QAAaA,OACjC5X,EAAUA,EAAU6X,QAAaA,OACjC7X,EAAUA,EAAU8X,QAAaA,OACjC9X,EAAUA,EAAU+X,QAAaA,OACjC/X,EAAUA,EAAUgY,QAAaA,OACjChY,EAAUA,EAAUiY,QAAaA,OACjCjY,EAAUA,EAAUkY,QAAaA,OACjClY,EAAUA,EAAUmY,QAAaA,OACjCnY,EAAUA,EAAUoY,QAAaA,OACjCpY,EAAUA,EAAUqY,QAAaA,OACjCrY,EAAUA,EAAUsY,QAAaA,OACjCtY,EAAUA,EAAUuY,QAAaA,OACjCvY,EAAUA,EAAUwY,QAAaA,OACjCxY,EAAUA,EAAUyY,QAAaA,OACjCzY,EAAUA,EAAU0Y,QAAaA,OACjC1Y,EAAUA,EAAU2Y,QAAaA,OACjC3Y,EAAUA,EAAU4Y,QAAaA,OACjC5Y,EAAUA,EAAU6Y,QAAaA,OACjC7Y,EAAUA,EAAU8Y,QAAaA,OACjC9Y,EAAUA,EAAU+Y,QAAaA,OACjC/Y,EAAUA,EAAUgZ,QAAaA,OACjChZ,EAAUA,EAAUiZ,QAAaA,OACjCjZ,EAAUA,EAAUkZ,QAAaA,OACjClZ,EAAUA,EAAUmZ,QAAaA,OACjCnZ,EAAUA,EAAUoZ,QAAaA,OACjCpZ,EAAUA,EAAUqZ,QAAaA,OACjCrZ,EAAUA,EAAUsZ,QAAaA,OACjCtZ,EAAUA,EAAUuZ,QAAaA,OACjCvZ,EAAUA,EAAUwZ,QAAaA,OACjCxZ,EAAUA,EAAUyZ,QAAaA,OACjCzZ,EAAUA,EAAU0Z,QAAaA,OACjC1Z,EAAUA,EAAU2Z,QAAaA,OACjC3Z,EAAUA,EAAU4Z,QAAaA,OACjC5Z,EAAUA,EAAU6Z,QAAaA,OACjC7Z,EAAUA,EAAU8Z,QAAaA,OACjC9Z,EAAUA,EAAU+Z,QAAaA,OACjC/Z,EAAUA,EAAUga,QAAaA,OACjCha,EAAUA,EAAUia,QAAaA,OACjCja,EAAUA,EAAUka,QAAaA,OACjCla,EAAUA,EAAUma,QAAaA,OACjCna,EAAUA,EAAUoa,QAAaA,OACjCpa,EAAUA,EAAUqa,QAAaA,OACjCra,EAAUA,EAAUsa,QAAaA,OACjCta,EAAUA,EAAUua,QAAaA,OACjCva,EAAUA,EAAUwa,QAAaA,OACjCxa,EAAUA,EAAUya,QAAaA,OACjCza,EAAUA,EAAU0a,QAAaA,OACjC1a,EAAUA,EAAU2a,QAAaA,OACjC3a,EAAUA,EAAU4a,QAAaA,OACjC5a,EAAUA,EAAU6a,QAAaA,OACjC7a,EAAUA,EAAU8a,QAAaA,OACjC9a,EAAUA,EAAU+a,QAAaA,OACjC/a,EAAUA,EAAUgb,QAAaA,OACjChb,EAAUA,EAAUib,QAAaA,OACjCjb,EAAUA,EAAUkb,QAAaA,OACjClb,EAAUA,EAAUmb,QAAaA,OACjCnb,EAAUA,EAAUob,QAAaA,OACjCpb,EAAUA,EAAUqb,QAAaA,OACjCrb,EAAUA,EAAUsb,QAAaA,OACjCtb,EAAUA,EAAUub,QAAaA,OACjCvb,EAAUA,EAAUwb,QAAaA,OACjCxb,EAAUA,EAAUyb,QAAaA,OACjCzb,EAAUA,EAAU0b,QAAaA,OACjC1b,EAAUA,EAAU2b,QAAaA,OACjC3b,EAAUA,EAAU4b,QAAaA,OACjC5b,EAAUA,EAAU6b,QAAaA,OACjC7b,EAAUA,EAAU8b,QAAaA,OACjC9b,EAAUA,EAAU+b,QAAaA,OACjC/b,EAAUA,EAAUgc,QAAaA,OACjChc,EAAUA,EAAUic,QAAaA,OACjCjc,EAAUA,EAAUkc,QAAaA,OACjClc,EAAUA,EAAUmc,QAAaA,OACjCnc,EAAUA,EAAUoc,QAAaA,OACjCpc,EAAUA,EAAUqc,QAAaA,OACjCrc,EAAUA,EAAUsc,QAAaA,OACjCtc,EAAUA,EAAUuc,QAAaA,OACjCvc,EAAUA,EAAUwc,QAAaA,OACjCxc,EAAUA,EAAUyc,QAAaA,OACjCzc,EAAUA,EAAU0c,QAAaA,OACjC1c,EAAUA,EAAU2c,QAAaA,OACjC3c,EAAUA,EAAU4c,QAAaA,OACjC5c,EAAUA,EAAU6c,QAAaA,OACjC7c,EAAUA,EAAU8c,QAAaA,OACjC9c,EAAUA,EAAU+c,QAAaA,OACjC/c,EAAUA,EAAUgd,QAAaA,OACjChd,EAAUA,EAAUid,QAAaA,OACjCjd,EAAUA,EAAUkd,QAAaA,OACjCld,EAAUA,EAAUmd,QAAaA,OACjCnd,EAAUA,EAAUod,QAAaA,OACjCpd,EAAUA,EAAUqd,QAAaA,OACjCrd,EAAUA,EAAUsd,QAAaA,OACjCtd,EAAUA,EAAUud,QAAaA,OACjCvd,EAAUA,EAAUwd,QAAaA,OACjCxd,EAAUA,EAAUyd,QAAaA,OACjCzd,EAAUA,EAAU0d,QAAaA,OACjC1d,EAAUA,EAAU2d,QAAaA,OACjC3d,EAAUA,EAAU4d,QAAaA,OACjC5d,EAAUA,EAAU6d,QAAaA,OACjC7d,EAAUA,EAAU8d,QAAaA,OACjC9d,EAAUA,EAAU+d,QAAaA,OACjC/d,EAAUA,EAAUge,QAAaA,OACjChe,EAAUA,EAAUie,QAAaA,OACjCje,EAAUA,EAAUke,QAAaA,OACjCle,EAAUA,EAAUme,QAAaA,OACjCne,EAAUA,EAAUoe,QAAaA,OACjCpe,EAAUA,EAAUqe,QAAaA,OACjCre,EAAUA,EAAUse,QAAaA,OACjCte,EAAUA,EAAUue,QAAaA,OACjCve,EAAUA,EAAUwe,QAAaA,OACjCxe,EAAUA,EAAUye,QAAaA,OACjCze,EAAUA,EAAU0e,QAAaA,OACjC1e,EAAUA,EAAU2e,QAAaA,OACjC3e,EAAUA,EAAU4e,QAAaA,OACjC5e,EAAUA,EAAU6e,QAAaA,OACjC7e,EAAUA,EAAU8e,QAAaA,OACjC9e,EAAUA,EAAU+e,QAAaA,OACjC/e,EAAUA,EAAUgf,QAAaA,OACjChf,EAAUA,EAAUif,QAAaA,OACjCjf,EAAUA,EAAUkf,QAAaA,OACjClf,EAAUA,EAAUmf,QAAaA,OACjCnf,EAAUA,EAAUof,QAAaA,OACjCpf,EAAUA,EAAUqf,QAAaA,OACjCrf,EAAUA,EAAUsf,QAAaA,OACjCtf,EAAUA,EAAUuf,QAAaA,OACjCvf,EAAUA,EAAUwf,QAAaA,OACjCxf,EAAUA,EAAUyf,QAAaA,OACjCzf,EAAUA,EAAU0f,QAAaA,OACjC1f,EAAUA,EAAU2f,QAAaA,OACjC3f,EAAUA,EAAU4f,QAAaA,OACjC5f,EAAUA,EAAU6f,QAAaA,OACjC7f,EAAUA,EAAU8f,QAAaA,OACjC9f,EAAUA,EAAU+f,QAAaA,OACjC/f,EAAUA,EAAUggB,QAAaA,OACjChgB,EAAUA,EAAUigB,QAAaA,OACjCjgB,EAAUA,EAAUkgB,QAAaA,OACjClgB,EAAUA,EAAUmgB,QAAaA,OACjCngB,EAAUA,EAAUogB,QAAaA,OACjCpgB,EAAUA,EAAUqgB,QAAaA,OACjCrgB,EAAUA,EAAUsgB,QAAaA,OACjCtgB,EAAUA,EAAUugB,QAAaA,OACjCvgB,EAAUA,EAAUwgB,QAAaA,OACjCxgB,EAAUA,EAAUygB,QAAaA,OACjCzgB,EAAUA,EAAU0gB,QAAaA,OACjC1gB,EAAUA,EAAU2gB,QAAaA,OACjC3gB,EAAUA,EAAU4gB,QAAaA,OACjC5gB,EAAUA,EAAU6gB,QAAaA,OACjC7gB,EAAUA,EAAU8gB,QAAaA,OACjC9gB,EAAUA,EAAU+gB,QAAaA,OACjC/gB,EAAUA,EAAUghB,QAAaA,OACjChhB,EAAUA,EAAUihB,QAAaA,OACjCjhB,EAAUA,EAAUkhB,QAAaA,OACjClhB,EAAUA,EAAUmhB,QAAaA,OACjCnhB,EAAUA,EAAUohB,QAAaA,OACjCphB,EAAUA,EAAUqhB,QAAaA,OACjCrhB,EAAUA,EAAUshB,QAAaA,OACjCthB,EAAUA,EAAUuhB,QAAaA,OACjCvhB,EAAUA,EAAUwhB,QAAaA,OACjCxhB,EAAUA,EAAUyhB,QAAaA,OACjCzhB,EAAUA,EAAU0hB,QAAaA,OACjC1hB,EAAUA,EAAU2hB,QAAaA,OACjC3hB,EAAUA,EAAU4hB,QAAaA,OACjC5hB,EAAUA,EAAU6hB,QAAaA,OACjC7hB,EAAUA,EAAU8hB,QAAaA,OACjC9hB,EAAUA,EAAU+hB,QAAaA,OACjC/hB,EAAUA,EAAUgiB,QAAaA,OACjChiB,EAAUA,EAAUiiB,QAAaA,OACjCjiB,EAAUA,EAAUkiB,QAAaA,OACjCliB,EAAUA,EAAUmiB,QAAaA,OACjCniB,EAAUA,EAAUoiB,QAAaA,OACjCpiB,EAAUA,EAAUqiB,QAAaA,OACjCriB,EAAUA,EAAUsiB,QAAaA,OACjCtiB,EAAUA,EAAUuiB,QAAaA,OACjCviB,EAAUA,EAAUwiB,QAAaA,OACjCxiB,EAAUA,EAAUyiB,QAAaA,OACjCziB,EAAUA,EAAU0iB,QAAaA,OACjC1iB,EAAUA,EAAU2iB,QAAaA,OACjC3iB,EAAUA,EAAU4iB,QAAaA,OACjC5iB,EAAUA,EAAU6iB,QAAaA,OACjC7iB,EAAUA,EAAU8iB,QAAaA,OACjC9iB,EAAUA,EAAU+iB,QAAaA,OACjC/iB,EAAUA,EAAUgjB,QAAaA,OACjChjB,EAAUA,EAAUijB,QAAaA,OACjCjjB,EAAUA,EAAUkjB,QAAaA,OACjCljB,EAAUA,EAAUmjB,QAAaA,OACjCnjB,EAAUA,EAAUojB,QAAaA,OACjCpjB,EAAUA,EAAUqjB,QAAaA,OACjCrjB,EAAUA,EAAUsjB,QAAaA,OACjCtjB,EAAUA,EAAUujB,QAAaA,OACjCvjB,EAAUA,EAAUwjB,QAAaA,OACjCxj

AUC,IAAIa,EAAIZ,QAAQC,GAGhD,OAAsC,IAAlCwB,EAAKC,cAAcd,EAAIP,QAI3BiB,EAASE,EAAKpD,GAASmD,EAAEhC,OAAQuB,GAHxBF,ICxBN,MAAMe,GAA0BP,GAAwBQ,YCG/CC,GACZrD,EAAOsD,EACpBvC,GACF,IAAI+B,EA6DJ,MAAO,CAAC9C,WAAAA,EAAYuD,WAAAA,EAAYC,WAAAA,EAAYC,WAAAA,EAAYC

AAMH,GAC3D,IAAIM,EAAc,KACdC,GAAqB,EACzB,GAAoB,MAAhBH,EAAsB,CACxB,MAAMlD,EAAqB,IAAIoC,MAAMU,GACrC,IAAK,IAAIrC,EAAI,EAAGA,EAAIT,EAAS1B,OAAQmC,IACnCT,EASS,GAAKoC,EAAOK,EAAOK,EAAOC,EAAOC,EAAOC

ASc,YACvBC,EAAWf,EAASgB,WAE1B,GAA4B,iBAAxBhB,EAASiB,WACX,MAAM,IAAI9I,MAEN,6CAAG
6H,EAASiB,2CAGlB,GAA+B,IAA3BjB,EAASkB,eAAmD,IAA5BlB,EAASmB,eAC3C,MAAM,IAAIhJ,MAEN,0
EAAQ6H,EAASmB,mBAAmBnB,EAASkB,mBAGnD,MAAM3H,EAAMhC,EAAQiC,WAAWwG,EAASnD,SA
AU,WAC5CpD,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAMhD,OAJA6G,GACItF,EAAKD,EAAEl
B,MAAM,GAAIkB,EAAElB,MAAM,GAAIkB,EAAElB,MAAM,GAAIkH,EAAcC,EACvDC,EAAQG,EAAAUE,,E
AAWE,EAASE,EAAcC,EAAaC,EACjEtH,GACGF,aCjEO6H,GACZzJ,MAAMC,OAAOC,MAAMC,KAAKC,WAAWC,MAAMC,MAAMC,MAAM

AClCuL,EAAWrJ,EAAKsJ,eAAexJ,EAAElB,OACjC6L,EAAUtN,EAAQkB,UAAUC,IAAIa,EAAIZ,QAE1C,GA
AI2K,EAAa,CACf,MAAMK,EAAaJ,EAAWK,kBAAkBY,EAAQf,GAExD,GAAgB,WAAZvJ,EAAEhC,MACJ2M
,EAAQC,YACHH,EACIrF,MAAMqE,EAAYA,EAAavJ,EAAKC,cAAcoK,QACtD,CACWlN,EAAQwE,mBAAm
BxC,GACnCyC,IACH2I,EACId,SAASF,EAAYA,EAAavJ,EAAKC,cAAcoK,KAGhE,EAGT,GAAgB,W
AAZW,EAAEhC,MAAoB,CACxB,MAAM6M,EAAMC,EAAaL,EAAOH,EAAQC,EAAOvK,EAAElB,MAAOkB,
EAAEhC,OAE1D,OADA2M,EAAQC,YACcC,EACfxL,EAGT,MAAM0L,EAAU1N,EAAQwE,mBAAmBxC,GA
CrC2L,EAAOhL,EAAElB,MAAMC,OACrB,GAAa,IAATiM,GAsBN,SACIP,EAAgCQ,EAAChCF,C7B,EAC
lCC,GACF,IAAI+B,EAAY,EAChB,MAAMC,EAASjC,EAAM,GACfkC,EAASlC,EAAM,GACfmC,EAAOF,EAA
ShC,EAAK,GAC3B,IAAK,IAAIjI,EAAIiK,EAAQjK,EAAImK,EAAMnK,IAAK,CAClC,MAAMoK,EAAUpC,EAAM,
AI+J,EAAUG,EAC9BL,EAAQjJ,I2I,EAAMd,SAAS2B,EAASA,EAAUnC,EAAK,IAAK+B,GACxDA,/
B,EAAK,IAhClBoC,CACId,EAAqBlB,EAAS,GAAIwB,EAAST,EAC3CC,EAAQ,GAAa,IATS,GAiCb,SACIP,,E
AAgCe,EAAkBC,EAClDV,EAAkC7B,EAClCC,GACF,IAAI+B,EAAY,EAChB,MAAMC,EAASjC,EAAM,GACfkC,EAASlC,EAAM,GACf
kC,EAASlC,EAAM,GACfwC,EAASxC,EAAM,GACfmC,EAAOF,EAASjC,EAAM,GACtBoC,EAASpC,EAAM,GACfqC,EAAOF,EAASnC,EAAM,GACtBsC,EAASpC,EAAK,GACpB

AAM3F,EAAO,GAAGoB,OAAO,GAEnE,IAAI6D,EAAWjC,EAAaoC,gBAAgBpF,EAAO+D,KAAIuM,GAAKA,EAAElP,QAAQuE,GAGtE,MAAM4K,EAAUvQ,EAAOwQ,QAAOF,GAAK9N,EAAKC,cAAc6N,EAAElP,OAAS,IACjE,GAAuB,IAAnBmP,EAAQlP,OACV,OAAO4C,GAAS,CAACvE,EAAO4Q,QAAOF,GAAK9N,EAAKC,cAAc6N,EAAElP,OAAS,IAAK,QAAAAA,IG5C,MAAMgC,EAAMhC,QAAQiC,EAAWjC,QAAQkC,EAAAlC,QAAQmC,EAAgBnC,QAAQoC,EAAWpC,QAAQqC,EAAcrC,QAAQsC,EAAatC,QAAQuC,EAAavC,QAAQwC,EAAaxC,QAAQyC,EAAazC,QAAQ0C,EAAa1C,QAAQ2C,EAAa3C,QAAQ4C,EAAa5C,QAAQ6C,EAAa7C,QAAQ8C,EAAa9C,QAAQ+C,EAAa/C,QAAQgD,EAAahD,QAAQiD,EAAajD,QAAQkD,EAAalD,QAAQmD,EAAanD,QAAQoD,EAAapD,QAAQqD,EAAarD,QAAQsD,EAAatD,QAAQuD,EAAavD,QAAQwD,EAAaxD,QAAQyD,EAAazD,QAAQ0D,EAAa1D,QAAQ2D,EAAa3D,QAAQ4D,EAAa5D,QAAQ6D,EAAa7D,QAAQ8D,EAAa9D,QAAQ+D,EAAa/D,QAAQgE,EAAahE,QAAQiE,EAAajE,QAAQkE,EAAalE,QAAQmE,EAAanE,QAAQoE,EAAapE,QAAQqE,EAAarE,QAAQsE,EAAatE,QAAQuE,EAAavE,QAAQwE,EAAaxE,QAAQyE,EAAazE,QAAQ0E,EAAa1E,QAAQ2E,EAAa3E,QAAQ4E,EAAa5E,QAAQ6E,EAAa7E,QAAQ8E,EAAa9E,QAAQ+E,EAAa/E,QAAQgF,EAAahF,QAAQiF,EAAajF,QAAQkF,EAAalF,QAAQmF,EAAanF,QAAQoF,EAAapF,QAAQqF,EAAarF,QAAQsF,EAAatF,QAAQuF,EAAavF,QAAQwF,EAAaxF,QAAQyF,EAAazF,QAAQ0F,EAAa1F,QAAQ2F,EAAa3F,QAAQ4F,EAAa5F,QAAQ6F,EAAa7F,QAAQ8F,EAAa9F,QAAQ+F,EAAa/F,QAAQgG,EAAahG,QAAQiG,EAAajG,QAAQkG,EAAalG,QAAQmG,EAAanG,QAAQoG,EAAapG,QAAQqG,EAAarG,QAAQsG,EAAatG,QAAQuG,EAAavG,QAAQwG,EAAaxG,QAAQyG,EAAazG,QAAQ0G,EAAa1G,QAAQ2G,EAAa3G,QAAQ4G,EAAa5G,QAAQ6G,EAAa7G,QAAQ8G,EAAa9G,QAAQ+G,EAAa/G,QAAQgH,EAAahH,QAAQiH,EAAajH,QAAQkH,EAAalH,QAAQmH,EAAanH,QAAQoH,EAAapH,QAAQqH,EAAarH,QAAQsH,EAAatH,QAAQuH,EAAavH,QAAQwH,EAAaxH,QAAQyH,EAAazH,QAAQ0H,EAAa1H,QAAQ2H,EAAa3H,QAAQ4H,EAAa5H,QAAQ6H,EAAa7H,QAAQ8H,EAAa9H,QAAQ+H,EAAa/H,QAAQgI,EAAahI,QAAQiI,EAAajI,QAAQkI,EAAalI,QAAQmI,EAAanI,QAAQoI,EAAapI,QAAQqI,EAAarI,QAAQsI,EAAatI,QAAQuI,EAAavI,QAAQwI,EAAaxI,QAAQyI,EAAazI,QAAQ0I,EAAa1I,QAAQ2I,EAAa3I,QAAQ4I,EAAa5I,QAAQ6I,EAAa7I,QAAQ8I,EAAa9I,QAAQ+I,EAAa/I,QAAQgJ,EAAahJ,QAAQiJ,EAAajJ,QAAQkJ,EAAalJ,QAAQmJ,EAAanJ,QAAQoJ,EAAapJ,QAAQqJ,EAAarJ,QAAQsJ,EAAatJ,QAAQuJ,EAAavJ,QAAQwJ,EAAaxJ,QAAQyJ,EAAazJ,QAAQ0J,EAAa1J,QAAQ2J,EAAa3J,QAAQ4J,EAAa5J,QAAQ6J,EAAa7J,QAAQ8J,EAAa9J,QAAQ+J,EAAa/J,QAAQgK,EAAahK,QAAQiK,EAAajK,QAAQkK,EAAalK,QAAQmK,EAAanK,QAAQoK,EAAapK,QAAQqK,EAAarK,QAAQsK,EAAatK,QAAQuK,EAAavK,QAAQwK,EAAaxK,QAAQyK,EAAazK,QAAQ0K,EAAa1K,QAAQ2K,EAAa3K,QAAQ4K,EAAa5K,QAAQ6K,EAAa7K,QAAQ8K,EAAa9K,QAAQ+K,EAAa/K,QAAQgL,EAAahL,QAAQiL,EAAajL,QAAQkL,EAAalL,QAAQmL,EAAanL,QAAQoL,EAAapL,QAAQqL,EAAarL,QAAQsL,EAAatL,QAAQuL,EAAavL,QAAQwL,EAAaxL,QAAQyL,EAAazL,QAAQ0L,EAAa1L,QAAQ2L,EAAa3L,QAAQ4L,EAAa5L,QAAQ6L,EAAa7L,QAAQ8L,EAAa9L,QAAQ+L,EAAa/L,QAAQgM,EAAahM,QAAQiM,EAAajM,QAAQkM,EAAalM,QAAQmM,EAAanM,QAAQoM,EAAapM,QAAQqM,EAAarM,QAAQsM,EAAatM,QAAQuM,EAAavM,QAAQwM,EAAaxM,QAAQyM,EAAazM,QAAQ0M,EAAa1M,QAAQ2M,EAAa3M,QAAQ4M,EAAa5M,QAAQ6M,EAAa7M,QAAQ8M,EAAa9M,QAAQ+M,EAAa/M,QAAQgN,EAAahN,QAAQiN,EAAajN,QAAQkN,EAAalN,QAAQmN,EAAanN,QAAQoN,EAAapN,QAAQqN,EAAarN,QAAQsN,EAAatN,QAAQuN,EAAavN,QAAQwN,EAAaxN,QAAQyN,EAAazN,QAAQ0N,EAAa1N,QAAQ2N,EAAa3N,QAAQ4N,EAAa5N,QAAQ6N,EAAa7N,QAAQ8N,EAAa9N,QAAQ+N,EAAa/N,QAAQgO,EAAahO,QAAQiO,EAAajO,QAAQkO,EAAalO,QAAQmO,EAAanO,QAAQoO,EAAapO,QAAQqO,EAAarO,QAAQsO,EAAatO,QAAQuO,EAAavO,QAAQwO,EAAaxO,QAAQyO,EAAazO,QAAQ0O,EAAa1O,QAAQ2O,EAAa3O,QAAQ4O,EAAa5O,QAAQ6O,EAAa7O,QAAQ8O,EAAa9O,QAAQ+O,EAAa/O,QAAQgP,EAAahP,QAAQiP,EAAajP,QAAQkP,EAAalP,QAAQmP,EAAanP,QAAQoP,EAAapP,QAAQqP,EAAarP,QAAQsP,EAAatP,QAAQuP,EAAavP,QAAQwP,EAAaxP,QAAQyP,EAAazP,QAAQ0P,EAAa1P,QAAQ2P,EAAa3P,QAAQ4P,EAAa5P,QAAQ6P,EAAa7P,QAAQ8P,EAAa9P,QAAQ+P,EAAa/P,QAAQgQ,EAAahQ,QAAQiQ,EAAajQ,QAAQkQ,EAAalQ,QAAQmQ,EAAanQ,QAAQoQ,EAAapQ,QAAQqQ,EAAarQ,QAAQsQ,EAAatQ,QAAQuQ,EAAavQ,QAAQwQ,EAAaxQ,QAAQyQ,EAAazQ,QAAQ0Q,EAAa1Q,QAAQ2Q,EAAa3Q,QAAQ4Q,EAAa5Q,QAAQ6Q,EAAa7Q,QAAQ8Q,EAAa9Q,QAAQ+Q,EAAa/Q,QAAQgR,EAAahR,QAAQiR,EAAajR,QAAQkR,EAAalR,QAAQmR,EAAanR,QAAQoR,EAAapR,QAAQqR,EAAarR,QAAQsR,EAAatR,QAAQuR,EAAavR,QAAQwR,EAAaxR,QAAQyR,EAAazR,QAAQ0R,EAAa1R,QAAQ2R,EAAa3R,QAAQ4R,EAAa5R,QAAQ6R,EAAa7R,QAAQ8R,EAAa9R,QAAQ+R,EAAa/R,QAAQgS,EAAahS,QAAQiS,EAAajS,QAAQkS,EAAalS,QAAQmS,EAAanS,QAAQoS,EAAapS,QAAQqS,EAAarS,QAAQsS,EAAatS,QAAQuS,EAAavS,QAAQwS,EAAaxS,QAAQyS,EAAazS,QAAQ0S,EAAa1S,QAAQ2S,EAAa3S,QAAQ4S,EAAa5S,QAAQ6S,EAAa7S,QAAQ8S,EAAa9S,QAAQ+S,EAAa/S,QAAQgT,EAAahT,QAAQiT,EAAajT,QAAQkT,EAAalT,QAAQmT,EAAanT,QAAQoT,EAAapT,QAAQqT,EAAarT,QAAQsT,EAAatT,QAAQuT,EAAavT,QAAQwT,EAAaxT,QAAQyT,EAAazT,QAAQ0T,EAAa1T,QAAQ2T,EAAa3T,QAAQ4T,EAAa5T,QAAQ6T,EAAa7T,QAAQ8T,EAAa9T,QAAQ+T,EAAa/T,QAAQgU,EAAahU,QAAQiU,EAAajU,QAAQkU,EAAalU,QAAQmU,EAAanU,QAAQoU,EAAapU,QAAQqU,EAAarU,QAAQsU,EAAatU,QAAQuU,EAAavU,QAAQwU,EAAaxU,QAAQyU,EAAazU,QAAQ0U,EAAa1U,QAAQ2U,EAAa3U,QAAQ4U,EAAa5U,QAAQ6U,EAAa7U,QAAQ8U,EAAa9U,QAAQ+U,EAAa/U,QAAQgV,EAAahV,QAAQiV,EAAajV,QAAQkV,EAAalV,QAAQmV,EAAanV,QAAQoV,EAAapV,QAAQqV,EAAarV,QAAQsV,EAAatV,QAAQuV,EAAavV,QAAQwV,EAAaxV,QAAQyV,EAAazV,QAAQ0V,EAAa1V,QAAQ2V,EAAa3V,QAAQ4V,EAAa5V,QAAQ6V,EAAa7V,QAAQ8V,EAAa9V,QAAQ+V,EAAa/V,QAAQgW,EAAahW,QAAQiW,EAAajW,QAAQkW,EAAalW,QAAQmW,EAAanW,QAAQoW,EAAapW,QAAQqW,EAAarW,QAAQsW,EAAatW,QAAQuW,EAAavW,QAAQwW,EAAaxW,QAAQyW,EAAazW,QAAQ0W,EAAa1W,QAAQ2W,EAAa3W,QAAQ4W,EAAa5W,QAAQ6W,EAAa7W,QAAQ8W,EAAa9W,QAAQ+W,EAAa/W,QAAQgX,EAAahX,QAAQiX,EAAajX,QAAQkX,EAAalX,QAAQmX,EAAanX,QAAQoX,EAAapX,QAAQqX,EAAarX,QAAQsX,EAAatX,QAAQuX,EAAavX,QAAQwX,EAAaxX,QAAQyX,EAAazX,QAAQ0X,EAAa1X,QAAQ2X,EAAa3X,QAAQ4X,EAAa5X,QAAQ6X,EAAa7X,QAAQ8X,EAAa9X,QAAQ+X,EAAa/X,QAAQgY,EAAahY,QAAQiY,EAAajY,QAAQkY,EAAalY,QAAQmY,EAAanY,QAAQoY,EAAapY,QAAQqY,EAAarY,QAAQsY,EAAatY,QAAQuY,EAAavY,QAAQwY,EAAaxY,QAAQyY,EAAazY,QAAQ0Y,EAAa1Y,QAAQ2Y,EAAa3Y,QAAQ4Y,EAAa5Y,QAAQ6Y,EAAa7Y,QAAQ8Y,EAAa9Y,QAAQ+Y,EAAa/Y,QAAQgZ,EAAahZ,QAAQiZ,EAAajZ,QAAQkZ,EAAalZ,QAAQmZ,EAAanZ,QAAQoZ,EAAapZ,QAAQqZ,EAAarZ,QAAQsZ,EAAatZ,QAAQuZ,EAAavZ,QAAQwZ,EAAaxZ,QAAQyZ,EAAazZ,QAAQ0Z,EAAa1Z,QAAQ2Z,EAAa3Z,QAAQ4Z,EAAa5Z,QAAQ6Z,EAAa7Z,QAAQ8Z,EAAa9Z,QAAQ+Z,EAAa/Z,QAAQga,EAAaha,QAAQia,EAAaja,QAAQka,EAAala,QAAQma,EAAana,QAAQoa,EAAapa,QAAQqa,EAAara,QAAQsa,EAAata,QAAQua,EAAava,QAAQwa,EAAaxa,QAAQya,EAAaza,QAAQ0a,EAAa1a,QAAQ2a,EAAa3a,QAAQ4a,EAAa5a,QAAQ6a,EAAa7a,QAAQ8a,EAAa9a,QAAQ+a,EAAa/a,QAAQgb,EAAahb,QAAQib,EAAajb,QAAQkb,EAAalb,QAAQmb,EAAanb,QAAQob,EAAapb,QAAQqb,EAArb,QAAQrb,EAAOsb,QAAOF,GAAKpb,EAAKC,cAAcmb,EAAExb,OAAS,IAAK,QAAAA,IAAS,CAACC

A,SACA,SACA,SACA,SACA,SACA,SACA,SACA,YAmEF/S,WA/DF,SAA6BC,GAK3B,MAAMJ,QAACA,EAA
OK,OAAEA,EAAMC,MAAEA,GAASF,GAC3B+S,GAACA,EAAEtC,OAAEA,GAAUxQ,GACfiI,QAACA,EAA
OC,IAAEA,EAAGmB,WAAEA,EAAUlB,gBAAEA,EAAe4K,WAAEA,GAAc9S,EAI1DkS,EAAcnP,EAAaoP,wB
AAwB/I,GACnDjB,EAAWpF,EAAaqP,kBAC1BU,EAAYvC,EAAOpP,MAA2C6G,EAJhD,EAKHC,EAAKC,GA
AiB,EAAuBgK,IACtDa,UACJA,EAAS1K,aACTA,EAAYC,,YACZA,,YACZA,EAAWa,WACXA,,EAAU6J,SACVA,,EAAQ
C,QACRA,,EAAOV,YACPA,,EAAWW,UACXA,,EAASC,SACTA,,EAAQnK,aACRA,,EAAYC,,YACZA,,GACEd,E
AEEiL,EAAS/K,EAAAe,EAAAIF,,EAASK,QAAQC,IAC7C4K,EAAU/K,EAAAc,EAAIH,,EAASK,QAAQO,KAE7CuK
,EAAyC,iBAAAxBnL,EAASiB,WAC1BmK,EAAYhR,EAAKsJ,eAAe1D,EAASlD,SACzCuO,EAAYjR,EAAKsJ,e
AAegH,EAAG1R,QAClCsS,EAAOC,,EAAOC,,GAASpR,EAAKsJ,eAAe0E,EAAOpP,OACnDyS,EAAeL,,EAAU,G
ACzBM,EAAaP,EAAiBC,,EAAU,GAAKA,,EAAUGACvDO,EAAaR,EAAiBC,,EAAU,GAAK,EAC7CQ,EAAiBT,,
EAAiB,EAAIC,,EAAU,GAChDS,EAAeR,,EAAU,GACzBS,EAAaX,EAAiBE,,EAAU,GAAKA,,EAAUGACvDU,E
AAaZ,EAAiBE,,EAAU,GAAK,EAC7CW,EAAiBb,,EAAiB,EAAIE,,EAAU,GAEhD9R,EAAMhC,,EAAOC,,
wG,EAASlD,QAAS,WAC3CrD,EAAQlC,,EAAQkB,UAAUC,,IAAIa,EAAIZ,QAAQC,GAC1CqT,EAAO1U,,EAAQ
QkB,UAAUC,,IAAIgS,EAAG/R,QAACxCiR,,EAAWtS,,EAAQkB,UAAUC,,IAAI0P,EAAOzP,QAAQC,GA
QtD,OANA2R,GACI0B,EAAMpC,,EAAUe,EAAW1K,EAAcC,,EAAa0K,EAAUC,,EAChE9J,,EAAY+J,,EAAWC,,E
AAUZ,EAAavJ,,EAAcC,,EAC5DmK,,EAAQC,,EAASI,,EAAOC,,EAAOC,,EAAOC,,EAAcC,,EACpDC,,EAAYC,,EAA
gBC,,EAAcC,,EAAYC,,EACtDC,,EAAgBvS,,GACbF,,IClGI2S,GAA0BnS,GAAwBoS,,GCDlDC,GAA2BrS,,GAAwBs
S,GCIhE,IAAKC,,GAKL,IAAIC,IALJ,SAAKD,GACHA,,2BACAA,,yBAFF,CAAKA,KAAAA,,QAAoEE,,MAAME,G
AAoC,CAC/CrV,,WAAYsV,,EACZpV,,YAAa,OACbC,,UA7DF,SAAeC,,GACbgV,,WAAYhV,,EAAQ
AAMgV,,EAAe,KAAe,CAAEnE,,SACA,SACA,SACA,SACA,QACA,SACA,SACA,SACA,SACA,YAmDF/U,WA/C
F,SAAuBC,GAKrB,MAAMJ,QAAOK,OAAOC,EAAMC,MAAOC,GAASpR,EAAKsJ,eAAe1D,EAASlD,SAAU,OAACA,EAAM
C,mBAAEA,,EAAkBC,,SAAEA,EAAQC,,GAAYC,,IAAIC,EAAIC,QAAQC,GAAIC,EAAIC,QAAQC,GAAIC,EAAIC,QAAQC,G

AC3BuC,EAACA,GAAKtC,GACN6W,UAACA,EAASxN,WAAEA,GAAcpJ,EAE1B+S,EAAY1Q,EAAElB,MA
AM,GAKpB0V,GAJ8B,SAAfzN,EAAyB/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,IAIhCyV,EAC7BE,GA
J6B,SAAf1N,EAAyB/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,IAIjCyV,EAC3BG,GAJ6B,SAAf3N,EAAy
B/G,EAAElB,MAAM,GAAKkB,EAAElB,MAAM,KAIhCyV,EAAYA,GAExCI,EAA8B,SAAf5N,EACjB,CAAC2
J,EAAW8D,EAAcC,EAAaC,GACvC,CAAChE,EAAWgE,EAAaF,EAAcC,GAErCpV,EAAMhC,EAAMmC,EAAMiV,EAAMhV,EAAMiV,EAAMlV,EAAMmV,EAAMlV,EAAMmV
,EAAMlV,EAAMmV,EAAMlV,EAAMmV,EAAMlV,EAAMmV,EAAMlV,EAAMmV,EAAMlV,EAAMmV,YA0DNzX,WAtDF,SAAyBC,GA
KvB,MAAMC,OAAOCA,EAAMC,MAAMEA,EAAAKN,QAAAEA,GAAAWI,GAE3BuC,EAAAC,EAAAOkO,OAAAEA,GA
AUxQ,EACduC,EAAM5C,EAAAQkB,UAAAUC,IAAAIwB,EAAAEvB,QAAAQC,GACtCiR,EAAAWtS,EAAAQkB,UAAU
C,IAAI0P,EAAOzP,QAAAQC,IAEhDiH,QAAAACA,EAAOiK,UAAAEA,EAAAShK,IAAAEA,EAAAGC,gBAAAEA,GAAAm
BlI,EAE7CuX,EAA0B,MAAbtF,EAAAoB,CAAAC,EAAAG,GAAAKA,EAE1C9J,EAAAWpF,EAAAaqP,kBACzB/P,EAAel
B,MAAQoP,EAAoBpP,MAAO6G,EAAClDuP,EAA0CtP,EAAAKC,GAChD,GAAAEEG,EAAAeF,EAASE,aACxBC,EAA
cH,EAASG,YACvBC,EAASJ,EAASK,QAAAQC,IAC1BC,EAAAWP,EAASK,QAAAQG,MAC5BC,EAAAYT,EASK,
QAAAQK,OAC7BC,EAAAUX,EASK,QAAAQO,KAC3BO,EAAAiBnB,EAASmB,eAC1BD,EAAAgBlB,EAASkB,cAC
zBL,EAAAeb,EAASa,aACxBC,EAAAcd,EASc,YACvBoJ,EAAAgBlK,EASgB,WACzBmJ,EAAAiBnK,EAASoK,YA
C1BC,EAAAsC,SAA1BrK,EAASK,QAAAQiK,KAAAkB,EAAAI,EAAAEzD,GAA4B,iBAAAxBtK,EAASiB,WACX,MAAAM
,IAAI9I,MAAEN,mEAAG6H,EAASiB,2CAAGlB,MAAAM1H,EAAAMhC,EAAAQiC,WAAWwG,EAASnD,SAAAU,WAC
5CpD,EAAAQlC,EAAAQkB,UAAAUC,IAAAIa,EAAAIZ,QAAAQC,GAAMhD,OALAqW,GACI9U,EAAAKD,EAASAMA
M,GAAAIkB,EAAAElB,MAAAM,GAAAIkB,EAAAElB,MAAAM,GAAAI6Q,EAAAU3J,EACnDC,EAAAaC,EAAAQG,EAAAUE,,
EAAWE,EAAS0J,EAAnDlJ,EAAAgBD,EAAAeL,EAAAcC,EAAAoJ,EAAC1DC,EAAAgB1Q,GACbF,F8VX,GAA0BtV,
,GAAAwBuV,GCClDC,GACT/Q,GAAyBgR,GAAAyB,EAAAC,EAAAC,EAAAC

AAI4Y,EAAS3Y,QAAQC,GACpD8Y,EAAqB,MAAV/I,EAAiBpR,EAAQkB,UAAUC,IAAIiQ,EAAOhQ,QAAQ
C,GAAK,EACtE+Y,EAAmB,MAATJ,EAAgBha,EAAQkB,UAAUC,IAAI6Y,EAAM5Y,QAAQC,GAAK,EAEnE
W,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOkB,EAAEhC,OAE1C,GAAoC,IAAhCkC,EAAKC,cAAcH,EAAA
ElB,OACvB,OAAOO,EAGT,MAAME,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAIhD,OAFAqY,G
ACI9W,EAAKqX,EAAQC,EAAYC,EAAUC,EAASP,EAAiB3X,GAC1DF,IChCT,IAAIqY,GA6HG,MAAMC,G
AkC,CAC7C1a,WAAY2a,EACZza,YAAa,OACbC,UAtHF,SAAeC,GACbqa,GAAkBra,EAAQC,KAAKC,MAAM
qa,EAAa,KAAiB,CAAjE,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SA
CA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,YA+FFpa,WA3FF,SAAqBC,GAKnB,MAAM
C,OAACA,EAAMC,MAAEA,EAAKN,QAAEA,EAAOI,GAAC3BuC,EAACA,EAACkO,OAAEA,EAAMpQ,KAAA
EA,EAAIC,uBAAEA,EAA0BL,GAA0BL,GAC5DiI,QACJA,EAAOC,IACPA,EAAGC,MACHA,EAAKC,OACLA,EAAMC,KACNA,EAAIC,MACJ

AeC,EACzDhR,EAAiBD,EAA0BX,GAAkB,EAAGkB,GAE7DF,IC3HT,IAAI2Y,GAiDG,MAAMC,GAA+B,CAC1Chb,WAAYib,EACZ/a,YAAa,OACbC,UA/CF,SAAeC,GACb2a,GAAe3a,EAAQC,KAAKC,MAAM2a,EAAU,KAAAe,CACzD,SACA,SACA,SACA,SACA,SACA,SACA,QACA,YAuCF1a,WAnCF,SAAkBC,GAEhB,MAAMJ,QAAAA,EAAAOK,OAAAEA,,GAAAUD,,GACpB0a,OAACA,EAAAMC,,QAAAEA,,GACWC,WAAAC,,EAAAC,WAAAC,,EAAAC,WAAAC,,EAAA

,GALIuE,GAEFzG,EAAQuH,YAAYZ,EAAWvF,QAG7B2F,EAAU,CAEZ,MAAM3D,EAAWC,EAAamE,qBAAq
BxF,EAAIP,MAAO0E,GAC9DnE,EAAIP,MAAQ2B,EAGd,OAAOpB,ICzDI4b,GACT3a,GAAyB4a,GAFC,GCE9
B,IAAIC,GAkFG,MAAMC,GAA8B,CACzCne,WAAYoe,EACZle,YAAa,OACbC,UA9EF,SAAeC,GACb8d,GAAc9d,EAAQ,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,SAAS,
SACA,SACA,SACA,SACA,SACA,SACA,SACA,SACA,YA6DF7d,WAzDF,SACIC,GACF,MAAMC,OAAOC,EAAE,
AAMC,MAAEA,EAAKN,QAAEA,EAAOC,GAAWI,EAE3BuC,EAAItC,EAAOsC,EAAEC,EAAIvC,EAAOuC,EACxC,IAAIwB,EAAEvB,QAAQC,GAAU5C,EAAQ,0DAA0DgC,EAAEhC
,WAEpE,MAAM0H,WAACA,EAAUC,QAAEA,EAAOC,IAAEA,EAAGC,gBAAEA,EAAeC,GAAmBlI,EAC9CmI,EAA
WpF,EAAaqF,kBAC1B/F,EAAElB,MAAO4G,EAAYC,EAAS,EAAmBC,EAAKC,GAAEpDG,EAAeF,EAASE,,aAC
xBC,EAAcH,EAASG,YACvBC,EAASJ,EAASK,QAAQC,IAC1BC,EAAWP,EAASK,QAAQG,MAC5BC,EAAYT,EAASK,QAAQK,OAC7BC,EAAWX,EAASK,QAAQO,KAC5BC,EAAUb,EAASK,QAAQS,IAC3BC,EAAWf,EAASK,QAAQW,KAC5BC,EAAUjB,EAASK,QAAQa,IAC3BC,EAAWnB,EAASK,QAAQe,KAC5BC,EAAUrB,EAASK,QAAQiB,IAC3BC,EAAWvB,EAASK,QAAQmB,KAC5BC,EAAUzB,EAASK,QAAQqB,IAC3BC,EAAW3B,EAASK,QAAQuB,KAC5BC,EAAU7B,EAASK,QAAQyB,IAC3BC,EAAW/B,EAASK,QAAQ2B,KAC5BC,EAAUjC,EAASK,QAAQ6B,IAC3BC,EAAWnC,EAASK,QAAQ+B,KAC5BC,EAAUrC,EAASK,QAAQiC,IAC3BC,EAAWvC,EAASK,QAAQmC,KAC5BC,EAAUzC,EAASK,QAAQqC,IAC3BC,EAAW3C,EAASK,QAAQuC,KAC5BC,EAAU7C,EAASK,QAAQyC,IAC3BC,EAAW/C,EAASK,QAAQ2C,KAC5BC,EAAUjD,EAASK,QAAQ6C,IAC3BC,EAAWnD,EAASK,QAAQ+C,KAC5BC,EAAUrD,EAASK,QAAQiD,IAC3BC,EAAWvD,EAASK,QAAQmD,KAC5BC,EAAUzD,EAASK,QAAQqD,IAC3BC,EAAW3D,EAASK,QAAQuD,KAC5BC,EAAU7D,EAASK,QAAQyD,IAC3BC,EAAW/D,EAASK,QAAQ2D,KAC5BC,EAAUjE,EAASK,QAAQ6D,IAC3BC,EAAWnE,EAASK,QAAQ+D,KAC5BC,EAAUrE,EAASK,QAAQiE,IAC3BC,EAAWvE,EAASK,QAAQmE,KAC5BC,EAAUzE,EAASK,QAAQqE,IAC3BC,EAAW3E,EAASK,QAAQuE,KAC5BC,EAAU7E,EAASK,QAAQyE,IAC3BC,EAAW/E,EAASK,QAAQ2E,KAC5BC,EAAUjF,EAASK,QAAQ6E,IAC3BC,EAAWnF,EAASK,QAAQ+E,KAC5BC,EAAUrF,EAASK,QAAQiF,IAC3BC,EAAWvF,EAASK,QAAQmF,KAC5BC,EAAUzF,EAASK,QAAQqF,IAC3BC,EAAW3F,EAASK,QAAQuF,KAC5BC,EAAU7F,EAASK,QAAQyF,IAC3BC,EAAW/F,EAASK,QAAQ2F,KAC5BC,EAAUjG,EAASK,QAAQ6F,IAC3BC,EAAWnG,EAASK,QAAQ+F,KAC5BC,EAAUrG,EAASK,QAAQiG,IAC3BC,EAAWvG,EAASK,QAAQmG,KAC5BC,EAAUzG,EAASK,QAAQqG,IAC3BC,EAAW3G,EAASK,QAAQuG,KAC5BC,EAAU7G,EAASK,QAAQyG,IAC3BC,EAAW/G,EAASK,QAAQ2G,KAC5BC,EAAUjH,EAASK,QAAQ6G,IAC3BC,EAAWnH,EAASK,QAAQ+G,KAC5BC,EAAUrH,EAASK,QAAQiH,IAC3BC,EAAWvH,EAASK,QAAQmH,KAC5BC,EAAUzH,EAASK,QAAQqH,IAC3BC,EAAW3H,EAASK,QAAQuH,KAC5BC,EAAU7H,EAASK,QAAQyH,IAC3BC,EAAW/H,EAASK,QAAQ2H,KAC5BC,EAAUjI,EAASK,QAAQ6H,IAC3BC,EAAWnI,EAASK,QAAQ+H,KAC5BC,EAAUrI,EAASK,QAAQiI,IAC3BC,EAAWvI,EAASK,QAAQmI,KAC5BC,EAAUzI,EAASK,QAAQqI,IAC3BC,EAAW3I,EAASK,QAAQuI,KAC5BC,EAAU7I,EAASK,QAAQyI,IAC3BC,EAAW/I,EAASK,QAAQ2I,KAC5BC,EAAUjJ,EAASK,QAAQ6I,IAC3BC,EAAWnJ,EAASK,QAAQ+I,KAC5BC,EAAUrJ,EAASK,QAAQiJ,IAC3BC,EAAWvJ,EAASK,QAAQmJ,KAC5BC,EAAUzJ,EAASK,QAAQqJ,IAC3BC,EAAW3J,EAASK,QAAQuJ,KAC5BC,EAAU7J,EAASK,QAAQyJ,IAC3BC,EAAW/J,EAASK,QAAQ2J,KAC5BC,EAAUjK,EAASK,QAAQ6J,IAC3BC,EAAWnK,EAASK,QAAQ+J,KAC5BC,EAAUrK,EAASK,QAAQiK,IAC3BC,EAAWvK,EAASK,QAAQmK,KAC5BC,EAAUzK,EAASK,QAAQqK,IAC3BC,EAAW3K,EAASK,QAAQuK,KAC5BC,EAAU7K,EAASK,QAAQyK,IAC3BC,EAAW/K,EAASK,QAAQ2K,KAC5BC,EAAUjL,EAASK,QAAQ6K,IAC3BC,EAAWnL,EAASK,QAAQ+K,KAC5BC,EAAUrL,EAASK,QAAQiL,IAC3BC,EAAWvL,EAASK,QAAQmL,KAC5BC,EAAUzL,EAASK,QAAQqL,IAC3BC,EAAW3L,EAASK,QAAQuL,KAC5BC,EAAU7L,EAASK,QAAQyL,IAC3BC,EAAW/L,EAASK,QAAQ2L,KAC5BC,EAAUjM,EAASK,QAAQ6L,IAC3BC,EAAWnM,EAASK,QAAQ+L,KAC5BC,EAAUrM,EAASK,QAAQiM,IAC3BC,EAAWvM,EAASK,QAAQmM,KAC5BC,EAAUzM,EAASK,QAAQqM,IAC3BC,EAAW3M,EAASK,QAAQuM,KAC5BC,EAAU7M,EAASK,QAAQyM,IAC3BC,EAAW/M,EAASK,QAAQ2M,KAC5BC,EAAUjN,EAASK,QAAQ6M,IAC3BC,EAAWnN,EAASK,QAAQ+M,KAC5BC,EAAUrN,EAASK,QAAQiN,IAC3BC,EAAWvN,EAASK,QAAQmN,KAC5BC,EAAUzN,EAASK,QAAQqN,IAC3BC,EAAW3N,EAASK,QAAQuN,KAC5BC,EAAU7N,EAASK,QAAQyN,IAC3BC,EAAW/N,EAASK,QAAQ2N,KAC5BC,EAAUjO,EAASK,QAAQ6N,IAC3BC,EAAWnO,EAASK,QAAQ+N,KAC5BC,EAAUrO,EAASK,QAAQiO,IAC3BC,EAAWvO,EAASK,QAAQmO,KAC5BC,EAAUzO,EAASK,QAAQqO,IAC3BC,EAAW3O,EAASK,QAAQuO,KAC5BC,EAAU7O,EAASK,QAAQyO,IAC3BC,EAAW/O,EAASK,QAAQ2O,KAC5BC,EAAUjP,EAASK,QAAQ6O,IAC3BC,EAAWnP,EAASK,QAAQ+O,KAC5BC,EAAUrP,EAASK,QAAQiP,IAC3BC,EAAWvP,EAASK,QAAQmP,KAC5BC,EAAUzP,EAASK,QAAQqP,IAC3BC,EAAW3P,EAASK,QAAQuP,KAC5BC,EAAU7P,EAASK,QAAQyP,IAC3BC,EAAW/P,EAASK,QAAQ2P,KAC5BC,EAAUjQ,EAASK,QAAQ6P,IAC3BC,EAAWnQ,EAASK,QAAQ+P,KAC5BC,EAAUrQ,EAASK,QAAQiQ,IAC3BC,EAAWvQ,EAASK,QAAQmQ,KAC5BC,EAAUzQ,EAASK,QAAQqQ,IAC3BC,EAAW3Q,EAASK,QAAQuQ,KAC5BC,EAAU7Q,EAASK,QAAQyQ,IAC3BC,EAAW/Q,EAASK,QAAQ2Q,KAC5BC,EAAUjR,EAASK,QAAQ6Q,IAC3BC,EAAWnR,EAASK,QAAQ+Q,KAC5BC,EAAUrR,EAASK,QAAQiR,IAC3BC,EAAWvR,EAASK,QAAQmR,KAC5BC,EAAUzR,EAASK,QAAQqR,IAC3BC,EAAW3R,EAASK,QAAQuR,KAC5BC,EAAU7R,EAASK,QAAQyR,IAC3BC,EAAW/R,EAASK,QAAQ2R,KAC5BC,EAAUjS,EAASK,QAAQ6R,IAC3BC,EAAWnS,EAASK,QAAQ+R,KAC5BC,EAAUrS,EAASK,QAAQiS,IAC3BC,EAAWvS,EAASK,QAAQmS,KAC5BC,EAAUzS,EAASK,QAAQqS,IAC3BC,EAAW3S,EAASK,QAAQuS,KAC5BC,EAAU7S,EAASK,QAAQyS,IAC3BC,EAAW/S,EAASK,QAAQ2S,KAC5BC,EAAUjT,EAASK,QAAQ6S,IAC3BC,EAAWnT,EAASK,QAAQ+S,KAC5BC,EAAUrT,EAASK,QAAQiT,IAC3BC,EAAWvT,EAASK,QAAQmT,KAC5BC,EAAUzT,EAASK,QAAQqT,IAC3BC,EAAW3T,EAASK,QAAQuT,KAC5BC,EAAU7T,EAASK,QAAQyT,IAC3BC,EAAW/T,EAASK,QAAQ2T,KAC5BC,EAAUjU,EAASK,QAAQ6T,IAC3BC,EAAWnU,EAASK,QAAQ+T,KAC5BC,EAAUrU,EAASK,QAAQiU,IAC3BC,EAAWvU,EAASK,QAAQmU,KAC5BC,EAAUzU,EAASK,QAAQqU,IAC3BC,EAAW3U,EAASK,QAAQuU,KAC5BC,EAAU7U,EAASK,QAAQyU,IAC3BC,EAAW/U,EAASK,QAAQ2U,KAC5BC,EAAUjV,EAASK,QAAQ6U,IAC3BC,EAAWnV,EAASK,QAAQ+U,KAC5BC,EAAUrV,EAASK,QAAQiV,IAC3BC,EAAWvV,EAASK,QAAQmV,KAC5BC,EAAUzV,EAASK,QAAQqV,IAC3BC,EAAW3V,EAASK,QAAQuV,KAC5BC,EAAU7V,EAASK,QAAQyV,IAC3BC,EAAW/V,EAASK,QAAQ2V,KAC5BC,EAAUjW,EAASK,QAAQ6V,IAC3BC,EAAWnW,EAASK,QAAQ+V,KAC5BC,EAAUrW,EAASK,QAAQiW,IAC3BC,EAAWvW,EAASK,QAAQmW,KAC5BC,EAAUzW,EAASK,QAAQqW,IAC3BC,EAAW3W,EAASK,QAAQuW,KAC5BC,EAAU7W,EAASK,QAAQyW,IAC3BC,EAAW/W,EAASK,QAAQ2W,KAC5BC,EAAUjX,EAASK,QAAQ6W,IAC3BC,EAAWnX,EAASK,QAAQ+W,KAC5BC,EAAUrX,EAASK,QAAQiX,IAC3BC,EAAWvX,EAASK,QAAQmX,KAC5BC,EAAUzX,EAASK,QAAQqX,IAC3BC,EAAW3X,EAASK,QAAQuX,KAC5BC,EAAU7X,EAASK,QAAQyX,IAC3BC,EAAW/X,EAASK,QAAQ2X,KAC5BC,EAAUjY,EAASK,QAAQ6X,IAC3BC,EAAWnY,EAASK,QAAQ+X,KAC5BC,EAAUrY,EAASK,QAAQiY,IAC3BC,EAAWvY,EAASK,QAAQmY,KAC5BC,EAAUzY,EAASK,QAAQqY,IAC3BC,EAAW3Y,EAASK,QAAQuY,KAC5BC,EAAU7Y,EAASK,QAAQyY,IAC3BC,EAAW/Y,EAASK,QAAQ2Y,KAC5BC,EAAUjZ,EAASK,QAAQ6Y,IAC3BC,EAAWnZ,EAASK,QAAQ+Y,KAC5BC,EAAUrZ,EAASK,QAAQiZ,IAC3BC,EAAWvZ,EAASK,QAAQmZ,KAC5BC,EAAUzZ,EAASK,QAAQqZ,IAC3BC,EAAW3Z,EAASK,QAAQuZ,KAC5BC,EAAU7Z,EAASK,QAAQyZ,IAC3BC,EAAW/Z,EAASK,QAAQ2Z,KAC5BC,EAAUja,EAASK,QAAQ6Z,IAC3BC,EAAWna,EAASK,QAAQ+Z,KAC5BC,EAAUra,EAASK,QAAQia,IAC3BC,EAAWva,EAASK,QAAQma,KAC5BC,EAAUza,EAASK,QAAQqa,IAC3BC,EAAW3a,EAASK,QAAQua,KAC5BC,EAAU7a,EAASK,QAAQya,IAC3BC,EAAW/a,EAASK,QAAQ2a,KAC5BC,EAAUjb,EAASK,QAAQ6a,IAC3BC,EAAWnb,EAASK,QAAQ+a,KAC5BC,EAAUrb,EAASK,QAAQib,IAC3BC,EAAWvb,EAASK,QAAQmb,KAC5BC,EAAUzb,EAASK,QAAQqb,IAC3BC,EAAW3b,EAASK,QAAQub,KAC5BC,EAAU7b,EAASK,QAAQyb,IAC3BC,EAAW/b,EAASK,QAAQ2b,KAC5BC,EAAUjc,EAASK,QAAQ6b,IAC3BC,EAAWnc,EAASK,QAAQ+b,KAC5BC,EAAUrc,EAASK,QAAQic,IAC3BC,EAAWvc,EAASK,QAAQmc,KAC5BC,EAAUzc,EAASK,QAAQqc,IAC3BC,EAAW3c,EAASK,QAAQuc,KAC5BC,EAAU7c,EAASK,QAAQyc,IAC3BC,EAAW/c,EAASK,QAAQ2c,KAC5BC,EAAUjd,EAASK,QAAQ6c,IAC3BC,EAAWnd,EAASK,QAAQ+c,KAC5BC,EAAUrd,EAASK,QAAQid,IAC3BC,EAAWvd,EAASK,QAAQmd,KAC5BC,EAAUzd,EAASK,QAAQqd,IAC3BC,EAAW3d,EAASK,QAAQud,KAC5BC,EAAU7d,EAASK,QAAQyd,IAC3BC,EAAW/d,EAASK,QAAQ2d,KAC5BC,EAAUje,EAASK,QAAQ6d,IAC3BC,EAAWne,EAASK,QAAQ+d,KAC5BC,EAAUre,EAASK,QAAQie,IAC3BC,EAAWve,EAASK,QAAQme,KAC5BC,EAAUze,EAASK,QAAQqe,IAC3BC,EAAW3e,EAASK,QAAQue,KAC5BC,EAAU7e,EAASK,QAAQye,IAC3BC,EAAW/e,EAASK,QAAQ2e,KAC5BC,EAAUjf,EAASK,QAAQ6e,IAC3BC,EAAWnf,EAASK,QAAQ+e,KAC5BC,EAAUrf,EAASK,QAAQif,IAC3BC,EAAWvf,EAASK,QAAQmf,KAC5BC,EAAUzf,EAASK,QAAQqf,IAC3BC,EAAW3f,EAASK,QAAQuf,KAC5BC,EAAU7f,EAASK,QAAQyf,IAC3BC,EAAW/f,EAASK,QAAQ2f,KAC5BC,EAAUjgB,EAASK,QAAQ6f,IAC3BC,EAAWngB,EAASK,QAAQ+f,KAC5BC,EAAUrgB,EAASK,QAAQigB,IAC3BC,EAAWvgB,EAASK,QAAQmgB,KAC5BC,EAAUzgB,EAASK,QAAQqgB,IAC3BC,EAAW3gB,EAASK,QAAQugB,KAC5BC,EAAU7gB,EAASK,QAAQygB,IAC3BC,EAAW/gB,EAASK,QAAQ2gB,KAC5BC,EAAUjhB,EAASK,QAAQ6gB,IAC3BC,EAAWnhB,EAASK,QAAQ+gB,KAC5BC,EAAUrhB,EAASK,QAAQihB,IAC3BC,EAAWvhB,EAASK,QAAQmhB,KAC5BC,EAAUzhB,EAASK,QAAQqhB,IAC3BC,EAAW3hB,EAASK,QAAQuhB,KAC5BC,EAAU7hB,EAASK,QAAQyhB,IAC3BC,EAAW/hB,EAASK,QAAQ2hB,KAC5BC,EAAUjiB,EAASK,QAAQ6hB,IAC3BC,EAAWniB,EAASK,QAAQ+hB,KAC5BC,EAAUriB,EAASK,QAAQiiB,IAC3BC,EAAWviB,EAASK,QAAQmiB,KAC5BC,EAAUziB,EAASK,QAAQqiB,IAC3BC,EAAW3iB,EAASK,QAAQuiB,KAC5BC,EAAU7iB,EAASK,QAAQyiB,IAC3BC,EAAW/iB,EAASK,QAAQ2iB,KAC5BC,EAAUjjB,EAASK,QAAQ6iB,IAC3BC,EAAWnjB,EAASK,QAAQ+iB,KAC5BC,EAAUrjB,EAASK,QAAQijB,IAC3BC,EAAWvjB,EAASK,QAAQmjB,KAC5BC,EAAUzjB,EAASK,QAAQqjB,IAC3BC,EAAW3jB,EAASK,QAAQujB,KAC5BC,EAAU7jB,EAASK,QAAQyjB,IAC3BC,EAAW/jB,EAASK,QAAQ2jB,KAC5BC,EAAUjkB,EAASK,QAAQ6jB,IAC3BC,EAAWnkB,EAASK,QAAQ+jB,KAC5BC,EAAUrkB,EAASK,QAAQikB,IAC3BC,EAAWvkB,EAASK,QAAQmkB,KAC5BC,EAAUzkB,EAASK,QAAQqkB,IAC3BC,EAAW3kB,EAASK,QAAQukB,KAC5BC,EAAU7kB,EAASK,QAAQykB,IAC3BC,EAAW/kB,EAASK,QAAQ2kB,KAC5BC,EAAUjlB,EAASK,QAAQ6kB,IAC3BC,EAAWnlB,EAASK,QAAQ+kB,KAC5BC,EAAUrlB,EAASK,QAAQilB,IAC3BC,EAAWvlB,EAASK,QAAQmlB,KAC5BC,EAAUzlB,EAASK,QAAQqlB,IAC3BC,EAAW3lB,EAASK,QAAQulB,KAC5BC,EAAU7lB,EAASK,QAAQylB,IAC3BC,EAAW/lB,EAASK,QAAQ2lB,KAC5BC,EAAUjmB,EAASK,QAAQ6lB,IAC3BC,EAAWnmB,EAASK,QAAQ+lB,KAC5BC,EAAUrmB,EAASK,QAAQimB,IAC3BC,EAAWvmB,EAASK,QAAQmmB,KAC5BC,EAAUzmB,EAASK,QAAQqmB,IAC3BC,EAAW3mB,EAASK,QAAQumB,KAC5BC,EAAU7mB,EAASK,QAAQymB,IAC3BC,EAAW/mB,EAASK,QAAQ2mB,KAC5BC,EAAUjnB,EAASK,QAAQ6mB,IAC3BC,EAAWnnB,EAASK,QAAQ+mB,KAC5BC,EAAUrnB,EAASK,QAAQinB,IAC3BC,EAAWvnB,EAASK,QAAQmnB,KAC5BC,EAAUznB,EAASK,QAAQqnB,IAC3BC,EAAW3nB,EAASK,QAAQunB,KAC5BC,EAAU7nB,EAASK,QAAQynB,IAC3BC,EAAW/nB,EAASK,QAAQ2nB,KAC5BC,EAAUjoB,EAASK,QAAQ6nB,IAC3BC,EAAWnoB,EAASK,QAAQ+nB,KAC5BC,EAAUroB,EAASK,QAAQioB,IAC3BC,EAAWvoB,EAASK,QAAQmoB,KAC5BC,EAAUzoB,EAASK,QAAQqoB,IAC3BC,EAAW3oB,EAASK,QAAQuoB,KAC5BC,EAAU7oB,EAASK,QAAQyoB,IAC3BC,EAAW/oB,EAASK,QAAQ2oB,KAC5BC,EAAUjpB,EAASK,QAAQ6oB,IAC3BC,EAAWnpB,EAASK,QAAQ+oB,KAC5BC,EAAUrpB,EAASK,QAAQipB,IAC3BC,EAAWvpB,EAASK,QAAQmpB,KAC5BC,EAAUzpB,EAASK,QAAQqpB,IAC3BC,EAAW3pB,EAASK,QAAQupB,KAC5BC,EAAU7pB,EAASK,QAAQypB,IAC3BC,EAAW/pB,EAASK,QAAQ2pB,KAC5BC,EAAUjqB,EAASK,QAAQ6pB,IAC3BC,EAAWnqB,EAASK,QAAQ+pB,KAC5BC,EAAUrqB,EAASK,QAAQiqB,IAC3BC,EAAWvqB,EAASK,QAAQmqB,KAC5BC,EAAUzqB,EAASK,QAAQqqB,IAC3BC,EAAW3qB,EAASK,QAAQuqB,KAC5BC,EAAU7qB,EAASK,QAAQyqB,IAC3BC,EAAW/qB,EAASK,QAAQ2qB,KAC5BC,EAAUjrB,EAASK,QAAQ6qB,IAC3BC,EAAWnrB,EAASK,QAAQ+qB,KAC5BC,EAAUrrB,EAASK,QAAQirB,IAC3BC,EAAWvrB,EAASK,QAAQmrB,KAC5BC,EAAUzrB,EAASK,QAAQqrB,IAC3BC,EAAW3rB,EAASK,QAAQurB,KAC5BC,EAAU7rB,EAASK,QAAQyrB,IAC3BC,EAAW/rB,EAASK,QAAQ2rB,KAC5BC,EAAUjsB,EAASK,QAAQ6rB,IAC3BC,EAAWnsB,EAASK,QAAQ+rB,KAC5BC,EAAUrsB,EAASK,QAAQisB,IAC3BC,EAAWvsB,EAASK,QAAQmsB,KAC5BC,EAAUzsB,EAASK,QAAQqsB,IAC3BC,EAAW3sB,EAASK,QAAQusB,KAC5BC,EAAU7sB,EAASK,QAAQysB,IAC3BC,EAAW/sB,EAASK,QAAQ2sB,KAC5BC,EAAUjtB,EAASK,QAAQ6sB,IAC3BC,EAAWntB,EAASK,QAAQ+sB,KAC5BC,EAAUrtB,EAASK,QAAQitB,IAC3BC,EAAWvtB,EAASK,QAAQmtB,KAC5BC,EAAUztB,EAASK,QAAQqtB,IAC3BC,EAAW3tB,EAASK,QAAQutB,KAC5BC,EAAU7tB,EAASK,QAAQytB,IAC3BC,EAAW/tB,EAASK,QAAQ2tB,KAC5BC,EAAUjuB,EAASK,QAAQ6tB,IAC3BC,EAAWnuB,EAASK,QAAQ+tB,KAC5BC,EAAUruB,EAASK,QAAQiuB,IAC3BC,EAAWvuB,EAASK,QAAQmuB,KAC5BC,EAAUzuB,EAASK,QAAQquB,IAC3BC,EAAW3uB,EAASK,QAAQuuB,KAC5BC,EAAU7uB,EAASK,QAAQyuB,IAC3BC,EAAW/uB,EAASK,QAAQ2uB,KAC5BC,EAAUjvB,EAASK,QAAQ6uB,IAC3BC,EAAWnvB,EAASK,QAAQ+uB,KAC5BC,EAAUrvB,EAASK,QAAQivB,IAC3BC,EAAWvvB,EAASK,QAAQmvB,KAC5BC,EAAUzvB,EAASK,QAAQqvB,IAC3BC,EAAW3vB,EAASK,QAAQuvB,KAC5BC,EAAU7vB,EAASK,QAAQyvB,IAC3BC,EAAW/vB,EAASK,QAAQ2vB,KAC5BC,EAAUjwB,EAASK,QAAQ6vB,IAC3BC,EAAWnwB,EAASK,QAAQ+vB,KAC5BC,EAAUrwB,EAASK,QAAQiwB,IAC3BC,EAAWvwB,EAASK,QAAQmwB,KAC5BC,EAAUzwB,EAASK,QAAQqwB,IAC3BC,EAAW3wB,EAASK,QAAQuwB,KAC5BC,EAAU7wB,EAASK,QAAQywB,IAC3BC,EAAW/wB,EAASK,QAAQ2wB,KAC5BC,EAAUjxB,EAASK,QAAQ6wB,IAC3BC,EAAWnxB,EAASK,QAAQ+wB,KAC5BC,EAAUrxB,EAASK,QAAQixB,IAC3BC,EAAWvxB,EAASK,QAAQmxB,KAC5BC,EAAUzxB,EAASK,QAAQqxB,IAC3BC,EAAW3xB,EAASK,QAAQuxB,KAC5BC,EAAU7xB,EAASK,QAAQyxB,IAC3BC,EAAW/xB,EAASK,QAAQ2xB,KAC5BC,EAAUjyB,EAASK,QAAQ6xB,IAC3BC,EAAWnyB,EAASK,QAAQ+xB,KAC5BC,EAAUryB,EAASK,QAAQiyB,IAC3BC,EAAWvyB,EAASK,QAAQmyB,KAC5BC,EAAUzyB,EAASK,QAAQqyB,IAC3BC,EAAW3yB,EAASK,QAAQuyB,KAC5BC,EAAU7yB,EAASK,QAAQyyB,IAC3BC,EAAW/yB,EAASK,QAAQ2yB,KAC5BC,EAAUjzB,EAASK,QAAQ6yB,IAC3BC,EAAWnzB,EAASK,QAAQ+yB,KAC5BC,EAAUrz

6a,EAAGpb,IAAMob,EAAE,GAAqBtc,EAAElB,MAAMoC,GAAKob,EAAE,KAC9Crc,EAAM5C,EAAQkB,UA
AUC,IAAIwB,EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWqD,EAAU3C,EAAEhC,OACrCuB,EAA
QlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAC1CuE,EAAc,IAAIxD,WAAW,IAAIC,WAAWM,EAAElB,O
AAOa,QAErD4c,EAAkBH,EAAS3a,KAAI+a,GAAYA,EAAS,KACpDC,EAAmBL,EAAS3a,KAAI+a,GAAYA,,E
AAS,KACrDE,EACF,IAAIjd,WAAW,IAAIC,WAAW6c,GAAiB5c,QAC7Cgd,EACF,IAAIld,WAAW,IAAIC,WA
AW+c,GAAkB9c,QAKpD,OAHAsc,GACIhc,EAAKgD,EAAajD,EAAElB,MAAMC,OAAQlC,GAASmD,EAAEh
C,OAAQ0e,EACrDC,EAAmBX,GAAkBK,GAAO9c,GACzCF,EAAMhC,EAAQiC,WAAWqD,EAAU3C,EAAEhC,OACrCuB,EA
AQC,KAAKC,MAAM4e,GAAW,KAAiB,CAC7D,SACA,QACA,SACA,SACA,QACA,QACA,SACA,aCrBSS,GA
CTtc,GAAyBuc,IAFC,GCFjBC,GAA0Bjd,GAAwBkd,aCW/CC,GACxB,MAAM5P,EAAS,IAAIC,WAAW,IAAIC,WAAW,IAAIC,WAAW

O5G,EAAO,IAAKL,QAAAA,EAASM,MAAO,CAAC+X,IAAKrS,KAGzD,MAAMvE,EAAQpB,EAAO,GAAGo
B,MAClBd,EAAQN,EAAO,GAAGM,MAExBN,EAAOgR,SAAQV,IACb9N,EAAK+e,kBACDngB,EAAOkP,EA
AElP,MACT,yDACJoB,EAAKoH,OACDtJ,IAAUgQ,EAAEhQ,OACZ,IAAM,6DAGZ,MAAMkhB,EAAwC,GAQ
xC7R,EAAS7E,GAAO,CAAC9K,OAPCA,EAAO+D,KAAIuM,IACjC,MAAMmR,EACF1J,MAAWW,,GAAAW,,CAAC/X,OA
AQ,CAAC4G,MAAO0J,GAAI3Q,QAAAAA,EAASM,MAAO,CAAC+X,IAAKrS,KAE1D,OADA6b,EAAwB5c,KA
AK6c,GACtBA,KAGuC9hB,QAAAAA,EASM,MAAO,CAAC0F,KAAAAA,KAIjE,OAFA6b,EAAwBxQ,SAAQV,
GAAK3Q,EAAQuH,YAAYoJ,EAAEvP,UAEpD4O,ICjCT,IAAI+R,GAAsDG,MAAMC,GAA4B,WAA
YqiB,GACZniB,YAAa,OACbK,WAvCF,SACIC,GACF,MAAOC,KAAQ,CAAC,EAAGC,KAAQ,CAAC,EAAGC,KAAQ,CAAC,EAAGC,KAAQ,CAAC,GAAGC,KAAQ,CAAC,GAAGC,KAAQ,CAAC,G

EAAOnJ,EAAI,GAAKmf,EAEhC,OAAOhW,EDVUqW,CAAaP,EAAOC,EAAMC,EAAMriB,GAEzCqB,EAAMhC,EAAQiC,WAAW,CAAC+K,EAAOtL,QAASf,GAGhD,OAFgBX,EAAQwE,mBAAmBxC,GACnCyC,IAAIuI,GACLhL,IETAshB,GACTrgB,GAAAyBsgB,IAFC,GCFjBC,GAA2BhhB,GAAAwBihB,ICAnDC,GAA4BlhB,GAAAwBmhB,ICIjE,IAAIC,GA4DG,MAAMC,GAAAqC,CAChDjkB,kBWAAYkkB,GACZhB,ZhkB,YAAa,OACbC,UA1DF,DSAAeC,GACb,GAAAC,GAAAC,GAAAC

AAC8V,EAAEA,GAAKpmB,EAEpBqmB,EAAc1mB,EAAQkB,UAAUC,IAAIqlB,EAAUplB,QAAQC,GACtDsl
B,EAAM3mB,EAAQkB,UAAUC,IAAIwP,EAAEvP,QAAQC,GACtCulB,EAAM5mB,EAAQkB,UAAUC,IAAIsl
B,EAAErlB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAW0O,EAAElP,MAAOkP,EAAEhQ,OACpCuB,EAAQl
C,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAE1CwlB,EAAQL,EAAU/kB,MAAMC,OACxBolB,EAAQnW,E
AAElP,MAAMC,OAEhB0P,EAAmB,IAAVyV,GAAAeA,EAAQ,GAAAe,IAAVC,EACvC,EACAjkB,EAAKC,cAAc6
N,EAAElP,MAAMsG,MAAM,IAGrC,OADAse,GAAWK,EAAAaC,EAAKxV,EAAQlP,MAAMC,OAAOqkB,EAAQlP,j
C,UAnCF,SAAeC,GACbqmB,GAAAarmB,EAAQC,MAAM,WAAY,KAAM,CAChD,SACA,SAC
A,SACA,aCVJ,IAAIwC,GAsBG,MAAMqkB,GAA8B,CACzCnnB,WAAY,UACZE,YAAa,OACbC,UAvBF,SAAe
C,GACb0C,GAAW1C,EAAQC,KAAKC,MAAM8mB,GAAS,KAAiB,CAAC,SAAU,YAAa,OAAQ,SAAU,Q
BC,GAEf,MAAMJ,QAACA,EAASK,QAAQsC,EAACA,IAAMvC,EAACzBwC,EAAEAM5C,EAAQkB,UAAUC,IAAI
wB,EAAEvB,QAAQC,GACtCW,EAAMhC,EAAQiC,WAAWU,EAAElB,MAAOkB,EAAEhC,OACpCuB,EAAQl
C,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAGhD,OAAsC,IAAlCwB,EAAEAACd,EAAQC,KAAKC,MAAM8mB,GAAS,KAAiB,CAAC,SAAU,YAAa,OAAQ,SAAU,Q
EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAE1CmI,EAAW6d,EAAAO5W,GACxBa,EAAQnW,E
KC,cAAcukB,EAAO5lB,OAAS+H,EAAGjD,OAAsC,IAAlC3G,EAAAKC,cAAcd,EAAQC,KAAKC,MAAM8mB,GAAS,KAAiB,CAAC,SAAU,YAAa,OAAQ,SAAU,Q
,EAAOsH,EAAU0P,GAHtBlX,ICmCJ,MAAMslB,GAAqC,CAChDnnB,WAAY2nB,GAAS,CAAC,SAAU,YAAa,OAAQ,SAAU,QAAS,SAAU,SAAU,SAAU,SAAU,Q
A3DF,SAAwBC,GAAKtB,MAAMC,OAAOA,EAAAML,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAE1CmI,EAAW6d,EAAAO5W,GACxBa,EAAQnW,E
AAKtC,GACN4O,WAACA,EAAAU8P,EAAAEAEzB6O,EAAAOtM,EAAAKC,cAAcmM,GAE1BuY,EAAA
4C,CAAC,CAAC,EAAG,IACvDA,EAAAiBviB,QAAS8Z,GAE1B,IAAK,IAAAlb,KAAAmlb,EAAAIoL,EAAAWvN,OAAAmC,EAAAlB,MAAAC,OAAAqkB,EAAQlP,j
mC,EAAIlB,EAAAElB,MAAMC,OAAOqkB,EAACxD2jB,EAAAiBviB,QAAS,KAAK,CAAC,EAAG,IAAG5B,MAAAwiB,EA
AUzF,GAAAY7hB,WAAW,CACrCE,OAAAQ,CAACsC,EAAAAA,GACT3C,3C,QAAAA,EACAM,CAAAye,SAAA
AUyI,EAAkBtF,cAAe,KAG/CwF,EACFrkB,EAAAaiM,YAAAmY,EAAAQhmB,MAAAOwN,EAAAYE,GAAAM,GAAAExDwY,EAAAoCtkB,MAAAaM,EAAAamM,YACnDkY,EAAAoBhmB,OAAAQuN,EAAAWvN,QAAAQ,GAAE7CkmB,EACFvkB,FvkB,EAAAa
qM,oBAAoB+X,EAAAQhmB,MAAAOwN,EAAAYE,GAAAM,GAAAIhE0Y,EACFhe,GAAAQ,CAACxJ,OAAHwB,CAACsC,
EAAG8kB,GAAGLznB,QAAAA,EAAAA,EAASM,MAFV,CAACmB,EAAAiB,EAAAA,EAAAA,EAAAA

QACA,QACA,QACA,QACA,QACA,SACA,YAsFFhpB,oBAlF2BC,GAK3B,MAAMJ,QAACA,EAAOK,OAAEA,EAAMC,MAAEA,GAASF,GAC3BuC,EAACA,GAAKtC,GAENwL,MACJA,EAAKud,IACLA,EAAG9gB,QACHA,EAAO+gB,UACPA,EAASC,QACTA,EAAOC,aACPA,EAAYC,YACZA,EAAWC,eACXA,GACEnpB,GAAEEopB,iBACJA,EAAgBC,WAChBA,EAAUC,WACVA,EAAUC,UACVA,EAASC,cACTA,EAACTA,EAACaje,MAAOke,EACPXPX,IAAKY,EACLA,1hB,QAAS2hB,GAAEPje,UAAWQ,EAAUCPvnB,EAAEAElB,MAAOOoK,EAAOud,EAAK9gB,GAAK+gB,EAAS+gB,EAAS,gB,EAAWC,EAAUC,EAAOC,EAAUC,EAAOC,EAAUC,EAAO

GAAKunB,EAAKvnB,GAElC,MAAM+B,EAAc,IAAIxD,WAAW,IAAIC,WAAWM,EAAElB,OAAOa,QACrD+oB,EAAgB,IAAIjpB,WAAW,IAAIC,WAAWe,GAAUd,QAExDN,EAAMhC,EAAQiC,WAAWmB,EAAUT,EAAEhC,OACrCuB,EAAQlC,EAAQkB,UAAUC,IAAIa,EAAIZ,QAAQC,GAAIhD,OAHA0pB,GACInoB,EAAKgD,EAAajD,EAAElB,MAAMC,OAAQ2pB,EAAS2B,EAAejoB,EAAS1B,EAAS1B,EAAS1B

BN,EAAaA,GAAcM,qBAE3DL,GAGT,SAASM,IAA+F,OAAzEC,EAAWtrB,QAAQA,GAAQurB,EAA2BD,EAA
WtrB,QAAewrB,EAAM,SAASC,IAA+F,OAAzEH,EAAWtrB,QAAQA,GAAQurB,EAA2BD,EAAWtrB,QAAeud,
EAAO,SAASmO,IAAgG,OAAzEJ,EAAWtrB,QAAQA,GAAQurB,EAA2BD,EAAWtrB,QAAe2rB,EAAO,SAASC
,IAAgG,OAAzEN,EAAWtrB,QAAQA,GAAQurB,EAA2BD,EAAWtrB,QAAe6rB,EAAQ,SAASC,IAAgG,OAAzEzE
R,EAAWtrB,QAAQA,GAAQurB,EAA2BD,EAAWtrB,QAAe+rB,EAAQ,IAAmGC,EAAoBC,EAAnHC,EAA8C,o
BAFloBnB,EAAgCA,GAAiC,IAAE6kBA,EAA8B,GAA8CmB,EAAc,MAAE,IAAIC,SAAQ,SASC,EAAQC,GAA
QL,EAAoBI,EAAQH,EAAmBI,KAAS,IAA2BC,EAAvBC,EAAgB,GAAW,IAAID,KAAOJ,EAAWA,EAAOM,eA
AeF,KAAMC,EAAgBD,GAAKJ,EAAOI,IAAM,IAAuDG,EAAM,SAASC,EAAOC,GAAS,MAAMA,GAAaC,GAAA
AmB,EAAUC,GAAsB,EAAUC,GAAoB,EAAUC,GAAqB,EAAMH,EAAmC,iBAATI,IAAkBH,EAA6C,mBAAh
BI,cAA2BH,EAAqC,iBAAVI,IAA8C,iBAAnBC,IAAoCC,EAAQC,UAAoD,iBAAxBC,IAAqCC,EAAQC,SAASC,KAAgBL,GAAsBH,
BH,IAAqBE,IAAsBD,EAAsB,IAAIQ,EAAuBnB,EAA+B,yBAAgG,EAAsBmB,IAAwBrtB,EAAOksB,EAAe,QAAE
,IAA4JoB,EAAMC,EAAUC,EAA8BC,EAAWC,EAAjNC,EAAgB,GAAWC,EAAgBC,EAAWC,EAAM,OAAG3B,EAA
AmB,WAAUA,EAAmB,WAAE2B,EAAKF,EAAwBA,EAAgBE,EAA2E,GAAGf,EAAoB,CAAu0B,IAAIgB,E
AAhzBH,EAAvBd,EAAuCkB,GAAgBC,QAAQL,GAAiB,IAAyBM,UAAUC,IAAIX,EAAMY,SAAoBY,EAASC,GA
AuH,OAA3GV,IAAOA,EAAOW,IAAOV,EAAOU,IAAKV,EAAOW,IAAOX,EAAOY,IAAOZ,EAAOa,IAAOb,EAAOc,IAAOd,EAAOe,IAAOf,EAAOgB,IAAOhB,EAAOiB,IAAOjB,EAAOkB,IAAOlB,EAAOmB,IAAOnB,EAAOoB,IAAOpB,EAAOqB,IAAOrB,EAAOsB,IAAOtB,EAAOuB,IAAOvB,EAAOwB,IAAOxB,EAAOyB,IAAOzB,EAAO0B,IAAO1B,EAAO2B,IAAO3B,EAAO4B,IAAO5B,EAAO6B,IAAO7B,EAAO8B,IAAO9B,EAAO+B,IAAO/B,EAAOgC,IAAOhC,EAAOiC,IAAOjC,EAAOkC,IAAOlC,EAAOmC,IAAOnC,EAAOoC,IAAOpC,EAAOqC,IAAOrC,EAAOsC,IAAOtC,EAAOuC,IAAOvC,EAAOwC,IAAOxC,EAAOyC,IAAOzC,EAAO0C,IAAO1C,EAAO2C,IAAO3C,EAAO4C,IAAO5C,EAAO6C,IAAO7C,EAAO8C,IAAO9C,EAAO+C,IAAO/C,EAAOgD,IAAOhD,EAAOiD,IAAOjD,EAAOkD,IAAOlD,EAAOmD,IAAOnD,EAAOoD,IAAOpD,EAAOqD,IAAOrD,EAAOsD,IAAOtD,EAAOuD,IAAOvD,EAAOwD,IAAOxD,EAAOyD,IAAOzD,EAAO0D,IAAO1D,EAAO2D,IAAO3D,EAAO4D,IAAO5D,EAAO6D,IAAO7D,EAAO8D,IAAO9D,EAAO+D,IAAO/D,EAAOgE,IAAOhE,EAAOiE,IAAOjE,EAAOkE,IAAOlE,EAAOmE,IAAOnE,EAAOoE,IAAOpE,EAAOqE,IAAOrE,EAAOsE,IAAOtE,EAAOuE,IAAOvE,EAAOwE,IAAOxE,EAAOyE,IAAOzE,EAAO0E,IAAO1E,EAAO2E,IAAO3E,EAAO4E,IAAO5E,EAAO6E,IAAO7E,EAAO8E,IAAO9E,EAAO+E,IAAO/E,EAAOgF,IAAOhF,EAAOiF,IAAOjF,EAAOkF,IAAOlF,EAAOmF,IAAOnF,EAAOoF,IAAOpF,EAAOqF,IAAOrF,EAAOsF,IAAOtF,EAAOuF,IAAOvF,EAAOwF,IAAOxF,EAAOyF,IAAOzF,EAAO0F,IAAO1F,EAAO2F,IAAO3F,EAAO4F,IAAO5F,EAAO6F,IAAO7F,EAAO8F,IAAO9F,EAAO+F,IAAO/F,EAAOgG,IAAOhG,EAAOiG,IAAOjG,EAAOkG,IAAOlG,EAAOmG,IAAOnG,EAAOoG,IAAOpG,EAAOqG,IAAOrG,EAAOsG,IAAOtG,EAAOuG,IAAOvG,EAAOwG,IAAOxG,EAAOyG,IAAOzG,EAAO0G,IAAO1G,EAAO2G,IAAO3G,EAAO4G,IAAO5G,EAAO6G,IAAO7G,EAAO8G,IAAO9G,EAAO+G,IAAO/G,EAAOgH,IAAOhH,EAAOiH,IAAOjH,EAAOkH,IAAOlH,EAAOmH,IAAOnH,EAAOoH,IAAOpH,EAAOqH,IAAOrH,EAAOsH,IAAOtH,EAAOuH,IAAOvH,EAAOwH,IAAOxH,EAAOyH,IAAOzH,EAAO0H,IAAO1H,EAAO2H,IAAO3H,EAAO4H,IAAO5H,EAAO6H,IAAO7H,EAAO8H,IAAO9H,EAAO+H,IAAO/H,EAAOgI,IAAOhI,EAAOiI,IAAOjI,EAAOkI,IAAOlI,EAAOmI,IAAOnI,EAAOoI,IAAOpI,EAAOqI,IAAOrI,EAAOsI,IAAOtI,EAAOuI,IAAOvI,EAAOwI,IAAOxI,EAAOyI,IAAOzI,EAAO0I,IAAO1I,EAAO2I,IAAO3I,EAAO4I,IAAO5I,EAAO6I,IAAO7I,EAAO8I,IAAO9I,EAAO+I,IAAO/I,EAAOgJ,IAAOhJ,EAAOiJ,IAAOjJ,EAAOkJ,IAAOlJ,EAAOmJ,IAAOnJ,EAAOoJ,IAAOpJ,EAAOqJ,IAAOrJ,EAAOsJ,IAAOtJ,EAAOuJ,IAAOvJ,EAAOwJ,IAAOxJ,EAAOyJ,IAAOzJ,EAAO0J,IAAO1J,EAAO2J,IAAO3J,EAAO4J,IAAO5J,EAAO6J,IAAO7J,EAAO8J,IAAO9J,EAAO+J,IAAO/J,EAAOgK,IAAOhK,EAAOiK,IAAOjK,EAAOkK,IAAOlK,EAAOmK,IAAOnK,EAAOoK,IAAOpK,EAAOqK,IAAOrK,EAAOsK,IAAOtK,EAAOuK,IAAOvK,EAAOwK,IAAOxK,EAAOyK,IAAOzK,EAAO0K,IAAO1K,EAAO2K,IAAO3K,EAAO4K,IAAO5K,EAAO6K,IAAO7K,EAAO8K,IAAO9K,EAAO+K,IAAO/K,EAAOgL,IAAOhL,EAAOiL,IAAOjL,EAAOkL,IAAOlL,EAAOmL,IAAOnL,EAAOoL,IAAOpL,EAAOqL,IAAOrL,EAAOsL,IAAOtL,EAAOuL,IAAOvL,EAAOwL,IAAOxL,EAAOyL,IAAOzL,EAAO0L,IAAO1L,EAAO2L,IAAO3L,EAAO4L,IAAO5L,EAAO6L,IAAO7L,EAAO8L,IAAO9L,EAAO+L,IAAO/L,EAAOgM,IAAOhM,EAAOiM,IAAOjM,EAAOkM,IAAOlM,EAAOmM,IAAOnM,EAAOoM,IAAOpM,EAAOqM,IAAOrM,EAAOsM,IAAOtM,EAAOuM,IAAOvM,EAAOwM,IAAOxM,EAAOyM,IAAOzM,EAAO0M,IAAO1M,EAAO2M,IAAO3M,EAAO4M,IAAO5M,EAAO6M,IAAO7M,EAAO8M,IAAO9M,EAAO+M,IAAO/M,EAAOgN,IAAOhN,EAAOiN,IAAOjN,EAAOkN,IAAOlN,EAAOmN,IAAOnN,EAAOoN,IAAOpN,EAAOqN,IAAOrN,EAAOsN,IAAOtN,EAAOuN,IAAOvN,EAAOwN,IAAOxN,EAAOyN,IAAOzN,EAAO0N,IAAO1N,EAAO2N,IAAO3N,EAAO4N,IAAO5N,EAAO6N,IAAO7N,EAAO8N,IAAO9N,EAAO+N,IAAO/N,EAAOgO,IAAOhO,EAAOiO,IAAOjO,EAAOkO,IAAOlO,EAAOmO,IAAOnO,EAAOoO,IAAOpO,EAAOqO,IAAOrO,EAAOsO,IAAOtO,EAAOuO,IAAOvO,EAAOwO,IAAOxO,EAAOyO,IAAOzO,EAAO0O,IAAO1O,EAAO2O,IAAO3O,EAAO4O,IAAO5O,EAAO6O,IAAO7O,EAAO8O,IAAO9O,EAAO+O,IAAO/O,EAAOgP,IAAOhP,EAAOiP,IAAOjP,EAAOkP,IAAOlP,EAAOmP,IAAOnP,EAAOoP,IAAOpP,EAAOqP,IAAOrP,EAAOsP,IAAOtP,EAAOuP,IAAOvP,EAAOwP,IAAOxP,EAAOyP,IAAOzP,EAAO0P,IAAO1P,EAAO2P,IAAO3P,EAAO4P,IAAO5P,EAAO6P,IAAO7P,EAAO8P,IAAO9P,EAAO+P,IAAO/P,EAAOgQ,IAAOhQ,EAAOiQ,IAAOjQ,EAAOkQ,IAAOlQ,EAAOmQ,IAAOnQ,EAAOoQ,IAAOpQ,EAAOqQ,IAAOrQ,EAAOsQ,IAAOtQ,EAAOuQ,IAAOvQ,EAAOwQ,IAAOxQ,EAAOyQ,IAAOzQ,EAAO0Q,IAAO1Q,EAAO2Q,IAAO3Q,EAAO4Q,IAAO5Q,EAAO6Q,IAAO7Q,EAAO8Q,IAAO9Q,EAAO+Q,IAAO/Q,EAAOgR,IAAOhR,EAAOiR,IAAOjR,EAAOkR,IAAOlR,EAAOmR,IAAOnR,EAAOoR,IAAOpR,EAAOqR,IAAOrR,EAAOsR,IAAOtR,EAAOuR,IAAOvR,EAAOwR,IAAOxR,EAAOyR,IAAOzR,EAAO0R,IAAO1R,EAAO2R,IAAO3R,EAAO4R,IAAO5R,EAAO6R,IAAO7R,EAAO8R,IAAO9R,EAAO+R,IAAO/R,EAAOgS,IAAOhS,EAAOiS,IAAOjS,EAAOkS,IAAOlS,EAAOmS,IAAOnS,EAAOoS,IAAOpS,EAAOqS,IAAOrS,EAAOsS,IAAOtS,EAAOuS,IAAOvS,EAAOwS,IAAOxS,EAAOyS,IAAOzS,EAAO0S,IAAO1S,EAAO2S,IAAO3S,EAAO4S,IAAO5S,EAAO6S,IAAO7S,EAAO8S,IAAO9S,EAAO+S,IAAO/S,EAAOgT,IAAOhT,EAAOiT,IAAOjT,EAAOkT,IAAOlT,EAAOmT,IAAOnT,EAAOoT,IAAOpT,EAAOqT,IAAOrT,EAAOsT,IAAOtT,EAAOuT,IAAOvT,EAAOwT,IAAOxT,EAAOyT,IAAOzT,EAAO0T,IAAO1T,EAAO2T,IAAO3T,EAAO4T,IAAO5T,EAAO6T,IAAO7T,EAAO8T,IAAO9T,EAAO+T,IAAO/T,EAAOgU,IAAOhU,EAAOiU,IAAOjU,EAAOkU,IAAOlU,EAAOmU,IAAOnU,EAAOoU,IAAOpU,EAAOqU,IAAOrU,EAAOsU,IAAOtU,EAAOuU,IAAOvU,EAAOwU,IAAOxU,EAAOyU,IAAOzU,EAAO0U,IAAO1U,EAAO2U,IAAO3U,EAAO4U,IAAO5U,EAAO6U,IAAO7U,EAAO8U,IAAO9U,EAAO+U,IAAO/U,EAAOgV,IAAOhV,EAAOiV,IAAOjV,EAAOkV,IAAOlV,EAAOmV,IAAOnV,EAAOoV,IAAOpV,EAAOqV,IAAOrV,EAAOsV,IAAOtV,EAAOuV,IAAOvV,EAAOwV,IAAOxV,EAAOyV,IAAOzV,EAAO0V,IAAO1V,EAAO2V,IAAO3V,EAAO4V,IAAO5V,EAAO6V,IAAO7V,EAAO8V,IAAO9V,EAAO+V,IAAO/V,EAAOgW,IAAOhW,EAAOiW,IAAOjW,EAAOkW,IAAOlW,EAAOmW,IAAOnW,EAAOoW,IAAOpW,EAAOqW,IAAOrW,EAAOsW,IAAOtW,EAAOuW,IAAOvW,EAAOwW,IAAOxW,EAAOyW,IAAOzW,EAAO0W,IAAO1W,EAAO2W,IAAO3W,EAAO4W,IAAO5W,EAAO6W,IAAO7W,EAAO8W,IAAO9W,EAAO+W,IAAO/W,EAAOgX,IAAOhX,EAAOiX,IAAOjX,EAAOkX,IAAOlX,EAAOmX,IAAOnX,EAAOoX,IAAOpX,EAAOqX,IAAOrX,EAAOsX,IAAOtX,EAAOuX,IAAOvX,EAAOwX,IAAOxX,EAAOyX,IAAOzX,EAAO0X,IAAO1X,EAAO2X,IAAO3X,EAAO4X,IAAO5X,EAAO6X,IAAO7X,EAAO8X,IAAO9X,EAAO+X,IAAO/X,EAAOgY,IAAOhY,EAAOiY,IAAOjY,EAAOkY,IAAOlY,EAAOmY,IAAOnY,EAAOoY,IAAOpY,EAAOqY,IAAOrY,EAAOsY,IAAOtY,EAAOuY,IAAOvY,EAAOwY,IAAOxY,EAAOyY,IAAOzY,EAAO0Y,IAAO1Y,EAAO2Y,IAAO3Y,EAAO4Y,IAAO5Y,EAAO6Y,IAAO7Y,EAAO8Y,IAAO9Y,EAAO+Y,IAAO/Y,EAAOgZ,IAAOhZ,EAAOiZ,IAAOjZ,EAAOkZ,IAAOlZ,EAAOmZ,IAAOnZ,EAAOoZ,IAAOpZ,EAAOqZ,IAAOrZ,EAAOsZ,IAAOtZ,EAAOuZ,IAAOvZ,EAAOwZ,IAAOxZ,EAAOyZ,IAAOzZ,EAAO0Z,IAAO1Z,EAAO2Z,IAAO3Z,EAAO4Z,IAAO5Z,EAAO6Z,IAAO7Z,EAAO8Z,IAAO9Z,EAAO+Z,IAAO/Z,EAAOga,IAAOha,EAAOia,IAAOja,EAAOka,IAAOla,EAAOma,IAAOna,EAAOoa,IAAOpa,EAAOqa,IAAOra,EAAOsa,IAAOta,EAAOua,IAAOva,EAAOwa,IAAOxa,EAAOya,IAAOza,EAAO0a,IAAO1a,EAAO2a,IAAO3a,EAAO4a,IAAO5a,EAAO6a,IAAO7a,EAAO8a,IAAO9a,EAAO+a,IAAO/a,EAAOgb,IAAOhb,EAAOib,IAAOjb,EAAOkb,IAAOlb,EAAOmb,IAAOnb,EAAOob,IAAOpb,EAAOqb,IAAOrb,EAAOsb,IAAOtb,EAAOub,IAAOvb,EAAOwb,IAAOxb,EAAOyb,IAAOzb,EAAO0b,IAAO1b,EAAO2b,IAAO3b,EAAO4b,IAAO5b,EAAO6b,IAAO7b,EAAO8b,IAAO9b,EAAO+b,IAAO/b,EAAOgc,IAAOhc,EAAOic,IAAOjc,EAAOkc,IAAOlc,EAAOmc,IAAOnc,EAAOoc,IAAOpc,EAAOqc,IAAOrc,EAAOsc,IAAOtc,EAAOuc,IAAOvc,EAAOwc,IAAOxc,EAAOyc,IAAOzc,EAAO0c,IAAO1c,EAAO2c,IAAO3c,EAAO4c,IAAO5c,EAAO6c,IAAO7c,EAAO8c,IAAO9c,EAAO+c,IAAO/c,EAAOgd,IAAOhd,EAAOid,IAAOjd,EAAOkd,IAAOld,EAAOmd,IAAOnd,EAAOod,IAAOpd,EAAOqd,IAAOrd,EAAOsd,IAAOtd,EAAOud,IAAOvd,EAAOwd,IAAOxd,EAAOyd,IAAOzd,EAAO0d,IAAO1d,EAAO2d,IAAO3d,EAAO4d,IAAO5d,EAAO6d,IAAO7d,EAAO8d,IAAO9d,EAAO+d,IAAO/d,EAAOge,IAAOhe,EAAOie,IAAOje,EAAOke,IAAOle,EAAOme,IAAOne,EAAOoe,IAAOpe,EAAOqe,IAAOre,EAAOse,IAAOte,EAAOue,IAAOve,EAAOwe,IAAOxe,EAAOye,IAAOze,EAAO0e,IAAO1e,EAAO2e,IAAO3e,EAAO4e,IAAO5e,EAAO6e,IAAO7e,EAAO8e,IAAO9e,EAAO+e,IAAO/e,EAAOgf,IAAOhf,EAAOif,IAAOjf,EAAOkf,IAAOlf,EAAOmf,IAAOnf,EAAOof,IAAOpf,EAAOqf,IAAOrf,EAAOsf,IAAOtf,EAAOuf,IAAOvf,EAAOwf,IAAOxf,EAAOyf,IAAOzf,EAAO0f,IAAO1f,EAAO2f,IAAO3f,EAAO4f,IAAO5f,EAAO6f,IAAO7f,EAAO8f,IAAO9f,EAAO+f,IAAO/f,EAAOgg,IAAOhg,EAAOig,IAAOjg,EAAOkg,IAAOlg,EAAOmg,IAAOng,EAAOog,IAAOpg,EAAOqg,IAAOrg,EAAOsg,IAAOtg,EAAOug,IAAOvg,EAAOwg,IAAOxg,EAAOyg,IAAOzg,EAAO0g,IAAO1g,EAAO2g,IAAO3g,EAAO4g,IAAO5g,EAAO6g,IAAO7g,EAAO8g,IAAO9g,EAAO+g,IAAO/g,EAAOgh,IAAOhh,EAAOih,IAAOjh,EAAOkh,IAAOlh,EAAOmh,IAAOnh,EAAOoh,IAAOph,EAAOqh,IAAOrh,EAAOsh,IAAOth,EAAOuh,IAAOvh,EAAOwh,IAAOxh,EAAOyh,IAAOzh,EAAO0h,IAAO1h,EAAO2h,IAAO3h,EAAO4h,IAAO5h,EAAO6h,IAAO7h,EAAO8h,IAAO9h,EAAO+h,IAAO/h,EAAOgi,IAAOhi,EAAOii,IAAOji,EAAOki,IAAOli,EAAOmi,IAAOni,EAAOoi,IAAOpi,EAAOqi,IAAOri,EAAOsi,IAAOti,EAAOui,IAAOvi,EAAOwi,IAAOxi,EAAOyi,IAAOzi,EAAO0i,IAAO1i,EAAO2i,IAAO3i,EAAO4i,IAAO5i,EAAO6i,IAAO7i,EAAO8i,IAAO9i,EAAO+i,IAAO/i,EAAOgj,IAAOhj,EAAOij,IAAOjj,EAAOkj,IAAOlj,EAAOmj,IAAOnj,EAAOoj,IAAOpj,EAAOqj,IAAOrj,EAAOsj,IAAOtj,EAAOuj,IAAOvj,EAAOwj,IAAOxj,EAAOyj,IAAOzj,EAAO0j,IAAO1j,EAAO2j,IAAO3j,EAAO4j,IAAO5j,EAAO6j,IAAO7j,EAAO8j,IAAO9j,EAAO+j,IAAO/j,EAAOgk,IAAOhk,EAAOik,IAAOjk,EAAOkk,IAAOlk,EAAOmk,IAAOnk,EAAOok,IAAOpk,EAAOqk,IAAOrk,EAAOsk,IAAOtk,EAAOuk,IAAOvk,EAAOwk,IAAOxk,EAAOyk,IAAOzk,EAAO0k,IAAO1k,EAAO2k,IAAO3k,EAAO4k,IAAO5k,EAAO6k,IAAO7k,EAAO8k,IAAO9k,EAAO+k,IAAO/k,EAAOgl,IAAOhl,EAAOil,IAAOjl,EAAOkl,IAAOll,EAAOml,IAAOnl,EAAOol,IAAOpl,EAAOql,IAAOrl,EAAOsl,IAAOtl,EAAOul,IAAOvl,EAAOwl,IAAOxl,EAAOyl,IAAOzl,EAAO0l,IAAO1l,EAAO2l,IAAO3l,EAAO4l,IAAO5l,EAAO6l,IAAO7l,EAAO8l,IAAO9l,EAAO+l,IAAO/l,EAAOgm,IAAOhm,EAAOim,IAAOjm,EAAOkm,IAAOlm,EAAOmm,IAAOnm,EAAOom,IAAOpm,EAAOqm,IAAOrm,EAAOsm,IAAOtm,EAAOum,IAAOvm,EAAOwm,IAAOxm,EAAOym,IAAOzm,EAAO0m,IAAO1m,EAAO2m,IAAO3m,EAAO4m,IAAO5m,EAAO6m,IAAO7m,EAAO8m,IAAO9m,EAAO+m,IAAO/m,EAAOgn,IAAOhn,EAAOin,IAAOjn,EAAOkn,IAAOln,EAAOmn,IAAOnn,EAAOon,IAAOpn,EAAOqn,IAAOrn,EAAOsn,IAAOtn,EAAOun,IAAOvn,EAAOwn,IAAOxn,EAAOyn,IAAOzn,EAAO0n,IAAO1n,EAAO2n,IAAO3n,EAAO4n,IAAO5n,EAAO6n,IAAO7n,EAAO8n,IAAO9n,EAAO+n,IAAO/n,EAAOgo,IAAOho,EAAOio,IAAOjo,EAAOko,IAAOlo,EAAOmo,IAAOno,EAAOoo,IAAOpo,EAAOqo,IAAOro,EAAOso,IAAOto,EAAOuo,IAAOvo,EAAOwo,IAAOxo,EAAOyo,IAAOzo,EAAO0o,IAAO1o,EAAO2o,IAAO3o,EAAO4o,IAAO5o,EAAO6o,IAAO7o,EAAO8o,IAAO9o,EAAO+o,IAAO/o,EAAOgp,IAAOhp,EAAOip,IAAOjp,EAAOkp,IAAOlp,EAAOmp,IAAOnp,EAAOop,IAAOpp,EAAOqp,IAAOrp,EAAOsp,IAAOtp,EAAOup,IAAOvp,EAAOwp,IAAOxp,EAAOyp,IAAOzp,EAAO0p,IAAO1p,EAAO2p,IAAO3p,EAAO4p,IAAO5p,EAAO6p,IAAO7p,EAAO8p,IAAO9p,EAAO+p,IAAO/p,EAAOgq,IAAOhq,EAAOiq,IAAOjq,EAAOkq,IAAOlq,EAAOmq,IAAOnq,EAAOoq,IAAOpq,EAAOqq,IAAOrq,EAAOsq,IAAOtq,EAAOuq,IAAOvq,EAAOwq,IAAOxq,EAAOyq,IAAOzq,EAAO0q,IAAO1q,EAAO2q,IAAO3q,EAAO4q,IAAO5q,EAAO6q,IAAO7q,EAAO8q,IAAO9q,EAAO+q,IAAO/q,EAAOgr,IAAOhr,EAAOir,IAAOjr,EAAOkr,IAAOlr,EAAOmr,IAAOnr,EAAOor,IAAOpr,EAAOqr,IAAOrr,EAAOsr,IAAOtr,EAAOur,IAAOvr,EAAOwr,IAAOxr,EAAOyr,IAAOzr,EAAO0r,IAAO1r,EAAO2r,IAAO3r,EAAO4r,IAAO5r,EAAO6r,IAAO7r,EAAO8r,IAAO9r,EAAO+r,IAAO/r,EAAOgs,IAAOhs,EAAOis,IAAOjs,EAAOks,IAAOls,EAAOms,IAAOns,EAAOos,IAAOps,EAAOqs,IAAOrs,EAAOss,IAAOts,EAAOus,IAAOvs,EAAOws,IAAOxs,EAAOys,IAAOzs,EAAO0s,IAAO1s,EAAO2s,IAAO3s,EAAO4s,IAAO5s,EAAO6s,IAAO7s,EAAO8s,IAAO9s,EAAO+s,IAAO/s,EAAOgt,IAAOht,EAAOit,IAAOjt,EAAOkt,IAAOlt,EAAOmt,IAAOnt,EAAOot,IAAOpt,EAAOqt,IAAOrt,EAAOst,IAAOtt,EAAOut,IAAOvt,EAAOwt,IAAOxt,EAAOyt,IAAOzt,EAAO0t,IAAO1t,EAAO2t,IAAO3t,EAAO4t,IAAO5t,EAAO6t,IAAO7t,EAAO8t,IAAO9t,EAAO+t,IAAO/t,EAAOgu,IAAOhu,EAAOiu,IAAOju,EAAOku,IAAOlu,EAAOmu,IAAOnu,EAAOou,IAAOpu,EAAOqu,IAAOru,EAAOsu,IAAOtu,EAAOuu,IAAOvu,EAAOwu,IAAOxu,EAAOyu,IAAOzu,EAAO0u,IAAO1u,EAAO2u,IAAO3u,EAAO4u,IAAO5u,EAAO6u,IAAO7u,EAAO8u,IAAO9u,EAAO+u,IAAO/u,EAAOgv,IAAOhv,EAAOiv,IAAOjv,EAAOkv,IAAOlv,EAAOmv,IAAOnv,EAAOov,IAAOpv,EAAOqv,IAAOrv,EAAOsv,IAAOtv,EAAOuv,IAAOvv,EAAOwv,IAAOxv,EAAOyv,IAAOzv,EAAO0v,IAAO1v,EAAO2v,IAAO3v,EAAO4v,IAAO5v,EAAO6v,IAAO7v,EAAO8v,IAAO9v,EAAO+v,IAAO/v,EAAOgw,IAAOhw,EAAOiw,IAAOjw,EAAOkw,IAAOlw,EAAOmw,IAAOnw,EAAOow,IAAOpw,EAAOqw,IAAOrw,EAAOsw,IAAOtw,EAAOuw,IAAOvw,EAAOww,IAAOxw,EAAOyw,IAAOzw,EAAO0w,IAAO1w,EAAO2w,IAAO3w,EAAO4w,IAAO5w,EAAO6w,IAAO7w,EAAO8w,IAAO9w,EAAO+w,IAAO/w,EAAOgx,IAAOhx,EAAOix,IAAOjx,EAAOkx,IAAOlx,EAAOmx,IAAOnx,EAAOox,IAAOpx,EAAOqx,IAAOrx,EAAOsx,IAAOtx,EAAOux,IAAOvx,EAAOwx,IAAOxx,EAAOyx,IAAOzx,EAAO0x,IAAO1x,EAAO2x,IAAO3x,EAAO4x,IAAO5x,EAAO6x,IAAO7x,EAAO8x,IAAO9x,EAAO+x,IAAO/x,EAAOgy,IAAOhy,EAAOiy,IAAOjy,EAAOky,IAAOly,EAAOmy,IAAOny,EAAOoy,IAAOpy,EAAOqy,IAAOry,EAAOsy,IAAOty,EAAOuy,IAAOvy,EAAOwy,IAAOxy,EAAOyy,IAAOzy,EAAO0y,IAAO1y,EAAO2y,IAAO3y,EAAO4y,IAAO5y,EAAO6y,IAAO7y,EAAO8y,IAAO9y,EAAO+y,IAAO/y,EAAOgz,IAAOhz,EAAOiz,IAAOjz,EAAOkz,IAAOlz,EAAOmz,IAAOnz,EAAOoz,IAAOpz,EAAOqz,IAAOrz,EAAOsz,IAAOtz,EAAOuz,IAAOvz,EAAOwz,IAAOxz,EAAOyz,IAAOzz,EAAO0z,IAAO1z,EAAO2z,IAAO3z,EAAO4z,IAAO5z,EAAO6z,IAAO7z,EAAO8z,IAAO9z,EAAO+z,IAAO/z,EAAOg0,IAAOh0,EAAOi0,IAAOj0,EAAOk0,IAAOl0,EAAOm0,IAAOn0,EAAOo0,IAAOp0,EAAOq0,IAAOr0,EAAOs0,IAAOt0,EAAOu0,IAAOv0,EAAOw0,IAAOx0,EAAOy0,IAAOz0,EAAO00,IAAO10,EAAO20,IAAO30,EAAO40,IAAO50,EAAO60,IAAO70,EAAO80,IAAO90,EAAO+0,IAAO/0,EAAOg1,IAAOh1,EAAOi1,IAAOj1,EAAOk1,IAAOl1,EAAOm1,IAAOn1,EAAOo1,IAAOp1,EAAOq1,IAAOr1,EAAOs1,IAAOt1,EAAOu1,IAAOv1,EAAOw1,IAAOx1,EAAOy1,IAAOz1,EAAO01,IAAO11,EAAO21,IAAO31,EAAO41,IAAO51,EAAO61,IAAO71,EAAO81,IAAO91,EAAO+1,IAAO/1,EAAOg2,IAAOh2,EAAOi2,IAAOj2,EAAOk2,IAAOl2,EAAOm2,IAAOn2,EAAOo2,IAAOp2,EAAOq2,IAAOr2,EAAOs2,IAAOt2,EAAOu2,IAAOv2,EAAOw2,IAAOx2,EAAOy2,IAAOz2,EAAO02,IAAO12,EAAO22,IAAO32,EAAO42,IAAO52,EAAO62,IAAO72,EAAO82,IAAO92,EAAO+2,IAAO/2,EAAOg3,IAAOh3,EAAOi3,IAAOj3,EAAOk3,IAAOl3,EAAOm3,IAAOn3,EAAOo3,IAAOp3,EAAOq3,IAAOr3,EAAOs3,IAAOt3,EAAOu3,IAAOv3,EAAOw3,IAAOx3,EAAOy3,IAAOz3,EAAO03,IAAO13,EAAO23,IAAO33,EAAO43,IAAO53,EAAO63,IAAO73,EAAO83,IAAO93,EAAO+3,IAAO/3,EAAOg4,IAAOh4,EAAOi4,IAAOj4,EAAOk4,IAAOl4,EAAOm4,IAAOn4,EAAOo4,IAAOp4,EAAOq4,IAAOr4,EAAOs4,IAAOt4,EAAOu4,IAAOv4,EAAOw4,IAAOx4,EAAOy4,IAAOz4,EAAO04,IAAO14,EAAO24,IAAO34,EAAO44,IAAO54,EAAO64,IAAO74,EAAO84,IAAO94,EAAO+4,IAAO/4,EAAOg5,IAAOh5,EAAOi5,IAAOj5,EAAOk5,IAAOl5,EAAOm5,IAAOn5,EAAOo5,IAAOp5,EAAOq5,IAAOr5,EAAOs5,IAAOt5,EAAOu5,IAAOv5,EAAOw5,IAAOx5,EAAOy5,IAAOz5,EAAO05,IAAO15,EAAO25,IAAO35,EAAO45,IAAO55,EAAO65,IAAO75,EAAO85,IAAO95,EAAO+5,IAAO/5,EAAOg6,IAAOh6,EAAOi6,IAAOj6,EAAOk6,IAAOl6,EAAOm6,IAAOn6,EAAOo6,IAAOp6,EAAOq6,IAAOr6,EAAOs6,IAAOt6,EAAOu6,IAAOv6,EAAOw6,IAAOx6,EAAOy6,IAAOz6,EAAO06,IAAO16,EAAO26,IAAO36,EAAO46,IAAO56,EAAO66,IAAO76,EAAO86,IAAO96,EAAO+6,IAAO/6,EAAOg7,IAAOh7,EAAOi7,IAAOj7,EAAOk7,IAAOl7,EAAOm7,IAAOn7,EAAOo7,IAAOp7,EAAOq7,IAAOr7,EAAOs7,IAAOt7,EAAOu7,IAAOv7,EAAOw7,IAAOx7,EAAOy7,IAAOz7,EAAO07,IAAO17,EAAO27,IAAO37,EAAO47,IAAO57,EAAO67,IAAO77,EAAO87,IAAO97,EAAO+7,IAAO/7,EAAOg8,IAAOh8,EAAOi8,IAAOj8,EAAOk8,IAAOl8,EAAOm8,IAAOn8,EAAOo8,IAAOp8,EAAOq8,IAAOr8,EAAOs8,IAAOt8,EAAOu8,IAAOv8,EAAOw8,IAAOx8,EAAOy8,IAAOz8,EAAO08,IAAO18,EAAO28,IAAO38,EAAO48,IAAO58,EAAO68,IAAO78,EAAO88,IAAO98,EAAO+8,IAAO/8,EAAOg9,IAAOh9,EAAOi9,IAAOj9,EAAOk9,IAAOl9,EAAOm9,IAAOn9,EAAOo9,IAAOp9,EAAOq9,IAAOr9,EAAOs9,IAAOt9,EAAOu9,IAAOv9,EAAOw9,IAAOx9,EAAOy9,IAAOz9,EAAO09,IAAO19,EAAO29,IAAO39,EAAO49,IAAO59,EAAO69,IAAO79,EAAO89,IAAO99,EAAO+9,IAAO/9,EAAOg+,IAAOh+,EAAOi+,IAAOj+,EAAOk+,IAAOl+,EAAOm+,IAAOn+,EAAOo+,IAAOp+,EAAOq+,IAAOr+,EAAOs+,IAAOt+,EAAOu+,IAAOv+,EAAOw+,IAAOx+,EAAOy+,IAAOz+,EAAO0+,IAAO1+,EAAO2+,IAAO3+,EAAO4+,IAAO5+,EAAO6+,IAAO7+,EAAO8+,IAAO9+,EAAO++,IAAO/+,EAAOg/,IAAOh/,EAAOi/,IAAOj/,EAAOk/,IAAOl/,EAAOm/,IAAOn/,EAAOo/,IAAOp/,EAAOq/,IAAOr/,EAAOs/,IAAOt/,EAAOu/,IAAOv/,EAAOw/,IAAOx/,EAAOy/,IAAOz/,EAAO0/,IAAO1/,EAAO2/,IAAO3/,EAAO4/,IAAO5/,EAAO6/,IAAO7/,EAAO8/,IAAO9/,EAAO+/,IAAO//,EAAOggA,IAAOhgA,EAAOigA,IAAOjgA,EAAOkgA,IAAOlgA,EAAOmgA,IAAOngA,EAAOogA,IAAOpgA,EAAOqgA,IAAOrgA,EAAOsgA,IAAOtgA,EAAOugA,IAAOvgA,EAAOwgA,IAAOxgA,EAAOygA,IAAOzgA,EAAO0gA,IAAO1gA,EAAO2gA,IAAO3gA,EAAO4gA,IAAO5gA,EAAO6gA,IAAO7gA,EAAO8gA,IAAO9gA,EAAO+gA,IAAO/gA,EAAOghA,IAAOhhA,EAAOihA,IAAOjhA,EAAOkhA,IAAOlhA,EAAOmhA,IAAOnhA,EAAOohA,IAAOphA,EAAOqhA,IAAOrhA,EAAOshA,IAAOthA,EAAOuhA,IAAOvhA,EAAOwhA,IAAOxhA,EAAOyhA,IAAOzhA,EAAO0hA,IAAO1hA,EAAO2hA,IAAO3hA,EAAO4hA,IAAO5hA,EAAO6hA,IAAO7hA,EAAO8hA,IAAO9hA,EAAO+hA,IAAO/hA,EAAOgiA,IAAOhiA,EAAOiiA,IAAOjiA,EAAOkiA,IAAOliA,EAAOmiA,IAAOniA,EAAOoiA,IAAOpiA,EAAOqiA,IAAOriA,EAAOsiA,IAAOtiA,EAAOuiA,IAAOviA,EAAOwiA,IAAOxiA,EAAOyiA,IAAOziA,EAAO0iA,IAAO1iA,EAAO2iA,IAAO3iA,EAAO4iA,IAAO5iA,EAAO6iA,IAAO7iA,EAAO8iA,IAAO9iA,EAAO+iA,IAAO/iA,EAA

,CAACC,OAAS,SAASC,GAAK,IAAIxD,EAAI,EAAE,GAAGwD,MAAAA,GAAmC,IAANA,EAAQ,CAAC,IAAI
C,EAAoB,GAAfD,EAAIzyB,QAAQ,GAAyB2yB,EAAaF,EAAjCxD,EAAI2D,GAAWF,GAA0BA,GAAK,OAAO
zD,GAAK4D,MAAQ,SAASC,GAAK,IAAI7D,EAAI2D,GAAWE,EAAI9yB,QAAoC,OAA5B+yB,EAAmBD,EA
AI7D,GAAYA,IAAsJiD,EAAKF,EAASC,GAAWe,EAAM,GAAOC,EAAM,EAAE,GAAGv0B,EAAM,IAAI,IAAI
yD,EAAE,EAAEA,EAAEzD,EAAKsB,OAAOmC,IAAI,CAAC,IAAI+wB,EAAUX,EAAIF,EAASlwB,IAAO+wB,
GAAsB,IARD,IAAUA,EAAME,MAAYH,EAAM7wB,GAAG+wB,EAAUx0B,EAAKyD,KAAS6wB,EAAM7w
B,GAAGzD,EAAKyD,GAAK,IAAI8sB,EAAIiD,EAAKkB,MAAM,KAAKJ,GAAoE,OA7D/D,EAArY,SA4BA
,GAAK,MAAgB,WAAbmD,EA6BiE,EAAapE,GAAqB,YAAbmD,EA8BkB,QAAQrE,GAAYA,EAAiQsE,CA
AmBtE,GAAgB,IAARgE,GAAUO,GAAaP,GAAchE,EAAI,SAASzwB,EAAMyzB,EAAMG,EAAWC,EAASC,G
AA4B,IAAImB,GAA1BpB,EAASA,GAAU,IAA4BpwB,OAAM,SASoP,GAAM,MAAc,WAAPA,KAAuD,MAA
T,WAAb+gB,GAAqCqB,IAAcnB,EAAaN,EAASC,GAAWc,EAAM,GAAOC,EAAM,EAAEC,EAASqB
,YAAiB,SASC,EAAkBC,EAAKxoB,EAAIyoB,GAAyD,IAAzC,IAAIC,EAAO1oB,EAAIyoB,GAAyB,EAAmBpB,EAAI,
KAAWrnB,GAAK0oB,GAAK,IAAQ,CAAC,IAAIC,EAAU,EAAE,GAAGH,EAAKxoB,GAAK,KAAO,IAAI2oB,GAAG,OAAOtB,EAAI,GAAQ
,IAAHsB,EAAL,CAAoD,IAAIC,EAAE,GAAZJ,EAAKxoB,GAAK,KAAuBwoB,EAAKxoB,GAAK,KAAO,IAAI4oB,GAAG,OAAOvB,EAAI,GAAQ
IE,EAAe,GAAZL,EAAKxoB,GAAK,KAAuBwoB,EAAKxoB,GAAK,KAAO,IAAI6oB,GAAG,OAAOxB,EAAI,GAAQ,IAAIyB,GAAG,OAAOzB,EAAI
,EAAEC,GAAe,EAAHF,IAAO,GAAGC,GAAK,GAAI,IAAIC,GAAK,GAAI,IAAIC,GAAK,EAAG,IAAIC,GAAK,EAAG,IAAIC,GAAK,EAAG

AgB,QAAiF,IAAjD,mBAAnBA,EAAgB,UAAcA,EAAgB,QAAE,CAACA,EAAgB,UASA,EAAgB,QAAE9sB,Q
AAQy2B,GAAa3J,EAAgB,QAAEsJ,SAAUC,GAAqBJ,Ae,SASE,GAAYO,GAAIZ,GAAaa,QAAQD,GAAI,S
AASD,GAAaC,GAAIT,GAAcU,QAAQD,GAAp8BzI,GAAuB8H,GAAWxyB,KAAK,CAAC2uB,KAAK,WAW0
E,QAAg5B,IAAIC,GAAgB,EAAoCC,GAAsB,KAAK,SASC,GAAiBp3B,GAAI4I,GAAQ0lB,EAAuB,uDAAuD
4I,KAAqB/J,EAA+B,wBAAGA,EAA+B,uBAAE+J,IAAkB,SASG,GAAoBr3B,GAA6G,GAAzzGk3B,KAAqB/J,
EAA+B,wBAAGA,EAA+B,uBAAE+J,IAAqC,GAAjBA,HC,GAAsB,CAAC,IAAIG,EAAAS5H,EAASH,GA,
sB,KAAKG,KAAuE,SAAS5H,GAAM6H,GASpK,EAAgB,SAAGA,EAAgB,QAAEoK,GAASjJ,GAAuBsB,QAA
QC,MAAM,wBAAuB,IAAKtwB,OAAO+zB,OAAgBxB,FAATyF,GAAM,IAAanF,GAAM,EAAkBmF,EAAK,SA
ASA,EAAK,+CAA+C,IAAInS,EAAE,IAAIqG,YAAY+L,aAAaD,GA4B,MAAtBrK,EAAmB9H,GA,SASqS,GAAU3E,EAAI4E,GAAQ,OAAOnD,,OAAOoD,,UAAUC,,WAAW9E,,EAAI8E,,WAAWF,,GA8B,IAAtB
5E,EAAIjC,QAAQ6G,GAAxevK,EAAwB,gBAAE,GAAGA,EAAwB,gBAAE,GA6b,IAAI0K,GAAc,wCAAwC,
SAASC,GAAU3I,GAAU,OAAOsI,GAAUtI,EAAS0I,IAAe,IAAIE,GAAc,uCAAU,SASC,GAAU7I,GAAU,OAAO
sI,GAAUtI,EAAS4I,IAAe,IAAIE,GAAe,uCAAAe,uCAAgH,SASC,GAAUC,GAAM,IAAI,GAAGA,E
AAY,OAAO,IAAI7wB,WAAW6wB,WAAW6wB,GAAY,GAAGnD,EAAY,OAAOA,EAAW0J,GAAW,kDAAmD,MA
AMrG,GAAKpC,GAAMoC,IAAM,SASsG,KAAmB,IAAIxG,IAAa/D,GAAoBC,GAAuB,CAAC,GAAkB,mBAA
RuK,QAAqBL,GAAUC,IAAiB,OAAOI,MAAMJ,GAAe,CAACK,YAAY,gBAAgBC,MAAK,SAAShH,GAU,IA
AIA,EAAa,GAAG,KAAK,uCAAuC0G,GAAe,IAAI,OAAO1G,EAAsB,iBAAMiH,OAAM,WAAW,OAAON,GAA
UD,OAAuB,GAAGzJ,EAAW,OAAO,IAAIpB,SAAQ,SASQ,SASC,EAAQC,GAAQ,gBAAkB,EAAUyJ,IAAe,SAAS1G,GAA
UlE,EAAQ,IAAItsB,WAAWwwB,MAAYjE,MAAY,OAAOF,QAAQC,UAAUkL,MAAK,WAAW,OAAOL,GAAM
UD,OAAkB,SASQ,KAAa,IAAIC,EAAK,CAACx5B,Ix5B,EAAIy5B,IAAe,SAAS,CAAC,EAAgBC,EASC,GAAQ,IAAIC,
EAAQF,GAAE,6E,GAAeE,E5L,EAAY,IAAE4L,EAAQnD,EAAUzI,EAAY,IAAK,EAAE+E,E4W,GAAA
WxK,EAAuB,CAAC,IAAI0K,EAAiBC,GAAQC,,cAAc74B,OAAO44B,GAAQC,,cAAclpB,SAAQ,SASmpB,GA
AGF,GAAQG,uBAAuBD,GAAE,aAAiBH,GAAiB3B,YA8G,SASgC,EAA0BC,GAAQV,,EAAgBU,GAAQ,SAAS,EAAeU,BU,EAAiB,SA
AEA,EAAe,QAAG,SASC,EAAuBC,GAAU,OAAOpB,GAAUnJ,SAAQ,GAAQ3D,O3D,YAAYgO,O,
YAAYrK,,EAAOsJ,MAAQH,KAAiB,GAAS,SASE,GAAQ5H,EAAI,0CA0C4H,GAAQhK,GAAMgK,GAAMgK,MAAMo
mB,GAAp+BpL,GAAwB8I,EAAK+8BjK,EAAwB,gBAAE,GAAG,IAAgE,OAAhDA,EAAwB,gBAAEuL,EAAKE,GAAgC
,MAAMxT,GAAgE,OA7D0M,EAAI,sDAAsD1M,IAAU,EAAoD,OAAxyBwM,GAAsD,mBAAnCnG,YG,YAAYkO,O,
sBAAoC7B,GAAUG,KAAkBD,GAAUC,KAAgC,mBAAMARI,YAAhB,MAAsBJ,MAAM,GAAE,CAAC,IAAIC,EAAK
ACK,YAAY,gBAAgBC,MAAK,SAAShH,GAAM,OAAOA,EAAaqH,GAAqBpI,EAAqBmSmH,GAAoBH,KAAK
c,GA0B,SASK,GAAuG,OA/F5H,EAAI,kCAAkC4H,GAAQ5H,EAAI,6CAAoDyH,EAAuBF,UAAkTb,MA
MtL,GA0B,GA3hF4K,GAAUG,MAAiBA,GAAepJ,EAAWoJ,KAAy+E,IAAI2B,GAAW,CAACC,YAAY,gBAAgBC,MAAK,SAAShH,GAAM,OAAOA,EAAaqH,GAAqBpI,EAAqBmSmH,GAAoBH,KAAK
AW,KAAK,aAAaC,MAAM,SASC,EAAuBC,GAAU,OAAOpB,GAAUnJ,SAAQ,GAAQ3D,O3D,YAAYgO,O,
SG,KAAiBiB,GAAiBC,GAAQ,SAAS,EAAeU,BU,EAAiB,SAAEA,EAAe,QAAG,SASC,EAAuBC,GAAU,OAAOpB,GAAUnJ,SAAQ,GAAQ3D,O3D,YAAYgO,O,

W,IAAIC,aAAa,IAAIC,WAAW,GAAGC,QAAQ,GAAGC,aAAa,EAAEC,WAAW,GAAGC,SAAS,GAAGC,YAA
Y,GAAGC,UAAU,IAAIC,aAAa,GAAGC,WAAW,EAAEC,aAAa,GAAGC,YAAY,GAAGC,SAAS,GAAGC,UAA
U,GAAGC,UAAU,IAAIC,aAAa,GAAGC,YAAY,GAAGC,SAAS,EAAEC,aAAa,GAAGC,SAAS,GAAGC,gBAAg
B,GAAGC,gBAAgB,IAAIC,cAAc,EAAEC,UAAU,GAAGC,QAAQ,GAAGC,SAAS,GAAGC,aAAa,IAAIC,OAA
O,IAAIC,OAAO,GAAGC,OAAO,GAAGC,QAAQ,IAAIC,UAAU,IAAIC,OAAO,GAAGC,UAAU,GAAGC,UAA
U,GAAGC,gBAAgB,GAAGC,WAAW,GAAGC,SAAS,KAAK,SASC,GAAAuBC,EAAKC,GAAAO,GAAGD,GAA
M,GAAGA,EAAK3V,IAAmBjsB,SAAa,EAAL4hC,GAAWC,EAAM,EAAE,OAAO,GAAG,GAAU,GAAPA,,EAA
S,OAAO,EAAKA,GAAAO,aAAWA,,EAAMC,,EAAAAA,GAAS,IAAIC,,EAAsBC,QAAQC,,KAAK3V,IAAoB4V,IAA
gC,GAAOC,,EAAgB,EAAE,GAAGJ,GAAAuBH,GAAAqBI,QAAQI,gBAAgB9V,IAAoB4V,IAAgC,EAAEH,,
IAAkBA,IAA+BI,,EAAgB,IAAtBN,GAAkC,GAAE,OAAO,EAAG,IAAI5S,S,EAAI+S,QAAQK,OAAO/V,IAAoBsV
,GAAM,EAAEC,GAAO,GAAG5S,S,GAAK,EAAE,OAAOA,,EAAIkT,EAAgB,KAAK,+CAA+ClT,,EAA4D,SAASq
T,GAAWC,GAAa,GAAGtU,EAAuB,KAAK,qFAAqF,IAAIsU,EAAY,KAAK,kDAAkDjW,IAAoBiW,EAAY,IAA
I,GAAG,EAAE,IAAIC,,EAAQ5J,GAAQ6J,SASF,GAAaC,,EAAQE,OAAOC,YAAY/J,GAAQgK,eAAeJ,GAAS5J
,GAAQiK,eAAehsB,OAAO+hB,GAAQiK,eAAerS,QAAQgS,EAAQE,QAAQ,GAAGF,EAAQE,OAAOF,aAAQz
W,EAAU,SAAS+W,GAAa,GAAa,GAAGtU,EAAuB,KAAK,uFAAuF,IAAIsU,EAAY,KAAK,oDAAgE3J,GAA
Q6J,SASF,GAAaqBG,OAAOlX,YAAY,CAACuX,IAAM,WAAW,SASC,GAAcT,GAAa,GAAGtU,EAAuB,KA
AK,wFAAwF,IAAIsU,EAAY,KAAK,qDAAqD,IAAIC,,EAAQ5J,GAAQ6J,SASF,GAAa,GAAGC,EAAQ,CACl
W,IAAoBiW,EAAY,IAAI,GAAG,EAAE,IAAIG,EAAOF,EAAQE,OAAO9J,GAAQqK,mBAAmBP,IAArsC5V,E
AA+B,uBAAE6U,GAA6qC,IA0xMuB,GAAtxMtK,GAAQ,CAACC,,cAAc,GAAGgK,eAAe,GAAGM,oBAAoB,
WAAiC,IAAtB,IA8BhhC,EAAE,EAAEA,,EAAd,IAAkCA,EAAGy2B,GAAQwK,wBAAyB9M,YAAY,WA+B,
IApB,IAI+M,EAAGC,GAAQ,KAAanhC,EAAE,EAAEA,,EAAE,KAAQA,EAAEqqB,IAAoB6W,EAAG,EAAE
lhC,GAAG,EAAEmqB,IAAoB+W,EAAY,GAAG,EAAG,IAAI,GAAGA,,EAAG,IAAIE,EAAQF,,EAAG,IAAI/W,IAAoBiX,,GAAS
,GAAGA,,EAAQ,IAAIC,,EAAUF,,EAAK,KAAK,IAAQnhC,EAAE,EAAEA,,MAAMA,,EAAEqqB,IAAoBg
X,EAAU,EAAEhC,GAAG,EAAE6/B,IAAQyB,,MAAMjX,IAAoB6W,,EAAG,KAAK,EAAEG,GAAWxB,QAAQ
yB,MAAMjX,IAAoB6W,,EAAG,IAAI,EAAEA,,GAAIK,GAAAyBL,GAAI5V,EAAsB,GAAGkW,,GAA4CN,IAAKO
,WAAW,aAAanB,SAAS,GAAGoB,mBAAmB,GAAGC,,gBAAgB,aAAaC,,gBAAgB,WAAW,KAAMnL,GAAQiL,
mBAAmB7jC,OAAO,GAAG44B,GAAQiL,mBAAmBG,KA3BpL,GAAsC3K,GAAwBgW,MAAgBBC,,MA4BC,
+BAA+B,SASd,EAAGe,GAAUpC,QAAQyB,MAAMjX,IAAoB6W,,EAAG,IAAI,EAAE,GAAGrB,QAAQyB,M
AAMjX,IAAoB6W,,EAAG,IAAI,EAAE,GAAGzK,EAAQmL,kBAAkB/B,QAAQyB,MAAMjX,IAAoB6W,,EAAG,
GAAG,EAAEe,GAAUpC,QAAQyB,MAAMjX,IAAoB6W,,EAAG,GAAG,EAAE,GAAG1B,GAAuB0B,GAAUB,EAAG,EA
AE,YAAYK,GAAyB,EAAE,EAAE,IAAIW,,WAAW,SASD,GAAU,IAAIf,EAAGY,,KAAmBZ,IAAzBzK,IzK,GAAQu
L,+BAA+Bd,EAAGe,GAAUnW,GAAwBzC,YAAY,CAACuX,IAAM,WAAW1L,GAAQuL,+BA
A+BF,MAAiB,GAAGzY,YAAY,CAACuX,IAAM,gBAAgBwB,BwB,oBAAoB,WAAW,IAAI,IAAIt1B,KAAK2pB,GA
AQ6J,UAAcD,EAAQ5J,GAAQ6J,SASxzB,KAAeuzB,EAAQE,QAAQ9J,GAAQqK,mBAAmBT,EAAQE,QAAS
9J,GAAQ6J,SAAS,GAAG,IAAI,IAAItgC,EAAE,EAAEA,,EAAEy2B,QAAQ,CAACuK,GAAAuBC,GAAAqBC,QAAQ,cAAc74B,,SASmC,GAAOugC,,E
AAO9J,GAAQC,,cAAc12B,IAAUwgC,,YAAqC,IAAzB/J/J,GAAQC,,cAAc,GAAW12B,,EAAE,EAAEA,,EAAEy2B,QAAQ,CAACuK,GAAAuBC,GAAAqBC,QAAQ,cAAc74B,,SASmC,GAAOugC,,E
GAAQiK,eAAe7iC,SASmC,EAAE,CAAC,IAAIugC,,EAAQ,CAAC,IAAIugC,,EAAQqCF,GAArCE,EAAO9J,GAAQiK,eAAe1gC,IAAsBqgC,,
QAAQ5J,GAAQgK,eAAeJ,GAAS,GAAGC,EAAQE,OAAOF,aAAQ,GAAGC,EAAQE,OAAOF,aAAQ,GAAGC,EAAQE,OAAOF,aAAQ

,IAAIiB,EAAOtM,GAAQ6J,SAASuC,EAAEG,cAAoR,OAAnQD,EAAQA,EAAOxC,OAAOlX,YAAYzG,EAAE8K,KAAKmV,EAAgB,cAAQzV,QAAQC,MAAM,0CAA0CuT,EAAI,uBAAuBiC,EAAgB,aAAE,4CAAuCpM,GAAQqM,yCAAoClZ,GAAiB,GAAS,gCAANgX,EAAqCqC,UAAoD,GAAS,gBAANrC,EAAqBsC,GAAAYtgB,EAAE8K,WAAW,GAAS,kBAANkT,EAAuBC,GAAcgC,EAAU,aAAQ,GAAS,eAANjC,EAAoBT,GAAW0C,GAAAW0C,EAAU,aAAQ,GAAS,iBAANjC,EAAsBD,GAAakC,EAAU,aAAQ,GAAS,WAANjC,EAAgBL,GAAO4C,QAAAO,EAAQR,GAAAkBA,EAAkBpC,GAAAWA,EAAQ6C,oBAAAoB7C,EAAQ6C,iBAAiB,GAAS,UAANxC,EAAeziC,EAAI,UAAU0kC,EAAAY,SAAE,KAAKA,EAAQ,WAAQ,GAAS,aAANjC,EAAkBtR,GAAWuT,EAAI,UAAUuT,EAAAY,SAAE,KAAKA,EAAQ,WAAQ,GAAS,UAANxC,EAAeyC,MAAM,UAAUR,EAAAY,SAAE,KAAKA,EAAQ,WAAQ,GAAS,SAANjC,EAAcjC,EAA2BL,EAAAO,SAASR,KAAKA,EAAQ,WAAQ,GAAS,gBAAN+C,EAAqBC

,OAAY,IAAL7e,EAAE,GAAOA,EAAE,GAAG,KAAagf,EAA4C,WAAW,OAAOoD,YAAY8U,MAAMrZ,EAAsC
,+BAA4B,oBAAVqc,QAA2CA,QAAiC,WAAW,OAAO9X,YAAY8U,OAA+8E,IAAIiD,GAA+C,GAAOC,GAAs
B,GAAG,SAASzB,GAAiBF,EAAO1S,GAAAoC,IAAIZ,EAAW,IAA9CiV,GAAAsBrpC,OAAO,EAASg1B,IAAM,E
AAQZ,EAAG/H,IAAmBqb,MAAU,CAAC,IAAI4B,EAAOlV,EAAG,IAAOkV,GAAY,EAAJtU,GAAMA,IAAMq
U,GAAsB9lC,KAAK+lC,EAAO5c,IAAoBsI,KAAO,GAAG1I,IAAoB0I,MAAQA,EAAI,OAAOqU,GAAsB,SAAS
E,GAAsClvB,EAAM2uB,EAAYtqC,GAAM0qC,CppC,OAAOgpC,EA0B,IAAd,IAAIlqC,EAAEJ,GAAM,
EAAUyD,EAAE,EAAEA,EAAE6mC,EAAY7mC,IAAKinC,GA+CjnC,GAAGuqB,IAAoB5tB,EAAEqD,GAAo
G,OAAhFkY,EAAM,EAAqDkf,IAAYlf,EAAM,GA9CmvB,GAAqBnvB,IAAwC+Y,MAAM,KAAKgW,IAAgD,
SAASK,KA4B,OAAOpd,IAAmBrsB,OAAO,SAAS0pC,GA0Bt/B,GAAM,IAAqG,OAAOyd,EAAM,OAAO,
EAAM,IAAIE,GAAS,CAACC,eAAe,wBAAwB,WAAW,IAAI,IAAIloC,EAAEgoC,GAASG,cAActqC,O
AAO,EAAEmC,GAAG,IAAIA,EAAGgoC,GAASI,eAAepoC,GAAGgoC,GAASG,cAAc,GAAGH,K,IAAIC,I
AAIC,6BAA6B,WAAeN,GAASO,iCAAkFP,GAASO,gCAA+B+Y,IAAOF,cAAc,GAAGG,UAAU,SAASC,EAAeC,E
AAWC,GAAU,SAASC,EAAuBC,EAAKC,GAAM,GAAGD,EAAKhrC,QAAqirC,EAAKjrC,jrC,OAAO,OAAO,EAAA
M,IAAI,IAAImC,KAAK6oC,EAAM,GAAGA,EAAK7oC,EAAK8oC,EAAM,GAAGA,EAAK9oC,GAAG,OAAO,EAAM,OAAO,EA
AK,IAAI,IAAIA,KAAKgoC,GAASK,cAAc,CAAC,IAAIU,EAAKf,GAASK,cAAcroC,GAAG,GAAG+oC,EAAKN,N,gBAAgBA,GAAgBG,EAAuBG,EAAKJ,SA,SAAWA,GAAW,OAAOQ,GAASK,cAAcjnC,KAAK,CAACqnC,eAAeA,EAAeC,WAAWA,EAAWC,WAAWA,EAAWC,SAASA,GAASC,qBAAqBC,EAAOC,EAAOC,EAAO

A4B,EAAE1H,EAAa,UAAU,EAAEwI,EAAgBf,GAASpZ,GAAa6S,GAAU,SAASuH,GAAsDzI,EAAaqI,EAAaC,
EAAMC,GAAgEH,GAAAyDpI,EAAjHqI,EAAaA,EAAana,EAAama,GAAc,GAAsFC,EAAMC,GAAQ,SASG,GA
AuBP,GAAS,OAAOA,EAAQ,EAAEja,EAAaia,GAASA,EAAQ,IAAIQ,GAAmB,CAAC,EAAoB,oBAAXliB,SAA
uBA,SAAS,EAAkB,oBAATgC,OAAqBA,OAAO,GAAG,SASmgB,GAAgBrI,GAAkK,OAA1JA,EAAOmI,GAA
uBnI,GAAuBoI,GAAmBpI,KAA4B,oBAAX9Z,SAAuBA,SAASoiB,cAActI,QAAQ3Z,GAA6B,GAA6B,SASkiB,GAAsB
vI,GAAQ,OAAOqI,GAAgBrI,GAAQ,SASwI,GAAmDxI,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAO,OAAO,EA0I,GAArIA,EAAOC,kBAAiB9hB,IAAoB6hB,EAAOC,iBAAiB,GAAGX,EAA
MnhB,IAAoB6hB,EAAOC,gBAAgB,GAAG,GAAGV,IAAUS,EAAOE,iBAAkBF,EAAOG,4BAAsd,OAAGH,EA
AOC,iBAAmFR,GAAjDthB,IAAoB6hB,EAAOC,gBAAgB,GAAG,GAAsE1I,EAAO+H,EAAMC,GAAQ,IAAMC,GAAe,IAAc,EA
AhoBS,EAAOE,kBAAgBF,EAAOA,EAAOE,iBAAgB,IAAIE,GAAmB,EAAM,GAAGJ,EAAOK,aAAaL,EAAOK
,YAAYC,MAAM,CAAC,IAAIC,EAAaP,EAAOK,YAAYC,MAAME,aAAa,MAAMJ,EAAqC,IAAlBG,EAAa,IAA
0B,IAAlBA,EAAa,IAAQA,EAAa,KAAKP,EAAOV,OAAOiB,EAAa,KAAKP,EAAOT,4U,OAAArUS,EAAO
V,MAAMA,EAAMU,EAAOT,OAAOA,EAAUa,GAAoBJ,EAAOK,YAAYC,MAAMG,SAAS,EAAE,EAAEnB,E
AAMC,GAAiO,EAAE,SAASmB,GAAgBnJ,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAzf,EAA8BkZ,GAAoC,EAAE,EAA
EzB,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAeQ,GAAmDxI,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAQ,SASoB,GAAoCpJ,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAiD,OA9BiD,GAAsBnJ,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAQ,SASqB,GAAmDxI,EAAO+H,EAAMC,GAAQ,IAAIyI,EAAOzI,EAAOoJ,GAAQ,SASs

E,0BAA0B,IAAQ/iC,SAAQ,SAAS0/B,GAAQA,EAAI7e,QAAQ,gBAAgB,GAAG6e,EAAI7e,QAAQ,SAAS,GAAGie,EAAMa,aAAaD,QAASsD,qBAAqB,SAASC,GAA0O,IAAAjO,IAAAIr1B,EAAE0yB,GAAGG,SASwC,GAAAaC,EAAO5C,GAAGa,aAAa8B,GAAAS,CAACpC,SAAS,GAAGsC,iBAAAiB,EAAAEC,oBAAAoB,EAAAEC,2BAA2B,GAAAOC,EAAAOJ,EAAAOrC,SAAa0a0C,EAAAYzE,GAAAM0E,oBAAAoB51B,EAAAE,OAAAepb,EAAAE,EAAAEA,EAAAE+wC,IAAAc/wC,EAAAE,CAAAC,IAAAIuyB,EAAAE+Z,GAAAM2E,iBAAAiB71B,EAAAEpb,GAAAO+sC,EAAAKxa,EAAAEwa,KAAAK2D,EAAAOC,iBAAAiB/oC,KAAAKC,IAAAI6oC,EAAAOC,iBAAAiB5D,EAAAKlvC,OAAAO,GAAAsB,KAAAhBkvC,EAAAK7oC,OAAAO,KAAAS6oC,EAAAKA,EAAAK7oC,MAAAM,EAAAE6oC,EAAAKxe,YAAAY,OAAAM,IAAAI2iB,EAAAI5E,GAAAM6E,mBAAAmB/1B,GAAAM,EAAAE2xB,GAAAM,GAAAGmE,EAAAI,CAAAC,IAAAI1zC,EAAAGswC,GAAAGmB,SASnB,GAAAGO,UAAAUyC,EAAAO/D,GAAAM,CAAAxa,EAAAEtqB,KAAAKzK,GAAAIswC,GAAAGO,SAAS7wC,GAAAI0zC,EAAAI5E,GAAAM,OAAAaE

oBAApBvO,kBAA4H,OAA3FgG,EAAI,uFAA8F,EAAE,IAAI8Q,EAAsE,OAAzD9Q,EAAI,qDAA4D,GAAG,IAA
IilB,EAAa,GAAe,GAAGzoB,GAA+C,IAAtByoB,EAAa12C,OAAoB,OAAO62C,GAAsC,UAAUtU,EAAYqU,EA
AKL,EAAcvc,GAA2B,IAAIic,EAAU,EAAMvR,EAAU,EAAMyR,EAAS,EAAKS,IAAa,GAAPA,GAAUX,EAAU
3pB,IAAoBsqB,GAAM,GAAGX,GAAW,MAAMvR,EAAUpY,IAAoBsqB,EAAK,GAAG,GAAGT,,EAA2C,IAAl
C7pB,IAAoBsqB,EAAK,IAAI,IAAYX,EAAU,QAAQ,IAAIxR,EAA6B,GAAXC,EAAgBD,EAAmBC,EAAUoS,G
AAU,GAAGb,GAAqC1tC,GAArBm8B,GAAWuR,GA2B,GAAWC,IAAlC,IAAIzR,EAAiBlB,GAAQ,KAAanhC,
EAAE,EAAEA,EAAE,KAASA,EAAEqqB,KAAqBgY,GAAkB,GAAGriC,,GAAG,EAAEmqB,IAAoBiW,GAAa,G
AAGiC,EAAiBlY,IAAoBkY,EAAiB,IAAI,GAAGA,EAAiB,IAAIjB,EAAQiB,EAAiB,IAAIlY,IAAoBiX,GAAS,G
AAGA,EAAQ,IAAIwS,EAAa,CAACrR,UAAUA,EAAUuR,UAAUA,EAAUxR,kBAAkBA,EAAkB0R,SAASA,E
AASK,aAAaD,EAAchU,YAAYiC,EAAiBxK,IAAIA,EAAI0c,aAAaA,GA8I,OA7HzoB,GAAwB8nB,EAAahT,,
IAAI,cAAcvX,YAAYuqB,EAAaW,IAAmBrR,GAAY0Q,GAAqB,EAAE,SASgB,KA0B,GAAI9oB,EAAI,oB,
kC,IAAIoV,EAAGY,KAAgB,GAAIZ,IAA6BrB,QAAQC,KAAKzV,IAAoB6W,EAAG,IAAI,IAAgG,GAAvDrB,Q
AAQC,KAAKzV,IAAoB6W,EAAG,GAAG,GAAkB,KAAK,aAAY,SAAS2T,KAAwBwGA8BD,GA6BiE,E
AAS,4IAA4I,SAASulB,GA6B/R,EAAO5X,EAAO4pB,GAAO,IAAIhS,EAAgE,OAAxDzT,EAAI,oDAA2DwI,G
AAYG,MAAM,GAAGnM,GAAwBgW,MAAiBiB,EAAmE,OA3DzT,EAAI,WAAWyT,EAAO,qCAA4CjL,GAA
Y8C,QAAa,IAAI9O,GAAwBkpB,MAAsCjS,EAAuE,OA/DzT,EAAI,eAAeyT,EAAO,qCAA4CjL,GAAY8C,QA
AmD,GAAlCzQ,IAAoB4Y,EAAO,IAAI,KAAaA,EAA+H,OAAvHzT,EAAI,oCAAoCyT,EAAO,wEA+EjL,GAA
YG,MAAkE,GA/C4H,QAAQC,KAAKzV,IAAoB0Y,EAAO,IAAI,GAAwF,OAAxEzT,EAAI,4BA4B4ByT,EAAO
,iCAAwCjL,GAAYuB,OAAsD,IA5C5C0b,GAAOF,,OA4C4C,CAAC,IAAII,EAAapV,QAAQC,KAAKzV,IAAoB0Y,,
EAAO,GAAG,GAAG,GAAiB,GAAdkS,EAAgB,CAAC,IAAIC,EAAerV,QAAQC,KAAKzV,IAAoB0Y,EAAO,G
AAG,GAAwN,OAAlN5X,IAAOhB,IAAoBgB,GAAQ,GAAG+pB,,QAAQyB,MAAMjX,IAAoB0Y,EAA
O,IAAI,EAAE,GAAOjX,EAAkDzC,YAAY,CAACuX,IAAM,gBAAgBmC,OAASA,IAAvElC,GAAckC,GAAyE,E
AAE,IAAIgS,EAAO,OAAOjd,GAAYiB,MAA6b,KAA8B9oB,GAAuBmX,KA+C,GAAuB9P,EAAO,EA
EkS,EAAanpB,EAAuB,IAAI,IAAI,SASqpB,GAAcpS,EAAO5X,,GA6B/R,EAAO5X,EAAO4pB,GAAO,IAAIhS,
,GAAM,SASiqB,GAASrI,GAAM,GAAGjhB,EAAuB,OAAOkZ,GAAoC,EAAE,EAAE+H,GAAM,OAAOA,GA
AM,KAAK,GAAG,OAAO,MAAM,KAAK,GA8B,OAAOnF,GAAkB,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,
KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GA
AG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,EAAE,KAAK,
GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KA
AK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GA
AG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,OAAO,KAAK,GAAG,KAAK,IAAI,KA
AK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAA
K,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAA
I,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,
KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,
GAAG,OAAO,EAAE,KAAK,IAAI,KAAK,IAAI,KAAK,EAAE,KAAK,IAAI,KAAK,EAAE,KAAK,IAAI,KAAK,I
AAI,KAAK,IAAI,KAAK,GAAG,KAAK,GAAG,KAAK,IAAI,KAAK,IAAI,KAAK,IAAI,KAAK,GAAG,KAAK,G
AAG,OAAO,EAAE,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,EAAE,OAAO,KAAK,K
AAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,GAAG,KAAK,GAAG,KAAK,GAAG,OAAO,
WAAW,KAAK,GAAG,KAAK,EAAE,OAAO,MAAM,KAAK,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,GAA
G,KAAK,GAAG,OAAO,KAAK,KAAK,EAAE,OAAO,QAAQ,KAAK,EAAE,OAAO,MAAM,KAAK,GAAG,OA
AO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OAAO,MAAM,KAAK,GAAG,OAAO,IAAI,KAAK,G
AAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,GAAG,OAAO,IAAI,KAAK,EAAE,OAAO,IAAI,KAAK,I
AAI,OAAO,GAAG,KAAK,GAAG,OAAO,GAAG,KAAK,EAAE,OAAO,GAAG,KAAK,EAAE,OAAO,EAAE,KA
AK,GAAG,OAAO,EAAE,KAAK,GAAI,MAAsB,iBAAZjB,WA4BA,UAA+B,qBAAY,EAAgB,OAAb9B,GAAS
,KAAW,EAAM/Y,GAAuB2K,GAAQuK,sBAAgC,IAA44fqU,GAAx4fhO,GAAqB,CAAC,KAAKtC,GAAQ2H,G
AAgDmG,GAAUE,GAASK,GAAUgC,IAAcjf,GAAc,CAACvT,,EAAI2hB,GAAe+Q,EAAI7Q,GAAa3lC,EAAIm
mC,GAAiCtoC,EAAIyoC,GAAO6D,EAAI5D,GAA0B/jC,EAAI8jC,GAAkD7D,EAAIgD,GAAuB0P,EAAI/O,GA

AuB/R,EAAIsT,GAAoB3lB,EAAIgrB,GAAuBoP,EAAIhP,GAA8BjU,EAAI6U,GAAsCqO,EAAIhO,GAAwB1nC,EAAI4sC,GAAoC3sC,EAAI4sC,GAAsCpoB,EAAIqoB,GAA4BlW,EAAIsb,GAAiCyD,EAAI7C,GAAUnF,EAAIqF,GAAS4C,EAAIvC,GAAUwC,EAAIje,GAAej7B,EAAIqtB,GAAYY,EAAmB,WAAEkrB,EAAIrC,GAAqB1oC,EAAI6oC,GAAsBlX,EAAI+K,GAAgBsB,EAAIX,GAAcroC,EAAIsoC,IAAmC3gB,C3gB,IAAjBwB,KAAoCtL,EAA2B,mBAAE,WAAW,OAAO8J,GAAmB9J,EAA2B,mBAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,aA6sV4P,IAAvrVxW,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,YAAyC5G,EAAiC,yBAAE,WAAW,OAAgBCA,EAAiC,yBAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,YAAmC5G,EAA2B,mBAAE,WAAW,OAA0BA,EAA2B,mBAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,YAAyC5G,EAAiC,yBAAEA,EAA2B,mBAAE,WAAW,OAAwBA,EAA2B,mBAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,YAA8B5G,EAA2B,mBAAE,WAAW,OAAqBA,EAA2B,mBAAEA,EAA2B,mBAAE,IAAK,GAAgBsG,MAAM,KAAKM,YAAyC5G,EAAiC,yBAAEA,EAA2B,mBAAE,WAAW,OAAw

AAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAAa,KAAE,EAAAA,WAAW,OAAAA,YAAA,EAAAa,KAAAA,EAAAA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqC5G,EAAA6B,KAAqB,EAAA7B,WAAW,OAAA4BA,YAA4B,EAAA5B,KAAqB,EAAA6B,qB

GAAmCrqB,EAA2C,mCAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmG,GAAmC/M,EAA2C,mCA
AE,WAAW,OAAO+M,GAAmC/M,EAA2C,mCAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBmjB,GA
AsC/pB,EAA8C,sCAAE,WAAW,OAAO+pB,GAAsC/pB,EAA8C,sCAAEA,EAAY,IAAM,IAAGsG,MAAM,KAA
KM,YAAgBwV,GAA0Cpc,EAAkD,0CAAE,WAAW,OAAOoc,GA0Cpc,EAAkD,0CAAEA,EAAY,IAAM,IAAG
sG,MAAM,KAAKM,YAAgBmZ,GA4B/f,EAAoC,4BAAE,WAAW,OAAO+f,GA4B/f,EAAoC,4BAAEA,EAA
Y,IAAM,IAAGsG,MAAM,KAAKM,YA0LgQ,IAArJ5W,EAA6B,qBAAE,WAAW,OA4BA,EAA6B,qBAAEA,
EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAyC5G,EAAiC,yBAAE,WAAW,OAO4W,GAAyB5W,EAAiC,yB
AAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,aAAgBP,GAAUrG,EAAkB,UAAE,WAAW,OAAOqG,GAAUrG
,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBF,GAAa1G,EAAqB,aAAE,WAAW,OAAO0
G,GAAa1G,EAAqB,aAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBd,GAAW9F,EAAmB,WAAE,WA
AW,OAAO8F,GAAW9F,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgB6S,GA6BzZ,EA
AqC,6BAAE,WAAW,OAAOyZ,GA6BzZ,EAAqC,6BAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgB
ojB,GAAUhqB,EAAkB,UAAE,WAAW,OAAOgqB,GAAUhqB,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,
KAAKM,YAAgBkR,GA6C9X,EAAqD,6CAAE,MAAUoV,GA+Bp,EAAuC,+BAAE,MAAA8J,SAASC,GAAA
W9B,GAAQ4qB,KAAKhJ,KAAK,aAAagJ,KAAKtS,QAAQ,gCAAgCtY,EAAO,IAAI4qB,KAAK5qB,OAAOA,E
AAqH,SAAS6qB,GAAIz5C,GA4B,KAAGm4B,CAA6B,GAAGnB,CAAnB,CAA6B,GAAG5I,EAAG,GAAxE
BE,GAAQwJ,UAAc9K,YAAY,CAACuX,IAAM,WAAkB7M,KAAYW,GAAgB,IAA2O/J,EAAkB,WAAGA,E
kB,UAAE,cAAc8M,YAAW,WAAWA,YAAW,WAAW9M,EAAkB,UAAE,MAAK,GAAGsrB,MAAS,IAAQA,
AjX,SAASA,IAAWZ,KAAiBA,IAAU,EAAK1qB,EAAkB,WAAE,EAAQiF,IAAauE,KAAcC,KAAU3J,EAAoBE,
GAAWA,EAA6B,sBAAEA,EAA6B,uBAAI0J,QAAwL,SASiP,GAAKnY,EAAO+qB,GAAU,IAAGA,IAAUvmB
,GAAwB,IAATxE,EAA5B,CAA+C,IAAI+qB,GAAapqB,EA+E,MAAvDzC,YAAW,WAAcuX,IAAM,WAAcuV,
WAAahrB,IAAe,IAAI8B,GAAW9B,GAAkBwE,IAAqB8G,GAAQ2L,sBAAyDzX,EAAe,QAAEA,EAAe,OAAEQ
,GAAQyE,GAAM,GAAK1E,EAAMC,EAAO,IAAI8B,GAAW9B,KAAS,GA32CR,EAAc,MAAEtuB,EAAMsuB
,EAAgB,QAAE8L,GAAQ9L,EAAgB,QAAE8L,GAAQ9L,EAAmB,WAAEZ,EAAWY,EAAmB,WAAEsC,GAAuJ
0H,GAAsB,SAASyhB,IAAgBf,IAAUW,KAAUX,KAAU1gB,GAAsByhB,IA2lBzrB,EAAY,IAAEqrB,GA4Yrr
B,EAAgB,QAAiF,IAAjD,mBAAnBA,EAAgB,UAAcA,EAAgB,QAAE,CAAC,EAAgB,UAASA,EAAgB,QAAE
9sB,OAAO,GAAG8sB,EAAgB,QAAEkX,KAAlBlX,GAA5ymE,OAH00mEmB,IAAwB6D,GAAc,EAAM8G,GA
AQgL,cAAauU,KAGp4mExsB,EAA8B6sB,QAAKrC/f,UAAiB9M,8BCfnB,IACMD,EADF+sB,GACE/sB,EAAiC,oBAAbE,UAA4BA,SAAS,IAAIA,SAAS,IAAI,WAAW,IAAI,IAAI,IAAI

B7C,GAAoD6C,EAAH,IAAnCA,EAAgBiC,QAAQ,SAA8BjC,EAAgBkC,OAAO,EAAElC,EAAgBmC,YAAY,K
AAK,GAAwB,GAAIxC,EAAM,SAASyC,GAAK,IAAIC,EAAI,IAAIC,eAAwD,OAAzCD,EAAIE,KAAK,MAAM
H,GAAI,GAAOC,EAAIG,KAAK,MAAaH,EAAII,cAAiBvD,IAAuBW,EAAW,SASuC,GAAK,IAAIC,EAAI,IA
AIC,eAAuF,OAAxED,EAAIE,KAAK,MAAMH,GAAI,GAAOC,EAAIK,aAAa,cAAcL,EAAIG,KAAK,MAAa,IA
AIrwB,WAAWkwB,EAAIM,YAAW/C,EAAU,SASwC,EAAIQ,EAAOC,GAAS,IAAIR,EAAI,IAAIC,eAAeD,E
AAIE,KAAK,MAAMH,GAAI,GAAMC,EAAIK,aAAa,cAAcL,,EAAIO,OAAO,WA0B,KAAZP,D,QAAIsD,EAAIA,tD,QAAYB
,GAAZsD,EAAItD,QAAWsD,EAAIM,SAAUC,EAAOP,EAAIM,UAAiBE,KAAWR,EAAIQ,QAAQA,EAAQR,E
AAIG,KAAK,QAAkE,IAAiYQ,EAAkMrF,EAA/jB5rB,EAAIwsB,EAAEc,OAAGyC,QAAQW,IAAIsB,KAAKjC,S
AAakC,EAAI3E,EAAiB,UAAGyC,QAAQY,KAAKqB,KAAKjC,SAAS,IAAIrC,KAAOC,EAAoBA,EAAgBC,eA
AeF,KAAMJ,EAAOI,GAAKC,EAAgBD,IAAMC,EAAgB,KAAQL,EAAkB,WAAaA,EAAkB,UAAKA,EAAoB,a
AAcA,EAAoB,YAAKA,EAAa,MAAQA,EAAa,KAAoBA,EAAmB,aAAEyE,EAAWzE,EAAmB,YAAoBA,EAAs
B,cAAgC,iBAAd1B,aAAwBiE,GAAM,mCAAkD,IAAI0C,GAAM,EAAqB,SAASxpB,EAAOuc,EAAU6M,GAAU
7M,GAAWuK,GAAM,qBAAqBsC,GAAO,SASK,EAASC,GAAO,IAAIC,EAAKpF,EAAO,IAAImF,GAAuF,OA
AhF1pB,EAAO2pB,EAAK,gCAAgCD,,8BAAqCC,,SASC,EAAMF,,EAAMG,,EAAWC,,EAAS3zB,
EAAK4zB,GAAM,IAAIC,EAAI,CAACC,,OAAS,SASC,GAAK,IAAIxD,D,EAAE,GAAGwD,,MAAAA,,GAA
mC,IAANA,,EAAQ,CAAC,IAAIC,,EAAoBC,,QAAAC,,EAAIC,,EAAAC,,EAAAC,,EAAA

AAQ,SAASk0B,EAAQ7zB,EAAE8zB,GAAkD,OAArC9zB,EAAE8zB,EAAS,IAAG9zB,GAAG8zB,EAAS9zB,EAAE8zB,GAAgB9zB,EAAwE,SAASkrB,EAA2B6I,GAAKp0B,EAAOo0B,EAAIlI,EAAc,MAAEV,EAAM,IAAI6I,UAAUD,GAAKlI,EAAe,OAAS,IAAIoI,WAAWF,GAAKlI,EAAe,OAAEP,EAAO,IAAI5rB,WAAWq0B,GAAKlI,EAAe,OAAE3O,EAAO,IAAIzd,WAAWs0B,GAAKlI,EAAgB,QAAU,IAAIqI,YAAYH,GAAKlI,EAAgB,QAAU,IAAIsI,YAAYJ,GAAKlI,EAAgB,QAAU,IAAIuI,aAAaL,GAAKlI,EAAgB,QAAU,IAAIwI,aAAaN,GAAAwBlI,EAAAuB,eAA1C,IAA0DyI,EAAcO,EAAa,GAAOC,EAAW,GAAOC,EAAW,GAAOC,EAAc,GAAyF,SAASC,IAAS,GAAGpJ,EAAe,OAA8E,IAA/C,mBAAlBlB,EAAkBuK,EAAAvK,EAAAuK,EAAAvK,EAAAuK,EAAAvK,EAAA

AU,SAASC,EAAOC,GAAM,IAAI/zC,EAAO2zC,GAASpE,QAAQuE,GAAkB,IAAPC,GAAiB,KAAPA,IAAqB,IAATD,EAAWp0C,EAAAImxB,GAAKkC,EAAkB/yB,EAAO,IAAIA,EAAOZ,OAAO,GAAOY,EAAO2C,KAAKoxC,IAAQ/H,aAAQ7gB,EAAUtsB,IAAI,WAAqE,OA1D80C,GAAS3H,SAAS,EAAUrgB,EAAOgoB,GAAS3H,QAAQ,GAAG,IAAegI,OAAO,SAASvgB,GA+B+B,GAAA++B,EAAA,GAAAC,EAAA,GAAAC,EAAA,GAAAC

G,MAAM,KAAKM,YAA6B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA+B5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA8B5G,EAAqB,aAAE,WAAW,OAAoBA,EAAqB,aAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuC5G,EAAE,uBAAE,WAAW,OAA4BA,EAAE,uBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA+B5G,EAAuB,eAAE,WAAW,OAAsBA,EAAuB,eAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAgC5G,EAAE,kBAAE,WAAW,OAAuBA,EAAE,kBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAgC5G,EAAE,kBAAE,WAAW,OAAuBA,EAAE,kBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAgC5G,EAAE,kBAAE,WAAW,OAAuBA,EAAE,kBAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAK,GAAGsG,MAAM,KAAKM,YAAqC5G,EAA6B,qBAAE,WAAW,OAA4BA,EAA6B,qB

EA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAuB5G,EAAe,OAAE,WAAW,OAAcA,EAAe,OAAEA,EAAY,I
AAM,IAAGsG,MAAM,KAAKM,YAA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAA
M,IAAGsG,MAAM,KAAKM,YAA0B5G,EAAkB,UAAE,WAAW,OAAiBA,EAAkB,UAAEA,EAAY,IAAM,IAA
GsG,MAAM,KAAKM,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MA
AM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAK
M,YAAyB5G,EAAiB,SAAE,WAAW,OAAgBA,EAAiB,SAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAs
B5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAg
B,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAmC5G,EAA2B,mBA
AE,WAAW,OAA0BA,EAA2B,mBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,W
AAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA8B5G,EAAsB,cAAE,WAAW,OA
AqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EA
Aa,KAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA
,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAqB5G,EAAa,KAAE,WAAW,OAAYA,EAAa,KAAEA,EAAY,IA
AM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGs
G,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,
KAAKM,YAAsB5G,EAAc,MAAE,WAAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,Y
AA2B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAA2
B5G,EAAmB,WAAE,WAAW,OAAkBA,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YA8B5G
,EAAsB,cAAE,WAAW,OAAqBA,EAAsB,cAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAwB5G,EAAgB
,QAAE,WAAW,OAAeA,EAAgB,QAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAsB5G,EAAc,MAAE,W
AAW,OAAaA,EAAc,MAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAkC5G,EAA0B,kBAAE,WAAW,O
AAOma,GAAkBna,EAA0B,kBAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,aAAgBP,GAAUrG,EAAkB,UA
AE,WAAW,OAAOqG,GAAUrG,EAAkB,UAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBF,GAAa1G,
EAAqB,aAAE,WAAW,OAAO0G,GAAa1G,EAAqB,aAAEA,EAAY,IAAM,IAAGsG,MAAM,KAAKM,YAAgBd,
GAAW9F,EAAmB,WAAE,WAAW,OAAO8F,GAAW9F,EAAmB,WAAEA,EAAY,IAAM,IAAGsG,MAAM,KAA
KM,YAAgD,SAAStE,GAAW9B,GAAQ4qB,KAAKhJ,KAAK,aAAagJ,KAAKtS,QAAQ,gCAAgCtY,EAAO,IAAI
4qB,KAAK5qB,OAAOA,EAAqH,SAAS6qB,GAAIz5C,GA+F,SAAS05C,IAAWZ,KAAiBA,IAAU,EAAK1qB,E
AAkB,WAAE,EAAQiF,IAAauE,IAAcC,IAAU3J,EAAoBE,GAAWA,EAA6B,sBAAEA,EAA6B,uBAAI0J,MAAp
RK,EAAgB,IAAUX,IAAYW,EAAgB,IAA2O/J,EAAkB,WAAGA,EAAkB,UAAE,cAAc8M,YAAW,WAAWA,YA
AW,WAAW9M,EAAkB,UAAE,MAAK,GAAGsrB,MAAS,IAAQA,MAA2B,GAAAxwBtrB,EAAc,MAAEtuB,EAA
kJs4B,EAAsB,SAASyhB,IAAgBf,IAAUW,KAAUX,KAAU1gB,EAAsBByhB,IAAIfzrB,EAAY,IAAEqB,GAAOrr
B,EAAgB,QAAIF,IAAjD,mBAAnBA,EAAgB,QAAEA,EAAgB,QAAE,CAACA,EAAgB,QAAEA,EAAgB,QAAE
9sB,OAAO,GAAG8sB,EAAgB,QAAEkX,KAAlBlX,GAAx14B,QAAHm34BqrB,KAG524BM,EAAkBD,QAAKzB/f,
UAAiBggB,WCuBNK,WAAoBC,GAK/BC,WCpBC,YAAmBC,GAAuBC,GAAuBC,GAAu

AC/BqsC,KAAK14C,UAAUC,IAAIC,GACvB,GAAc,WAAVT,EACF,OAAO4M,EAKT,OAiQJ,SACIjL,EAAqB3B,GACvB,OAAQA,GACN,IAAK,UACH,OAAO,IAAIo2B,aAAaz0B,GAC1B,IAAK,QACH,OAAO,IAAID,WAAWC,GACxB,IAAK,OACH,OAAO,IAAIF,WAAWE,GACxB,IAAK,QACH,OAAO,IAAIC,YAAYD,GACzB,IAAK,SACH,OAAO,IAAIE,aAAaF,GAC1B,IAAK,UACH,OAAO,IAAIG,cAAcH,GAC3B,IAAK,QACH,OAAO,IAAII,YAAYJ,GACzB,IAAK,SACH,OAAO,IAAIK,aAAaL,GAC1B,IAAK,UACH,OAAO,IAAIM,cAAcN,GAC3B,IAAK,QACH,OAAO,IAAIO,YAAYP,GACzB,IAAK,SACH,OAAO,IAAIQ,aAAaR,GAC1B,IAAK,UACH,OAAO,IAAIS,cAAcT,GAC3B,IAAK,QACH,OAAO,IAAIU,YAAYV,GACzB,IAAK,SACH,OAAO,IAAIW,aAAaX,GAC1B,IAAK,UACH,OAAO,IAAIY,cAAcZ,GAC3B,IAAK,QACH,OAAO,IAAIa,YAAYb,GACzB,IAAK,SACH,OAAO,IAAIc,aAAad,GAC1B,IAAK,UACH,OAAO,IAAIe,cAAcf,GAC3B,IAAK,QACH,OAAO,IAAIgB,YAAYhB,GACzB,IAAK,SACH,OAAO,IAAIiB,aAAajB,GAC1B,IAAK,UACH,OAAO,IAAIkB,cAAclB,GAC3B,IAAK,QACH,OAAO,IAAImB,YAAYnB,GACzB,IAAK,SACH,OAAO,IAAIoB,aAAapB,GAC1B,IAAK,UACH,OAAO,IAAIqB,cAAcrB,GAC3B,IAAK,QACH,OAAO,IAAIsB,YAAYtB,GACzB,IAAK,SACH,OAAO,IAAIuB,aAAavB,GAC1B,IAAK,UACH,OAAO,IAAIwB,cAAcxB,GAC3B,IAAK,QACH,OAAO,IAAIyB,YAAYzB,GACzB,IAAK,SACH,OAAO,IAAI0B,aAAa1B,GAC1B,IAAK,UACH,OAAO,IAAI2B,cAAc3B,GAC3B,IAAK,QACH,OAAO,IAAI4B,YAAY5B,GACzB,IAAK,SACH,OAAO,IAAI6B,aAAa7B,GAC1B,IAAK,UACH,OAAO,IAAI8B,cAAc9B,GAC3B,IAAK,QACH,OAAO,IAAI+B,YAAY/B,GACzB,IAAK,SACH,OAAO,IAAIgC,aAAahC,GAC1B,IAAK,UACH,OAAO,IAAIiC,cAAcjC,GAC3B,IAAK,QACH,OAAO,IAAIkC,YAAYlC,GACzB,IAAK,SACH,OAAO,IAAImC,aAAanC,GAC1B,IAAK,UACH,OAAO,IAAIoC,cAAcpC,GAC3B,IAAK,QACH,OAAO,IAAIqC,YAAYrC,GACzB,IAAK,SACH,OAAO,IAAIsC,aAAatC,GAC1B,IAAK,UACH,OAAO,IAAIuC,cAAcvC,GAC3B,IAAK,QACH,OAAO,IAAIwC,YAAYxC,GACzB,IAAK,SACH,OAAO,IAAIyC,aAAazC,GAC1B,IAAK,UACH,OAAO,IAAI0C,cAAc1C,GAC3B,IAAK,QACH,OAAO,IAAI2C,YAAY3C,GACzB,IAAK,SACH,OAAO,IAAI4C,aAAa5C,GAC1B,IAAK,UACH,OAAO,IAAI6C,cAAc7C,GAC3B,IAAK,QACH,OAAO,IAAI8C,YAAY9C,GACzB,IAAK,SACH,OAAO,IAAI+C,aAAa/C,GAC1B,IAAK,UACH,OAAO,IAAIgD,cAAchD,GAC3B,IAAK,QACH,OAAO,IAAIiD,YAAYjD,GACzB,IAAK,SACH,OAAO,IAAIkD,aAAalD,GAC1B,IAAK,UACH,OAAO,IAAImD,cAAcnD,GAC3B,IAAK,QACH,OAAO,IAAIoD,YAAYpD,GACzB,IAAK,SACH,OAAO,IAAIqD,aAAarD,GAC1B,IAAK,UACH,OAAO,IAAIsD,cAActD,GAC3B,IAAK,QACH,OAAO,IAAIuD,YAAYvD,GACzB,IAAK,SACH,OAAO,IAAIwD,aAAaxD,GAC1B,IAAK,UACH,OAAO,IAAIyD,cAAczD,GAC3B,IAAK,QACH,OAAO,IAAI0D,YAAY1D,GACzB,IAAK,SACH,OAAO,IAAI2D,aAAa3D,GAC1B,IAAK,UACH,OAAO,IAAI4D,cAAc5D,GAC3B,IAAK,QACH,OAAO,IAAI6D,YAAY7D,GACzB,IAAK,SACH,OAAO,IAAI8D,aAAa9D,GAC1B,IAAK,UACH,OAAO,IAAI+D,cAAc/D,GAC3B,IAAK,QACH,OAAO,IAAIgE,YAAYhE,GACzB,IAAK,SACH,OAAO,IAAIiE,aAAajE,GAC1B,IAAK,UACH,OAAO,IAAIkE,cAAclE,GAC3B,IAAK,QACH,OAAO,IAAImE,YAAYnE,GACzB,IAAK,SACH,OAAO,IAAIoE,aAAapE,GAC1B,IAAK,UACH,OAAO,IAAIqE,cAAcrE,GAC3B,IAAK,QACH,OAAO,IAAIsE,YAAYtE,GACzB,IAAK,SACH,OAAO,IAAIuE,aAAavE,GAC1B,IAAK,UACH,OAAO,IAAIwE,cAAcxE,GAC3B,IAAK,QACH,OAAO,IAAIyE,YAAYzE,GACzB,IAAK,SACH,OAAO,IAAI0E,aAAa1E,GAC1B,IAAK,UACH,OAAO,IAAI2E,cAAc3E,GAC3B,IAAK,QACH,OAAO,IAAI4E,YAAY5E,GACzB,IAAK,SACH,OAAO,IAAI6E,aAAa7E,GAC1B,IAAK,UACH,OAAO,IAAI8E,cAAc9E,GAC3B,IAAK,QACH,OAAO,IAAI+E,YAAY/E,GACzB,IAAK,SACH,OAAO,IAAIgF,aAAahF,GAC1B,IAAK,UACH,OAAO,IAAIiF,cAAcjF,GAC3B,IAAK,QACH,OAAO,IAAIkF,YAAYlF,GACzB,IAAK,SACH,OAAO,IAAImF,aAAanF,GAC1B,IAAK,UACH,OAAO,IAAIoF,cAAcpF,GAC3B,IAAK,QACH,OAAO,IAAIqF,YAAYrF,GACzB,IAAK,SACH,OAAO,IAAIsF,aAAatF,GAC1B,IAAK,UACH,OAAO,IAAIuF,cAAcvF,GAC3B,IAAK,QACH,OAAO,IAAIwF,YAAYxF,GACzB,IAAK,SACH,OAAO,IAAIyF,aAAazF,GAC1B,IAAK,UACH,OAAO,IAAI0F,cAAc1F,GAC3B,IAAK,QACH,OAAO,IAAI2F,YAAY3F,GACzB,IAAK,SACH,OAAO,IAAI4F,aAAa5F,GAC1B,IAAK,UACH,OAAO,IAAI6F,cAAc7F,GAC3B,IAAK,QACH,OAAO,IAAI8F,YAAY9F,GACzB,IAAK,SACH,OAAO,IAAI+F,aAAa/F,GAC1B,IAAK,UACH,OAAO,IAAIgG,cAAchG,GAC3B,IAAK,QACH,OAAO,IAAIiG,YAAYjG,GACzB,IAAK,SACH,OAAO,IAAIkG,aAAalG,GAC1B,IAAK,UACH,OAAO,IAAImG,cAAcnG,GAC3B,IAAK,QACH,OAAO,IAAIoG,YAAYpG,GACzB,IAAK,SACH,OAAO,IAAIqG,aAAarG,GAC1B,IAAK,UACH,OAAO,IAAIsG,cAActG,GAC3B,IAAK,QACH,OAAO,IAAIuG,YAAYvG,GACzB,IAAK,SACH,OAAO,IAAIwG,aAAaxG,GAC1B,IAAK,UACH,OAAO,IAAIyG,cAAczG,GAC3B,IAAK,QACH,OAAO,IAAI0G,YAAY1G,GACzB,IAAK,SACH,OAAO,IAAI2G,aAAa3G,GAC1B,IAAK,UACH,OAAO,IAAI4G,cAAc5G,GAC3B,IAAK,QACH,OAAO,IAAI6G,YAAY7G,GACzB,IAAK,SACH,OAAO,IAAI8G,aAAa9G,GAC1B,IAAK,UACH,OAAO,IAAI+G,cAAc/G,GAC3B,IAAK,QACH,OAAO,IAAIgH,YAAYhH,GACzB,IAAK,SACH,OAAO,IAAIiH,aAAajH,GAC1B,IAAK,UACH,OAAO,IAAIkH,cAAclH,GAC3B,IAAK,QACH,OAAO,IAAImH,YAAYnH,GACzB,IAAK,SACH,OAAO,IAAIoH,aAAapH,GAC1B,IAAK,UACH,OAAO,IAAIqH,cAAcrH,GAC3B,IAAK,QACH,OAAO,IAAIsH,YAAYtH,GACzB,IAAK,SACH,OAAO,IAAIuH,aAAavH,GAC1B,IAAK,UACH,OAAO,IAAIwH,cAAcxH,GAC3B,IAAK,QACH,OAAO,IAAIyH,YAAYzH,GACzB,IAAK,SACH,OAAO,IAAI0H,aAAa1H,GAC1B,IAAK,UACH,OAAO,IAAI2H,cAAc3H,GAC3B,IAAK,QACH,OAAO,IAAI4H,YAAY5H,GACzB,IAAK,SACH,OAAO,IAAI6H,aAAa7H,GAC1B,IAAK,UACH,OAAO,IAAI8H,cAAc9H,GAC3B,IAAK,QACH,OAAO,IAAI+H,YAAY/H,GACzB,IAAK,SACH,OAAO,IAAIgI,aAAahI,GAC1B,IAAK,UACH,OAAO,IAAIiI,cAAcjI,GAC3B,IAAK,QACH,OAAO,IAAIkI,YAAYlI,GACzB,IAAK,SACH,OAAO,IAAImI,aAAanI,GAC1B,IAAK,UACH,OAAO,IAAIoI,cAAcpI,GAC3B,IAAK,QACH,OAAO,IAAIqI,YAAYrI,GACzB,IAAK,SACH,OAAO,IAAIsI,aAAatI,GAC1B,IAAK,UACH,OAAO,IAAIuI,cAAcvI,GAC3B,IAAK,QACH,OAAO,IAAIwI,YAAYxI,GACzB,IAAK,SACH,OAAO,IAAIyI,aAAazI,GAC1B,IAAK,UACH,OAAO,IAAI0I,cAAc1I,GAC3B,IAAK,QACH,OAAO,IAAI2I,YAAY3I,GACzB,IAAK,SACH,OAAO,IAAI4I,aAAa5I,GAC1B,IAAK,UACH,OAAO,IAAI6I,cAAc7I,GAC3B,IAAK,QACH,OAAO,IAAI8I,YAAY9I,GACzB,IAAK,SACH,OAAO,IAAI+I,aAAa/I,GAC1B,IAAK,UACH,OAAO,IAAIgJ,cAAchJ,GAC3B,IAAK,QACH,OAAO,IAAIiJ,YAAYjJ,GACzB,IAAK,SACH,OAAO,IAAIkJ,aAAalJ,GAC1B,IAAK,UACH,OAAO,IAAImJ,cAAcnJ,GAC3B,IAAK,QACH,OAAO,IAAIoJ,YAAYpJ,GACzB,IAAK,SACH,OAAO,IAAIqJ,aAAarJ,GAC1B,IAAK,UACH,OAAO,IAAIsJ,cAActJ,GAC3B,IAAK,QACH,OAAO,IAAIuJ,YAAYvJ,GACzB,IAAK,SACH,OAAO,IAAIwJ,aAAaxJ,GAC1B,IAAK,UACH,OAAO,IAAIyJ,cAAczJ,GAC3B,IAAK,QACH,OAAO,IAAI0J,YAAY1J,GACzB,IAAK,SACH,OAAO,IAAI2J,aAAa3J,GAC1B,IAAK,UACH,OAAO,IAAI4J,cAAc5J,GAC3B,IAAK,QACH,OAAO,IAAI6J,YAAY7J,GACzB,IAAK,SACH,OAAO,IAAI8J,aAAa9J,GAC1B,IAAK,UACH,OAAO,IAAI+J,cAAc/J,GAC3B,IAAK,QACH,OAAO,IAAIgK,YAAYhK,GACzB,IAAK,SACH,OAAO,IAAIiK,aAAajK,GAC1B,IAAK,UACH,OAAO,IAAIkK,cAAclK,GAC3B,IAAK,QACH,OAAO,IAAImK,YAAYnK,GACzB,IAAK,SACH,OAAO,IAAIoK,aAAapK,GAC1B,IAAK,UACH,OAAO,IAAIqK,cAAcrK,GAC3B,IAAK,QACH,OAAO,IAAIsK,YAAYtK,GACzB,IAAK,SACH,OAAO,IAAIuK,aAAavK,GAC1B,IAAK,UACH,OAAO,IAAIwK,cAAcxK,GAC3B,IAAK,QACH,OAAO,IAAIyK,YAAYzK,GACzB,IAAK,SACH,OAAO,IAAI0K,aAAa1K,GAC1B,IAAK,UACH,OAAO,IAAI2K,cAAc3K,GAC3B,IAAK,QACH,OAAO,IAAI4K,YAAY5K,GACzB,IAAK,SACH,OAAO,IAAI6K,aAAa7K,GAC1B,IAAK,UACH,OAAO,IAAI8K,cAAc9K,GAC3B,IAAK,QACH,OAAO,IAAI+K,YAAY/K,GACzB,IAAK,SACH,OAAO,IAAIgL,aAAahL,GAC1B,IAAK,UACH,OAAO,IAAIiL,cAAcjL,GAC3B,IAAK,QACH,OAAO,IAAIkL,YAAYlL,GACzB,IAAK,SACH,OAAO,IAAImL,aAAanL,GAC1B,IAAK,UACH,OAAO,IAAIoL,cAAcpL,GAC3B,IAAK,QACH,OAAO,IAAIqL,YAAYrL,GACzB,IAAK,SACH,OAAO,IAAIsL,aAAatL,GAC1B,IAAK,UACH,OAAO,IAAIuL,cAAcvL,GAC3B,IAAK,QACH,OAAO,IAAIwL,YAAYxL,GACzB,IAAK,SACH,OAAO,IAAIyL,aAAazL,GAC1B,IAAK,UACH,OAAO,IAAI0L,cAAc1L,GAC3B,IAAK,QACH,OAAO,IAAI2L,YAAY3L,GACzB,IAAK,SACH,OAAO,IAAI4L,aAAa5L,GAC1B,IAAK,UACH,OAAO,IAAI6L,cAAc7L,GAC3B,IAAK,QACH,OAAO,IAAI8L,YAAY9L,GACzB,IAAK,SACH,OAAO,IAAI+L,aAAa/L,GAC1B,IAAK,UACH,OAAO,IAAIgM,cAAchM,GAC3B,IAAK,QACH,OAAO,IAAIiM,YAAYjM,GACzB,IAAK,SACH,OAAO,IAAIkM,aAAalM,GAC1B,IAAK,UACH,OAAO,IAAImM,cAAcnM,GAC3B,IAAK,QACH,OAAO,IAAIoM,YAAYpM,GACzB,IAAK,SACH,OAAO,IAAIqM,aAAarM,GAC1B,IAAK,UACH,OAAO,IAAIsM,cAActM,GAC3B,IAAK,QACH,OAAO,IAAIuM,YAAYvM,GACzB,IAAK,SACH,OAAO,IAAIwM,aAAaxM,GAC1B,IAAK,UACH,OAAO,IAAIyM,cAAczM,GAC3B,IAAK,QACH,OAAO,IAAI0M,YAAY1M,GACzB,IAAK,SACH,OAAO,IAAI2M,aAAa3M,GAC1B,IAAK,UACH,OAAO,IAAI4M,cAAc5M,GAC3B,IAAK,QACH,OAAO,IAAI6M,YAAY7M,GACzB,IAAK,SACH,OAAO,IAAI8M,aAAa9M,GAC1B,IAAK,UACH,OAAO,IAAI+M,cAAc/M,GAC3B,IAAK,QACH,OAAO,IAAIgN,YAAYhN,GACzB,IAAK,SACH,OAAO,IAAIiN,aAAajN,GAC1B,IAAK,UACH,OAAO,IAAIkN,cAAclN,GAC3B,IAAK,QACH,OAAO,IAAImN,YAAYnN,GACzB,IAAK,SACH,OAAO,IAAIoN,aAAapN,GAC1B,IAAK,UACH,OAAO,IAAIqN,cAAcrN,GAC3B,IAAK,QACH,OAAO,IAAIsN,YAAYtN,GACzB,IAAK,SACH,OAAO,IAAIuN,aAAavN,GAC1B,IAAK,UACH,OAAO,IAAIwN,cAAcxN,GAC3B,IAAK,QACH,OAAO,IAAIyN,YAAYzN,GACzB,IAAK,SACH,OAAO,IAAI0N,aAAa1N,GAC1B,IAAK,UACH,OAAO,IAAI2N,cAAc3N,GAC3B,IAAK,QACH,OAAO,IAAI4N,YAAY5N,GACzB,IAAK,SACH,OAAO,IAAI6N,aAAa7N,GAC1B,IAAK,UACH,OAAO,IAAI8N,cAAc9N,GAC3B,IAAK,QACH,OAAO,IAAI+N,YAAY/N,GACzB,IAAK,SACH,OAAO,IAAIgO,aAAahO,GAC1B,IAAK,UACH,OAAO,IAAIiO,cAAcjO,GAC3B,IAAK,QACH,OAAO,IAAIkO,YAAYlO,GACzB,IAAK,SACH,OAAO,IAAImO,aAAanO,GAC1B,IAAK,UACH,OAAO,IAAIoO,cAAcpO,GAC3B,IAAK,QACH,OAAO,IAAIqO,YAAYrO,GACzB,IAAK,SACH,OAAO,IAAIsO,aAAatO,GAC1B,IAAK,UACH,OAAO,IAAIuO,cAAcvO,GAC3B,IAAK,QACH,OAAO,IAAIwO,YAAYxO,GACzB,IAAK,SACH,OAAO,IAAIyO,aAAazO,GAC1B,IAAK,UACH,OAAO,IAAI0O,cAAc1O,GAC3B,IAAK,QACH,OAAO,IAAI2O,YAAY3O,GACzB,IAAK,SACH,OAAO,IAAI4O,aAAa5O,GAC1B,IAAK,UACH,OAAO,IAAI6O,cAAc7O,GAC3B,IAAK,QACH,OAAO,IAAI8O,YAAY9O,GACzB,IAAK,SACH,OAAO,IAAI+O,aAAa/O,GAC1B,IAAK,UACH,OAAO,IAAIgP,cAAchP,GAC3B,IAAK,QACH,OAAO,IAAIiP,YAAYjP,GACzB,IAAK,SACH,OAAO,IAAIkP,aAAalP,GAC1B,IAAK,UACH,OAAO,IAAImP,cAAcnP,GAC3B,IAAK,QACH,OAAO,IAAIoP,YAAYpP,GACzB,IAAK,SACH,OAAO,IAAIqP,aAAarP,GAC1B,IAAK,UACH,OAAO,IAAIsP,cAActP,GAC3B,IAAK,QACH,OAAO,IAAIuP,YAAYvP,GACzB,IAAK,SACH,OAAO,IAAIwP,aAAaxP,GAC1B,IAAK,UACH,OAAO,IAAIyP,cAAczP,GAC3B,IAAK,QACH,OAAO,IAAI0P,YAAY1P,GACzB,IAAK,SACH,OAAO,IAAI2P,aAAa3P,GAC1B,IAAK,UACH,OAAO,IAAI4P,cAAc5P,GAC3B,IAAK,QACH,OAAO,IAAI6P,YAAY7P,GACzB,IAAK,SACH,OAAO,IAAI8P,aAAa9P,GAC1B,IAAK,UACH,OAAO,IAAI+P,cAAc/P,GAC3B,IAAK,QACH,OAAO,IAAIgQ,YAAYhQ,GACzB,IAAK,SACH,OAAO,IAAIiQ,aAAajQ,GAC1B,IAAK,UACH,OAAO,IAAIkQ,cAAclQ,GAC3B,IAAK,QACH,OAAO,IAAImQ,YAAYnQ,GACzB,IAAK,SACH,OAAO,IAAIoQ,aAAapQ,GAC1B,IAAK,UACH,OAAO,IAAIqQ,cAAcrQ,GAC3B,IAAK,QACH,OAAO,IAAIsQ,YAAYtQ,GACzB,IAAK,SACH,OAAO,IAAIuQ,aAAavQ,GAC1B,IAAK,UACH,OAAO,IAAIwQ,cAAcxQ,GAC3B,IAAK,QACH,OAAO,IAAIyQ,YAAYzQ,GACzB,IAAK,SACH,OAAO,IAAI0Q,aAAa1Q,GAC1B,IAAK,UACH,OAAO,IAAI2Q,cAAc3Q,GAC3B,IAAK,QACH,OAAO,IAAI4Q,YAAY5Q,GACzB,IAAK,SACH,OAAO,IAAI6Q,aAAa7Q,GAC1B,IAAK,UACH,OAAO,IAAI8Q,cAAc9Q,GAC3B,IAAK,QACH,OAAO,IAAI+Q,YAAY/Q,GACzB,IAAK,SACH,OAAO,IAAIgR,aAAahR,GAC1B,IAAK,UACH,OAAO,IAAIiR,cAAcjR,GAC3B,IAAK,QACH,OAAO,IAAIkR,YAAYlR,GACzB,IAAK,SACH,OAAO,IAAImR,aAAanR,GAC1B,IAAK,UACH,OAAO,IAAIoR,cAAcpR,GAC3B,IAAK,QACH,OAAO,IAAIqR,YAAYrR,GACzB,IAAK,SACH,OAAO,IAAIsR,aAAatR,GAC1B,IAAK,UACH,OAAO,IAAIuR,cAAcvR,GAC3B,IAAK,QACH,OAAO,IAAIwR,YAAYxR,GACzB,IAAK,SACH,OAAO,IAAIyR,aAAazR,GAC1B,IAAK,UACH,OAAO,IAAI0R,cAAc1R,GAC3B,IAAK,QACH,OAAO,IAAI2R,YAAY3R,GACzB,IAAK,SACH,OAAO,IAAI4R,aAAa5R,GAC1B,IAAK,UACH,OAAO,IAAI6R,cAAc7R,GAC3B,IAAK,QACH,OAAO,IAAI8R,YAAY9R,GACzB,IAAK,SACH,OAAO,IAAI+R,aAAa/R,GAC1B,IAAK,UACH,OAAO,IAAIgS,cAAchS,GAC3B,IAAK,QACH,OAAO,IAAIiS,YAAYjS,GACzB,IAAK,SACH,OAAO,IAAIkS,aAAalS,GAC1B,IAAK,UACH,OAAO,IAAImS,cAAcnS,GAC3B,IAAK,QACH,OAAO,IAAIoS,YAAYpS,GACzB,IAAK,SACH,OAAO,IAAIqS,aAAarS,GAC1B,IAAK,UACH,OAAO,IAAIsS,cAActS,GAC3B,IAAK,QACH,OAAO,IAAIuS,YAAYvS,GACzB,IAAK,SACH,OAAO,IAAIwS,aAAaxS,GAC1B,IAAK,UACH,OAAO,IAAIyS,cAAczS,GAC3B,IAAK,QACH,OAAO,IAAI0S,YAAY1S,GACzB,IAAK,SACH,OAAO,IAAI2S,aAAa3S,GAC1B,IAAK,UACH,OAAO,IAAI4S,cAAc5S,GAC3B,IAAK,QACH,OAAO,IAAI6S,YAAY7S,GACzB,IAAK,SACH,OAAO,IAAI8S,aAAa9S,GAC1B,IAAK,UACH,OAAO,IAAI+S,cAAc/S,GAC3B,IAAK,QACH,OAAO,IAAIgT,YAAYhT,GACzB,IAAK,SACH,OAAO,IAAIiT,aAAajT,GAC1B,IAAK,UACH,OAAO,IAAIkT,cAAclT,GAC3B,IAAK,QACH,OAAO,IAAImT,YAAYnT,GACzB,IAAK,SACH,OAAO,IAAIoT,aAAapT,GAC1B,IAAK,UACH,OAAO,IAAIqT,cAAcrT,GAC3B,IAAK,QACH,OAAO,IAAIsT,YAAYtT,GACzB,IAAK,SACH,OAAO,IAAIuT,aAAavT,GAC1B,IAAK,UACH,OAAO,IAAIwT,cAAcxT,GAC3B,IAAK,QACH,OAAO,IAAIyT,YAAYzT,GACzB,IAAK,SACH,OAAO,IAAI0T,aAAa1T,GAC1B,IAAK,UACH,OAAO,IAAI2T,cAAc3T,GAC3B,IAAK,QACH,OAAO,IAAI4T,YAAY5T,GACzB,IAAK,SACH,OAAO,IAAI6T,aAAa7T,GAC1B,IAAK,UACH,OAAO,IAAI8T,cAAc9T,GAC3B,IAAK,QACH,OAAO,IAAI+T,YAAY/T,GACzB,IAAK,SACH,OAAO,IAAIgU,aAAahU,GAC1B,IAAK,UACH,OAAO,IAAIiU,cAAcjU,GAC3B,IAAK,QACH,OAAO,IAAIkU,YAAYlU,GACzB,IAAK,SACH,OAAO,IAAImU,aAAanU,GAC1B,IAAK,UACH,OAAO,IAAIoU,cAAcpU,GAC3B,IAAK,QACH,OAAO,IAAIqU,YAAYrU,GACzB,IAAK,SACH,OAAO,IAAIsU,aAAatU,GAC1B,IAAK,UACH,OAAO,IAAIuU,cAAcvU,GAC3B,IAAK,QACH,OAAO,IAAIwU,YAAYxU,GACzB,IAAK,SACH,OAAO,IAAIyU,aAAazU,GAC1B,IAAK,UACH,OAAO,IAAI0U,cAAc1U,GAC3B,IAAK,QACH,OAAO,IAAI2U,YAAY3U,GACzB,IAAK,SACH,OAAO,IAAI4U,aAAa5U,GAC1B,IAAK,UACH,OAAO,IAAI6U,cAAc7U,GAC3B,IAAK,QACH,OAAO,IAAI8U,YAAY9U,GACzB,IAAK,SACH,OAAO,IAAI+U,aAAa/U,GAC1B,IAAK,UACH,OAAO,IAAIgV,cAAchV,GAC3B,IAAK,QACH,OAAO,IAAIiV,YAAYjV,GACzB,IAAK,SACH,OAAO,IAAIkV,aAAalV,GAC1B,IAAK,UACH,OAAO,IAAImV,cAAcnV,GAC3B,IAAK,QACH,OAAO,IAAIoV,YAAYpV,GACzB,IAAK,SACH,OAAO,IAAIqV,aAAarV,GAC1B,IAAK,UACH,OAAO,IAAIsV,cAActV,GAC3B,IAAK,QACH,OAAO,IAAIuV,YAAYvV,GACzB,IAAK,SACH,OAAO,IAAIwV,aAAaxV,GAC1B,IAAK,UACH,OAAO,IAAIyV,cAAczV,GAC3B,IAAK,QACH,OAAO,IAAI0V,YAAY1V,GACzB,IAAK,SACH,OAAO,IAAI2V,aAAa3V,GAC1B,IAAK,UACH,OAAO,IAAI4V,cAAc5V,GAC3B,IAAK,QACH,OAAO,IAAI6V,YAAY7V,GACzB,IAAK,SACH,OAAO,IAAI8V,aAAa9V,GAC1B,IAAK,UACH,OAAO,IAAI+V,cAAc/V,GAC3B,IAAK,QACH,OAAO,IAAIgW,YAAYhW,GACzB,IAAK,SACH,OAAO,IAAIiW,aAAajW,GAC1B,IAAK,UACH,OAAO,IAAIkW,cAAclW,GAC3B,IAAK,QACH,OAAO,IAAImW,YAAYnW,GACzB,IAAK,SACH,OAAO,IAAIoW,aAAapW,GAC1B,IAAK,UACH,OAAO,IAAIqW,cAAcrW,GAC3B,IAAK,QACH,OAAO,IAAIsW,YAAYtW,GACzB,IAAK,SACH,OAAO,IAAIuW,aAAavW,GAC1B,IAAK,UACH,OAAO,IAAIwW,cAAcxW,GAC3B,IAAK,QACH,OAAO,IAAIyW,YAAYzW,GACzB,IAAK,SACH,OAAO,IAAI0W,aAAa1W,GAC1B,IAAK,UACH,OAAO,IAAI2W,cAAc3W,GAC3B,IAAK,QACH,OAAO,IAAI4W,YAAY5W,GACzB,IAAK,SACH,OAAO,IAAI6W,aAAa7W,GAC1B,IAAK,UACH,OAAO,IAAI8W,cAAc9W,GAC3B,IAAK,QACH,OAAO,IAAI+W,YAAY/W,GACzB,IAAK,SACH,OAAO,IAAIgX,aAAahX,GAC1B,IAAK,UACH,OAAO,IAAIiX,cAAcjX,GAC3B,IAAK,QACH,OAAO,IAAIkX,YAAYlX,GACzB,IAAK,SACH,OAAO,IAAImX,aAAanX,GAC1B,IAAK,UACH,OAAO,IAAIoX,cAAcpX,GAC3B,IAAK,QACH,OAAO,IAAIqX,YAAYrX,GACzB,IAAK,SACH,OAAO,IAAIsX,aAAatX,GAC1B,IAAK,UACH,OAAO,IAAIuX,cAAcvX,GAC3B,IAAK,QACH,OAAO,IAAIwX,YAAYxX,GACzB,IAAK,SACH,OAAO,IAAIyX,aAAazX,GAC1B,IAAK,UACH,OAAO,IAAI0X,cAAc1X,GAC3B,IAAK,QACH,OAAO,IAAI2X,YAAY3X,GACzB,IAAK,SACH,OAAO,IAAI4X,aAAa5X,GAC1B,IAAK,UACH,OAAO,IAAI6X,cAAc7X,GAC3B,IAAK,QACH,OAAO,IAAI8X,YAAY9X,GACzB,IAAK,SACH,OAAO,IAAI+X,aAAa/X,GAC1B,IAAK,UACH,OAAO,IAAIgY,cAAchY,GAC3B,IAAK,QACH,OAAO,IAAIiY,YAAYjY,GACzB,IAAK,SACH,OAAO,IAAIkY,aAAalY,GAC1B,IAAK,UACH,OAAO,IAAImY,cAAcnY,GAC3B,IAAK,QACH,OAAO,IAAIoY,YAAYpY,GACzB,IAAK,SACH,OAAO,IAAIqY,aAAarY,GAC1B,IAAK,UACH,OAAO,IAAIsY,cAActY,GAC3B,IAAK,QACH,OAAO,IAAIuY,YAAYvY,GACzB,IAAK,SACH,OAAO,IAAIwY,aAAaxY,GAC1B,IAAK,UACH,OAAO,IAAIyY,cAAczY,GAC3B,IAAK,QACH,OAAO,IAAI0Y,YAAY1Y,GACzB,IAAK,SACH,OAAO,IAAI2Y,aAAa3Y,GAC1B,IAAK,UACH,OAAO,IAAI4Y,cAAc5Y,GAC3B,IAAK,QACH,OAAO,IAAI6Y,YAAY7Y,GACzB,IAAK,SACH,OAAO,IAAI8Y,aAAa9Y,GAC1B,IAAK,UACH,OAAO,IAAI+Y,cAAc/Y,GAC3B,IAAK,QACH,OAAO,IAAIgZ,YAAYhZ,GACzB,IAAK,SACH,OAAO,IAAIiZ,aAAajZ,GAC1B,IAAK,UACH,OAAO,IAAIkZ,cAAclZ,GAC3B,IAAK,QACH,OAAO,IAAImZ,YAAYnZ,GACzB,IAAK,SACH,OAAO,IAAIoZ,aAAapZ,GAC1B,IAAK,UACH,OAAO,IAAIqZ,cAAcrZ,GAC3B,IAAK,QACH,OAAO,IAAIsZ,YAAYtZ,GACzB,IAAK,SACH,OAAO,IAAIuZ,aAAavZ,GAC1B,IAAK,UACH,OAAO,IAAIwZ,cAAcxZ,GAC3B,IAAK,QACH,OAAO,IAAIyZ,YAAYzZ,GACzB,IAAK,SACH,OAAO,IAAI0Z,aAAa1Z,GAC1B,IAAK,UACH,OAAO,IAAI2Z,cAAc3Z,GAC3B,IAAK,QACH,OAAO,IAAI4Z,YAAY5Z,GACzB,IAAK,SACH,OAAO,IAAI6Z,aAAa7Z,GAC1B,IAAK,UACH,OAAO,IAAI8Z,cAAc9Z,GAC3B,IAAK,QACH,OAAO,IAAI+Z,YAAY/Z,GACzB,IAAK,SACH,OAAO,IAAIga,aAAaha,GAC1B,IAAK,UACH,OAAO,IAAIia,cAAcja,GAC3B,IAAK,QACH,OAAO,IAAIka,YAAYla,GACzB,IAAK,SACH,OAAO,IAAIma,aAAana,GAC1B,IAAK,UACH,OAAO,IAAIoa,cAAcpa,GAC3B,IAAK,QACH,OAAO,IAAIqa,YAAYra,GACzB,IAAK,SACH,OAAO,IAAIsa,aAAata,GAC1B,IAAK,UACH,OAAO,IAAIua,cAAcva,GAC3B,IAAK,QACH,OAAO,IAAIwa,YAAYxa,GACzB,IAAK,SACH,OAAO,IAAIya,aAAaza,GAC1B,IAAK,UACH,OAAO,IAAI0a,cAAc1a,GAC3B,IAAK,QACH,OAAO,IAAI2a,YAAY3a,GACzB,IAAK,SACH,OAAO,IAAI4a,aAAa5a,GAC1B,IAAK,UACH,OAAO,IAAI6a,cAAc7a,GAC3B,IAAK,QACH,OAAO,IAAI8a,YAAY9a,GACzB,IAAK,SACH,OAAO,IAAI+a,aAAa/a,GAC1B,IAAK,UACH,OAAO,IAAIgb,cAAchb,GAC3B,IAAK,QACH,OAAO,IAAIib,YAAYjb,GACzB,IAAK,SACH,OAAO,IAAIkb,aAAalb,GAC1B,IAAK,UACH,OAAO,IAAImb,cAAcnb,GAC3B,IAAK,QACH,OAAO,IAAIob,YAAYpb,GACzB,IAAK,SACH,OAAO,IAAIqb,aAAarb,GAC1B,IAAK,UACH,OAAO,IAAIsb,cAActb,GAC3B,IAAK,QACH,OAAO,IAAIub,YAAYvb,GACzB,IAAK,SACH,OAAO,IAAIwb,aAAaxb,GAC1B,IAAK,UACH,OAAO,IAAIyb,cAAczb,GAC3B,IAAK,QACH,OAAO,IAAI0b,YAAY1b,GACzB,IAAK,SACH,OAAO,IAAI2b,aAAa3b,GAC1B,IAAK,UACH,OAAO,IAAI4b,cAAc5b,GAC3B,IAAK,QACH,OAAO,IAAI6b,YAAY7b,GACzB,IAAK,SACH,OAAO,IAAI8b,aAAa9b,GAC1B,IAAK,UACH,OAAO,IAAI+b,cAAc/b,GAC3B,IAAK,QACH,OAAO,IAAIgc,YAAYhc,GACzB,IAAK,SACH,OAAO,IAAIic,aAAajc,GAC1B,IAAK,UACH,OAAO,IAAIkc,cAAclc,GAC3B,IAAK,QACH,OAAO,IAAImc,YAAYnc,GACzB,IAAK,SACH,OAAO,IAAIoc,aAAapc,GAC1B,IAAK,UACH,OAAO,IAAIqc,cAAcrc,GAC3B,IAAK,QACH,OAAO,IAAIsc,YAAYtc,GACzB,IAAK,SACH,OAAO,IAAIuc,aAAavc,GAC1B,IAAK,UACH,OAAO,IAAIwc,cAAcxc,GAC3B,IAAK,QACH,OAAO,IAAIyc,YAAYzc,GACzB,IAAK,SACH,OAAO,IAAI0c,aAAa1c,GAC1B,IAAK,UACH,OAAO,IAAI2c,cAAc3c,GAC3B,IAAK,QACH,OAAO,IAAI4c,YAAY5c,GACzB,IAAK,SACH,OAAO,IAAI6c,aAAa7c,GAC1B,IAAK,UACH,OAAO,IAAI8c,cAAc9c,GAC3B,IAAK,QACH,OAAO,IAAI+c,YAAY/c,GACzB,IAAK,SACH,OAAO,IAAIgd,aAAahd,GAC1B,IAAK,UACH,OAAO,IAAIid,cAAcjd,GAC3B,IAAK,QACH,OAAO,IAAIkd,YAAYld,GACzB,IAAK,SACH,OAAO,IAAImd,aAAand,GAC1B,IAAK,UACH,OAAO,IAAIod,cAAcpd,GAC3B,IAAK,QACH,OAAO,IAAIqd,YAAYrd,GACzB,IAAK,SACH,OAAO,IAAIsd,aAAatd,GAC1B,IAAK,UACH,OAAO,IAAIud,cAAcvd,GAC3B,IAAK,QACH,OAAO,IAAIwd,YAAYxd,GACzB,IAAK,SACH,OAA

EN,2DAAG09C,EAAaC,KAAK,qKAM7BnB,GAAcc,EAYhB,IAAIpD,IAAgB,EAChBC,IAAsB,WAQVyD,GAAAgBC,GAC9B3D,GAAAe2D,WAQDzD,KACd,IAA4B,IAAAxBD,GACF,MAAM,IAAIn6C,MAAM,iCAElB,OAAOm6C,SEpfHrH,GAAU,SCwBhBgL,GAAgB,QAAQ7xB,UACtB,MAAM5sB,KAAK,KAAKA,KAAK,KAAKA,KAAK,YAAY,GAAiB,uBAAuB,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC,CAAC,MAAM,CAAC

{"version":3,"file":"Any.js","sourceRoot":"","sources":["../../src/kernels/Any.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,GAAG,EAAuB,YAAY,EAAwC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIzH,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,IAAI,OAAiE,CAAC;AAEtE,SAAS,KAAK,CAAC,OAAoB;IACjC,OAAO,GAAG,GAAG,CAAC,KAAK,CAAC,OAAO,CAAC,CAAC;IAC7B,OAAO,CAAC,KAAK,CAAC,GAAG,EAAE,IAAI,EAAE,gCAAgC,EAAE,CAAC,QAAQ,EAAE,QAAQ,EAAE,QAAQ,CAAC,CAAC,CAAC;IAC3F,CAAC;AAED,MAAM,UAAU,GAAG,CAAC,IAAkB;IACpC,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,CAAC;IACtC,MAAM,EAAC,IAAI,EAAE,QAAQ,EAAC,GAAG,KAAK,CAAC;IAC/B,MAAM,EAAC,IAAI,EAAC,GAAG,QAAQ,CAAC;IACxB,MAAM,EAAC,IAAI,EAAC,GAAG,MAAM,CAAC;IACtB,MAAM,EAAC,IAAI,EAAC,GAAG,OAAO,CAAC;IACvB,MAAM,EAAC,IAAI,EAAC,GAAG,MAAM,CAAC;IACt

backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const anyConfig: KernelConfig = {\n kernelName: Any,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: any as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Any.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Neg.js","sourceRoot":"","sources":["../../src/kernels/Neg.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,GAAG,EAAC,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,SAAS,GAAG,uBAAuB,CAAC,GAAG,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {KernelConfig, Neg} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const negConfig: KernelConfig = createUnaryKernelConfig(Neg);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Neg.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"unary_kernel.js","sourceRoot":"","sources":["../../src/kernels/unary_kernel.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,GAAG,EAAC,MAAM,uBAAuB,CAAC;AAAI5F,OAAO,EAAC,YAAY,EAAE,GAAG,EAAC,MAAM,uBAAuB,CAAC;AACnG,OAAO,EAAC,YAAY,EAAE,GAAG,EAAC,MAAM,uBAAuB,CAAC;AACxD

/\n\nimport {DataType, KernelConfig, TensorInfo, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {CppDType} from './types';\n\nexport function createUnaryKernelConfig(\n kernelName: string, outType?: DataType): KernelConfig {\n let wasmFunc: (xId: number, dtype: number, outId: number) => void;\n\n function setupFunc(backend: BackendWasm): void {\n wasmFunc = backend.wasm.cwrap(kernelName, null / void */, [\n 'number', // x_id\n 'number', // dtype\n 'number', // out_id\n]);\n }\n\n function kernelFunc(args: {backend: BackendWasm, inputs: UnaryInputs}):\n TensorInfo {\n const {backend, inputs: {x}} = args;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const out = backend.makeOutput(x.shape, outType || x.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n // Short-circuit zero-sized tensors.\n if (util.sizeFromShape(out.shape) === 0) {\n return out;\n }\n\n wasmFunc(xId, CppDType[x.dtype], outId);\n return out;\n }\n\n return {kernelName, backendName: 'wasm', setupFunc, kernelFunc};\n}\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/unary_kernel.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Prelu.js","sourceRoot":"","sources":["../../src/kernels/Prelu.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,KAAK,EAAc,MAAM,uBAAuB,CAAC;AAInF,OAAO,EAAC,IAAI,EAAC,MAAM,QAAQ,CAAC;AAE5B,IAAI,SAAkE,CAAC;AAEvE,SAAS,KAAK,CAAC,OAAoB;IACjC,SAAS,GAAG,OAAO,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,IAAI,EAAE,EAAE;QAC5C,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,UAAU,CAAC,IAAyC;IAC3D,MAAM,EAAC,OAAO,EAAE,MAAM,EAAC,GAAG,IAAI,CAAC;IAC/B,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACpD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC;IACpD,MAAM,GAAG,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,KAAK,CAAC,CAAC,EAAE,CAAC;IAEnD,MAAM,GAAG,GAAG,OAAO,CAAC,UAAU,CAAC,MAAM,CAAC,KAAK,EAAE,MAAM,CAAC,KAAK,IAAI,MAAM,CAAC,MAAM,CAAC,CAAC;IAC5E,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,EAAE,CAAC;IAE5C,IAAI,IAAI,CAAC,eAAe,CAAC,GAAG,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE;QACzC,OAAO,GAAG,CAAC;KACZ;IAED,SAAS,CAAC,GAAG,EAAE,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,EAAE,KAAK,EAAE,GAAG,CAAC,CAAC;IAC7C,OAAO,GAAG,CAAC;AACb,CAAC;AAED,SAAS,IAAI,CAAC,OAAoB;IAChC,IAAI,SAAS,IAAI,IAAI,EAAE;QACrB,KAAK,CAAC,OAAO,CAAC,CAAC;KAChB;IACD,OAAO,EAAC,UAAU,EAAE,WAAW,EAAE,MAAM,EAAE,SAAS,EAAE,UAAU,EAAC,CAAC;AAClE,CAAC;AAED,MAAM,UAAU,UAAU;IACxB,OAAO,IAAI,CAAC,UAAU,CAAC,CAAC;AAC1B,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nimport {KernelConfig, KernelFunc, Prelu, PreluInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nimport {cast} from './Cast';\n\nlet wasmPrelu: (xId: number, weightsId: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmPrelu =

backend.wasm.cwrap(Prelu, null /* void */, [\n 'number', // x_id\n 'number', // weights_id\n 'number' // out_id\n]);\n}\n\nfunction prelu(args: {inputs: PreluInputs, backend: BackendWasm}) {\n const {inputs, backend} = args;\n const {x, alpha} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const weightsId = backend.dataIdMap.get(alpha.dataId).id;\n\n
let inputId = xId;\n const input = x;\n let castedInput = input;\n if (input.dtype !== 'float32') {\n castedInput = cast({backend, inputs: {x}, attrs: {dtype: 'float32'}});\n inputId = backend.dataIdMap.get(castedInput.dataId).id;\n }\n\n const out = backend.makeOutput(x.shape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmPrelu(inputId, weightsId, outId);\n\n if (input.dtype !== 'float32') {\n backend.disposeData(castedInput.dataId);\n }\n return out;\n}\n\nexport const preluConfig: KernelConfig = {\n kernelName: Prelu,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prelu as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prelu.js.map
No license file was found, but licenses were detected in source scan.

/* Copyright 2020 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Floor.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/unary.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/PadV2.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/BatchMatMul.h
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Equal.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/SquaredDifference.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/_FusedMatMul_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/BatchMatMul_test.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/OneHot.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/RotateWithOffset.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Round.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/SelectV2.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/DepthToSpace.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/batch_mat_mul_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Softmax.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Prod.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/TopK.cc

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Sqrt.cc
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Conv2DBackpropInput.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Step.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/BatchMatMul.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/FlipLeftRight.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/StridedSlice.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Softmax.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/NotEqual.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/NonMaxSuppressionV4.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Neg.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/batch_mat_mul_impl.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/PadV2_test.cc
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Select.js","sourceRoot":"","sources":["../../src/kernels/Select.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,MAAM,EAAgB,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAI3F,IAAI,UAEsB,CAAC;AAE3B,SAAS,KAAK,CAAC,OAAoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,CAAC,KAAK,CAAC,UAAU,EAAE,IAAI,EAAE;QAChD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;KACT,CAAC,CAAC;AACL,CAAC;AAED,SAAS,MAAM,CAAC,IAAkD;IAChE,MAAM,EAAC,WAAW,EAAE,MAAM,EAAE,MAAM,EAAE,MAAM,EAAE,MAAM,EAAE,OAAO,EAAC,GAAG,IAAI,CAAC;IACpE,MAAM,EAAC,SAAS,EAAE,CAAC,EAAE,CAAC,EAAC,GAAG,MAAM,CAAC;IAEjC,MAAM,WAAW,GAAG,MAAM,CAAC,UAAU,CAAC,GAAG,CAAC,SAAS,CAAC,MAAM,CAAC,CAAC;IAC5D,MAAM,GAAG,GAAG,MAAM,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAC5C,MAAM,GAAG,GAAG,MAAM,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAC5C,MAAM,GAAG,GAAG,MAAM,CAAC,UAAU,CAAC,GAAG,CAAC,OAAO,CAAC,MAAM,CAAC,CAAC;IAClD

backend.dataIdMap.get(t.dataId).id;\n const eId = backend.dataIdMap.get(e.dataId).id;\n const out = backend.makeOutput(t.shape, t.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const cRank = condition.shape.length;\n const tRank = t.shape.length;\n\n const offset = cRank === 0 || cRank > 1 || tRank === 1 ?\n   1 :\n   util.sizeFromShape(t.shape.slice(1));\n\n wasmSelect(conditionId, tId, eId, offset, outId);\n return out;\n}\n\nexport const selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'wasm',\n kernelFunc: select as {} as KernelFunc,\n setupFunc: setup\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Select.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"ResizeBilinear.js","sourceRoot":"","sources":["../../src/kernels/ResizeBilinear.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,cAAc,EAAyD,IAAI,EAAE,MAAM,uBAAuB,CAAC;AAI5I,OAAO,EAAC,IAAI,EAAE,MAAM,QAAQ,CAAC;AAE5B,IAAI,kBAAgsE,CAAC;AAE3E,SAAS,KAAK,CAAC,OAAoB,EAAE,CAAS,EAAE,CAAS,EAAE,CAAS

halfPixelCenters: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm): void {\n wasmResizeBilinear = backend.wasm.cwrap(ResizeBilinear, null /*void*/, [\n 'number', // xId\n 'number', // batch\n 'number', // oldHeight\n 'number', // oldWidth\n 'number', // numChannels\n 'number', // newHeight\n 'number', // newWidth\n 'number', // alignCorners\n 'number', // halfPixelCenters\n 'number' // outId\n]);\n}\n\nfunction resizeBilinear(args: {\n backend: BackendWasm,\n inputs: ResizeBilinearInputs,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {backend, inputs, attrs} = args;\n\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n const [newHeight, newWidth] = size;\n\n const [batch, oldHeight, oldWidth, numChannels] = images.shape;\n const outShape = [batch, newHeight, newWidth, numChannels];\n\n let xData = backend.dataIdMap.get(images.dataId);\n let castedData;\n if (xData.dtype !== 'float32') {\n castedData =\n cast({backend, inputs: {x: images}, attrs: {dtype: 'float32'}});\n xData = backend.dataIdMap.get(castedData.dataId);\n }\n const xId = xData.id;\n\n const out = backend.makeOutput(outShape, 'float32');\n if (util.sizeFromShape(images.shape) === 0) {\n return out;\n }\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmResizeBilinear(\n xId, batch, oldHeight, oldWidth, numChannels, newHeight, newWidth,\n alignCorners ? 1 : 0, halfPixelCenters ? 1 : 0, outId);\n\n if (castedData != null) {\n backend.disposeData(castedData.dataId);\n }\n\n return out;\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: resizeBilinear as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ResizeBilinear.js.map
Apache License 2.0
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"RealDiv.js","sourceRoot":"","sources":["../../src/kernels/RealDiv.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAe,OAAO,EAAC,MAAM,uBAAuB,CAAC;AAE5D,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AAEzD,MAAM,qBAAqB,GAAG,IAAI,CAAC;AACnC,MAAM,CAAC,MAAM,aAAa,GAAG,IAAI,CAAC,CAAC,MAAM,CAAC,MAAM,CAAC,aAAa,GAAG,CAAC,GAAG,CAAC,CAAC,CAAC

Q;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,OAAO;QACP,QAAQ;QAC
R,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ,CAAG,QAAQ;KACpB,CAAC,CAAC;AACL,CAAC;AAE
D,SAAS,SAAS,CACd,IAC0E;IAE5E,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,KAAK,EAAC,GAAG,IAAI,C
AAC;IACtC,MAAM,EAAC,KAAK,EAAE,UAAU,EAAC,GAAG,MAAM,CAAC;IACnC,MAAM,EAAC,aAAa,E
AAE,QAAQ,EAAE,SAAS,EAAE,WAAW,EAAC,GAAG,KAAK,CAAC;IAEhE,MAAM,CAAC,KAAK,EAAE,W
AAW,EAAE,UAAU,EAAE,WAAW,CAAC,GAAG,KAAK,CAAC,KAAK,CAAC;IAClE,MAAM,CAAC,SAAS,E
AAE,QAAQ,CAAC,GACvB,WAAW,IAAI,IAAI,CAAC,CAAC,CAAC,WAAW,CAAC,CAAC,CAAC,WA
AW,EAAE,UAAU,CAAC,CAAC;IAClE,MAAM,QAAQ,GACV,CAAC,KAAK,EAAE,SAAS,EAAE,QAAQ;QAC
1B,WAAW,CAAqC,CAAC;IACtD,MAAM,OAAO,GACT,IAAI,UAAU,CAAC,IAAI,UAAU,CAAC,IAAI,CAAC,
cAAc,CAAC,KAAK,CAAC,KAAK,CAAC,CAAC,CAAC,MAAM,CAAC,CAAC;IAE5E,MAAM,GAAG,GAAG,
OAAO,CAAC,UAAU,CAAC,QAAQ,EAAE,KAAK,CAAC,KAAK,CAAC,CAAC;IACtD,MAAM,KAAK,GAAG,
OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IAEnD,MAAM,
SAAS,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;IACtD,MAAM,
OAAO,GAAG,SAAS,CAAC,EAAE,CAAC;IAE7B,MAAM,cAAc,GAAG,cAAc,CAAC,EAAE,CAAC;IAEvC,M
AAM,mBAAmB,GAAG,aAAa,KAAK,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;I
AChE,IAAI,UAAU,CAAC;IACf,QAAQ,QAAQ,EAAE;QAChB,KAAK,UAAU;YACb,CAAC,GAAG,UAAU,GAAG,CAAC,CAAC;YACf,MAAM;QACR,KAAK,SAAS;YACZ,CAAC,GAAG,UAAU,GAAG,CAAC,CAAC,CAAC;YACpB,MAAM;QACR,KAAK,MAAM;YACT,CAAC,GAAG,UAAU,GAAG,CAAC,CAAC,CAAC;YACpB,MAAM;QACR,KAAK,SAAS;YACZ,CAAC,GAAG,UAAU,GAAG,CAAC,CAAC,CAAC;YACpB,MAAM;QACR;YACE,MAAM,IAAI,KAAK,CAAC,mBAAmB,CAAC,CAAC;KACxC;IAED,MAAM,CAAC,GAAG,cAAc,GAAG,CAAC,CAAC;IAC7B,MAAM,CAAC,GAAG,cAAc,GAAG,CAAC,CAAC;IAC7B,MAAM,CAAC,GAAG,cAAc,GAAG,CAAC,CAAC;IAC7B,MAAM,CAAC,GAAG,cAAc,GAAG,CAAC,CAAC;IAE7B,MAAM,CAAC,GAAG,mBAAmB,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IACtC,MAAM,CAAC,GAAG,mBAAmB,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;IAE

=\n [batch, outHeight, outWidth,\n numChannels] as [number, number, number, number];\n const strides =\n new Uint8Array(new Int32Array(util.computeStrides(image.shape)).buffer);\n\n const out =
backend.makeOutput(outShape, image.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n
const imageData = backend.dataIdMap.get(image.dataId);\n const imageId = imageData.id;\n\n const
transformsData = backend.dataIdMap.get(transforms.dataId);\n const transformsId = transformsData.id;\n\n const
interpolationModeId = interpolation === 'nearest' ? 1 : 2;\n let fillModeId;\n switch (fillMode) {\n case
'constant':\n fillModeId = 1;\n break;\n case 'reflect':\n fillModeId = 2;\n break;\n case 'wrap':\n
fillModeId = 3;\n break;\n case 'nearest':\n fillModeId = 4;\n break;\n default:\n fillModeId = 1;\n
break;\n }\n\n wasmTransform(\n imageId, transformsId, (transforms.shape[0] > 1), batch, outHeight,\n
outWidth, numChannels, imageWidth, imageHeight, strides,\n image.shape.length - 1, interpolationModeId,
fillModeId, fillValue,\n outId);\n\n return out;\n}\n\nexport const transformConfig: KernelConfig = {\n
kernelName: Transform,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc:
transform as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transform.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"test_node.js","sourceRoot":"","sources":["../src/test_node.ts"],"names":[],"mappings":"AAAA;;;
;;;;;;;;;;;;GAeG;AAEH,6BAA6B;AAC7B,OAAO,SAAS,CAAC;AAEjB,iDAAiD;AACjD,OAAO,EAAC,WAAW,E
AAC,MAAM,yCAAyC,CAAC;AACpE,OAAO,OAAO,MAAM,SAAS,CAAC;AAE9B,KAAK,CAAC,eAAe,
G,QAAQ,CAAC;AAEjC,OAAO,CAAC,EAAE,CAAC,oBAAoB,EAAE,CAAC,CAAC,EAAE;IACnC,MAAM,CA
AC,CAAC;AACV,CAAC,CAAC,CAAC;AAEH,WAAW,CAAC,CAAC,EAAC,IAAI,EAAE,WAAW,W,EAAE,WAA
W,EAAE,MAAM,EAAE,UAAU,EAAE,IAAI,EAAC,CAAC,CAAC,CAAC;AAE1E,MAAM,MAAM,GAAG,IAAI
,OAAO,CAAC,EAAE,CAAC,CAAC;AAC/B,MAAM,CAAC,UAAU,CAAC,EAAC,IAAI,EAAC,CAAC,CAAC,EAAC,UAAU,EAAE,CAAC,kBAAk
B,CAAC,EAAE,MAAM,EAAE,KAAK,EAAC,CAAC,CAAC;AAErE,OAAO,CAAC,EAAE,CAAC,GAAG,EAAE,GAAG,EAAE,CAAC,IAAI,OAAO,CAAC,CAAC,OAAO,EAAE,MAAM,EAAE,EAAE,
EAAE;IAC5B,MAAM,CAAC,GAAG,CAAC,CAAC;AACd,CAAC,CAAC,CAAC;AAEH,MAAM,CAAC,UAAU,CAAC,CAAC,EAAC,IAAI,EAAE,YAAY,EAAE,MAAM,EAAE,UAAU,EAAE,IAAI,EAAE,CAAC,CAAC,CAAC;AAErE,MAAM,MAAM,GAAG,IAAI,OAAO,CAAC,EAAE,CAAC,CAAC;AAC/B,MAAM,CAAC,MAAM,CAAC,MAAM,EAAE,CAAC,CAAC,CAAC

AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAe,QAAQ,EAAC,MAAM,uBAAuB,CAAC;AAE7D,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AAEzD,MAAM,qBAAqB,GAAG,IAAI,CAAC;AACnC,MAAM,CAAC,MAAM,cAAc,GAAG,qBAAqB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\n\nconst supportsFullBroadcast = true;\nexport const multiplyConfig: KernelConfig =\n createBinaryKernelConfig(Multiply, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Multiply.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"ZerosLike.js","sourceRoot":"","sources":["../../src/kernels/ZerosLike.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,SAAS,EAAE,kBAAkB,EAAC,MAAM,uBAAuB,CAAC;AAE9F,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AAExC,MAAM,CAAC,MAAM,cAAc,GAAG,SAAS,CAAC,CAAC;AACzC,MAAM,CAAC,MAAM,kBAAkB,GAAG,kBAAkB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nfunction zerosLike(args: {inputs: ZerosLikeInputs, backend: BackendWasm}) {\n const {inputs: {x}, backend} = args;\n const out = backend.makeOutput(x.shape, x.dtype);\n const outVals = backend.typedArrayFromHeap(out);\n outVals.fill(0);\n return out;\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n kernelName: ZerosLike,\n backendName: 'wasm',\n kernelFunc: zerosLike as {} as KernelFunc,\n};\n"]}

Found in path(s):
*
/tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/ZerosLike.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Cumsum.js","sourceRoot":"","sources":["../../src/kernels/Cumsum.ts"],"names":[],"mappings":"

AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,MAAM,EAAyC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIlI,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AAEtC,IAAI,UACsE,CAAC;AAE3E,SAAS,KAAK,CAAC,OAAOoB;IACjC,UAAU,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,MAAM,EAAE,IAAI,CAAC,KAAK,CAAC,UAAU,EAAE;QACvD,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ;QACR,QAAQ,CAAE,QAAQ;KACnB,CAAC,CAAC;AACL,CAAC;AAED,MAAM,UAAU,MAAM,CAACpB,IAAIsE,IAAIsE,IAAIsE

WASM backend`);\n // permute required axis to inner most axis\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation !== null) {\n permutedX = transpose({inputs: {x}, attrs: {perm: permutation}, backend});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n backend_util.assertAxesAreInnerMostDims('cumsum', [permutedAxis], xRank);\n\n const permutedOut = backend.makeOutput(permutedX.shape, permutedX.dtype);\n const finalDim = permutedX.shape[permutedAxis];\n const permutedXId = backend.dataIdMap.get(permutedX.dataId).id;\n const permutedOutId = backend.dataIdMap.get(permutedOut.dataId).id;\n wasmCumsum(permutedXId, exclusive ? 1 : 0, reverse ? 1 : 0, finalDim,\n permutedOutId, CppDType[x.dtype]);\n\n // transpose data back if permuted\n let out = permutedOut;\n if (permutation !== null) {\n   const undoPermutation = backend_util.getUndoAxesPermutation(permutation);\n   out = transpose(\n   {inputs: {x: permutedOut}, attrs: {perm: undoPermutation}, backend});\n backend.disposeData(permutedX.dataId);\n   backend.disposeData(permutedOut.dataId);\n }\n return out;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: cumsum as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cumsum.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Abs.js","sourceRoot":"","sources":["../../src/kernels/Abs.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;GAeG;AACH,OAAO,EAAC,GAAG,EAAE,MAAM,uBAAuB,CAAC;AAExD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,MAAM,CAAC,MAAM,SAAS,GAAe,uBAAuB,CAAC,GAAG,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\nimport {Abs, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\n\nexport const absConfig: KernelConfig = createUnaryKernelConfig(Abs);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Abs.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Any.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SpaceToBatchND.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/BatchToSpaceND.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/All.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchToSpaceND.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.fesm.min.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/SpaceToBatchND.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Round.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Ceil.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/All.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Tan.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transform.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tan.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchToSpaceND.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Elu.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Cosh.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Transform.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MirrorPad.d.ts
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Transform.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Any.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SpaceToBatchND.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Ceil.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Elu.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/StridedSlice.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/StridedSlice.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Any.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/StridedSlice.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.es2017.min.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Round.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/All.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tan.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MirrorPad.js
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.min.js
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/MirrorPad.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Ceil.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/kernels/Round.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cosh.d.ts

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Elu.d.ts
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Cosh.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"SpaceToBatchND.js","sourceRoot":"","sources":["../../src/kernels/SpaceToBatchND.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAyD,cAAc,EAAE,0F,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIxN,OAAO,EAAC,WAAW,EAAC,MAAM,SAAS,CAAC;AACpC,OAAO,EAAC,OAAO,EAAC,MAAM,WAAW,CAAC;AAClC,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AAEtC,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AACtC,OAAO,EAAC,IAAI,vB;IACC,MAAM,EAAC,MAAM,EAAC,MAAM,EAAC,OAAO,EAAC,MAAM,EAAC,KAAK,EAAC,GAAG,EAAC,IAAI,EAAC,MAAM,CAAC;AAC1E,OAAO,EAAC,MAAM,EAAC,MAAM,aAAa,CAAC;AACnC,OAAO,EAAC,IAAI,EAAC,MAAM,QAAQ,CAAC;AAC5B,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AACtC,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AAEtC,OAAO,EAAC,SAAS,EAAC,MAAM,aAAa,CAAC;AAC

blockShape.length; i < x.shape.length; ++i) {\n   completePaddings.push([0, 0]);\n }\n\n const paddedX = padV2Config.kernelFunc({\n
    inputs: {x},\n   backend,\n   attrs: {paddings: completePaddings, constantValue: 0}\n }) as TensorInfo;\n\n const reshapedPaddedShape =\n   backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n   reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n   backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapeInputs: ReshapeInputs = {x: paddedX};\n const reshapeAttrs: ReshapeAttrs = {shape: reshapedPaddedShape};\n const paddedXReshaped =\n   reshape({inputs: reshapeInputs, backend, attrs: reshapeAttrs});\n\n const transposeInputs: TransposeInputs = {x: paddedXReshaped};\n const transposeAttrs:\n   TransposeAttrs = {perm: permutedReshapedPaddedPermutation};\n const paddedXT =\n transpose({inputs: transposeInputs, backend, attrs: transposeAttrs});\n\n const resultReshapeInputs: ReshapeInputs = {x: paddedXT};\n
  const resultReshapeAttrs: ReshapeAttrs = {shape: flattenShape};\n const result = reshape(\n   {inputs: resultReshapeInputs, backend, attrs: resultReshapeAttrs});\n\n backend.disposeData(paddedX.dataId);\n backend.disposeData(paddedXReshaped.dataId);\n backend.disposeData(paddedXT.dataId);\n\n return result;\n}\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'wasm',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SpaceToBatchND.js.map
No license file was found, but licenses were detected in source scan.

/* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==*/

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Ceil.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Elu.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Elu.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Transform.cc
*
 /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Tan.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Cosh.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/elu_impl.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/sin_cos_workaround.h
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/Any.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/elu_impl.cc

* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/All.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/kernels/MirrorPad.cc
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/src/cc/sin_cos_workaround.cc
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Maximum.js","sourceRoot":"","sources":["../../src/kernels/Maximum.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,OAAO,EAAC,MAAM,uBAAuB,CAAC;AAE5D,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,aAAa,GAAiB,wBAAwB,CAAC,OAAO,EAAE,qBAAqB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
 permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from './binary_kernel';\nconst supportsFullBroadcast = false;\nexport const maximumConfig: KernelConfig =\n createBinaryKernelConfig(Maximum, supportsFullBroadcast);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Maximum.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"BatchMatMul.js","sourceRoot":"","sources":["../../src/kernels/BatchMatMul.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,OAAO,EAAE,MAAM,EAAC,MAAM,uBAAuB,CAAC;AAEtD,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,CAAC,MAAM,eAAe,GAAiB,wBAAwB,CAAC,MAAM,EAAE,qBAAqB,CAAC,CAAC

CAAC,CAAC;IAElE,IAAI,CAAC,MAAM,CACP,KAAK,IAAI,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,mBAAmB
,EAC/C,GAAG,EAAE,CAAC,iEAAiE;QACnE,kEAAkE;QAClE,wBAAwB,UAAU,UAAU,UAAU,IAAI,CAAC,C
AAC;IAEpE,MAAM,iBAAiB,GACnB,SAAS,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,K
AAK,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,KAAK,CAAC,KAAK,CA
AC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC;IACxE,MAAM,QAAQ,GAAG,iBAAiB,CAAC,MAAM,CAAC,C
AAC,WAAW,EAAE,WAAW,CAAC,CAAC,CAAC;IAEtE,IAAI,CAAC,MAAM,CACP,WAAW,KAAK,WAAW,
EAC3B,GAAG,EAAE,CAAC,kCAAkC,WAAW,SAAS;QACxD,GAAG,WAAW,,4BAA4B,CAAC,CAAC,KAAK,
OAAO;QACxD,GAAG,CAAC,CAAC,KAAK,mBAAmB,UAAU,EAAE;QACzC,mBAAmB,UAAU,cAAc,CAAC,
CAAC;IAErD,MAAM,QAAQ,GAAG,UAAU,CAAC,CAAC,CAAC,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW
,CAAC,CAAC,CAAC;QACvC,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW,CAAC,CAAC;IACpE,MAAM,QAAQ
Q,GAAG,UAAU,CAAC,CAAC,CAAC,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW,CAAC,CAAC,CAAC;QAC
vC,CAAC,SAAS,EAAE,WAAW,EAAE,WAAW,CAAC,CAAC;IAEpE,0EAA0E;IAC1E,MAAM,GAAG,GAAG,
OAAO,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EA
AC,KAAK,EAAE,QAAQ,EAAC,EAAC,CAAC,CAAC;IACzE,MAAM,GAAG,GAAG,GAAG,OAAO,CAAC,EAAC,MA
AM,EAAE,EAAC,CAAC,EAAE,CAAC,EAAC,EAAE,OAAO,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,QAAQ
,EAAC,EAAC,CAAC,CAAC;IAEzE,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,
CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,OAAO,GAAG,GAAG,UAAU,CAAC,CAAC,CAAC,
CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,CAAC,C
AAC,CAAC;IACzD,MAAM,QAAQ,GAAG,UAAU,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,CAAC,C
AAC,CAAC,CAAC,GAAG,CAAC,KAAK,CAAC,CAAC,CAAC,CAAC;IAC1D,MAAM,QAAQ,GAAG,IAAI,CAAC,MAAM,CAAC,GAAG,I
AAI,CAAC,GAAG,CAAC,SAAS,EAAE,SAAS,CAAC,CAAC;IAEhD,MAAM,QAAQ,GAAG,GAAG,GAAG,GAAG,OAAO,CAAC,UA
AU,CAAC,CAAC,QAAQ,EAAE,OAAO,EAAE,QAAQ,CAAC,EAAE,GAAG,CAAC,KAAK,CAAC,CAAC;IACzE
,MAAM,KAAK,GAAG,OAAO,CAAC,SAAS,CAAC,GAAG,CAAC,GAAG,CAAC,MAAM,CAAC,CAAC,EAAA
E,CAAC;IAEnD,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,CAAC,MAAM,CAAC,GAAG,CAAC,GAAG,
CAAC,MAAM,CAAC,CAAC,EAAE,CAAC;IACrE,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,CAAC,MAAM,CAAC,GAAG,C
AAC,KAAK,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,WAAW,GAAG,IAAI,UAAU,CAAC,IAAI,CAAC,MAAM,CAAC,GAAG,C
AAC,KAAK,CAAC,CAAC,EAAE,CAAC;IACnD,MAAM,SAAS

'number' // out_id\n]);\n}\n\nfunction batchMatMul(args: {\n inputs: BatchMatMulInputs,\n backend: BackendWasm,\n
 attrs: BatchMatMulAttrs\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const {transposeA, transposeB} = attrs;\n\n if (a.dtype !== 'float32' || b.dtype !== 'float32') {\n   throw new Error(\n `BatchMatMul for non non-float32 tensors not yet supported.`);\n }\n\n const aRank = a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] : a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ? b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB = b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB = util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n   batchDimA === batchDimB || batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n
      aRank >= 2 && bRank >= 2 && batchDimsCompatible,\n   () => `Error in matMul: the input batch dimensions must either be the ` +\n   `same or at least one input batch dimension must be 1. Got input ` +\n `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n const outShapeOuterDims =\n   batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n const outShape = outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n util.assert(\n   innerShapeA === innerShapeB,\n   () => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n   `${innerShapeB}) of Tensors with shapes ${a.shape} and ` +\n   `${b.shape} and transposeA=${transposeA}` +\n   ` and transposeB=${transposeB} must match.`);\n\n const a3dShape = transposeA ? [batchDimA, innerShapeA, outerShapeA] :\n [batchDimA, outerShapeA, innerShapeA];\n const b3dShape = transposeB ? [batchDimB, outerShapeB, innerShapeB] :\n
                [batchDimB, innerShapeB, outerShapeB];\n\n // The rest of the implementation is designed to operate on rank-3 tensors\n const a3d = reshape({inputs: {x: a}, backend, attrs: {shape: a3dShape}});\n const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n const a3dId = backend.dataIdMap.get(a3d.dataId).id;\n const b3dId = backend.dataIdMap.get(b3d.dataId).id;\n\n const leftDim = transposeA ? a3d.shape[2] : a3d.shape[1];\n const rightDim = transposeB ? b3d.shape[1] : b3d.shape[2];\n const batchDim = Math.max(batchDimA, batchDimB);\n\n const out = backend.makeOutput([batchDim, leftDim, rightDim], a3d.dtype);\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n const aShapeBytes = new Uint8Array(new Int32Array(a3d.shape).buffer);\n const bShapeBytes = new Uint8Array(new Int32Array(b3d.shape).buffer);\n\n wasmBatchMatMul(\n   a3dId, aShapeBytes, a3d.shape.length, b3dId, bShapeBytes,\n   b3d.shape.length, transposeA, transposeB,
 outId);\n\n backend.disposeData(a3d.dataId);\n backend.disposeData(b3d.dataId);\n\n out.shape = outShape;\n return out;\n}\n\nexport const batchMatMulConfig: KernelConfig = {\n kernelName: BatchMatMul,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: batchMatMul as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/BatchMatMul.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Tanh.js","sourceRoot":"","sources":["../../src/kernels/Tanh.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAE,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,OAAO,GAAG,IAAI,CAAC,IAAI,CAAC,OAAO,EAAE,uBAAuB,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from './unary_kernel';\nexport const tanhConfig: KernelConfig = createUnaryKernelConfig(Tanh);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Tanh.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"All.js","sourceRoot":"","sources":["../../src/kernels/All.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,GAAG,EAAuB,YAAY,EAAwC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAIzH,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,IAAI,OAAiE,CAAC;AAEtE,SAAS,KAAK,CAAC,OAAoB;IACjC,OAAO,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,GAAG,EAAE,GAAG,EAAE,GAAG,CAAC,CAAC;AAC/C,CAAC;AAED,SAAS,GAAG,CAAC,IAAkB;IAC7B,MAAM,EAAC,OAAO,EAAE,MAAM,EAAE,MAAM,EAAC,GAAG,IAAI,CAAC;IACvC,MAAM,EAAC,IAAI,EAAE,IAAI,EAAE,IAAI,EAAC,GAAG,MAAM,CAAC;IACl

args;\n const {axis, keepDims} = attrs;\n const {x} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n let inputId = xId;\n let input = x;\n\n const {transposed, axes, originalAxes, inputWasTransposed} =\n permuteAxesAndTranspose(x, axis, backend);\n\n if (inputWasTransposed) {\n   const transposedId =\n backend.dataIdMap.get(transposed.dataId).id;\n   input = transposed;\n   inputId = transposedId;\n }\n\n const\n inputRank = input.shape.length;\n backend_util.assertAxesAreInnerMostDims('all', axes, inputRank);\n const\n [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, axes);\n const\n reduceSize\n   = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, x.dtype);\n if\n (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n wasmAll(inputId, reduceSize, outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape =\n backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return\n out;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'wasm',\n setupFunc:\n setup,\n kernelFunc: all as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/All.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Sqrt.js","sourceRoot":"","sources":["../../src/kernels/Sqrt.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAe,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAEzD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,UAAU,GAAG,uBAAuB,CAAC,IAAI,EAAE,IAAI,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ===\n
*/\n\nimport {KernelConfig, Sqrt} from '@tensorflow/tfjs-core';\n\nimport {createUnaryKernelConfig} from
'./unary_kernel';\nexport const sqrtConfig: KernelConfig = createUnaryKernelConfig(Sqrt);\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Sqrt.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"SplitV.js","sourceRoot":"","sources":["../../src/kernels/SplitV.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAC,MAAM,uBAAuB,CAAC;AAEnD,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AACvD,MAAM,CAAC,MAAM,WAAW,GAAG,uBAAuB,CAAC,YAAY,CAAC,CAAC

GAAG,CAAC,CAAC;QACtB,MAAM,MAAM,GACR,KAAK,CAAC,EAAC,MAAM,EAAE,EAAC,CAAC,EAAC
,EAAE,KAAK,EAAE,EAAC,KAAK,EAAE,IAAI,EAAE,UAAU,EAAC,EAAE,OAAO,EAAC,CAAC,CAAC;QA
CpE,KAAK,CAAC,KAAK,CAAC,IAAI,CAAC,CAAC;QAClB,OAAO,MAAM,CAAC;IAChB,CAAC,CAAC,CA
AC;AACL,CAAC;AAED,MAAM,CAAC,MAAM,YAAY,GAAiB;IACxC,UAAU,EAAE,MAAM;IAClB,WAAW,
EAAE,MAM;IACnB,UAAU,EAAE,MA0B;CACvC,CAAC","sourcesContent":["/**\n
* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, util} from '@tensorflow/tfjs-
core';\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from
'../backend_wasm';\n\nimport {slice} from './Slice';\n\nexport function splitV(\n args: {inputs: SplitVInputs, attrs:
SplitVAttrs, backend: BackendWasm}) {\n const {inputs, attrs, backend} = args;\n const {x} = inputs;\n const
{numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n\n const splitSizes =
backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n const begin = new Array(x.shape.length).fill(0);\n
const size = x.shape.slice();\n return splitSizes.map(s => {\n const xSliceSize = [...size];\n xSliceSize[$axis] =
s;\n const xSlice =\n slice({inputs: {x}, attrs: {begin, size: xSliceSize}, backend});\n begin[$axis] += s;\n
return xSlice;\n });\n}\n\nexport const
splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'wasm',\n kernelFunc: splitV as {} as
KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/SplitV.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2021 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==
*/
/**
 * @license
 * Copyright 2019 Google LLC. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");

```
 * you may not use this file except in compliance with the License.
 * You may obtain
 a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * ========================================================================
 */
/**
 * @license
 * Copyright 2020 Google LLC. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");
 * you may not use this file except in compliance with the License.
 * You may obtain a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * ========================================================================
 */
/**
 * @license
 * Copyright 2020 Google Inc. All Rights Reserved.
 * Licensed under the Apache License, Version 2.0 (the "License");
 * you may not use this file except in compliance with the License.
 * You may obtain a copy of the License at
 *
 * http://www.apache.org/licenses/LICENSE-2.0
 *
 * Unless required by applicable law or agreed to in writing, software
 * distributed under the License is distributed on an "AS IS" BASIS,
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 * ========================================================================
 */
/*! *****************************************************************************
```

Copyright (c) Microsoft Corporation.

Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.
*** */
/**
 * @deprecated Use `setWasmPaths` instead.
 * Sets the path to the `.wasm` file which will be fetched when the wasm
 * backend is initialized. See
 * https://github.com/tensorflow/tfjs/blob/master/tfjs-backend-wasm/README.md#using-bundlers
  * for more details.
 * @param path wasm file path or url
 * @param usePlatformFetch optional boolean to use platform fetch to download
 *   the wasm file, default to false.
 *
 * @doc {heading: 'Environment', namespace: 'wasm'}
 */

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/tf-backend-wasm.js
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"NotEqual.js","sourceRoot":"","sources":["../../src/kernels/NotEqual.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,OAAO,EAAe,QAAQ,EAAC,MAAM,uBAAuB,CAAC;AAE7D,OAAO,EAAC,wBAAwB,EAAC,MAAM,iBAAiB,CAAC;AACzD,MAAM,qBAAqB,GAAG,KAAK,CAAC;AACpC,MAAM,cAAc,GAAG,wBAAwB,CAAC,QAAQ,EAAE,qBAAqB,EAAE,MAAM,CAAC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createBinaryKernelConfig} from
'./binary_kernel';\nconst supportsFullBroadcast = false;\nexport const notEqualConfig: KernelConfig =\n
createBinaryKernelConfig(NotEqual, supportsFullBroadcast, 'bool');\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/NotEqual.js.map

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Prod.js","sourceRoot":"","sources":["../../src/kernels/Prod.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,IAAI,EAAqC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAI5H,OAAO,EAAC,uBAAuB,EAAC,MAAM,gBAAgB,CAAC;AAEvD,OAAO,EAAC,QAAQ,EAAC,MAAM,SAAS,CAAC;AAEjC,OAAO,EAAC,qBAAqB,EAAC,MAAM,SAAS,CAAC;AAE1C,OAAO,EAAC,MAAM,EAAC,MAAM,UAAU,CAAC;AAEhC,OAAO,EAAC,IAAI,EAAC,MAAM,QAAQ,CAAC;AAE5B

let reductionAxes = axes;\n if (inputWasTransposed) {\n   const transposedId = backend.dataIdMap.get(transposed.dataId).id;\n   if (transposedId !== xId) {\n   // transpose was not a no-op. We will need to dispose of this\n   // once we are done.\n   input = transposed;\n   inputId = transposedId;\n   reductionAxes = backend_util.getInnerMostAxes(\n   reductionAxes.length, input.shape.length);\n   }\n }\n\n backend_util.assertAxesAreInnerMostDims(\n   'prod', reductionAxes, input.shape.length);\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(input.shape, reductionAxes);\n const reduceSize = util.sizeFromShape(reduceShape);\n\n const out = backend.makeOutput(outShape, input.dtype);\n if (util.sizeFromShape(input.shape) !== 0) {\n   const outId = backend.dataIdMap.get(out.dataId).id;\n   wasmProd(inputId, reduceSize, CppDType[out.dtype], outId);\n }\n\n if (inputWasTransposed) {\n   // dispose of the transposed tensor.\n   backend.disposeData(transposed.dataId);\n }\n\n if (keepDims) {\n   // reshape\n   const newShape = backend_util.expandShapeToKeepDim(out.shape, originalAxes);\n   out.shape = newShape;\n }\n\n return out;\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: prod as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Prod.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"Pack.js","sourceRoot":"","sources":["../../src/kernels/Pack.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAA2B,IAAI,EAAqC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAG9G,OAAO,EAAC,MAAM,EAAC,MAAM,UAAU,CAAC;AAChC,OAAO,EAAC,UAAU,EAAC,MAAM,cAAc,CAAC;AAExC,MAAM,UAAU,IAAI,CAAC,hB,IAAkE;IAEpE,MAAM,EAAC,MAAM,EAAE,OAAO,EAAE,KAAK,EAAC,MAAM,EAAC,IAAI,EAAC,CAAC;IAEtD,CAAC;IACD,CAAC;IAED,IAAI,CAAC,iBAAiB,EAAE;QACtB,CAAC;IACH

core';\nimport {BackendWasm} from '../backend_wasm';\n\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n   args: {inputs: PackInputs, backend: BackendWasm, attrs: PackAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n   return expandDims(\n   {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n   util.assertShapesMatch(\n   shape, t.shape,\n   'All tensors passed to stack must have matching shapes');\n   util.assert(\n   dtype === t.dtype,\n   () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n   const expandedT =\n   expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n   intermediateTensorInfos.push(expandedT);\n   return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(t => backend.disposeData(t.dataId));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'wasm',\n kernelFunc: pack as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/Pack.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"MaxPool.js","sourceRoot":"","sources":["../../src/kernels/MaxPool.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAA4B,OAAO,EAAyC,IAAI,EAAC,MAAM,uBAAuB,CAAC;AAInI,IAAI,WAAqE,CAAC;AAE1E,SAAS,KAAK,CAAC,OAAoB;IAAI,WAAW,GAAG,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,KAAK,CAAC,OAAO,EAAE,IAAI,CAAC,KAAK,CAAC,UAAU,EAAE;QAAC,QAAQ;QAAC,QAAQ;QAAC,QAAQ

OAA2B;CACxC,CAAC","sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, Tensor4D, util} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmMaxPool: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterHeight: number, filterWidth: number, padTop: number, padRight: number,\n padBottom: number, padLeft: number, dilationHeight: number,\n dilationWidth: number, strideHeight: number, strideWidth: number,\n inputChannels: number, outputChannels: number, outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmMaxPool = backend.wasm.cwrap(MaxPool, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number',\n // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction maxPool(\n args: {inputs: MaxPoolInputs, backend: BackendWasm, attrs: MaxPoolAttrs}) {\n const {inputs, attrs, backend} = args;\n\n const x = inputs.x as Tensor4D;\n const xId = backend.dataIdMap.get(x.dataId).id;\n\n // TF API supports int32 input. CPU and WebGL backend also support int32\n // input. WASM backend doesn't support it because it uses xnnpack which only\n // supports float32.\n //\n // Add the following assert only for the WASM backend instead of at core op\n // level.\n //\n // TODO: add support for int32 input.\n util.assert(\n x.dtype === 'float32',\n () =>\n `Error in MaxPool: only float32 input is supported. Got ${x.dtype}.`);\n\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const convInfo = backend_util.computePool2DInfo(\n x.shape, filterSize, strides, 1 /* dilations */, pad, dimRoundingMode);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend does not support dataFormat:` +\n `${convInfo.dataFormat}'.\n Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n\n wasmMaxPool(\n xId, x.shape[0], x.shape[1], x.shape[2], filterHeight, filterWidth,\n padTop, padRight, padBottom, padLeft, dilationHeight, dilationWidth,\n strideHeight, strideWidth, inputChannels, outputChannels, outId);\n return out;\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: maxPool as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/MaxPool.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"register_all_kernels.js","sourceRoot":"","sources":["../src/register_all_kernels.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AACH,yEAAyE;AACzE,6EAA6E;AAC7E,yEAAyE;AACzE,OAAO,EAAe,c

AAc,EAAC,MAAM,uBAAuB,CAAC;AAEnE,OAAO,EAAC,iBAAiB,EAAC,MAAM,wBAAwB,CAAC;AACzD,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,YAAY,EAAC,MAAM,kBAAkB,CAAC;AAC9C,OAAO,EAAC,aAAa,EAAC,MAAM,mBAAmB,CAAC;AAChD,OAAO,EAAC,iBAAiB,EAAC,MAAM,uBAAuB,CAAC;AACxD,OAAO,EAAC,oBAAoB,EAAC,MAAM,0BAA0B,CAAC;AAC9D,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,iBAAiB,EAAC,MAAM,uBAAuB,CAAC;AACxD,OAAO,EAAC,YAAY,EAAC,MAAM,kBAAkB,CAAC;AAC9C,OAAO,EAAC,YAAY,EAAC,MAAM,kBAAkB,CAAC;AAC9C,OAAO,EAAC,aAAa,EAAC,MAAM,mBAAmB,CAAC;AAChD,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxE,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,aAAa,EAAC,MAAM,mBAAmB,CAAC;AAC5D,OAAO,EAAC,YAAY,EAAC,MAAM,kBAAkB,CAAC;AAC9C,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC

MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,kBAAkB,EAAC,MAAM,wBAAwB,CAAC;AAC1D,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,SAAS,EAAC,MAAM,eAAe,CAAC;AACxC,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,UAAU,EAAC,MAAM,gBAAgB,CAAC;AAC1C,OAAO,EAAC,eAAe,EAAC,MAAM,qBAAqB,CAAC;AACpD,OAAO,EAAC,eAAe,EAAC,MAAM,qBAAqB,CAAC;AACpD,OAAO,EAAC,YAAY,EAAC,MAAM,kBAAkB,CAAC;AAC9C,OAAO,EAAC,eAAe,EAAC,MAAM,qBAAqB,CAAC;AAEpD,+BAA+B,CAAC,SAAS,EAAC,MAAM,aAAa,GAAG,mBAAmB,CAAC,SAAS,EAAC,SAAS,EAAC,UAAU,EAAC,YAAY;IACzH,SAAS,EAAC,UAAU,EAAC,UAAU,EAAC,iBAAiB,EAAC,iBAAiB,EAAC,YAAY,EAAC,YAAY,EAAC,YAAY,EAAC,iBAAiB,EAAC,YAAY,EAAC,YAAY,EAAC,YAAY,EAAC,iBAAiB,EAAC,YAAY,EAAC,YAAY,EAAC,YAAY,EAAC,kBAAk

'./kernels/FusedBatchNorm';\nimport {fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from './kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport {gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from './kernels/LessEqual';\nimport {logConfig} from './kernels/Log';\nimport {logicalAndConfig} from './kernels/LogicalAnd';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from './kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {multiplyConfig} from './kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from './kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from './kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {sinConfig} from './kernels/Sin';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from './kernels/Softmax';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from './kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig} from './kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transformConfig} from './kernels/Transform';\nimport {transposeConfig} from './kernels/Transpose';\nimport {unpackConfig} from './kernels/Unpack';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n absConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n argMaxConfig,\n avgPoolConfig,\n batchMatMulConfig,\n batchToSpaceNDConfig,\n castConfig,\n ceilConfig,\n clipByValueConfig,\n concatConfig,\n conv2DConfig,\n conv2DBackpropInputConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n depthToSpaceConfig,\n depthwiseConv2dNativeConfig,\n eluConfig,\n equalConfig,\n expConfig,\n expandDimsConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n fusedMatMulConfig,\n fusedBatchNormConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n logConfig,\n logicalAndConfig,\n maxConfig,\n maximumConfig,\n maxPoolConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realDivConfig,\n reluConfig,\n relu6Config,\n reshapeConfig,\n resizeBilinearConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n rsqrtConfig,\n roundConfig,\n

scatterNdConfig,\n selectConfig,\n sigmoidConfig,\n sinConfig,\n sliceConfig,\n softmaxConfig,\n spaceToBatchNDConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transformConfig,\n transposeConfig,\n unpackConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/register_all_kernels.js.map
No license file was found, but licenses were detected in source scan.

{"version":3,"file":"DepthwiseConv2dNative.js","sourceRoot":"","sources":["../../src/kernels/DepthwiseConv2dNative.ts"],"names":[],"mappings":"AAAA;;;;;;;;;;;;;;;GAeG;AAEH,OAAO,EAAC,YAAY,EAAE,qBAAqB,EAA8F,MAAM,uBAAuB,CAAC;AAIvK,IAAI,mBAAmB,CAAC;AAE3B,SAAS,KAAK,CAAC,OAAO,oB;IACjC,mBAAmB;QACf,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,qBAAqB,EAAE,IAAI,CAAC,UAAU,EAAE;YACzD,QAAQ;YACR,QAAQ;YACR,QAAQ;YACR

the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs, KernelConfig, KernelFunc, Tensor4D} from '@tensorflow/tfjs-core';\n\nimport {BackendWasm} from '../backend_wasm';\n\nlet wasmDepthwiseConv2d: (\n xId: number, batchSize: number, inputHeight: number, inputWidth: number,\n filterId: number, filterHeight: number, filterWidth: number, padTop: number,\n padRight: number, padBottom: number, padLeft: number, isSamePad: number,\n dilationHeight: number, dilationWidth: number, strideHeight: number,\n strideWidth: number, inputChannels: number, outputChannels:
number,\n outId: number) => void;\n\nfunction setup(backend: BackendWasm) {\n wasmDepthwiseConv2d =\n backend.wasm.cwrap(DepthwiseConv2dNative, null /* void */, [\n 'number', // xId\n 'number', // batchSize\n 'number', // inputHeight\n 'number', // inputWidth\n 'number', // filterId\n 'number', // filterHeight\n 'number', // filterWidth\n 'number', // padTop\n 'number', // padRight\n 'number', // padBottom\n 'number', // padLeft\n 'number', // isSamePad\n 'number', // dilationHeight\n 'number', // dilationWidth\n 'number', // strideHeight\n 'number', // strideWidth\n 'number', // inputChannels\n 'number', // outputChannels\n 'number', // outId\n]);\n}\n\nfunction depthwiseConv2d(args: {\n inputs: DepthwiseConv2dNativeInputs,\n backend: BackendWasm,\n attrs: DepthwiseConv2dNativeAttrs\n}) {\n const {inputs, attrs,
backend} = args;\n\n const {x, filter} = inputs;\n const xId = backend.dataIdMap.get(x.dataId).id;\n const filterId = backend.dataIdMap.get(filter.dataId).id;\n\n const {strides, dilations, pad, dimRoundingMode} = attrs;\n\n const $dilations = dilations == null ? [1, 1] : dilations;\n\n const convInfo = backend_util.computeConv2DInfo(\n (x as Tensor4D).shape, (filter as Tensor4D).shape, strides,\n ($dilations as number | [number, number]), pad, dimRoundingMode,\n true /* depthwise */);\n\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const padTop = convInfo.padInfo.top;\n const padRight = convInfo.padInfo.right;\n const padBottom = convInfo.padInfo.bottom;\n const padLeft = convInfo.padInfo.left;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const inputChannels = convInfo.inChannels;\n const outputChannels = convInfo.outChannels;\n const isSamePad = convInfo.padInfo.type === 'SAME' ? 1 : 0;\n\n if (convInfo.dataFormat !== 'channelsLast') {\n throw new Error(\n `wasm backend DepthwiseConv2dNative does not support dataFormat:'` +\n `${convInfo.dataFormat}'. Please use 'channelsLast'.`);\n }\n\n const out = backend.makeOutput(convInfo.outShape, 'float32');\n const outId = backend.dataIdMap.get(out.dataId).id;\n wasmDepthwiseConv2d(\n xId, x.shape[0], x.shape[1], x.shape[2], filterId, filterHeight,\n filterWidth, padTop, padRight, padBottom, padLeft, isSamePad,\n dilationHeight, dilationWidth, strideHeight, strideWidth, inputChannels,\n outputChannels, outId);\n return out;\n}\n\nexport const depthwiseConv2dNativeConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNative,\n backendName: 'wasm',\n setupFunc: setup,\n kernelFunc: depthwiseConv2d as {} as KernelFunc\n};\n"]}

Found in path(s):
* /tfjs-backend-wasm-zip/tfjs-backend-wasm/dist/kernels/DepthwiseConv2dNative.js.map

1.399 @tensorflow/tfjs-backend-webgl 3.11.0

1.399.1 Available under license :

/**
* @license
* Copyright 2020 Google LLC. All Rights Reserved.

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source"
form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely

link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean
Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the

NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: HOW TO APPLY THE APACHE LICENSE TO YOUR WORK

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless
required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.400 @tensorflow/tfjs-backend-cpu 3.11.0

1.400.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source"
form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely
link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean
Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute,
all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute

must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the
NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.
5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the
trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor
harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: HOW TO APPLY THE APACHE LICENSE TO YOUR WORK
To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless
required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
/**
* @license
* Copyright 2020 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the License);
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an AS IS BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==

1.401 @tensorflow-models/body-pix 2.2

1.401.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.

* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*
* ===
*/

Found in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/util_test.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/util_test.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/body_pix_test.d.ts
*
 /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/argmax2d_test.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/body_pix_test.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/argmax2d_test.d.ts
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google LLC. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/keypoints.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_pose.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/version_test.js
*
 /tensorflow-models-zip/@tensorflow-models/body-pix/dist/blur.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/decode_part_map.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/util.d.ts

* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/setup_test.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/version_test.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/util.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/decode_single_pose.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/build_part_with_score_queue.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/setup_test.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/argmax2d.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/util.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/output_rendering_util.js
*
/tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/util.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/argmax2d.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/output_rendering_util.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/build_part_with_score_queue.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_pose.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/blur.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/keypoints.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/decode_part_map.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/run_tests.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/single_person/decode_single_pose.js
Apache License 2.0
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* https://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ==
*/

Found in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/saved_models.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/saved_models.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/index.d.ts
*
/tensorflow-models-zip/@tensorflow-models/body-pix/dist/resnet.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/index.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/resnet.js

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"body-pix.esm.js","sources":["../src/decode_part_map.ts","../src/base_model.ts","../src/mobilenet.ts","../src/keypoints.ts","../src/multi_person/util.ts","../src/multi_person/decode_multiple_masks_cpu.ts","../src/multi_person/decode_multiple_masks_webgl.ts","../src/multi_person/decode_instance_masks.ts","../src/multi_person/max_heap.ts","../src/multi_person/build_part_with_score_queue.ts","../src/multi_person/decode_pose.ts","../src/multi_person/decode_multiple_poses.ts","../src/resnet.ts","../src/saved_models.ts","../src/util.ts","../src/body_pix_model.ts","../src/blur.ts","../src/output_rendering_util.ts","../src/part_channels.ts","../src/version.ts"],"sourcesContent":["/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport * as tf from '@tensorflow/tfjs-core';\n\n/**\n * Takes the sigmoid of the part heatmap output and generates a 2d one-hot\n * tensor with ones where the part's score has the maximum value.\n *\n * @param partHeatmapScores\n */\nfunction toFlattenedOneHotPartMap(partHeatmapScores: tf.Tensor3D): tf.Tensor2D {\n const numParts = partHeatmapScores.shape[2];\n const partMapLocations = tf.argMax(partHeatmapScores, 2);\n\n const partMapFlattened = tf.reshape(partMapLocations, [-1]);\n\n return tf.oneHot(partMapFlattened, numParts) as tf.Tensor2D;\n}\n\nfunction clipByMask2d(image: tf.Tensor2D, mask: tf.Tensor2D): tf.Tensor2D {\n return tf.mul(image, mask);\n}\n\n/**\n * Takes the sigmoid of the segmentation output, and generates a segmentation\n * mask with a 1 or 0 at each pixel where there is a person or not a person. The\n * segmentation threshold determines the threshold of a score for a pixel for it\n * to be considered part of a person.\n *\n * @param segmentScores A 3d-tensor of the sigmoid of the segmentation output.\n * @param segmentationThreshold The minimum that segmentation values must have\n * to be considered part of the person. Affects the generation of the\n * segmentation mask and the clipping of the colored part image.\n *\n * @returns A segmentation mask with a 1 or 0 at each pixel where there is a\n * person or not a person.\n */\nexport function toMaskTensor(\n   segmentScores: tf.Tensor2D, threshold: number): tf.Tensor2D {\n return tf.tidy(\n   () =>\n   (tf.cast(tf.greater(\n   segmentScores, tf.scalar(threshold)), 'int32') as tf.Tensor2D));\n}\n\n/**\n * Takes the sigmoid of the person and part map output, and returns a 2d tensor\n * of an image with the corresponding value at each pixel corresponding to the\n * part with the highest value. These part ids are clipped by the segmentation\n * mask. Wherever the a pixel is clipped by the segmentation mask, its value\n * will set to -1, indicating that there is no part in that pixel.\n *\n * @param segmentScores A 3d-tensor of the sigmoid of the segmentation output.\n * @param partHeatmapScores A 3d-tensor of the sigmoid of the part heatmap\n * output. The third dimension corresponds to the part.\n *\n * @returns A 2d tensor of an image with the corresponding value at each pixel\n * corresponding to the part with the highest value. These part ids are clipped\n * by the segmentation mask. It will have values of -1 for pixels that are\n * outside of the body and do not have a corresponding part.\n */\nexport function decodePartSegmentation(\n   segmentationMask: tf.Tensor2D,\n   partHeatmapScores: tf.Tensor3D): tf.Tensor2D {\n const [partMapHeight, partMapWidth, numParts] = partHeatmapScores.shape;\n return tf.tidy(() => {\n   const flattenedMap = toFlattenedOneHotPartMap(partHeatmapScores);\n   const partNumbers = tf.expandDims(tf.range(0, numParts, 1, 'int32'), 1);\n\n   const partMapFlattened =\n   tf.cast(tf.matMul(flattenedMap, partNumbers as tf.Tensor2D), 'int32');\n\n   const partMap = tf.reshape(partMapFlattened, [partMapHeight, partMapWidth]);\n\n   const partMapShiftedUpForClipping = tf.add(partMap, tf.scalar(1, 'int32'));\n\n   return tf.sub(clipByMask2d(\n   partMapShiftedUpForClipping as tf.Tensor2D, segmentationMask)\n   , tf.scalar(1, 'int32'));\n });\n}\n\nexport function decodeOnlyPartSegmentation(partHeatmapScores: tf.Tensor3D):\n   tf.Tensor2D {\n const

[partMapHeight, partMapWidth, numParts] = partHeatmapScores.shape;\n
return tf.tidy(() => {\n const flattenedMap = toFlattenedOneHotPartMap(partHeatmapScores);\n const partNumbers = tf.expandDims(tf.range(0, numParts, 1, 'int32'), 1);\n\n const partMapFlattened =\n tf.cast(tf.matMul(flattenedMap, partNumbers as tf.Tensor2D), 'int32');\n\n return tf.reshape(partMapFlattened, [partMapHeight, partMapWidth]);\n });\n}\n","\n/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n
* limitations under the License.\n *
==========\n
*/\n\nimport * as tfconv from '@tensorflow/tfjs-converter';\nimport * as tf from '@tensorflow/tfjs-core';\nimport {BodyPixOutputStride} from './types';\n\n/**\n * BodyPix supports using various convolution neural network models\n * (e.g. ResNet and MobileNetV1) as its underlying base model.\n * The following BaseModel interface defines a unified interface for\n * creating such BodyPix base models. Currently both MobileNet (in\n * ./mobilenet.ts) and ResNet (in ./resnet.ts) implements the BaseModel\n * interface. New base models that conform to the BaseModel interface can be\n * added to BodyPix.\n */\nexport abstract class BaseModel {\n constructor(\n protected readonly model: tfconv.GraphModel,\n public readonly outputStride: BodyPixOutputStride) {\n const inputShape =\n this.model.inputs[0].shape as [number, number, number, number];\n tf.util.assert(\n (inputShape[1] === -1) && (inputShape[2] === -1),\n () => `Input shape [${inputShape[1]}, ${inputShape[2]}] ` +\n `must both be equal to or -1`);\n }\n\n abstract preprocessInput(input: tf.Tensor3D): tf.Tensor3D;\n\n /**\n * Predicts intermediate Tensor representations.\n *\n * @param input The input RGB image of the base model.\n * A Tensor of shape: [`inputResolution`, `inputResolution`, 3].\n *\n * @return A dictionary of base model's intermediate predictions.\n * The returned dictionary should contains the following elements:\n * - heatmapScores: A Tensor3D that represents the keypoint heatmap scores.\n * - offsets: A Tensor3D that represents the offsets.\n * - displacementFwd: A Tensor3D that represents the forward displacement.\n * - displacementBwd: A Tensor3D that represents the backward displacement.\n * - segmentation: A Tensor3D that represents the segmentation of all\n * people.\n * - longOffsets: A Tensor3D that represents the long offsets used for\n * instance grouping.\n * - partHeatmaps: A Tensor3D that represents the body part segmentation.\n */\n predict(input: tf.Tensor3D): {\n heatmapScores: tf.Tensor3D,\n offsets: tf.Tensor3D,\n displacementFwd: tf.Tensor3D,\n displacementBwd: tf.Tensor3D,\n segmentation: tf.Tensor3D,\n partHeatmaps: tf.Tensor3D,\n longOffsets: tf.Tensor3D,\n partOffsets: tf.Tensor3D\n } {\n return tf.tidy(() => {\n const asFloat = this.preprocessInput(tf.cast(input, 'float32'));\n const asBatch = tf.expandDims(asFloat, 0);\n const results = this.model.predict(asBatch) as tf.Tensor4D[];\n const results3d: tf.Tensor3D[] = results.map(y => tf.squeeze(y, [0]));\n const namedResults = this.nameOutputResults(results3d);\n\n return {\n heatmapScores: tf.sigmoid(namedResults.heatmap),\n offsets: namedResults.offsets,\n displacementFwd: namedResults.displacementFwd,\n displacementBwd: namedResults.displacementBwd,\n segmentation: namedResults.segmentation,\n partHeatmaps: namedResults.partHeatmaps,\n longOffsets: namedResults.longOffsets,\n partOffsets: namedResults.partOffsets\n };\n });\n }\n\n // Because MobileNet and ResNet predict() methods output a different order for\n // these values, we have a method that needs to be implemented to order them.\n abstract nameOutputResults(results: tf.Tensor3D[]): {\n heatmap: tf.Tensor3D,\n offsets: tf.Tensor3D,\n displacementFwd: tf.Tensor3D,\n displacementBwd: tf.Tensor3D,\n segmentation: tf.Tensor3D,\n partHeatmaps: tf.Tensor3D,\n longOffsets: tf.Tensor3D,\n partOffsets: tf.Tensor3D\n };\n\n /**\n * Releases the CPU and GPU memory allocated by the model.\n */\n dispose() {\n this.model.dispose();\n }\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0

(the \"License\");\n
 * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport * as tf from '@tensorflow/tfjs-core';\n\nimport {BaseModel} from './base_model';\n\nexport class MobileNet extends BaseModel {\n preprocessInput(input: tf.Tensor3D): tf.Tensor3D {\n   // Normalize the pixels [0, 255] to be between [-1, 1].\n   return tf.tidy(() => tf.sub(tf.div(input, 127.5), 1.0));\n }\n\n nameOutputResults(results: tf.Tensor3D[]) {\n   const [\n   offsets,\n   segmentation,\n   partHeatmaps,\n   longOffsets,\n   heatmap,\n   displacementFwd,\n   displacementBwd,\n partOffsets,\n] = results;\n   return {\n   offsets,\n   segmentation,\n   partHeatmaps,\n   longOffsets,\n heatmap,\n   displacementFwd,\n   displacementBwd,\n   partOffsets\n   };\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
 */\n\nexport type Tuple<T> = [T, T];\nexport type StringTuple = Tuple<string>;\nexport type NumberTuple = Tuple<number>;\n\nexport const PART_NAMES = [\n 'nose', 'leftEye', 'rightEye', 'leftEar', 'rightEar', 'leftShoulder',\n 'rightShoulder', 'leftElbow', 'rightElbow', 'leftWrist', 'rightWrist',\n 'leftHip', 'rightHip', 'leftKnee', 'rightKnee', 'leftAnkle', 'rightAnkle'\n];\n\nexport const NUM_KEYPOINTS = PART_NAMES.length;\n\nexport interface NumberDict {\n [jointName: string]: number;\n}\n\nexport const PART_IDS =\n PART_NAMES.reduce((result: NumberDict, jointName, i): NumberDict => {\n   result[jointName] = i;\n   return result;\n }, {});\n\nconst CONNECTED_PART_NAMES: StringTuple[] = [\n ['leftHip', 'leftShoulder'], ['leftElbow', 'leftShoulder'],\n ['leftElbow', 'leftWrist'], ['leftHip', 'leftKnee'],\n ['leftKnee', 'leftAnkle'], ['rightHip', 'rightShoulder'],\n ['rightElbow', 'rightShoulder'], ['rightElbow',
 'rightWrist'],\n ['rightHip', 'rightKnee'], ['rightKnee', 'rightAnkle'],\n ['leftShoulder', 'rightShoulder'], ['leftHip', 'rightHip']\n];\n\n/*\n * Define the skeleton. This defines the parent->child relationships of our\n * tree. Arbitrarily this defines the nose as the root of the tree, however\n * since we will infer the displacement for both parent->child and\n * child->parent, we can define the tree root as any node.\n */\nexport const POSE_CHAIN: StringTuple[] = [\n ['nose', 'leftEye'], ['leftEye', 'leftEar'], ['nose', 'rightEye'],\n ['rightEye', 'rightEar'], ['nose', 'leftShoulder'],\n ['leftShoulder', 'leftElbow'], ['leftElbow', 'leftWrist'],\n ['leftShoulder', 'leftHip'], ['leftHip', 'leftKnee'],\n ['leftKnee', 'leftAnkle'], ['nose', 'rightShoulder'],\n ['rightShoulder', 'rightElbow'], ['rightElbow', 'rightWrist'],\n ['rightShoulder', 'rightHip'], ['rightHip', 'rightKnee'],\n ['rightKnee', 'rightAnkle']\n];\n\nexport const CONNECTED_PART_INDICES = CONNECTED_PART_NAMES.map(\n   ([jointNameA, jointNameB]) =>\n   ([PART_IDS[jointNameA], PART_IDS[jointNameB]]));\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {NUM_KEYPOINTS} from '../keypoints';\nimport {Padding, Part, TensorBuffer3D, Vector2D} from

'../types';\n\nexport function getScale(\n [height, width]: [number,
 number],\n [inputResolutionY, inputResolutionX]: [number, number],\n padding: Padding): [number, number]
{\n const {top: padT, bottom: padB, left: padL, right: padR} = padding;\n const scaleY = inputResolutionY / (padT
+ padB + height);\n const scaleX = inputResolutionX / (padL + padR + width);\n return [scaleX,
scaleY];\n}\n\nexport function getOffsetPoint(\n y: number, x: number, keypoint: number, offsets:
TensorBuffer3D): Vector2D {\n return {\n y: offsets.get(y, x, keypoint),\n x: offsets.get(y, x, keypoint +
NUM_KEYPOINTS)\n };\n}\n\nexport function getImageCoords(\n part: Part, outputStride: number, offsets:
TensorBuffer3D): Vector2D {\n const {heatmapY, heatmapX, id: keypoint} = part;\n const {y, x} =
getOffsetPoint(heatmapY, heatmapX, keypoint, offsets);\n return {\n x: part.heatmapX * outputStride + x,\n y:
part.heatmapY * outputStride + y\n };\n}\n\nexport function fillArray<T>(element: T, size: number): T[] {\n const
result: T[] = new Array(size);\n\n
  for (let i = 0; i < size; i++) {\n result[i] = element;\n }\n\n return result;\n}\n\nexport function clamp(a: number,
min: number, max: number): number {\n if (a < min) {\n return min;\n }\n if (a > max) {\n return max;\n }\n
return a;\n}\n\nexport function squaredDistance(\n y1: number, x1: number, y2: number, x2: number): number {\n
const dy = y2 - y1;\n const dx = x2 - x1;\n return dy * dy + dx * dx;\n}\n\nexport function addVectors(a:
Vector2D, b: Vector2D): Vector2D {\n return {x: a.x + b.x, y: a.y + b.y};\n}\n\nexport function clampVector(a:
Vector2D, min: number, max: number): Vector2D {\n return {y: clamp(a.y, min, max), x: clamp(a.x, min,
max)};\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==\n
*/\n\nimport {NUM_KEYPOINTS} from '../keypoints';\nimport {Padding, Pose} from '../types';\n\nimport
{getScale} from './util';\n\ninterface Pair {\n x: number;\n y: number;\n}\n\nfunction computeDistance(embedding:
Pair[], pose: Pose, minPartScore = 0.3) {\n let distance = 0.0;\n let numKpt = 0;\n for (let p = 0; p <
embedding.length; p++) {\n if (pose.keypoints[p].score > minPartScore) {\n numKpt += 1;\n distance +=
(embedding[p].x - pose.keypoints[p].position.x) ** 2 +\n (embedding[p].y - pose.keypoints[p].position.y) **
2;\n }\n }\n
  if (numKpt === 0) {\n distance = Infinity;\n } else {\n distance = distance / numKpt;\n }\n return
distance;\n}\n\nfunction convertToPositionInOuput(\n position: Pair, [padT, padL]: [number, number],\n
[scaleX, scaleY]: [number, number], stride: number): Pair {\n const y = Math.round(((padT + position.y + 1.0) *
scaleY - 1.0) / stride);\n const x = Math.round(((padL + position.x + 1.0) * scaleX - 1.0) / stride);\n return {x,
y};\n}\n\nfunction getEmbedding(\n location: Pair, keypointIndex: number,\n convertToPosition: (pair: Pair) =>
Pair, outputResolutionX: number,\n longOffsets: Float32Array, refineSteps: number,\n [height, width]: [number,
number]): Pair {\n const newLocation = convertToPosition(location);\n\n const nn = newLocation.y *
outputResolutionX + newLocation.x;\n let dy = longOffsets[NUM_KEYPOINTS * (2 * nn) + keypointIndex];\n let
dx = longOffsets[NUM_KEYPOINTS * (2 * nn + 1) + keypointIndex];\n let y = location.y + dy;\n let x =
location.x
 + dx;\n for (let t = 0; t < refineSteps; t++) {\n y = Math.min(y, height - 1);\n x = Math.min(x, width - 1);\n
const newPos = convertToPosition({x, y});\n const nn = newPos.y * outputResolutionX + newPos.x;\n dy =
longOffsets[NUM_KEYPOINTS * (2 * nn) + keypointIndex];\n dx = longOffsets[NUM_KEYPOINTS * (2 * nn
+ 1) + keypointIndex];\n y = y + dy;\n x = x + dx;\n }\n\n return {x, y};\n}\n\nfunction
matchEmbeddingToInstance(\n location: Pair, longOffsets: Float32Array, poses: Pose[],\n numKptForMatching:
number, [padT, padL]: [number, number],\n [scaleX, scaleY]: [number, number], outputResolutionX: number,\n
[height, width]: [number, number], stride: number,\n refineSteps: number): number {\n const embed: Pair[] = [];\n

```
const convertToPosition = (pair: Pair) =>\n      convertToPositionInOuput(pair, [padT, padL], [scaleX, scaleY],
stride);\n\n  for (let keypointsIndex = 0; keypointsIndex < numKptForMatching;\n       keypointsIndex++) {\n
    const embedding = getEmbedding(\n         location, keypointsIndex, convertToPosition, outputResolutionX,\n
longOffsets, refineSteps, [height, width]);\n\n    embed.push(embedding);\n  }\n\n  let kMin = -1;\n  let kMinDist =
Infinity;\n  for (let k = 0; k < poses.length; k++) {\n    const dist = computeDistance(embed, poses[k]);\n    if (dist <
kMinDist) {\n      kMin = k;\n      kMinDist = dist;\n    }\n  }\n  return kMin;\n}\n\nfunction getOutputResolution(\n
 [inputResolutionY, inputResolutionX]: [number, number],\n    stride: number): [number, number] {\n  const
outputResolutionX = Math.round((inputResolutionX - 1.0) / stride + 1.0);\n  const outputResolutionY =
Math.round((inputResolutionY - 1.0) / stride + 1.0);\n  return [outputResolutionX, outputResolutionY];\n}\n\nexport
function decodeMultipleMasksCPU(\n    segmentation: Uint8Array, longOffsets: Float32Array,\n
posesAboveScore: Pose[], height: number, width: number, stride: number,\n    [inHeight, inWidth]: [number,
 number], padding: Padding,\n    refineSteps: number, numKptForMatching = 5): Uint8Array[] {\n  const dataArrays
=\n      posesAboveScore.map(x => new Uint8Array(height * width).fill(0));\n\n  const {top: padT, left: padL} =
padding;\n\n  const [scaleX, scaleY] =\n      getScale([height, width], [inHeight, inWidth], padding);\n  const
[outputResolutionX, ] =\n    getOutputResolution([inHeight, inWidth], stride);\n  for (let i = 0; i < height; i += 1) {\n
  for (let j = 0; j < width; j += 1) {\n      const n = i * width + j;\n      const prob = segmentation[n];\n      if (prob ===
1) {\n        const kMin = matchEmbeddingToInstance(\n            {x: j, y: i}, longOffsets, posesAboveScore,
numKptForMatching,\n            [padT, padL], [scaleX, scaleY], outputResolutionX, [height, width],\n            stride,
refineSteps);\n        if (kMin >= 0) {\n          dataArrays[kMin][n] = 1;\n        }\n      }\n    }\n  }\n\n  return
dataArrays;\n}\n\nexport function decodeMultiplePartMasksCPU(\n
    segmentation: Uint8Array, longOffsets: Float32Array,\n    partSegmentaion: Uint8Array, posesAboveScore:
Pose[], height: number,\n    width: number, stride: number, [inHeight, inWidth]: [number, number],\n    padding:
Padding, refineSteps: number,\n    numKptForMatching = 5): Int32Array[] {\n  const dataArrays =\n
posesAboveScore.map(x => new Int32Array(height * width).fill(-1));\n\n  const {top: padT, left: padL} =
padding;\n\n  const [scaleX, scaleY] =\n      getScale([height, width], [inHeight, inWidth], padding);\n  const
[outputResolutionX, ] =\n    getOutputResolution([inHeight, inWidth], stride);\n\n  for (let i = 0; i < height; i += 1)
{\n    for (let j = 0; j < width; j += 1) {\n      const n = i * width + j;\n      const prob = segmentation[n];\n      if (prob
=== 1) {\n        const kMin = matchEmbeddingToInstance(\n            {x: j, y: i}, longOffsets, posesAboveScore,
numKptForMatching,\n            [padT, padL], [scaleX, scaleY], outputResolutionX, [height,
 width],\n            stride, refineSteps);\n        if (kMin >= 0) {\n          dataArrays[kMin][n] = partSegmentaion[n];\n
  }\n      }\n    }\n  }\n\n  return dataArrays;\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport * as tf from '@tensorflow/tfjs-core';\nimport * as tf_webgl from '@tensorflow/tfjs-backend-
webgl';\n\nimport
 {NUM_KEYPOINTS} from '../keypoints';\nimport {Padding, Pose} from '../types';\nimport {getScale} from
'./util';\n\nexport function decodeMultipleMasksWebGl(\n    segmentation: tf.Tensor2D, longOffsets: tf.Tensor3D,\n
  posesAboveScore: Pose[], height: number, width: number, stride: number,\n    [inHeight, inWidth]: [number,
number], padding: Padding,\n    refineSteps: number, minKptScore: number,\n    maxNumPeople: number):
tf.TensorInfo {\n  // The height/width of the image/canvas itself.\n  const [origHeight, origWidth] =
segmentation.shape;\n  // The height/width of the output of the model.\n  const [outHeight, outWidth] =
longOffsets.shape.slice(0, 2);\n\n  const shapedLongOffsets: tf.Tensor4D =\n      tf.reshape(longOffsets, [outHeight,
outWidth, 2, NUM_KEYPOINTS]);\n\n  // Make pose tensor of shape [MAX_NUM_PEOPLE,
```

NUM_KEYPOINTS, 3] where\n // the last 3 coordinates correspond to the score, h and w coordinate of that\n // keypoint.\n const poseVals
 = new Float32Array(maxNumPeople * NUM_KEYPOINTS * 3).fill(0.0);\n for (let i = 0; i < posesAboveScore.length; i++) {\n const poseOffset = i * NUM_KEYPOINTS * 3;\n const pose = posesAboveScore[i];\n for (let kp = 0; kp < NUM_KEYPOINTS; kp++) {\n const keypoint = pose.keypoints[kp];\n const offset = poseOffset + kp * 3;\n poseVals[offset] = keypoint.score;\n poseVals[offset + 1] = keypoint.position.y;\n poseVals[offset + 2] = keypoint.position.x;\n }\n }\n\n const [scaleX, scaleY] =\n getScale([height, width], [inHeight, inWidth], padding);\n\n const posesTensor = tf.tensor(poseVals, [maxNumPeople, NUM_KEYPOINTS, 3]);\n\n const {top: padT, left: padL} = padding;\n\n const program: tf_webgl.GPGPUProgram = {\n variableNames: ['segmentation', 'longOffsets', 'poses'],\n outputShape: [origHeight, origWidth],\n userCode: `\n int convertToPositionInOutput(int pos, int pad, float scale, int stride) {\n return round(((float(pos +
 pad) + 1.0) * scale - 1.0) / float(stride));\n }\n\n float convertToPositionInOutputFloat(\n int pos, int pad, float scale, int stride) {\n return ((float(pos + pad) + 1.0) * scale - 1.0) / float(stride);\n }\n\n float dist(float x1, float y1, float x2, float y2) {\n return pow(x1 - x2, 2.0) + pow(y1 - y2, 2.0);\n }\n\n float sampleLongOffsets(float h, float w, int d, int k) {\n float fh = fract(h);\n float fw = fract(w);\n int clH = int(ceil(h));\n int clW = int(ceil(w));\n int flH = int(floor(h));\n int flW = int(floor(w));\n float o11 = getLongOffsets(flH, flW, d, k);\n float o12 = getLongOffsets(flH, clW, d, k);\n float o21 = getLongOffsets(clH, flW, d, k);\n float o22 = getLongOffsets(clH, clW, d, k);\n float o1 = mix(o11, o12, fw);\n float o2 = mix(o21, o22, fw);\n return mix(o1, o2, fh);\n }\n\n int findNearestPose(int h, int w) {\n float prob = getSegmentation(h, w);\n if (prob < 1.0) {\n return -1;\n }\n\n // Done(Tyler): convert from output space h/w to strided space.\n float stridedH = convertToPositionInOutputFloat(\n h, ${padT}, ${scaleY}, ${stride});\n float stridedW = convertToPositionInOutputFloat(\n w, ${padL}, ${scaleX}, ${stride});\n\n float minDist = 1000000.0;\n int iMin = -1;\n for (int i = 0; i < ${maxNumPeople}; i++) {\n float curDistSum = 0.0;\n int numKpt = 0;\n for (int k = 0; k < ${NUM_KEYPOINTS}; k++) {\n float dy = sampleLongOffsets(stridedH, stridedW, 0, k);\n float dx = sampleLongOffsets(stridedH, stridedW, 1, k);\n\n float y = float(h) + dy;\n float x = float(w) + dx;\n\n for (int s = 0; s < ${refineSteps}; s++) {\n int yRounded = round(min(y, float(${height - 1.0})));\n int xRounded = round(min(x, float(${width - 1.0})));\n\n float yStrided = convertToPositionInOutputFloat(\n yRounded, ${padT}, ${scaleY}, ${stride});\n float xStrided = convertToPositionInOutputFloat(\n xRounded, ${padL}, ${scaleX}, ${stride});\n\n float dy = sampleLongOffsets(yStrided, xStrided, 0, k);\n float dx = sampleLongOffsets(yStrided, xStrided, 1, k);\n\n y = y + dy;\n x = x + dx;\n }\n\n float poseScore = getPoses(i, k, 0);\n float poseY = getPoses(i, k, 1);\n float poseX = getPoses(i, k, 2);\n if (poseScore > ${minKptScore}) {\n numKpt = numKpt + 1;\n curDistSum = curDistSum + dist(x, y, poseX, poseY);\n }\n }\n if (numKpt > 0 && curDistSum / float(numKpt) < minDist) {\n minDist = curDistSum / float(numKpt);\n iMin = i;\n }\n }\n return iMin;\n }\n\n void main() {\n ivec2 coords = getOutputCoords();\n int nearestPose = findNearestPose(coords[0], coords[1]);\n
  setOutput(float(nearestPose));\n }\n `\n };\n const webglBackend = tf.backend() as tf_webgl.MathBackendWebGL;\n return webglBackend.compileAndRun(\n program, [segmentation, shapedLongOffsets, posesTensor]);\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport * as tf from '@tensorflow/tfjs-core';\nimport
 {getBackend} from '@tensorflow/tfjs-core';\n\nimport {Padding, PartSegmentation, PersonSegmentation, Pose}
from '../types';\n\nimport {decodeMultipleMasksCPU, decodeMultiplePartMasksCPU} from
'./decode_multiple_masks_cpu';\nimport {decodeMultipleMasksWebGl} from
'./decode_multiple_masks_webgl';\n\nexport function toPersonKSegmentation(\n    segmentation: tf.Tensor2D, k:
number): tf.Tensor2D {\n  return tf.tidy(\n      () => (tf.cast(tf.equal(\n          segmentation, tf.scalar(k)), 'int32') as
tf.Tensor2D));\n}\n\nexport function toPersonKPartSegmentation(\n    segmentation: tf.Tensor2D, bodyParts:
tf.Tensor2D, k: number): tf.Tensor2D {\n  return tf.tidy(\n      () => tf.sub(tf.mul(tf.cast(tf.equal(\n
segmentation, tf.scalar(k)), 'int32'), tf.add(bodyParts, 1)), 1));\n}\n\nfunction isWebGlBackend() {\n  return
getBackend() === 'webgl';\n}\n\nexport async function decodePersonInstanceMasks(\n    segmentation:
tf.Tensor2D, longOffsets: tf.Tensor3D, poses:
 Pose[],\n    height: number, width: number, stride: number,\n    [inHeight, inWidth]: [number, number], padding:
Padding, minPoseScore = 0.2,\n    refineSteps = 8, minKeypointScore = 0.3,\n    maxNumPeople = 10):
Promise<PersonSegmentation[]> {\n  // Filter out poses with smaller score.\n  const posesAboveScore =
poses.filter(pose => pose.score >= minPoseScore);\n\n  let personSegmentationsData: Uint8Array[];\n\n  if
(isWebGlBackend()) {\n    const personSegmentations = tf.tidy(() => {\n      const masksTensorInfo =
decodeMultipleMasksWebGl(\n          segmentation, longOffsets, posesAboveScore, height, width, stride,\n
[inHeight, inWidth], padding, refineSteps, minKeypointScore,\n          maxNumPeople);\n      const masksTensor =
tf.engine().makeTensorFromDataId(\n          masksTensorInfo.dataId, masksTensorInfo.shape,\n
masksTensorInfo.dtype) as tf.Tensor2D;\n\n      return posesAboveScore.map(\n          (_, k) =>
toPersonKSegmentation(masksTensor, k));\n    });\n\n
   personSegmentationsData =\n        (await Promise.all(personSegmentations.map(mask => mask.data())) as\n
Uint8Array[]);\n\n    personSegmentations.forEach(x => x.dispose());\n  } else {\n    const segmentationsData =
await segmentation.data() as Uint8Array;\n    const longOffsetsData = await longOffsets.data() as Float32Array;\n\n
 personSegmentationsData = decodeMultipleMasksCPU(\n        segmentationsData, longOffsetsData,
posesAboveScore, height, width,\n        stride, [inHeight, inWidth], padding, refineSteps);\n  }\n\n  return
personSegmentationsData.map(\n      (data, i) => ({data, pose: posesAboveScore[i], width, height}));\n}\n\nexport
async function decodePersonInstancePartMasks(\n    segmentation: tf.Tensor2D, longOffsets: tf.Tensor3D,\n
partSegmentation: tf.Tensor2D, poses: Pose[], height: number, width: number,\n    stride: number, [inHeight,
inWidth]: [number, number], padding: Padding,\n    minPoseScore = 0.2, refineSteps = 8, minKeypointScore =
0.3,\n
   maxNumPeople = 10): Promise<PartSegmentation[]> {\n  const posesAboveScore = poses.filter(pose =>
pose.score >= minPoseScore);\n\n  let partSegmentationsByPersonData: Int32Array[];\n\n  if (isWebGlBackend())
{\n    const partSegmentations = tf.tidy(() => {\n      const masksTensorInfo = decodeMultipleMasksWebGl(\n
segmentation, longOffsets, posesAboveScore, height, width, stride,\n          [inHeight, inWidth], padding,
refineSteps, minKeypointScore,\n          maxNumPeople);\n      const masksTensor =
tf.engine().makeTensorFromDataId(\n          masksTensorInfo.dataId, masksTensorInfo.shape,\n
masksTensorInfo.dtype) as tf.Tensor2D;\n\n      return posesAboveScore.map(\n          (_, k) =>\n
toPersonKPartSegmentation(masksTensor, partSegmentation, k));\n    });\n\n    partSegmentationsByPersonData =\n
     (await Promise.all(partSegmentations.map(x => x.data()))) as\n        Int32Array[];\n\n
partSegmentations.forEach(x => x.dispose());\n  } else
 {\n    const segmentationsData = await segmentation.data() as Uint8Array;\n    const longOffsetsData = await
longOffsets.data() as Float32Array;\n    const partSegmentaionData = await partSegmentation.data() as
Uint8Array;\n\n    partSegmentationsByPersonData = decodeMultiplePartMasksCPU(\n        segmentationsData,
longOffsetsData, partSegmentaionData,\n        posesAboveScore, height, width, stride, [inHeight, inWidth],
padding,\n        refineSteps);\n  }\n\n  return partSegmentationsByPersonData.map(\n      (data, k) => ({pose:
posesAboveScore[k], data, height, width}));\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights
```

Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\n// algorithm based on Coursera Lecture from Algorithms, Part 1:\n// https://www.coursera.org/learn/algorithms-part1/lecture/ZjoSM/heapsort\n\nfunction half(k: number) {\n return Math.floor(k / 2);\n}\n\nexport class MaxHeap<T> {\n private priorityQueue: T[];\n private numberOfElements: number;\n private getElementValue: (element: T) => number;\n\n constructor(maxSize: number, getElementValue: (element: T) => number) {\n this.priorityQueue = new Array(maxSize);\n this.numberOfElements = -1;\n this.getElementValue = getElementValue;\n }\n\n public enqueue(x: T): void {\n this.priorityQueue[++this.numberOfElements] = x;\n this.swim(this.numberOfElements);\n }\n\n public dequeue(): T {\n const max = this.priorityQueue[0];\n this.exchange(0, this.numberOfElements--);\n this.sink(0);\n this.priorityQueue[this.numberOfElements + 1] = null;\n return max;\n }\n\n public empty(): boolean {\n return this.numberOfElements === -1;\n }\n\n public size(): number {\n return this.numberOfElements + 1;\n }\n\n public all(): T[] {\n return this.priorityQueue.slice(0, this.numberOfElements + 1);\n }\n\n public max(): T {\n return this.priorityQueue[0];\n }\n\n private swim(k: number): void {\n while (k > 0 && this.less(half(k), k)) {\n this.exchange(k, half(k));\n k = half(k);\n }\n }\n\n private sink(k: number): void {\n while (2 * k <= this.numberOfElements) {\n let j = 2 * k;\n if (j < this.numberOfElements && this.less(j, j + 1)) {\n j++;\n }\n if (!this.less(k, j)) {\n break;\n }\n this.exchange(k, j);\n k = j;\n }\n }\n\n private getValueAt(i: number): number {\n return this.getElementValue(this.priorityQueue[i]);\n }\n\n private less(i: number, j: number): boolean {\n return this.getValueAt(i) < this.getValueAt(j);\n }\n\n private exchange(i: number, j: number): void {\n const t = this.priorityQueue[i];\n this.priorityQueue[i] = this.priorityQueue[j];\n this.priorityQueue[j] = t;\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========\n */\n\nimport {PartWithScore, TensorBuffer3D} from '../types';\n\nimport {MaxHeap} from './max_heap';\n\nfunction scoreIsMaximumInLocalWindow(\n keypointId: number, score: number, heatmapY: number, heatmapX: number,\n localMaximumRadius: number, scores: TensorBuffer3D): boolean {\n const [height, width] = scores.shape;\n\n let localMaximum = true;\n const yStart = Math.max(heatmapY - localMaximumRadius, 0);\n const yEnd = Math.min(heatmapY + localMaximumRadius + 1, height);\n for (let yCurrent = yStart; yCurrent < yEnd; ++yCurrent) {\n const xStart = Math.max(heatmapX - localMaximumRadius, 0);\n const xEnd = Math.min(heatmapX + localMaximumRadius + 1, width);\n for (let xCurrent = xStart; xCurrent < xEnd; ++xCurrent) {\n if (scores.get(yCurrent, xCurrent, keypointId) > score) {\n localMaximum = false;\n break;\n }\n }\n if (!localMaximum)
{\n break;\n }\n }\n\n return localMaximum;\n}\n\n/**\n * Builds a priority queue with part candidate positions for a specific image in\n * the batch. For this we find all local maxima in the score maps with score\n * values above a threshold. We create a single priority queue across all parts.\n */\nexport function

buildPartWithScoreQueue(\n scoreThreshold: number, localMaximumRadius: number,\n scores: TensorBuffer3D): MaxHeap<PartWithScore> {\n const [height, width, numKeypoints] = scores.shape;\n\n const queue = new MaxHeap<PartWithScore>(\n height * width * numKeypoints, ({score}) => score);\n\n for (let heatmapY = 0; heatmapY < height; ++heatmapY) {\n for (let heatmapX = 0; heatmapX < width; ++heatmapX) {\n for (let keypointId = 0; keypointId < numKeypoints; ++keypointId) {\n const score = scores.get(heatmapY, heatmapX, keypointId);\n\n // Only consider parts with score greater or equal to threshold as\n // root candidates.\n if (score < scoreThreshold) {\n continue;\n }\n\n // Only consider keypoints whose score is maximum in a local window.\n if (scoreIsMaximumInLocalWindow(\n keypointId, score, heatmapY, heatmapX, localMaximumRadius,\n scores)) {\n queue.enqueue({score, part: {heatmapY, heatmapX, id: keypointId}});\n }\n }\n }\n }\n\n return queue;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {NumberTuple, PART_IDS, PART_NAMES, POSE_CHAIN} from '../keypoints';\nimport {Keypoint, PartWithScore, TensorBuffer3D, Vector2D} from '../types';\n\nimport {clamp, getOffsetPoint} from './util';\nimport {addVectors, getImageCoords} from './util';\n\nconst parentChildrenTuples: NumberTuple[] = POSE_CHAIN.map(\n ([parentJoinName, childJoinName]): NumberTuple =>\n ([PART_IDS[parentJoinName], PART_IDS[childJoinName]]));\n\nconst parentToChildEdges: number[] =\n parentChildrenTuples.map(([, childJointId]) => childJointId);\n\nconst childToParentEdges: number[] =\n parentChildrenTuples.map(([\n parentJointId,\n]) => parentJointId);\n\nfunction getDisplacement(\n edgeId: number, point: Vector2D, displacements: TensorBuffer3D): Vector2D {\n const numEdges =\n displacements.shape[2] / 2;\n return {\n y: displacements.get(point.y, point.x, edgeId),\n x: displacements.get(point.y, point.x, numEdges + edgeId)\n };\n}\n\nfunction getStridedIndexNearPoint(\n point: Vector2D, outputStride: number, height: number,\n width: number): Vector2D {\n return {\n y: clamp(Math.round(point.y / outputStride), 0, height - 1),\n x: clamp(Math.round(point.x / outputStride), 0, width - 1)\n };\n}\n\n/**\n * We get a new keypoint along the `edgeId` for the pose instance, assuming\n * that the position of the `idSource` part is already known. For this, we\n * follow the displacement vector from the source to target part (stored in\n * the `i`-t channel of the displacement tensor). The displaced keypoint\n * vector is refined using the offset vector by `offsetRefineStep` times.\n */\nfunction traverseToTargetKeypoint(\n edgeId: number, sourceKeypoint: Keypoint, targetKeypointId: number,\n scoresBuffer: TensorBuffer3D, offsets: TensorBuffer3D,\n outputStride: number,\n displacements: TensorBuffer3D, offsetRefineStep = 2): Keypoint {\n const [height, width] = scoresBuffer.shape;\n\n // Nearest neighbor interpolation for the source->target displacements.\n const sourceKeypointIndices = getStridedIndexNearPoint(\n sourceKeypoint.position, outputStride, height, width);\n\n const displacement =\n getDisplacement(edgeId, sourceKeypointIndices, displacements);\n\n const displacedPoint = addVectors(sourceKeypoint.position, displacement);\n let targetKeypoint = displacedPoint;\n for (let i = 0; i < offsetRefineStep; i++) {\n const targetKeypointIndices =\n getStridedIndexNearPoint(targetKeypoint, outputStride, height, width);\n\n const offsetPoint = getOffsetPoint(\n targetKeypointIndices.y, targetKeypointIndices.x, targetKeypointId,\n offsets);\n\n targetKeypoint = addVectors(\n {\n x: targetKeypointIndices.x * outputStride,\n y: targetKeypointIndices.y * outputStride\n },\n {x: offsetPoint.x, y: offsetPoint.y});\n }\n const targetKeyPointIndices =\n getStridedIndexNearPoint(targetKeypoint, outputStride, height, width);\n const score = scoresBuffer.get(\n targetKeyPointIndices.y, targetKeyPointIndices.x, targetKeypointId);\n\n return {position: targetKeypoint, part:

PART_NAMES[targetKeypointId], score};\n}\n\n/**\n * Follows the displacement fields to decode the full pose of the object\n * instance given the position of a part that acts as root.\n *\n * @return An array of decoded keypoints and their scores for a single pose\n */\nexport function decodePose(\n root: PartWithScore, scores: TensorBuffer3D, offsets: TensorBuffer3D,\n outputStride: number, displacementsFwd: TensorBuffer3D,\n displacementsBwd: TensorBuffer3D): Keypoint[] {\n const numParts = scores.shape[2];\n const numEdges = parentToChildEdges.length;\n\n const instanceKeypoints: Keypoint[] = new Array(numParts);\n // Start a new detection instance at the position of the root.\n const {part: rootPart, score: rootScore} = root;\n const rootPoint = getImageCoords(rootPart, outputStride, offsets);\n\n instanceKeypoints[rootPart.id] = {\n score: rootScore,\n part: PART_NAMES[rootPart.id],\n position: rootPoint\n };\n\n // Decode the part positions upwards in the tree, following the backward\n // displacements.\n for (let edge = numEdges - 1; edge >= 0; --edge) {\n const sourceKeypointId = parentToChildEdges[edge];\n const targetKeypointId = childToParentEdges[edge];\n if (instanceKeypoints[sourceKeypointId] &&\n !instanceKeypoints[targetKeypointId]) {\n instanceKeypoints[targetKeypointId] = traverseToTargetKeypoint(\n edge, instanceKeypoints[sourceKeypointId], targetKeypointId, scores,\n offsets, outputStride, displacementsBwd);\n }\n }\n\n // Decode the part positions downwards in the tree, following the forward\n // displacements.\n for (let edge = 0; edge < numEdges; ++edge) {\n const sourceKeypointId = childToParentEdges[edge];\n const targetKeypointId = parentToChildEdges[edge];\n if (instanceKeypoints[sourceKeypointId] &&\n !instanceKeypoints[targetKeypointId]) {\n instanceKeypoints[targetKeypointId] = traverseToTargetKeypoint(\n edge, instanceKeypoints[sourceKeypointId], targetKeypointId, scores,\n offsets, outputStride, displacementsFwd);\n }\n }\n\n return instanceKeypoints;\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Keypoint, Pose, TensorBuffer3D} from '../types';\n\nimport {buildPartWithScoreQueue} from './build_part_with_score_queue';\nimport {decodePose} from './decode_pose';\nimport {getImageCoords, squaredDistance} from './util';\n\nfunction withinNmsRadiusOfCorrespondingPoint(\n poses: Pose[], squaredNmsRadius: number, {x, y}: {x: number, y: number},\n keypointId: number): boolean {\n return poses.some(({keypoints}) => {\n const correspondingKeypoint = keypoints[keypointId].position;\n return squaredDistance(\n y, x, correspondingKeypoint.y, correspondingKeypoint.x) <=\n squaredNmsRadius;\n });\n}\n\n/* Score the newly proposed object instance without taking into account\n * the scores of the parts that overlap with any previously detected\n * instance.\n */\nfunction getInstanceScore(\n existingPoses: Pose[], squaredNmsRadius: number,\n instanceKeypoints: Keypoint[]): number {\n let notOverlappedKeypointScores = instanceKeypoints.reduce(\n (result, {position, score}, keypointId): number => {\n if (!withinNmsRadiusOfCorrespondingPoint(\n existingPoses, squaredNmsRadius, position, keypointId)) {\n result += score;\n }\n return result;\n }, 0.0);\n\n return notOverlappedKeypointScores /= instanceKeypoints.length;\n}\n\n// A point (y, x) is considered as root part candidate if its score is a\n// maximum in a window |y - y'| <= kLocalMaximumRadius, |x - x'| <=\n// kLocalMaximumRadius.\nconst kLocalMaximumRadius = 1;\n\n/**\n * Detects multiple poses and finds their parts from part scores and\n * displacement vectors. It returns up to `maxDetections` object instance\n * detections in decreasing root score order. It works as follows: We first\n * create a priority queue with local part score maxima above\n * `scoreThreshold`, considering all parts at the same time. Then we\n * iteratively pull the top element of the queue (in decreasing score order)\n * and treat it as a root candidate for a new

object instance. To avoid\n * duplicate detections, we reject the root candidate if it is within a disk\n * of `nmsRadius` pixels from the corresponding part of a previously detected\n * instance, which is a form of part-based non-maximum suppression (NMS). If\n * the root candidate passes the NMS check, we start a new object instance\n * detection, treating the corresponding part as root and finding the\n * positions of the remaining parts by following the displacement vectors\n * along the tree-structured part graph. We assign to the newly detected\n * instance a score equal to the sum of scores of its parts which have not\n * been claimed by a previous instance (i.e., those at least `nmsRadius`\n * pixels away from the corresponding part of all previously detected\n * instances), divided by the total number of parts `numParts`.\n *\n * @param heatmapScores 3-D tensor with shape `[height, width, numParts]`.\n * The value of heatmapScores[y, x, k]` is the score of placing the `k`-th\n * object part at position `(y, x)`.\n *\n * @param offsets 3-D tensor with shape `[height, width, numParts * 2]`.\n * The value of [offsets[y, x, k], offsets[y, x, k + numParts]]` is the\n * short range offset vector of the `k`-th object part at heatmap\n * position `(y, x)`.\n *\n * @param displacementsFwd 3-D tensor of shape\n * `[height, width, 2 * num_edges]`, where `num_edges = num_parts - 1` is the\n * number of edges (parent-child pairs) in the tree. It contains the forward\n * displacements between consecutive part from the root towards the leaves.\n *\n * @param displacementsBwd 3-D tensor of shape\n * `[height, width, 2 * num_edges]`, where `num_edges = num_parts - 1` is the\n * number of edges (parent-child pairs) in the tree. It contains the backward\n * displacements between consecutive part from the root towards the leaves.\n *\n * @param outputStride The output stride that was used when feed-forwarding\n * through the PoseNet model. Must be 32, 16, or 8.\n *\n * @param maxPoseDetections Maximum number of returned instance detections per\n * image.\n *\n * @param scoreThreshold Only return instance detections that have root part\n * score greater or equal to this value. Defaults to 0.5.\n *\n * @param nmsRadius Non-maximum suppression part distance. It needs to be\n * strictly positive. Two parts suppress each other if they are less than\n * `nmsRadius` pixels away. Defaults to 20.\n *\n * @return An array of poses and their scores, each containing keypoints and\n * the corresponding keypoint scores.\n */\nexport function decodeMultiplePoses(\n scoresBuffer: TensorBuffer3D, offsetsBuffer: TensorBuffer3D,\n displacementsFwdBuffer: TensorBuffer3D,\n displacementsBwdBuffer: TensorBuffer3D, outputStride: number,\n maxPoseDetections: number, scoreThreshold = 0.5, nmsRadius = 20): Pose[] {\n const poses: Pose[] = [];\n\n const queue = buildPartWithScoreQueue(\n scoreThreshold, kLocalMaximumRadius, scoresBuffer);\n\n const squaredNmsRadius = nmsRadius * nmsRadius;\n\n // Generate at most maxDetections object instances per image in\n // decreasing root part score order.\n while (poses.length < maxPoseDetections && !queue.empty()) {\n // The top element in the queue is the next root candidate.\n const root = queue.dequeue();\n\n // Part-based non-maximum suppression: We reject a root candidate if it\n // is within a disk of `nmsRadius` pixels from the corresponding part of\n // a previously detected instance.\n const rootImageCoords =\n getImageCoords(root.part, outputStride, offsetsBuffer);\n if (withinNmsRadiusOfCorrespondingPoint(\n poses, squaredNmsRadius, rootImageCoords, root.part.id)) {\n continue;\n }\n\n // Start a new detection instance at the position of the root.\n const keypoints = decodePose(\n root, scoresBuffer, offsetsBuffer,\n outputStride, displacementsFwdBuffer,\n displacementsBwdBuffer);\n\n const score =\n getInstanceScore(poses, squaredNmsRadius, keypoints);\n\n poses.push({keypoints, score});\n }\n\n return poses;\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * https://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport * as tf from '@tensorflow/tfjs-core';\n\nimport {BaseModel} from './base_model';\n\nconst imageNetMean = [-123.15, -115.90, -103.06];\n\nexport class ResNet extends BaseModel {\n preprocessInput(input: tf.Tensor3D): tf.Tensor3D {\n return tf.add(input, imageNetMean);\n }\n\n nameOutputResults(results: tf.Tensor3D[]) {\n const [\n displacementBwd,\n displacementFwd,\n

heatmap,\n longOffsets,\n offsets,\n partHeatmaps,\n segmentation,\n partOffsets,\n] = results;\n return {\n offsets,\n segmentation,\n partHeatmaps,\n longOffsets,\n heatmap,\n displacementFwd,\n displacementBwd,\n partOffsets\n };\n }\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * https://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nconst RESNET50_BASE_URL =\n 'https://storage.googleapis.com/tfjs-models/savedmodel/bodypix/resnet50/';\nconst MOBILENET_BASE_URL =\n 'https://storage.googleapis.com/tfjs-models/savedmodel/bodypix/mobilenet/';\n\n// The BodyPix 2.0 ResNet50 models use the latest TensorFlow.js 1.0 model\n// format.\nexport function resNet50SavedModel(stride: number, quantBytes: number): string {\n const graphJson = `model-stride${stride}.json`;\n // quantBytes=4 corresponding to the non-quantized full-precision SavedModel.\n if (quantBytes === 4) {\n return RESNET50_BASE_URL + `float/` + graphJson;\n } else {\n return RESNET50_BASE_URL + `quant${quantBytes}/` + graphJson;\n }\n}\n\n// The BodyPix 2.0 MobileNetV1 models use the latest TensorFlow.js 1.0 model\n// format.\nexport function mobileNetSavedModel(\n stride: number, multiplier: number, quantBytes: number): string {\n const toStr: {[key: number]: string} = {1.0: '100', 0.75: '075', 0.50: '050'};\n const graphJson = `model-stride${stride}.json`;\n // quantBytes=4 corresponding to the non-quantized full-precision SavedModel.\n if (quantBytes === 4) {\n return MOBILENET_BASE_URL + `float/${toStr[multiplier]}/` + graphJson;\n } else {\n return MOBILENET_BASE_URL + `quant${quantBytes}/${toStr[multiplier]}/` +\n graphJson;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==========\n */\n\nimport * as tf from '@tensorflow/tfjs-core';\n\nimport {BodyPixInput, BodyPixOutputStride, Padding} from './types';\nimport {Pose, TensorBuffer3D} from './types';\nimport {BodyPixInternalResolution} from './types';\n\nfunction getSizeFromImageLikeElement(input: HTMLImageElement|\n HTMLCanvasElement|\n OffscreenCanvas): [number, number] {\n if ('offsetHeight' in input && input.offsetHeight !== 0\n && 'offsetWidth' in input && input.offsetWidth !== 0) {\n return [input.offsetHeight, input.offsetWidth];\n } else if (input.height != null && input.width != null) {\n return [input.height, input.width];\n } else {\n throw new Error(\n `HTMLImageElement must have height and width attributes set.`);\n }\n}\n\nfunction getSizeFromVideoElement(input: HTMLVideoElement): [number, number] {\n if (input.hasAttribute('height') && input.hasAttribute('width')) {\n // Prioritizes user specified height and width.\n // We can't test the .height and .width properties directly,\n // because they evaluate to 0 if unset.\n return [input.height, input.width];\n } else {\n return [input.videoHeight, input.videoWidth];\n }\n}\n\nexport function getInputSize(input: BodyPixInput): [number, number] {\n if ((typeof (HTMLCanvasElement) !== 'undefined' &&\n input instanceof HTMLCanvasElement) ||\n (typeof (OffscreenCanvas) !== 'undefined' &&\n input instanceof OffscreenCanvas) ||\n (typeof (HTMLImageElement) !== 'undefined' &&\n input instanceof HTMLImageElement)) {\n return getSizeFromImageLikeElement(input);\n } else if (typeof (ImageData) !== 'undefined' && input instanceof ImageData) {\n return [input.height,

```
input.width];\n  } else if (\n      typeof (HTMLVideoElement) !== 'undefined' &&\n      input instanceof
HTMLVideoElement) {\n    return getSizeFromVideoElement(input);\n  } else if (input instanceof tf.Tensor) {\n
return [input.shape[0], input.shape[1]];\n  } else {\n    throw new Error(`error: Unknown input type: ${input}.`);\n
}\n}\n\nfunction isValidInputResolution(\n    resolution: number, outputStride: number): boolean {\n  return
(resolution - 1) % outputStride === 0;\n}\n\nexport function toValidInputResolution(\n    inputResolution: number,
outputStride: BodyPixOutputStride): number {\n  if (isValidInputResolution(inputResolution, outputStride)) {\n
  return inputResolution;\n  }\n\n  return Math.floor(inputResolution / outputStride) * outputStride + 1;\n}\n\nconst
INTERNAL_RESOLUTION_STRING_OPTIONS = {\n  low: 'low',\n  medium: 'medium',\n  high: 'high',\n  full:
'full'\n};\n\nconst INTERNAL_RESOLUTION_PERCENTAGES = {\n
[INTERNAL_RESOLUTION_STRING_OPTIONS.low]: 0.25,\n
[INTERNAL_RESOLUTION_STRING_OPTIONS.medium]: 0.5,\n
[INTERNAL_RESOLUTION_STRING_OPTIONS.high]: 0.75,\n
[INTERNAL_RESOLUTION_STRING_OPTIONS.full]: 1.0\n};\n\nconst MIN_INTERNAL_RESOLUTION =
0.1;\nconst MAX_INTERNAL_RESOLUTION = 2.0;\n\nfunction toInternalResolutionPercentage(\n
internalResolution: BodyPixInternalResolution): number {\n  if (typeof internalResolution === 'string') {\n    const
result = INTERNAL_RESOLUTION_PERCENTAGES[internalResolution];\n\n    tf.util.assert(\n        typeof result
=== 'number',\n        () => `string value of inputResolution must be one of ${\n
Object.values(INTERNAL_RESOLUTION_STRING_OPTIONS)\n                .join(',')}
 but was ${internalResolution}.`);\n    return result;\n  } else {\n    tf.util.assert(\n        typeof internalResolution ===
'number' &&\n            internalResolution <= MAX_INTERNAL_RESOLUTION &&\n            internalResolution
>= MIN_INTERNAL_RESOLUTION,\n        () =>\n            `inputResolution must be a string or number between
${\n                MIN_INTERNAL_RESOLUTION} and ${MAX_INTERNAL_RESOLUTION}, but ` +\n
`was ${internalResolution}`);\n\n    return internalResolution;\n  }\n}\n\nexport function
toInputResolutionHeightAndWidth(\n    internalResolution: BodyPixInternalResolution,\n    outputStride:
BodyPixOutputStride,\n    [inputHeight, inputWidth]: [number, number]): [number, number] {\n  const
internalResolutionPercentage =\n      toInternalResolutionPercentage(internalResolution);\n\n  return [\n
toValidInputResolution(\n        inputHeight * internalResolutionPercentage, outputStride),\n
toValidInputResolution(\n        inputWidth * internalResolutionPercentage,
 outputStride)\n  ];\n}\n\nexport function toInputTensor(input: BodyPixInput) {\n  // TODO: tf.browser.fromPixels
types to support OffscreenCanvas\n  // @ts-ignore\n  return input instanceof tf.Tensor ? input :
tf.browser.fromPixels(input);\n}\n\nexport function resizeAndPadTo(\n    imageTensor: tf.Tensor3D, [targetH,
targetW]: [number, number],\n    flipHorizontal = false): {\n  resizedAndPadded: tf.Tensor3D,\n  paddedBy:
[[number, number], [number, number]]\n} {\n  const [height, width] = imageTensor.shape;\n\n  const targetAspect =
targetW / targetH;\n  const aspect = width / height;\n\n  let resizeW: number;\n  let resizeH: number;\n  let padL:
number;\n  let padR: number;\n  let padT: number;\n  let padB: number;\n\n  if (aspect > targetAspect) {\n    // resize
to have the larger dimension match the shape.\n    resizeW = targetW;\n    resizeH = Math.ceil(resizeW / aspect);\n\n
  const padHeight = targetH - resizeH;\n    padL = 0;\n    padR = 0;\n    padT = Math.floor(padHeight
 / 2);\n    padB = targetH - (resizeH + padT);\n  } else {\n    resizeH = targetH;\n    resizeW = Math.ceil(targetH *
aspect);\n\n    const padWidth = targetW - resizeW;\n    padL = Math.floor(padWidth / 2);\n    padR = targetW -
(resizeW + padL);\n    padT = 0;\n    padB = 0;\n  }\n\n  const resizedAndPadded = tf.tidy(() => {\n    // resize to
have largest dimension match image\n    let resized: tf.Tensor3D;\n    if (flipHorizontal) {\n      resized =
tf.image.resizeBilinear(\n          tf.reverse(imageTensor, 1), [resizeH, resizeW]);\n    } else {\n      resized =
tf.image.resizeBilinear(imageTensor, [resizeH, resizeW]);\n    }\n\n    const padded = tf.pad3d(resized, [[padT,
padB], [padL, padR], [0, 0]]);\n\n    return padded;\n  });\n\n  return {resizedAndPadded, paddedBy: [[padT, padB],
[padL, padR]]};\n}\n\nexport function scaleAndCropToInputTensorShape(\n    tensor: tf.Tensor3D,\n
[inputTensorHeight, inputTensorWidth]: [number, number],\n    [resizedAndPaddedHeight,
 resizedAndPaddedWidth]: [number, number],\n    [[padT, padB], [padL, padR]]: [[number, number], [number,
number]],\n    applySigmoidActivation = false): tf.Tensor3D {\n  return tf.tidy(() => {\n    let inResizedAndPadded:
```

tf.Tensor3D = tf.image.resizeBilinear(tensor,\n [resizedAndPaddedHeight, resizedAndPaddedWidth], true);\n\n if (applySigmoidActivation) {\n inResizedAndPadded = tf.sigmoid(inResizedAndPadded);\n }\n\n return removePaddingAndResizeBack(\n inResizedAndPadded, [inputTensorHeight, inputTensorWidth],\n [[padT, padB], [padL, padR]]);\n });\n}\n\nexport function removePaddingAndResizeBack(\n resizedAndPadded: tf.Tensor3D,\n [originalHeight, originalWidth]: [number, number],\n [[padT, padB], [padL, padR]]: [[number, number], [number, number]]):\n tf.Tensor3D {\n return tf.tidy(() => {\n const batchedImage: tf.Tensor4D = tf.expandDims(resizedAndPadded);\n return tf.squeeze(tf.image\n .cropAndResize(\n batchedImage, [[\n padT / (originalHeight + padT + padB - 1.0),\n padL / (originalWidth + padL + padR - 1.0),\n (padT + originalHeight - 1.0) /\n (originalHeight + padT + padB - 1.0),\n (padL + originalWidth - 1.0) / (originalWidth + padL + padR - 1.0)\n]],\n [0], [originalHeight, originalWidth]), [0]);\n });\n}\n\nexport function resize2d(\n tensor: tf.Tensor2D, resolution: [number, number],\n nearestNeighbor?: boolean): tf.Tensor2D {\n return tf.tidy(() => {\n const batchedImage: tf.Tensor4D = tf.expandDims(tensor, 2);\n return tf.squeeze(\n tf.image.resizeBilinear(batchedImage, resolution, nearestNeighbor));\n });\n}\n\nexport function padAndResizeTo(\n input: BodyPixInput, [targetH, targetW]: [number, number]):\n {resized: tf.Tensor3D, padding: Padding} {\n const [height, width] = getInputSize(input);\n const targetAspect = targetW / targetH;\n const aspect = width / height;\n let [padT, padB, padL, padR] = [0, 0, 0, 0];\n if (aspect < targetAspect) {\n // pads the width\n padT = 0;\n padB = 0;\n padL = Math.round(0.5 * (targetAspect * height - width));\n padR = Math.round(0.5 * (targetAspect * height - width));\n } else {\n // pads the height\n padT = Math.round(0.5 * ((1.0 / targetAspect) * width - height));\n padB = Math.round(0.5 * ((1.0 / targetAspect) * width - height));\n padL = 0;\n padR = 0;\n }\n\n const resized: tf.Tensor3D = tf.tidy(() => {\n let imageTensor = toInputTensor(input);\n imageTensor = tf.pad3d(imageTensor, [[padT, padB], [padL, padR], [0, 0]]);\n\n return tf.image.resizeBilinear(imageTensor, [targetH, targetW]);\n });\n\n return {resized, padding: {top: padT, left: padL, right: padR, bottom: padB}};\n}\n\nexport async function toTensorBuffers3D(tensors: tf.Tensor3D[]):\n Promise<TensorBuffer3D[]> {\n return Promise.all(tensors.map(tensor => tensor.buffer()));\n}\n\nexport function scalePose(\n pose: Pose, scaleY: number, scaleX: number, offsetY = 0,\n offsetX = 0): Pose {\n return {\n score: pose.score,\n keypoints: pose.keypoints.map(({score, part, position}) => ({\n score,\n part,\n position: {\n x: position.x * scaleX + offsetX,\n y: position.y * scaleY + offsetY\n }\n }))\n };\n}\n\nexport function scalePoses(\n poses: Pose[], scaleY: number, scaleX: number, offsetY = 0, offsetX = 0) {\n if (scaleX === 1 && scaleY === 1 && offsetY === 0 && offsetX === 0) {\n return poses;\n }\n return poses.map(pose => scalePose(pose, scaleY, scaleX, offsetY, offsetX));\n}\n\nexport function flipPoseHorizontal(pose: Pose, imageWidth: number): Pose {\n return {\n score: pose.score,\n keypoints: pose.keypoints.map(\n ({score, part, position}) => ({\n score,\n part,\n position: {x: imageWidth - 1 - position.x, y: position.y}\n }))\n };\n}\n\nexport function flipPosesHorizontal(poses: Pose[], imageWidth: number) {\n if (imageWidth <= 0) {\n return poses;\n }\n return poses.map(pose => flipPoseHorizontal(pose, imageWidth));\n}\n\nexport function scaleAndFlipPoses(\n poses: Pose[], [height, width]: [number, number],\n [inputResolutionHeight, inputResolutionWidth]: [number, number],\n padding: Padding, flipHorizontal: boolean): Pose[] {\n const scaleY =\n (height + padding.top + padding.bottom) / (inputResolutionHeight);\n const scaleX =\n (width + padding.left + padding.right) / (inputResolutionWidth);\n\n const scaledPoses =\n scalePoses(poses, scaleY, scaleX, -padding.top, -padding.left);\n\n if (flipHorizontal) {\n return flipPosesHorizontal(scaledPoses, width);\n } else {\n return scaledPoses;\n }\n}\n","\n/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the

```
License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport * as tfconv from '@tensorflow/tfjs-converter';\nimport * as tf from '@tensorflow/tfjs-core';\n\nimport {BaseModel} from './base_model';\nimport {decodeOnlyPartSegmentation, decodePartSegmentation, toMaskTensor} from './decode_part_map';\nimport {MobileNet} from './mobilenet';\nimport {decodePersonInstanceMasks, decodePersonInstancePartMasks} from './multi_person/decode_instance_masks';\nimport {decodeMultiplePoses} from './multi_person/decode_multiple_poses';\nimport {ResNet} from './resnet';\nimport {mobileNetSavedModel, resNet50SavedModel} from './saved_models';\nimport {BodyPixArchitecture, BodyPixInput, BodyPixInternalResolution, BodyPixMultiplier, BodyPixOutputStride, BodyPixQuantBytes, Padding} from './types';\nimport {PartSegmentation, PersonSegmentation, SemanticPartSegmentation, SemanticPersonSegmentation} from './types';\nimport {getInputSize, padAndResizeTo, scaleAndCropToInputTensorShape, scaleAndFlipPoses, toInputResolutionHeightAndWidth, toTensorBuffers3D} from './util';\n\nconst APPLY_SIGMOID_ACTIVATION = true;\nconst FLIP_POSES_AFTER_SCALING = false;\n\n/**\n * BodyPix model loading is configurable using the following config dictionary.\n *\n * `architecture`: BodyPixArchitecture. It determines which BodyPix architecture\n * to load. The supported architectures are: MobileNetV1 and ResNet50.\n *\n * `outputStride`: Specifies the output stride of the BodyPix model.\n * The smaller the value, the larger the output resolution, and more accurate\n * the model at the cost of speed. Set this to a larger value to increase speed\n * at the cost of accuracy. Stride 32 is supported for ResNet and\n * stride 8,16,32 are supported for various MobileNetV1 models.\n *\n * `multiplier`: An optional number with values: 1.01, 1.0, 0.75, or\n * 0.50. The value is used only by MobileNet architecture. It is the float\n * multiplier for the depth (number of channels) for all convolution ops.\n * The larger the value, the larger the size of the layers, and more accurate\n * the model at the cost of speed. Set this to a smaller value to increase speed\n * at the cost of accuracy.\n *\n * `modelUrl`: An optional string that specifies custom url of the model. This\n * is useful for area/countries that don't have access to the model hosted on\n * GCP.\n *\n * `quantBytes`: An optional number with values: 1, 2, or 4.  This parameter\n * affects weight quantization in the models. The available options are\n * 1 byte, 2 bytes, and 4 bytes. The higher the value, the larger the model size\n * and thus the longer the loading time, the lower the value, the shorter the\n * loading time but lower the accuracy.\n */\nexport interface ModelConfig {\n  architecture: BodyPixArchitecture;\n  outputStride: BodyPixOutputStride;\n  multiplier?: BodyPixMultiplier;\n  modelUrl?: string;\n  quantBytes?: BodyPixQuantBytes;\n}\n\n// The default configuration for loading MobileNetV1 based BodyPix.\n//\n// (And for references, the default configuration for loading ResNet\n// based PoseNet is also included).\n//\n// ```\n// const RESNET_CONFIG = {\n//   architecture: 'ResNet50',\n//   outputStride: 32,\n//   quantBytes: 4,\n// } as ModelConfig;\n// ```\n\nconst MOBILENET_V1_CONFIG = {\n  architecture: 'MobileNetV1',\n  outputStride: 16,\n  quantBytes: 4,\n  multiplier: 0.75,\n} as ModelConfig;\n\nconst VALID_ARCHITECTURE: BodyPixArchitecture[] = ['MobileNetV1', 'ResNet50'];\nconst VALID_STRIDE: {[id: string]: BodyPixOutputStride[]} = {\n  'MobileNetV1': [8, 16, 32],\n  'ResNet50': [32, 16]\n};\nconst VALID_MULTIPLIER: {[id: string]: BodyPixMultiplier[]} = {\n  'MobileNetV1': [0.50, 0.75, 1.0],\n  'ResNet50': [1.0]\n};\nconst VALID_QUANT_BYTES: BodyPixQuantBytes[] = [1, 2, 4];\n\nfunction validateModelConfig(config: ModelConfig): ModelConfig {\n  config = config || MOBILENET_V1_CONFIG;\n\n  if (config.architecture == null) {\n    config.architecture = 'MobileNetV1';\n  }\n  if (VALID_ARCHITECTURE.indexOf(config.architecture) < 0) {\n    throw new Error(\n        `Invalid architecture ${config.architecture}. ` +\n        `Should be one of ${VALID_ARCHITECTURE}`);\n  }\n  if (config.outputStride == null) {\n    config.outputStride = 16;\n  }\n  if (VALID_STRIDE[config.architecture].indexOf(config.outputStride) < 0) {\n    throw new Error(\n        `Invalid outputStride ${config.outputStride}. ` +\n        `Should be one of ${VALID_STRIDE[config.architecture]} ` +\n        `for architecture ${config.architecture}.`);\n  }\n\n  if
```

(config.multiplier == null) {\n config.multiplier = 1.0;\n }\n if (VALID_MULTIPLIER[config.architecture].indexOf(config.multiplier) < 0) {\n throw new Error(\n `Invalid multiplier ${config.multiplier}. ` +\n `Should be one of ${VALID_MULTIPLIER[config.architecture]} ` +\n `for architecture ${config.architecture}.`);\n }\n\n if (config.quantBytes == null) {\n config.quantBytes = 4;\n }\n if (VALID_QUANT_BYTES.indexOf(config.quantBytes) < 0) {\n throw new Error(\n `Invalid quantBytes ${config.quantBytes}. ` +\n `Should be one of ${VALID_QUANT_BYTES} ` +\n `for architecture ${config.architecture}.`);\n }\n\n return config;\n}\n\n/**\n * BodyPix inference is configurable using the following config dictionary.\n *\n * `flipHorizontal`: If the left-right keypoint of poses/part segmentation\n * should be flipped/mirrored horizontally. This should be set to true for\n * videos where the video is by default flipped horizontally (i.e. a webcam),\n * and you want the person & body part segmentation to be returned in the proper\n * orientation.\n *\n * `internalResolution`: Defaults to 'medium'. The internal resolution\n * percentage that the input is resized to before inference. The larger the\n * internalResolution the more accurate the model at the cost of slower\n * prediction times. Available values are 'low', 'medium', 'high', 'full', or a\n * percentage value between 0 and 1. The values 'low', 'medium', 'high', and\n * 'full' map to 0.25, 0.5, 0.75, and 1.0 correspondingly.\n *\n * `segmentationThreshold`: The minimum that segmentation values must\n * have to be considered part of the person. Affects the generation of the\n * segmentation mask. More specifically, it is the threshold
used to binarize\n * the intermediate person segmentation probability. The probability of each\n * pixel belongs to a person is in range [0, 1]. If the probability is greater\n * than the `segmentationThreshold`, it will be set to 1 otherwise 0.\n *\n */\nexport interface InferenceConfig {\n flipHorizontal?: boolean;\n internalResolution?: BodyPixInternalResolution;\n segmentationThreshold?: number;\n}\n\n/**\n * Person Inference Config\n *\n * `maxDetections`: Defaults to 10. Maximum number of person pose detections per\n * image.\n *\n * `scoreThreshold`: Defaults to 0.4. Only return person pose that have root\n * part score greater or equal to this value.\n *\n * `nmsRadius`: Defaults to 20. Non-maximum suppression part distance in pixels.\n * It needs to be strictly positive. Two pose keypoints suppress each other if\n * they are less than `nmsRadius` pixels away.\n */\nexport interface PersonInferenceConfig extends InferenceConfig {\n maxDetections?: number;\n scoreThreshold?:
number;\n nmsRadius?: number;\n}\n\n/**\n * Multiple Person Instance Inference Config\n *\n * `maxDetections`: Defaults to 10. Maximum number of returned instance\n * segmentation and pose detections per image.\n *\n * `scoreThreshold`: Defaults to 0.4. Only returns and uses person\n * poses for instance segmentation assignment when the pose has root part score\n * greater or equal to this value.\n *\n * `nmsRadius`: Defaults to 20. Non-maximum suppression part distance in pixels.\n * It needs to be strictly positive. Two parts suppress each other if they are\n * less than `nmsRadius` pixels away.\n *\n * `minKeypointScore`: Default to 0.3. Keypoints above the score are used\n * for matching and assigning segmentation mask to each person.\n *\n * `refineSteps`: Default to 10. The number of refinement steps used when\n * assigning the instance segmentation. It needs to be strictly positive. The\n * larger the higher the accuracy and slower the inference.\n *\n */\nexport interface MultiPersonInstanceInferenceConfig
extends InferenceConfig {\n maxDetections?: number;\n scoreThreshold?: number;\n nmsRadius?: number;\n minKeypointScore?: number;\n refineSteps?: number;\n}\n\nexport const PERSON_INFERENCE_CONFIG: PersonInferenceConfig = {\n flipHorizontal: false,\n internalResolution: 'medium',\n segmentationThreshold: 0.7,\n maxDetections: 10,\n scoreThreshold: 0.4,\n nmsRadius: 20,\n};\n\nexport const MULTI_PERSON_INSTANCE_INFERENCE_CONFIG:\n MultiPersonInstanceInferenceConfig = {\n flipHorizontal: false,\n internalResolution: 'medium',\n segmentationThreshold: 0.7,\n maxDetections: 10,\n scoreThreshold: 0.4,\n nmsRadius: 20,\n minKeypointScore: 0.3,\n refineSteps: 10\n};\n\nfunction validatePersonInferenceConfig(config: PersonInferenceConfig) {\n const {segmentationThreshold, maxDetections, scoreThreshold, nmsRadius} =\n config;\n\n if (segmentationThreshold < 0.0 || segmentationThreshold > 1.0) {\n

```
  throw new Error(\n      `segmentationThreshold ${segmentationThreshold}. ` +\n      `Should be in range [0.0, 1.0]`);\n  }\n\n  if (maxDetections <= 0) {\n    throw new Error(\n        `Invalid maxDetections ${maxDetections}. ` +\n        `Should be > 0`);\n  }\n\n  if (scoreThreshold < 0.0 || scoreThreshold > 1.0) {\n    throw new Error(\n `Invalid scoreThreshold ${scoreThreshold}. ` +\n        `Should be in range [0.0, 1.0]`);\n  }\n\n  if (nmsRadius <= 0) {\n    throw new Error(`Invalid nmsRadius ${nmsRadius}.`);\n  }\n}\n\nfunction validateMultiPersonInstanceInferenceConfig(\n    config: MultiPersonInstanceInferenceConfig) {\n  const {\n segmentationThreshold,\n    maxDetections,\n    scoreThreshold,\n    nmsRadius,\n    minKeypointScore,\n refineSteps\n  } = config;\n\n  if (segmentationThreshold < 0.0 || segmentationThreshold > 1.0) {\n    throw new Error(\n        `segmentationThreshold ${segmentationThreshold}. ` +\n        `Should be in range [0.0, 1.0]`);\n  }\n\n  if (maxDetections <= 0) {\n    throw new Error(\n        `Invalid maxDetections ${maxDetections}. ` +\n `Should be > 0`);\n  }\n\n  if (scoreThreshold < 0.0 || scoreThreshold > 1.0) {\n    throw new Error(\n        `Invalid scoreThreshold ${scoreThreshold}. ` +\n        `Should be in range [0.0, 1.0]`);\n  }\n\n  if (nmsRadius <= 0) {\n throw new Error(`Invalid nmsRadius ${nmsRadius}.`);\n  }\n\n  if (minKeypointScore < 0 || minKeypointScore > 1) {\n    throw new Error(\n        `Invalid minKeypointScore ${minKeypointScore}.` +\n        `Should be in range [0.0, 1.0]`);\n  }\n\n  if (refineSteps <= 0 || refineSteps > 20) {\n    throw new Error(\n        `Invalid refineSteps ${refineSteps}.` +\n        `Should be in range [1, 20]`);\n  }\n}\n\nexport class BodyPix {\n  baseModel: BaseModel;\n\n  constructor(net: BaseModel) {\n    this.baseModel = net;\n  }\n\n  private predictForPersonSegmentation(input: tf.Tensor3D): {\n    segmentLogits: tf.Tensor3D,\n    heatmapScores: tf.Tensor3D,\n    offsets: tf.Tensor3D,\n    displacementFwd: tf.Tensor3D,\n    displacementBwd: tf.Tensor3D,\n  } {\n    const {\n      segmentation,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n    } = this.baseModel.predict(input);\n    return {\n      segmentLogits: segmentation,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n    };\n  }\n\n  private predictForPersonSegmentationAndPart(input: tf.Tensor3D): {\n    segmentLogits: tf.Tensor3D,\n    partHeatmapLogits: tf.Tensor3D,\n    heatmapScores: tf.Tensor3D,\n    offsets: tf.Tensor3D,\n    displacementFwd: tf.Tensor3D,\n    displacementBwd: tf.Tensor3D,\n  } {\n    const {\n      segmentation,\n      partHeatmaps,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd\n    } = this.baseModel.predict(input);\n    return {\n      segmentLogits: segmentation,\n      partHeatmapLogits: partHeatmaps,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n    };\n  }\n\n  private predictForMultiPersonInstanceSegmentationAndPart(input: tf.Tensor3D):\n      {\n        segmentLogits: tf.Tensor3D,\n        longOffsets: tf.Tensor3D,\n        heatmapScores: tf.Tensor3D,\n        offsets: tf.Tensor3D,\n        displacementFwd: tf.Tensor3D,\n        displacementBwd: tf.Tensor3D,\n        partHeatmaps: tf.Tensor3D\n      } {\n    const {\n      segmentation,\n      longOffsets,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n      partHeatmaps,\n    } = this.baseModel.predict(input);\n    return {\n      segmentLogits: segmentation,\n      longOffsets,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n      partHeatmaps\n    };\n  }\n\n  /**\n   * Given an image with people, returns a dictionary of all intermediate\n   * tensors including: 1) a binary array with 1 for the pixels that are part of\n   * the person, and 0 otherwise, 2) heatmapScores, 3) offsets, and 4) paddings.\n   *\n   * @param input ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement)\n   * The input image to feed through the network.\n   *\n   * @param internalResolution Defaults to 'medium'. The internal resolution\n   * that the input is resized to before inference. The larger the\n   * internalResolution the more accurate the model at the cost of slower\n   * prediction times. Available values are 'low', 'medium', 'high', 'full', or\n   * a percentage value between 0 and 1. The values 'low', 'medium', 'high', and\n   * 'full' map to 0.25, 0.5, 0.75, and 1.0 correspondingly.\n   *\n   * @param segmentationThreshold The minimum that segmentation values must have\n   * to be considered part of the person. Affects the generation of the\n   * segmentation mask.\n   *\n   * @return A dictionary containing `segmentation`, `heatmapScores`, `offsets`,\n   * and `padding`:\n   * - `segmentation`: A 2d Tensor with 1 for the pixels that are part of the\n   * person, and 0 otherwise. The width and height correspond to the same\n   * dimensions of the input image.\n   * - `heatmapScores`: A 3d Tensor of the keypoint heatmaps used by\n   * pose estimation decoding.\n   * - `offsets`: A 3d Tensor of the keypoint offsets used by pose\n   * estimation decoding.\n
```

```
* - `displacementFwd`: A 3d Tensor of the keypoint forward displacement used\n   * by pose estimation decoding.\n   * - `displacementBwd`: A 3d Tensor of the keypoint backward displacement used\n   * by pose estimation decoding.\n   * - `padding`: The padding (unit pixels) being applied to the input image\n   * before it is fed into the model.\n   */\n  segmentPersonActivation(\n      input: BodyPixInput, internalResolution:
BodyPixInternalResolution,\n      segmentationThreshold = 0.5): {\n    segmentation: tf.Tensor2D,\n
heatmapScores: tf.Tensor3D,\n    offsets: tf.Tensor3D,\n    displacementFwd: tf.Tensor3D,\n    displacementBwd:
tf.Tensor3D,\n
    padding: Padding,\n    internalResolutionHeightAndWidth: [number, number]\n  } {\n    const [height, width] =
getInputSize(input);\n    const internalResolutionHeightAndWidth = toInputResolutionHeightAndWidth(\n
internalResolution, this.baseModel.outputStride, [height, width]);\n    const {resized, padding} =\n
padAndResizeTo(input, internalResolutionHeightAndWidth);\n\n    const {\n      segmentation,\n
heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd\n    } = tf.tidy(() => {\n      const {\n
segmentLogits,\n      heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd\n    } =
this.predictForPersonSegmentation(resized);\n\n      const [resizedHeight, resizedWidth] = resized.shape;\n\n
const scaledSegmentScores = scaleAndCropToInputTensorShape(\n          segmentLogits, [height, width],
[resizedHeight, resizedWidth],\n          [[padding.top, padding.bottom], [padding.left, padding.right]],\n
          APPLY_SIGMOID_ACTIVATION);\n\n      return {\n        segmentation: toMaskTensor(\n
tf.squeeze(scaledSegmentScores), segmentationThreshold),\n        heatmapScores,\n        offsets,\n
displacementFwd,\n        displacementBwd,\n      };\n    });\n    resized.dispose();\n    return {\n      segmentation,\n
heatmapScores,\n      offsets,\n      displacementFwd,\n      displacementBwd,\n      padding,\n
internalResolutionHeightAndWidth\n    };\n  }\n\n  /**\n   * Given an image with many people, returns a
PersonSegmentation dictionary\n   * that contains the segmentation mask for all people and a single pose.\n   *\n   *
Note: The segmentation mask returned by this method covers all people but\n   * the pose works well for one
person. If you want to estimate instance-level\n   * multiple person segmentation & pose for each person, use\n   *
`segmentMultiPerson` instead.\n   *\n   * @param input
ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement)\n
  * The input image to feed through the network.\n   *\n   * @param config PersonInferenceConfig object that
contains\n   * parameters for the BodyPix inference using person decoding.\n   *\n   * @return A
SemanticPersonSegmentation dictionary that contains height,\n   * width, the flattened binary segmentation mask
and the poses for all people.\n   * The width and height correspond to the same dimensions of the input image.\n   * -
`height`: The height of the segmentation data in pixel unit.\n   * - `width`: The width of the segmentation data in
pixel unit.\n   * - `data`: The flattened Uint8Array of segmentation data. 1 means the pixel\n   * belongs to a person
and 0 means the pixel doesn't belong to a person. The\n   * size of the array is equal to `height` x `width` in row-
major order.\n   * - `allPoses`: The 2d poses of all people.\n   */\n  async segmentPerson(\n      input:
BodyPixInput,\n      config: PersonInferenceConfig = PERSON_INFERENCE_CONFIG):\n
 Promise<SemanticPersonSegmentation> {\n    config = {...PERSON_INFERENCE_CONFIG, ...config};\n\n
validatePersonInferenceConfig(config);\n\n    const {\n      segmentation,\n      heatmapScores,\n      offsets,\n
displacementFwd,\n      displacementBwd,\n      padding,\n      internalResolutionHeightAndWidth\n    } =\n
this.segmentPersonActivation(\n          input, config.internalResolution, config.segmentationThreshold);\n\n
const [height, width] = segmentation.shape;\n\n    const result = await segmentation.data() as Uint8Array;\n
segmentation.dispose();\n\n    const tensorBuffers = await toTensorBuffers3D(\n        [heatmapScores, offsets,
displacementFwd, displacementBwd]);\n    const [scoresBuf, offsetsBuf, displacementsFwdBuf,
displacementsBwdBuf] =\n        tensorBuffers;\n\n    let poses = decodeMultiplePoses(\n        scoresBuf, offsetsBuf,
displacementsFwdBuf, displacementsBwdBuf,\n        this.baseModel.outputStride, config.maxDetections,\n
config.scoreThreshold,
 config.nmsRadius);\n\n    poses = scaleAndFlipPoses(\n        poses, [height, width],
internalResolutionHeightAndWidth, padding,\n        FLIP_POSES_AFTER_SCALING);\n\n
heatmapScores.dispose();\n    offsets.dispose();\n    displacementFwd.dispose();\n    displacementBwd.dispose();\n\n
```

```
return {height, width, data: result, allPoses: poses};\n  }\n\n  /**\n   * Given an image with multiple people, returns an *array* of\n   * PersonSegmentation object. Each element in the array corresponding to one\n   * of the people in the input image. In other words, it predicts\n   * instance-level multiple person segmentation & pose for each person.\n   *\n   * The model does standard ImageNet pre-processing before inferring through\n   * the model. The image pixels should have values [0-255].\n   *\n   * @param input\n   * ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement) The input\n   * image to feed through the network.\n   *\n   * @param config MultiPersonInferenceConfig
 object that contains\n   * parameters for the BodyPix inference using multi-person decoding.\n   *\n   * @return An array of PersonSegmentation object, each containing a width,\n   * height, a binary array (1 for the pixels that are part of the\n   * person, and 0 otherwise) and 2D pose. The array size corresponds to the\n   * number of pixels in the image. The width and height correspond to the\n   * dimensions of the image the binary array is shaped to, which are the same\n   * dimensions of the input image.\n   */\n  async segmentMultiPerson(\n      input: BodyPixInput,\n  config: MultiPersonInstanceInferenceConfig =\n          MULTI_PERSON_INSTANCE_INFERENCE_CONFIG):\n      Promise<PersonSegmentation[]> {\n    config = {...MULTI_PERSON_INSTANCE_INFERENCE_CONFIG, ...config};\n    validateMultiPersonInstanceInferenceConfig(config);\n    const [height, width] = getInputSize(input);\n    const internalResolutionHeightAndWidth = toInputResolutionHeightAndWidth(\n  config.internalResolution, this.baseModel.outputStride,\n        [height, width]);\n\n    const {resized, padding} =\n      padAndResizeTo(input, internalResolutionHeightAndWidth);\n    const {\n      segmentation,\n      longOffsets,\n  heatmapScoresRaw,\n      offsetsRaw,\n      displacementFwdRaw,\n      displacementBwdRaw,\n    } = tf.tidy(() => {\n      const {\n        segmentLogits,\n        longOffsets,\n        heatmapScores,\n        offsets,\n  displacementFwd,\n        displacementBwd,\n      } =
this.predictForMultiPersonInstanceSegmentationAndPart(resized);\n      const scaledSegmentScores =
scaleAndCropToInputTensorShape(\n          segmentLogits, [height, width], internalResolutionHeightAndWidth,\n
    [[padding.top, padding.bottom], [padding.left, padding.right]],\n          APPLY_SIGMOID_ACTIVATION);\n
const longOffsetsResized = false;\n      let scaledLongOffsets;\n      if (longOffsetsResized) {\n
scaledLongOffsets = scaleAndCropToInputTensorShape(\n
          longOffsets, [height, width], internalResolutionHeightAndWidth,\n          [[padding.top, padding.bottom],
[padding.left, padding.right]],\n          APPLY_SIGMOID_ACTIVATION);\n      } else {\n        scaledLongOffsets
= longOffsets;\n      }\n\n      const segmentation = toMaskTensor(\n          tf.squeeze(scaledSegmentScores),
config.segmentationThreshold);\n\n      return {\n        segmentation,\n        longOffsets: scaledLongOffsets,\n
heatmapScoresRaw: heatmapScores,\n        offsetsRaw: offsets,\n        displacementFwdRaw: displacementFwd,\n
  displacementBwdRaw: displacementBwd,\n      };\n    });\n\n    const tensorBuffers = await toTensorBuffers3D(\n
    [heatmapScoresRaw, offsetsRaw, displacementFwdRaw, displacementBwdRaw]);\n    const [scoresBuf,
offsetsBuf, displacementsFwdBuf, displacementsBwdBuf] =\n        tensorBuffers;\n\n    let poses =
decodeMultiplePoses(\n        scoresBuf, offsetsBuf, displacementsFwdBuf, displacementsBwdBuf,\n
      this.baseModel.outputStride, config.maxDetections,\n        config.scoreThreshold, config.nmsRadius);\n\n
poses = scaleAndFlipPoses(\n        poses, [height, width], internalResolutionHeightAndWidth, padding,\n
FLIP_POSES_AFTER_SCALING);\n\n    const instanceMasks = await decodePersonInstanceMasks(\n
segmentation, longOffsets, poses, height, width,\n        this.baseModel.outputStride,
internalResolutionHeightAndWidth, padding,\n        config.scoreThreshold, config.refineSteps,
config.minKeypointScore,\n        config.maxDetections);\n\n    resized.dispose();\n    segmentation.dispose();\n
longOffsets.dispose();\n    heatmapScoresRaw.dispose();\n    offsetsRaw.dispose();\n
displacementFwdRaw.dispose();\n    displacementBwdRaw.dispose();\n\n    return instanceMasks;\n  }\n\n  /**\n   *
Given an image with many people, returns a dictionary containing: height,\n   * width, a tensor with a part id from 0-
24 for the pixels that are\n   * part of a
 corresponding body part, and -1 otherwise. This does standard\n   * ImageNet pre-processing before inferring
through the model.  The image\n   * should pixels should have values [0-255].\n   *\n   * @param input
ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement)\n   * The input image to feed
```

```
through the network.\n   *\n   * @param internalResolution Defaults to 'medium'. The internal resolution\n   * percentage that the input is resized to before inference. The larger the\n   * internalResolution the more accurate the model at the cost of slower\n   * prediction times. Available values are 'low', 'medium', 'high', 'full', or\n   * a percentage value between 0 and 1. The values 'low', 'medium', 'high', and\n   * 'full' map to 0.25, 0.5, 0.75, and 1.0 correspondingly.\n   *\n   * @param segmentationThreshold The minimum that segmentation values must have\n   * to be considered part of the person.  Affects the clipping of the colored\n   * part image.\n   *\n   * @return  A dictionary
 containing `partSegmentation`, `heatmapScores`,\n   * `offsets`, and `padding`:\n   * - `partSegmentation`: A 2d Tensor with a part id from 0-24 for\n   * the pixels that are part of a corresponding body part, and -1 otherwise.\n   * - `heatmapScores`: A 3d Tensor of the keypoint heatmaps used by\n   * single-person pose estimation decoding.\n   * - `offsets`: A 3d Tensor of the keypoint offsets used by single-person pose\n   * estimation decoding.\n   * - `displacementFwd`: A 3d Tensor of the keypoint forward displacement\n   * used by pose estimation decoding.\n   * - `displacementBwd`: A 3d Tensor of the keypoint backward displacement used\n   * by pose estimation decoding.\n   * - `padding`: The padding (unit pixels) being applied to the input image\n   * before it is fed into the model.\n   */\n segmentPersonPartsActivation(\n     input: BodyPixInput, internalResolution: BodyPixInternalResolution,\n segmentationThreshold = 0.5): {\n   partSegmentation: tf.Tensor2D,\n
   heatmapScores: tf.Tensor3D,\n   offsets: tf.Tensor3D,\n   displacementFwd: tf.Tensor3D,\n   displacementBwd: tf.Tensor3D,\n   padding: Padding,\n   internalResolutionHeightAndWidth: [number, number]\n  } {\n   const [height, width] = getInputSize(input);\n   const internalResolutionHeightAndWidth = toInputResolutionHeightAndWidth(\n       internalResolution, this.baseModel.outputStride, [height, width]);\n   const {\n     resized,\n     padding,\n   } = padAndResizeTo(input, internalResolutionHeightAndWidth);\n\n   const {\n     partSegmentation,\n     heatmapScores,\n     offsets,\n     displacementFwd,\n     displacementBwd\n   } = tf.tidy(() => {\n     const {\n       segmentLogits,\n       partHeatmapLogits,\n       heatmapScores,\n       offsets,\n
     displacementFwd,\n       displacementBwd\n     } = this.predictForPersonSegmentationAndPart(resized);\n\n     const [resizedHeight, resizedWidth] = resized.shape;\n\n     const scaledSegmentScores
 = scaleAndCropToInputTensorShape(\n         segmentLogits, [height, width], [resizedHeight, resizedWidth],\n [[padding.top, padding.bottom], [padding.left, padding.right]],\n         APPLY_SIGMOID_ACTIVATION);\n\n     const scaledPartHeatmapScore = scaleAndCropToInputTensorShape(\n         partHeatmapLogits, [height, width], [resizedHeight, resizedWidth],\n         [[padding.top, padding.bottom], [padding.left, padding.right]],\n APPLY_SIGMOID_ACTIVATION);\n     const segmentation =\n toMaskTensor(tf.squeeze(scaledSegmentScores), segmentationThreshold);\n     return {\n       partSegmentation:\n       decodePartSegmentation(segmentation, scaledPartHeatmapScore),\n       heatmapScores,\n       offsets,\n displacementFwd,\n       displacementBwd,\n     };\n   });\n   resized.dispose();\n   return {\n partSegmentation,\n     heatmapScores,\n     offsets,\n     displacementFwd,\n     displacementBwd,\n padding,\n     internalResolutionHeightAndWidth\n
   };\n }\n\n  /**\n   * Given an image with many people, returns a PartSegmentation dictionary that\n   * contains the body part segmentation mask for all people and a single pose.\n   *\n   * Note: The body part segmentation mask returned by this method covers all\n   * people but the pose works well when there is one person. If you want to\n   * estimate instance-level multiple person body part segmentation & pose for\n   * each person, use `segmentMultiPersonParts` instead.\n   *\n   * @param input ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement)\n   * The input image to feed through the network.\n   *\n   * @param config PersonInferenceConfig object that contains\n   * parameters for the BodyPix inference using single person decoding.\n   *\n   * @return A SemanticPartSegmentation dictionary that contains height, width,\n   * the flattened binary segmentation mask and the pose for the person. The\n   * width and height correspond to
 the same dimensions of the input image.\n   * - `height`: The height of the person part segmentation data in pixel unit.\n   * - `width`: The width of the person part segmentation data in pixel unit.\n   * - `data`: The flattened Int32Array of person part segmentation data with a\n   * part id from 0-24 for the pixels that are part of a
```

```
corresponding body\n   * part, and -1 otherwise. The size of the array is equal to `height` x\n   * `width` in row-major order.\n   * - `allPoses`: The 2d poses of all people.\n   */\n  async segmentPersonParts(\n      input: BodyPixInput,\n      config: PersonInferenceConfig = PERSON_INFERENCE_CONFIG):\n Promise<SemanticPartSegmentation> {\n    config = {...PERSON_INFERENCE_CONFIG, ...config};\n\n validatePersonInferenceConfig(config);\n    const {\n      partSegmentation,\n      heatmapScores,\n      offsets,\n displacementFwd,\n      displacementBwd,\n      padding,\n      internalResolutionHeightAndWidth\n    } =\n this.segmentPersonPartsActivation(\n
        input, config.internalResolution, config.segmentationThreshold);\n\n    const [height, width] = partSegmentation.shape;\n    const data = await partSegmentation.data() as Int32Array;\n partSegmentation.dispose();\n\n    const tensorBuffers = await toTensorBuffers3D(\n      [heatmapScores, offsets, displacementFwd, displacementBwd]);\n    const [scoresBuf, offsetsBuf, displacementsFwdBuf, displacementsBwdBuf] =\n      tensorBuffers;\n\n    let poses = decodeMultiplePoses(\n      scoresBuf, offsetsBuf, displacementsFwdBuf, displacementsBwdBuf,\n      this.baseModel.outputStride, config.maxDetections,\n config.scoreThreshold, config.nmsRadius);\n\n    poses = scaleAndFlipPoses(\n      poses, [height, width], internalResolutionHeightAndWidth, padding,\n      FLIP_POSES_AFTER_SCALING);\n\n heatmapScores.dispose();\n    offsets.dispose();\n    displacementFwd.dispose();\n    displacementBwd.dispose();\n\n    return {height, width, data,
 allPoses: poses};\n  }\n\n  /**\n   * Given an image with multiple people, returns an *array* of PartSegmentation\n * object. Each element in the array corresponding to one\n   * of the people in the input image. In other words, it predicts\n   * instance-level multiple person body part segmentation & pose for each\n   * person.\n   *\n   * This does standard ImageNet pre-processing before inferring through\n   * the model. The image pixels should have values [0-255].\n   *\n   * @param input\n   * ImageData|HTMLImageElement|HTMLCanvasElement|HTMLVideoElement) The input\n   * image to feed through the network.\n   *\n   * @param config MultiPersonInferenceConfig object that contains\n   * parameters for the BodyPix inference using multi-person decoding.\n   *\n   * @return An array of PartSegmentation object, each containing a width,\n   * height, a flattened array (with part id from 0-24 for the pixels that are\n   * part of a corresponding body part, and -1 otherwise) and 2D pose.
    The width\n   * and height correspond to the dimensions of the image. Each flattened part\n   * segmentation array size is equal to `height` x `width`.\n   */\n  async segmentMultiPersonParts(\n      input: BodyPixInput,\n      config: MultiPersonInstanceInferenceConfig =\n          MULTI_PERSON_INSTANCE_INFERENCE_CONFIG):
 Promise<PartSegmentation[]> {\n    config = {...MULTI_PERSON_INSTANCE_INFERENCE_CONFIG, ...config};\n\n    validateMultiPersonInstanceInferenceConfig(config);\n    const [height, width] = getInputSize(input);\n    const internalResolutionHeightAndWidth = toInputResolutionHeightAndWidth(\n config.internalResolution, this.baseModel.outputStride,\n      [height, width]);\n    const {resized, padding} =\n padAndResizeTo(input, internalResolutionHeightAndWidth);\n    const {\n      segmentation,\n      longOffsets,\n heatmapScoresRaw,\n      offsetsRaw,\n      displacementFwdRaw,\n      displacementBwdRaw,\n partSegmentation,\n    } = tf.tidy(()
 => {\n      const {\n        segmentLogits,\n        longOffsets,\n        heatmapScores,\n        offsets,\n displacementFwd,\n        displacementBwd,\n        partHeatmaps\n      } =
this.predictForMultiPersonInstanceSegmentationAndPart(resized);\n\n      // decoding with scaling.\n      const scaledSegmentScores = scaleAndCropToInputTensorShape(\n          segmentLogits, [height, width], internalResolutionHeightAndWidth,\n          [[padding.top, padding.bottom], [padding.left, padding.right]],\n APPLY_SIGMOID_ACTIVATION);\n\n      // decoding with scaling.\n      const scaledPartSegmentationScores = scaleAndCropToInputTensorShape(\n          partHeatmaps, [height, width], internalResolutionHeightAndWidth,\n
    [[padding.top, padding.bottom], [padding.left, padding.right]],\n          APPLY_SIGMOID_ACTIVATION);\n\n
 const scaledLongOffsets = longOffsets;\n      const segmentation = toMaskTensor(\n tf.squeeze(scaledSegmentScores), config.segmentationThreshold);\n
```

```
    const partSegmentation =\n        decodeOnlyPartSegmentation(scaledPartSegmentationScores);\n    return {\n      segmentation,\n      longOffsets: scaledLongOffsets,\n      heatmapScoresRaw: heatmapScores,\n      offsetsRaw: offsets,\n      displacementFwdRaw: displacementFwd,\n      displacementBwdRaw: displacementBwd,\n      partSegmentation\n    };\n  });\n\n  const tensorBuffers = await toTensorBuffers3D(\n    [heatmapScoresRaw, offsetsRaw, displacementFwdRaw, displacementBwdRaw]);\n  const [scoresBuf, offsetsBuf, displacementsFwdBuf, displacementsBwdBuf] =\n      tensorBuffers;\n\n  let poses = decodeMultiplePoses(\n      scoresBuf, offsetsBuf, displacementsFwdBuf, displacementsBwdBuf,\n      this.baseModel.outputStride, config.maxDetections,\n      config.scoreThreshold, config.nmsRadius);\n\n  poses = scaleAndFlipPoses(\n      poses, [height, width], internalResolutionHeightAndWidth, padding,\n      FLIP_POSES_AFTER_SCALING);\n\n\n  const instanceMasks = await decodePersonInstancePartMasks(\n      segmentation, longOffsets, partSegmentation, poses, height, width,\n      this.baseModel.outputStride, internalResolutionHeightAndWidth,\n      padding,\n      config.scoreThreshold, config.refineSteps, config.minKeypointScore,\n      config.maxDetections);\n\n  resized.dispose();\n  segmentation.dispose();\n  longOffsets.dispose();\n  heatmapScoresRaw.dispose();\n  offsetsRaw.dispose();\n  displacementFwdRaw.dispose();\n  displacementBwdRaw.dispose();\n  partSegmentation.dispose();\n\n  return instanceMasks;\n }\n\n public dispose() {\n  this.baseModel.dispose();\n }\n}\n\n/**\n * Loads the MobileNet BodyPix model.\n */\nasync function loadMobileNet(config: ModelConfig): Promise<BodyPix> {\n const outputStride = config.outputStride;\n const quantBytes = config.quantBytes;\n const multiplier = config.multiplier;\n if (tf == null) {\n  throw new Error(\n      `Cannot find TensorFlow.js. If you are using a <script> tag, please ` +\n      `also include @tensorflow/tfjs on the page before using this\n      model.`);\n }\n\n const url = mobileNetSavedModel(outputStride, multiplier, quantBytes);\n const graphModel = await tfconv.loadGraphModel(config.modelUrl || url);\n const mobilenet = new MobileNet(graphModel, outputStride);\n return new BodyPix(mobilenet);\n}\n\n/**\n * Loads the ResNet BodyPix model.\n */\nasync function loadResNet(config: ModelConfig): Promise<BodyPix> {\n const outputStride = config.outputStride;\n const quantBytes = config.quantBytes;\n if (tf == null) {\n  throw new Error(\n      `Cannot find TensorFlow.js. If you are using a <script> tag, please ` +\n      `also include @tensorflow/tfjs on the page before using this\n      model.`);\n }\n\n const url = resNet50SavedModel(outputStride, quantBytes);\n const graphModel = await tfconv.loadGraphModel(config.modelUrl || url);\n const resnet = new ResNet(graphModel, outputStride);\n return new BodyPix(resnet);\n}\n\n/**\n * Loads the BodyPix model instance from a checkpoint, with the ResNet\n * or MobileNet architecture. The model to be loaded is configurable using the\n * config dictionary ModelConfig. Please find more details in the\n * documentation of the ModelConfig.\n *\n * @param config ModelConfig dictionary that contains parameters for\n * the BodyPix loading process. Please find more details of each parameters\n * in the documentation of the ModelConfig interface. The predefined\n * `MOBILENET_V1_CONFIG` and `RESNET_CONFIG` can also be used as references\n * for defining your customized config.\n */\nexport async function load(config: ModelConfig = MOBILENET_V1_CONFIG):\n    Promise<BodyPix> {\n  config = validateModelConfig(config);\n  if (config.architecture === 'ResNet50') {\n  return loadResNet(config);\n  } else if (config.architecture === 'MobileNetV1') {\n    return loadMobileNet(config);\n  } else {\n    return null;\n  }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\n// method copied from bGlur in https://codepen.io/zhaojun/pen/zZmRQe\nexport function cpuBlur(\n    canvas: HTMLCanvasElement|OffscreenCanvas,\n    image:
```

```
HTMLImageElement|HTMLVideoElement|HTMLCanvasElement|OffscreenCanvas,\n    blur: number) {\n  const ctx = canvas.getContext('2d');\n\n
  let sum = 0;\n  const delta = 5;\n  const alphaLeft = 1 / (2 * Math.PI * delta * delta);\n  const step = blur < 3 ? 1 : 2;\n  for (let y = -blur; y <= blur; y += step) {\n    for (let x = -blur; x <= blur; x += step) {\n      const weight =\n  alphaLeft * Math.exp(-(x * x + y * y) / (2 * delta * delta));\n      sum += weight;\n    }\n  }\n  for (let y = -blur; y <= blur; y += step) {\n    for (let x = -blur; x <= blur; x += step) {\n      ctx.globalAlpha = alphaLeft *\n  Math.exp(-(x * x + y * y) / (2 * delta * delta)) / sum * blur;\n      ctx.drawImage(image, x, y);\n    }\n  }\n  ctx.globalAlpha = 1;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
  law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
  ==========================================================================\n
  */\n\nimport {cpuBlur} from './blur';\nimport {Color, PartSegmentation, PersonSegmentation} from
  './types';\nimport {SemanticPartSegmentation, SemanticPersonSegmentation} from './types';\nimport {getInputSize}
  from './util';\n\nexport type Canvas = HTMLCanvasElement | OffscreenCanvas;\n\nconst offScreenCanvases:
  {[name: string]: Canvas} = {};\n\ntype ImageType = HTMLImageElement|HTMLVideoElement|Canvas;\ntype
  HasDimensions = {\n  width: number,\n  height: number\n};\n\nfunction isSafari() {\n  return
  (/^((?!chrome|android).)*safari/i.test(navigator.userAgent));\n}\n\nfunction assertSameDimensions(\n    {width:
  widthA,
  height: heightA}: HasDimensions,\n    {width: widthB, height: heightB}: HasDimensions, nameA: string,\n
  nameB: string) {\n  if (widthA !== widthB || heightA !== heightB) {\n    throw new Error(`error: dimensions must
  match. ${nameA} has dimensions ${\n        widthA}x${heightA}, ${nameB} has dimensions
  ${widthB}x${heightB}`);\n  }\n}\n\nfunction flipCanvasHorizontal(canvas: Canvas) {\n  const ctx =
  canvas.getContext('2d');\n  ctx.scale(-1, 1);\n  ctx.translate(-canvas.width, 0);\n}\n\nfunction
  drawWithCompositing(\n    ctx: CanvasRenderingContext2D|OffscreenCanvasRenderingContext2D,\n    image:
  Canvas|ImageType,\n    compositeOperation: string) {\n  ctx.globalCompositeOperation = compositeOperation;\n
  ctx.drawImage(image, 0, 0);\n}\n\nfunction createOffScreenCanvas(): Canvas {\n  if (typeof document !==
  'undefined' ) {\n    return document.createElement('canvas');\n  } else if (typeof OffscreenCanvas !== 'undefined')
  {\n    return new OffscreenCanvas(0, 0);\n  } else {\n    throw
  new Error('Cannot create a canvas in this context');\n  }\n}\n\nfunction ensureOffscreenCanvasCreated(id: string):
  Canvas {\n  if (!offScreenCanvases[id]) {\n    offScreenCanvases[id] = createOffScreenCanvas();\n  }\n  return
  offScreenCanvases[id];\n}\n\nfunction drawAndBlurImageOnCanvas(\n    image: ImageType, blurAmount:
  number, canvas: Canvas) {\n  const {height, width} = image;\n  const ctx = canvas.getContext('2d');\n  canvas.width
  = width;\n  canvas.height = height;\n  ctx.clearRect(0, 0, width, height);\n  ctx.save();\n  if (isSafari()) {\n
  cpuBlur(canvas, image, blurAmount);\n  } else {\n    // tslint:disable:no-any\n    (ctx as any).filter =
  `blur(${blurAmount}px)`;\n    ctx.drawImage(image, 0, 0, width, height);\n  }\n  ctx.restore();\n}\n\nfunction
  drawAndBlurImageOnOffScreenCanvas(\n    image: ImageType, blurAmount: number,\n    offscreenCanvasName:
  string): Canvas {\n  const canvas = ensureOffscreenCanvasCreated(offscreenCanvasName);\n  if (blurAmount ===
  0) {\n    renderImageToCanvas(image,
  canvas);\n  } else {\n    drawAndBlurImageOnCanvas(image, blurAmount, canvas);\n  }\n  return
  canvas;\n}\n\nfunction renderImageToCanvas(image: ImageType, canvas: Canvas) {\n  const {width, height} =
  image;\n  canvas.width = width;\n  canvas.height = height;\n  const ctx = canvas.getContext('2d');\n\n
  ctx.drawImage(image, 0, 0, width, height);\n}\n/**\n * Draw an image on a canvas\n */\nfunction
  renderImageDataToCanvas(image: ImageData, canvas: Canvas) {\n  canvas.width = image.width;\n  canvas.height
  = image.height;\n  const ctx = canvas.getContext('2d');\n\n  ctx.putImageData(image, 0, 0);\n}\n\nfunction
```

```
renderImageDataToOffScreenCanvas(\n    image: ImageData, canvasName: string): Canvas {\n  const canvas =
ensureOffscreenCanvasCreated(canvasName);\n  renderImageDataToCanvas(image, canvas);\n\n  return
canvas;\n}\n\n/**\n * Given the output from estimating multi-person segmentation, generates an\n * image with
foreground and background color at each pixel determined
 by the\n * corresponding binary segmentation value at the pixel from the output.  In\n * other words, pixels where
there is a person will be colored with foreground\n * color and where there is not a person will be colored with
background color.\n *\n * @param personOrPartSegmentation The output from\n * `segmentPerson`,
`segmentMultiPerson`,\n * `segmentPersonParts` or `segmentMultiPersonParts`. They can\n * be
SemanticPersonSegmentation object, an array of PersonSegmentation object,\n * SemanticPartSegmentation object,
or an array of PartSegmentation object.\n *\n * @param foreground Default to {r:0, g:0, b:0, a: 0}. The foreground
color\n * (r,g,b,a) for visualizing pixels that belong to people.\n *\n * @param background Default to {r:0, g:0, b:0,
a: 255}. The background color\n * (r,g,b,a) for visualizing pixels that don't belong to people.\n *\n * @param
drawContour Default to false. Whether to draw the contour around each\n * person's segmentation mask or body
part mask.\n
 *\n * @param foregroundIds Default to [1]. The integer values that represent\n * foreground. For person
segmentation, 1 is the foreground. For body part\n * segmentation, it can be a subset of all body parts ids.\n *\n *
@returns An ImageData with the same width and height of\n * all the PersonSegmentation in
multiPersonSegmentation, with opacity and\n * transparency at each pixel determined by the corresponding binary\n
* segmentation value at the pixel from the output.\n */\nexport function toMask(\n    personOrPartSegmentation:
SemanticPersonSegmentation|\n    SemanticPartSegmentation|PersonSegmentation[]|PartSegmentation[],\n
foreground: Color = {\n      r: 0,\n      g: 0,\n      b: 0,\n      a: 0\n    },\n    background: Color = {\n      r: 0,\n      g: 0,\n
    b: 0,\n      a: 255\n    },\n    drawContour = false, foregroundIds: number[] = [1]): ImageData {\n  if
(Array.isArray(personOrPartSegmentation) &&\n      personOrPartSegmentation.length === 0) {\n    return null;\n
  }\n\n  let multiPersonOrPartSegmentation:\n      Array<SemanticPersonSegmentation|SemanticPartSegmentation|\n
        PersonSegmentation|PartSegmentation>;\n\n  if (!Array.isArray(personOrPartSegmentation)) {\n
multiPersonOrPartSegmentation = [personOrPartSegmentation];\n  } else {\n    multiPersonOrPartSegmentation =
personOrPartSegmentation;\n  }\n\n  const {width, height} = multiPersonOrPartSegmentation[0];\n  const bytes =
new Uint8ClampedArray(width * height * 4);\n\n  function drawStroke(\n      bytes: Uint8ClampedArray, row:
number, column: number, width: number,\n      radius: number, color: Color = {r: 0, g: 255, b: 255, a: 255}) {\n
for (let i = -radius; i <= radius; i++) {\n      for (let j = -radius; j <= radius; j++) {\n        if (i !== 0 && j !== 0) {\n
    const n = (row + i) * width + (column + j);\n          bytes[4 * n + 0] = color.r;\n          bytes[4 * n + 1] = color.g;\n
      bytes[4 * n + 2] = color.b;\n          bytes[4 * n + 3] = color.a;\n
        }\n      }\n    }\n  }\n\n  function isSegmentationBoundary(\n      segmentationData: Uint8Array|Int32Array,\n
row: number,\n      column: number,\n      width: number,\n      foregroundIds: number[] = [1],\n      radius = 1,\n
): boolean {\n    let numberBackgroundPixels = 0;\n    for (let i = -radius; i <= radius; i++) {\n      for (let j = -radius;
j <= radius; j++) {\n        if (i !== 0 && j !== 0) {\n          const n = (row + i) * width + (column + j);\n          if
(!foregroundIds.some(id => id === segmentationData[n])) {\n            numberBackgroundPixels += 1;\n          }\n
}\n      }\n    }\n    return numberBackgroundPixels > 0;\n  }\n\n  for (let i = 0; i < height; i += 1) {\n    for (let j = 0; j
< width; j += 1) {\n      const n = i * width + j;\n      bytes[4 * n + 0] = background.r;\n      bytes[4 * n + 1] =
background.g;\n      bytes[4 * n + 2] = background.b;\n      bytes[4 * n + 3] = background.a;\n      for (let k = 0; k <
multiPersonOrPartSegmentation.length;
 k++) {\n        if (foregroundIds.some(\n                id => id === multiPersonOrPartSegmentation[k].data[n])) {\n
 bytes[4 * n] = foreground.r;\n          bytes[4 * n + 1] = foreground.g;\n          bytes[4 * n + 2] = foreground.b;\n
bytes[4 * n + 3] = foreground.a;\n          const isBoundary = isSegmentationBoundary(\n
multiPersonOrPartSegmentation[k].data, i, j, width,\n              foregroundIds);\n          if (drawContour && i - 1 >= 0
&& i + 1 < height && j - 1 >= 0 &&\n              j + 1 < width && isBoundary) {\n            drawStroke(bytes, i, j,
width, 1);\n          }\n        }\n      }\n    }\n  }\n\n  return new ImageData(bytes, width, height);\n}\n\nconst
RAINBOW_PART_COLORS: Array<[number, number, number]> = [\n  [110, 64, 170], [143, 61, 178], [178, 60,
```

178], [210, 62, 167],\n [238, 67, 149], [255, 78, 125], [255, 94, 99], [255, 115, 75],\n [255, 140, 56], [239, 167, 47], [217, 194, 49], [194, 219, 64],\n
 [175, 240, 91], [135, 245, 87], [96, 247, 96], [64, 243, 115],\n [40, 234, 141], [28, 219, 169], [26, 199, 194], [33, 176, 213],\n [47, 150, 224], [65, 125, 224], [84, 101, 214], [99, 81, 195]\n];\n\n/**\n * Given the output from person body part segmentation (or multi-person\n * instance body part segmentation) and an array of colors indexed by part id,\n * generates an image with the corresponding color for each part at each pixel,\n * and white pixels where there is no part.\n *\n * @param partSegmentation The output from segmentPersonParts\n * or segmentMultiPersonParts. The former is a SemanticPartSegmentation\n * object and later is an array of PartSegmentation object.\n *\n * @param partColors A multi-dimensional array of rgb colors indexed by\n * part id. Must have 24 colors, one for every part.\n *\n * @returns An ImageData with the same width and height of all the element in\n * multiPersonPartSegmentation, with the corresponding color for each part at\n * each pixel, and
 black pixels where there is no part.\n */\nexport function toColoredPartMask(\n partSegmentation: SemanticPartSegmentation|PartSegmentation[],\n partColors: Array<[number, number, number]> =\n RAINBOW_PART_COLORS): ImageData {\n if (Array.isArray(partSegmentation) && partSegmentation.length === 0) {\n return null;\n }\n\n let multiPersonPartSegmentation;\n if (!Array.isArray(partSegmentation)) {\n multiPersonPartSegmentation = [partSegmentation];\n } else {\n multiPersonPartSegmentation = partSegmentation;\n }\n const {width, height} = multiPersonPartSegmentation[0];\n const bytes = new Uint8ClampedArray(width * height * 4);\n\n for (let i = 0; i < height * width; ++i) {\n // invert mask. Invert the segmentation mask.\n const j = i * 4;\n bytes[j + 0] = 255;\n bytes[j + 1] = 255;\n bytes[j + 2] = 255;\n bytes[j + 3] = 255;\n for (let k = 0; k < multiPersonPartSegmentation.length; k++) {\n const partId = multiPersonPartSegmentation[k].data[i];\n
  if (partId !== -1) {\n const color = partColors[partId];\n if (!color) {\n throw new Error(`No color could be found for part id ${partId}`);\n }\n bytes[j + 0] = color[0];\n bytes[j + 1] = color[1];\n bytes[j + 2] = color[2];\n bytes[j + 3] = 255;\n }\n }\n }\n return new ImageData(bytes, width, height);\n}\n\nconst CANVAS_NAMES = {\n blurred: 'blurred',\n blurredMask: 'blurred-mask',\n mask: 'mask',\n lowresPartMask: 'lowres-part-mask',\n};\n\n/**\n * Given an image and a maskImage of type ImageData, draws the image with the\n * mask on top of it onto a canvas.\n *\n * @param canvas The canvas to be drawn onto.\n *\n * @param image The original image to apply the mask to.\n *\n * @param maskImage An ImageData containing the mask. Ideally this should be\n * generated by toMask or toColoredPartMask.\n *\n * @param maskOpacity The opacity of the mask when drawing it on top of the\n * image. Defaults
 to 0.7. Should be a float between 0 and 1.\n *\n * @param maskBlurAmount How many pixels to blur the mask by. Defaults to 0.\n * Should be an integer between 0 and 20.\n *\n * @param flipHorizontal If the result should be flipped horizontally. Defaults\n * to false.\n */\nexport function drawMask(\n canvas: Canvas, image: ImageType, maskImage: ImageData|null,\n maskOpacity = 0.7, maskBlurAmount = 0, flipHorizontal = false) {\n const [height, width] = getInputSize(image);\n canvas.width = width;\n canvas.height = height;\n\n const ctx = canvas.getContext('2d');\n ctx.save();\n if (flipHorizontal) {\n flipCanvasHorizontal(canvas);\n }\n\n ctx.drawImage(image, 0, 0);\n\n ctx.globalAlpha = maskOpacity;\n if (maskImage) {\n assertSameDimensions({width, height}, maskImage, 'image', 'mask');\n\n const mask = renderImageDataToOffScreenCanvas(maskImage, CANVAS_NAMES.mask);\n\n const blurredMask = drawAndBlurImageOnOffScreenCanvas(\n mask, maskBlurAmount,
 CANVAS_NAMES.blurredMask);\n ctx.drawImage(blurredMask, 0, 0, width, height);\n }\n ctx.restore();\n}\n\n/**\n * Given an image and a maskImage of type ImageData, draws the image with the\n * pixelated mask on top of it onto a canvas.\n *\n * @param canvas The canvas to be drawn onto.\n *\n * @param image The original image to apply the mask to.\n *\n * @param maskImage An ImageData containing the mask. Ideally this should be\n * generated by toColoredPartMask.\n *\n * @param maskOpacity The opacity of the mask when drawing it on top of the\n * image. Defaults to 0.7. Should be a float between 0 and 1.\n *\n * @param maskBlurAmount How many pixels to blur the mask by. Defaults to 0.\n * Should be an integer between 0 and 20.\n *\n * @param flipHorizontal If the result should be flipped horizontally. Defaults\n * to false.\n *\n * @param

pixelCellWidth The width of each pixel cell. Default to 10 px.\n */\nexport function drawPixelatedMask(\n canvas: Canvas, image: ImageType,
maskImage: ImageData,\n maskOpacity = 0.7, maskBlurAmount = 0, flipHorizontal = false,\n pixelCellWidth = 10.0) {\n const [height, width] = getInputSize(image);\n assertSameDimensions({width, height}, maskImage, 'image', 'mask');\n\n const mask = renderImageDataToOffScreenCanvas(maskImage, CANVAS_NAMES.mask);\n const blurredMask = drawAndBlurImageOnOffScreenCanvas(\n mask, maskBlurAmount, CANVAS_NAMES.blurredMask);\n\n canvas.width = blurredMask.width;\n canvas.height = blurredMask.height;\n\n const ctx = canvas.getContext('2d');\n ctx.save();\n if (flipHorizontal) {\n flipCanvasHorizontal(canvas);\n }\n\n const offscreenCanvas =\n ensureOffscreenCanvasCreated(CANVAS_NAMES.lowresPartMask);\n const offscreenCanvasCtx = offscreenCanvas.getContext('2d');\n offscreenCanvas.width = blurredMask.width * (1.0 / pixelCellWidth);\n offscreenCanvas.height = blurredMask.height * (1.0 / pixelCellWidth);\n offscreenCanvasCtx.drawImage(\n blurredMask, 0, 0, blurredMask.width,
blurredMask.height, 0, 0,\n offscreenCanvas.width, offscreenCanvas.height);\n ctx.imageSmoothingEnabled = false;\n ctx.drawImage(\n offscreenCanvas, 0, 0, offscreenCanvas.width, offscreenCanvas.height, 0,\n 0, canvas.width, canvas.height);\n\n // Draws vertical grid lines that are `pixelCellWidth` apart from each other.\n for (let i = 0; i < offscreenCanvas.width; i++) {\n ctx.beginPath();\n ctx.strokeStyle = '#ffffff';\n ctx.moveTo(pixelCellWidth * i, 0);\n ctx.lineTo(pixelCellWidth * i, canvas.height);\n ctx.stroke();\n }\n\n // Draws horizontal grid lines that are `pixelCellWidth` apart from each\n // other.\n for (let i = 0; i < offscreenCanvas.height; i++) {\n ctx.beginPath();\n ctx.strokeStyle = '#ffffff';\n ctx.moveTo(0, pixelCellWidth * i);\n ctx.lineTo(canvas.width, pixelCellWidth * i);\n ctx.stroke();\n }\n\n ctx.globalAlpha = 1.0 - maskOpacity;\n ctx.drawImage(image, 0, 0, blurredMask.width, blurredMask.height);\n ctx.restore();\n}\n\nfunction createPersonMask(\n multiPersonSegmentation: PersonSegmentation[]|SemanticPersonSegmentation,\n edgeBlurAmount: number): Canvas {\n const backgroundMaskImage = toMask(\n multiPersonSegmentation, {r: 0, g: 0, b: 0, a: 255},\n {r: 0, g: 0, b: 0, a: 0});\n\n const backgroundMask =\n renderImageDataToOffScreenCanvas(backgroundMaskImage, CANVAS_NAMES.mask);\n if (edgeBlurAmount === 0) {\n return backgroundMask;\n } else {\n return drawAndBlurImageOnOffScreenCanvas(\n backgroundMask, edgeBlurAmount, CANVAS_NAMES.blurredMask);\n }\n}\n\n/**\n * Given a personSegmentation and an image, draws the image with its background\n * blurred onto the canvas.\n *\n * @param canvas The canvas to draw the background-blurred image onto.\n *\n * @param image The image to blur the background of and draw.\n *\n * @param personSegmentation A SemanticPersonSegmentation or an array of\n * PersonSegmentation object.\n *\n * @param backgroundBlurAmount
How many pixels in the background blend into each\n * other. Defaults to 3. Should be an integer between 1 and 20.\n *\n * @param edgeBlurAmount How many pixels to blur on the edge between the person\n * and the background by. Defaults to 3. Should be an integer between 0 and 20.\n *\n * @param flipHorizontal If the output should be flipped horizontally. Defaults\n * to false.\n */\nexport function drawBokehEffect(\n canvas: Canvas, image: ImageType,\n multiPersonSegmentation: SemanticPersonSegmentation|PersonSegmentation[],\n backgroundBlurAmount = 3, edgeBlurAmount = 3, flipHorizontal = false) {\n const blurredImage = drawAndBlurImageOnOffScreenCanvas(\n image, backgroundBlurAmount, CANVAS_NAMES.blurred);\n canvas.width = blurredImage.width;\n canvas.height = blurredImage.height;\n\n const ctx = canvas.getContext('2d');\n\n if (Array.isArray(multiPersonSegmentation) &&\n multiPersonSegmentation.length === 0) {\n ctx.drawImage(blurredImage,
0, 0);\n return;\n }\n\n const personMask = createPersonMask(multiPersonSegmentation, edgeBlurAmount);\n\n ctx.save();\n if (flipHorizontal) {\n flipCanvasHorizontal(canvas);\n }\n // draw the original image on the final canvas\n const [height, width] = getInputSize(image);\n ctx.drawImage(image, 0, 0, width, height);\n\n // \"destination-in\" - \"The existing canvas content is kept where both the\n // new shape and existing canvas content overlap. Everything else is made\n // transparent.\"\n // crop what's not the person using the mask from the original

image\n drawWithCompositing(ctx, personMask, 'destination-in');\n // \"destination-over\" - \"The existing canvas content is kept where both the\n // new shape and existing canvas content overlap. Everything else is made\n // transparent.\"\n // draw the blurred background on top of the original image where it doesn't\n // overlap.\n drawWithCompositing(ctx, blurredImage, 'destination-over');\n ctx.restore();\n}\n\nfunction
 createBodyPartMask(\n   multiPersonPartSegmentation: SemanticPartSegmentation|PartSegmentation[],\n bodyPartIdsToMask: number[], edgeBlurAmount: number): Canvas {\n const backgroundMaskImage = toMask(\n
  multiPersonPartSegmentation, {r: 0, g: 0, b: 0, a: 0},\n   {r: 0, g: 0, b: 0, a: 255}, true, bodyPartIdsToMask);\n\n const backgroundMask =\n   renderImageDataToOffScreenCanvas(backgroundMaskImage,
CANVAS_NAMES.mask);\n if (edgeBlurAmount === 0) {\n   return backgroundMask;\n } else {\n   return drawAndBlurImageOnOffScreenCanvas(\n   backgroundMask, edgeBlurAmount,
CANVAS_NAMES.blurredMask);\n }\n}\n\n/**\n * Given a personSegmentation and an image, draws the image with its background\n * blurred onto the canvas.\n *\n * @param canvas The canvas to draw the background-blurred image onto.\n *\n * @param image The image to blur the background of and draw.\n *\n * @param partSegmentation A SemanticPartSegmentation or an array of\n * PartSegmentation
 object.\n *\n * @param bodyPartIdsToBlur Default to [0, 1] (left-face and right-face). An\n * array of body part ids to blur. Each must be one of the 24 body part ids.\n *\n * @param backgroundBlurAmount How many pixels in the background blend into each\n * other. Defaults to 3. Should be an integer between 1 and 20.\n *\n * @param edgeBlurAmount How many pixels to blur on the edge between the person\n * and the background by. Defaults to 3. Should be an integer between 0 and 20.\n *\n * @param flipHorizontal If the output should be flipped horizontally. Defaults\n * to false.\n */\nexport function blurBodyPart(\n   canvas: Canvas, image: ImageType,\n partSegmentation: SemanticPartSegmentation|PartSegmentation[],\n   bodyPartIdsToBlur = [0, 1], backgroundBlurAmount = 3, edgeBlurAmount = 3,\n   flipHorizontal = false) {\n const blurredImage = drawAndBlurImageOnOffScreenCanvas(\n   image, backgroundBlurAmount, CANVAS_NAMES.blurred);\n canvas.width = blurredImage.width;\n
  canvas.height = blurredImage.height;\n\n const ctx = canvas.getContext('2d');\n\n if (Array.isArray(partSegmentation) && partSegmentation.length === 0) {\n   ctx.drawImage(blurredImage, 0, 0);\n return;\n }\n const bodyPartMask =\n   createBodyPartMask(partSegmentation, bodyPartIdsToBlur, edgeBlurAmount);\n\n ctx.save();\n if (flipHorizontal) {\n   flipCanvasHorizontal(canvas);\n }\n // draw the original image on the final canvas\n const [height, width] = getInputSize(image);\n ctx.drawImage(image, 0, 0, width, height);\n\n // \"destination-in\" - \"The existing canvas content is kept where both the\n // new shape and existing canvas content overlap. Everything else is made\n // transparent.\"\n // crop what's not the person using the mask from the original image\n drawWithCompositing(ctx, bodyPartMask, 'destination-in');\n // \"destination-over\" - \"The existing canvas content is kept where both the\n // new shape and existing canvas content overlap. Everything else is made\n // transparent.\"\n // draw the blurred background on top of the original image where it doesn't\n // overlap.\n drawWithCompositing(ctx, blurredImage, 'destination-over');\n ctx.restore();\n}\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nexport const PART_CHANNELS: string[] = [\n
  'left_face',\n 'right_face',\n 'left_upper_arm_front',\n 'left_upper_arm_back',\n 'right_upper_arm_front',\n 'right_upper_arm_back',\n 'left_lower_arm_front',\n 'left_lower_arm_back',\n 'right_lower_arm_front',\n 'right_lower_arm_back',\n 'left_hand',\n 'right_hand',\n 'torso_front',\n 'torso_back',\n 'left_upper_leg_front',\n 'left_upper_leg_back',\n 'right_upper_leg_front',\n 'right_upper_leg_back',\n 'left_lower_leg_front',\n 'left_lower_leg_back',\n 'right_lower_leg_front',\n 'right_lower_leg_back',\n 'left_feet',\n 'right_feet'\n];\n","/**

@license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst version = '2.2.0';\nexport {version};\n"],"names":["toFlattenedOneHotPartMap","partHeatmapScores","numParts","shape","partMapLocations","tf.argMax","partMapFlattened","tf.reshape","tf.oneHot","clipByMask2d","image","mask","tf.mul","toMaskTensor","segmentScores","threshold","tf.tidy","tf.cast","tf.greater","tf.scalar","decodePartSegmentation","segmentationMask","_a","partMapHeight","partMapWidth","flattenedMap","partNumbers","tf.expandDims","tf.range","tf.matMul","partMap","partMapShiftedUpForClipping","tf.add","tf.sub","decodeOnlyPartSegmentation","model","outputStride","this","inputShape","inputs","tf.util","assert","BaseModel","input","asFloat","_this","preprocessInput","asBatch","results3d","predict","map","y","tf.squeeze","namedResults","nameOutputResults","heatmapScores","tf.sigmoid","heatmap","offsets","displacementFwd","displacementBwd","segmentation","partHeatmaps","longOffsets","partOffsets","dispose","__extends","MobileNet","tf.div","results","PART_NAMES","NUM_KEYPOINTS","length","PART_IDS","reduce","result","jointName","i","CONNECTED_PART_NAMES","POSE_CHAIN","CONNECTED_PART_INDICES","jointNameA","jointNameB","getScale","_b","padding","height","width","inputResolutionY","inputResolutionX","padT","padB","getOffsetPoint","x","keypoint","get","getImageCoords","part","heatmapX","heatmapY","clamp","a","min","max","squaredDistance","y1","x1","y2","x2","dy","dx","addVectors","b","computeDistance","embedding","pose","minPartScore","distance","numKpt","p","keypoints","score","Math","position","Infinity","convertToPositionInOuput","stride","padL","scaleX","scaleY","round","getEmbedding","location","keypointIndex","convertToPosition","outputResolutionX","refineSteps","newLocation","nn","t","newPos","nn_1","matchEmbeddingToInstance","poses","numKptForMatching","_c","embed","pair","keypointsIndex","push","kMin","kMinDist","k","dist","getOutputResolution","decodeMultipleMasksCPU","posesAboveScore","inHeight","inWidth","dataArrays","Uint8Array","fill","j","n","decodeMultiplePartMasksCPU","partSegmentaion","Int32Array","decodeMultipleMasksWebGl","minKptScore","maxNumPeople","origHeight","origWidth","slice","outHeight","outWidth","shapedLongOffsets","poseVals","Float32Array","poseOffset","kp","offset","_d","posesTensor","tf.tensor","program","variableNames","outputShape","userCode","tf.backend","compileAndRun","toPersonKSegmentation","tf.equal","toPersonKPartSegmentation","bodyParts","isWebGlBackend","getBackend","decodePersonInstanceMasks","minPoseScore","minKeypointScore","filter","personSegmentations","masksTensorInfo","masksTensor","tf.engine","makeTensorFromDataId","dataId","dtype","_","Promise","all","data","personSegmentationsData","forEach","segmentationsData","longOffsetsData","decodePersonInstancePartMasks","partSegmentation","partSegmentations","partSegmentationsByPersonData","partSegmentaionData","half","floor","maxSize","getElementValue","priorityQueue","Array","numberOfElements","MaxHeap","swim","exchange","sink","less","getValueAt","scoreIsMaximumInLocalWindow","keypointId","localMaximumRadius","scores","localMaximum","yStart","yEnd","yCurrent","xStart","xEnd","xCurrent","buildPartWithScoreQueue","scoreThreshold","numKeypoints","queue","enqueue","id","parentChildrenTuples","parentJoinName","childJoinName","parentToChildEdges","childToParentEdges","getDisplacement","edgeId","point","displacements","numEdges","getStridedIndexNearPoint","traverseToTargetKeypoint","sourceKeypoint","targetKeypointId","scoresBuffer","offsetRefineStep","displacement","targetKeypoint","targetKeypointIndices","offsetPoint","targetKeyPointIndices","decodePose","root","displacementsFwd","displacementsBwd","instanceKeypoints","rootPart","rootScore","rootPoint","edge","sourceKeypointId","withinNmsRadiusOfCorrespondingPoint","squaredNmsRadius","some","correspondingKeypoint","getInstanceScore","existingPoses","kLocalMaximumRadius","decodeMultiplePoses","offsetsBuffer","displacementsFwdBuffer","displacementsBwdBuffer","maxPoseDetections","nmsRadius","empty","dequeue","imageNetMean","ResNet","RESNET50_BASE_URL","MOBILENET_BASE_URL","resNet50SavedModel","quantBytes","graphJson","mobileNetSavedModel","multiplier","toStr","1","0.75","0.5","getSizeFromImageLikeElement","offsetHeight","offsetWidth","Error","getSizeFromVideoElement","hasAttribute","videoHeight","videoWidth","getInputSize","HTMLCanvasElement","OffscreenCanvas","HTMLImageElement","ImageData","HTMLVideoElement","tf.Tensor","isValidInputResolution","resolution","toValidInputResolution","inputResolution","INTERNAL_RESOLUTION_STRING_OPTIONS","low","medium","high","full","INTERNAL_RESOLUTION_PERCENTAGES","MIN_INTERNAL_RESOLUTION","MAX_INTERNAL_RESOLUTION","toInternalResolutionPercentage","internalResolution","Object","values","join","toInputResolutionHeightAndWidth","inputHeight","inputWidth","internalResolutionPercentage","toInputTensor","tf.browser","fromPixels","resizeAndPadTo"

,"imageTensor","flipHorizontal","targetH","targetW","resizeW","resizeH","padR","aspect","padHeight","ceil","pad
Width","resizedAndPadded","resized","tf.image","resizeBilinear","tf.reverse","tf.pad3d","paddedBy","scaleAndCro
pToInputTensorShape","tensor","applySigmoidActivation","inputTensorHeight","inputTensorWidth","resizedAndP
addedHeight","resizedAndPaddedWidth","_e","inResizedAndPadded","removePaddingAndResizeBack","originalH
eight","originalWidth","batchedImage","cropAndResize","padAndResizeTo","targetAspect","top","left","right","bot
tom","toTensorBuffers3D","tensors","buffer","scalePose","offsetY","offsetX","scalePoses","flipPoseHorizontal","i
mageWidth","flipPosesHorizontal","scaleAndFlipPoses","inputResolutionHeight","inputResolutionWidth","scaledP
oses","APPLY_SIGMOID_ACTIVATION","FLIP_POSES_AFTER_SCALING","MOBILENET_V1_CONFIG","
architecture","VALID_ARCHITECTURE","VALID_STRIDE","MobileNetV1","ResNet50","VALID_MULTIPLIE
R","VALID_QUANT_BYTES","validateModelConfig","config","indexOf","PERSON_INFERENCE_CONFIG","s
egmentationThreshold","maxDetections","MULTI_PERSON_INSTANCE_INFERENCE_CONFIG","validatePerso
nInferenceConfig","validateMultiPersonInstanceInferenceConfig","net","baseModel","BodyPix","segmentLogits","
partHeatmapLogits","internalResolutionHeightAndWidth","predictForPersonSegmentation","resizedHeight","resize
dWidth","scaledSegmentScores","segmentPersonActivation","tensorBuffers","scoresBuf","offsetsBuf","displaceme
ntsFwdBuf","displacementsBwdBuf","allPoses","scaledLongOffsets","predictForMultiPersonInstanceSegmentation
AndPart","heatmapScoresRaw","offsetsRaw","displacementFwdRaw","displacementBwdRaw","instanceMasks","pr
edictForPersonSegmentationAndPart","scaledPartHeatmapScore","segmentPersonPartsActivation","scaledPartSegm
entationScores","loadMobileNet","tf","url","tfconv.loadGraphModel","modelUrl","graphModel","mobilenet","load
ResNet","resnet","load","cpuBlur","canvas","blur","ctx","getContext","sum","alphaLeft","PI","step","exp","globalA
lpha","drawImage","offScreenCanvases","isSafari","test","navigator","userAgent","assertSameDimensions","name
A","nameB","widthA","heightA","widthB","heightB","flipCanvasHorizontal","scale","translate","drawWithCompo
siting","compositeOperation","globalCompositeOperation","createOffScreenCanvas","document","createElement","
ensureOffscreenCanvasCreated","drawAndBlurImageOnCanvas","blurAmount","clearRect","save","restore","draw
AndBlurImageOnOffScreenCanvas","offscreenCanvasName","renderImageToCanvas","renderImageDataToCanvas
","putImageData","renderImageDataToOffScreenCanvas","canvasName","toMask","personOrPartSegmentation","f
oreground","background","drawContour","foregroundIds","r","g","isArray","multiPersonOrPartSegmentation","byt
es","Uint8ClampedArray","drawStroke","row","column","radius","color","isSegmentationBoundary","segmentation
Data","numberBackgroundPixels","n_1","isBoundary","RAINBOW_PART_COLORS","toColoredPartMask","part
Colors","multiPersonPartSegmentation","partId","CANVAS_NAMES","blurred","blurredMask","lowresPartMask",
"drawMask","maskImage","maskOpacity","maskBlurAmount","drawPixelatedMask","pixelCellWidth","offscreenC
anvas","offscreenCanvasCtx","imageSmoothingEnabled","beginPath","strokeStyle","moveTo","lineTo","stroke","cr
eatePersonMask","multiPersonSegmentation","edgeBlurAmount","backgroundMask","drawBokehEffect","backgro
undBlurAmount","blurredImage","personMask","createBodyPartMask","bodyPartIdsToMask","blurBodyPart","bod
yPartIdsToBlur","bodyPartMask","PART_CHANNELS","version"],"mappings":";;;;;;;;;;;;;;;;otEAyBA,SAASA,yB
AAyBC,GAChC,IAAMC,EAAWD,EAAkBE,MAAM,GACnCC,EAAmBC,EAAOC,OAAOJ,EAAmBC,EAAOI,OAAOL,EAAmBC,EAAOK,OAAOL,EAAmBC,EAAOK,OAAOL,EAAmBC,EAAOK

,EAAS,GAEjCI,EADUH,EAAKV,MAAMc,QAAQF,GACMG,IAAI,SAAAC,GAAK,OAAAC,QAAWD,GAAI,MAC3DE,EAAeR,EAAKS,kBAAkBN,GAE5C,OACEO,cAAeC,QAAWH,EAAaI,SACvCC,QAASL,EAAaK,QACtBC,gBAAiBN,EAAaM,gBAC9CC,gBAAiBP,EAAaO,gBAC9CC,aAAcR,EAAaQ,aAC3BC,aAAcT,EAAaS,aAC3BC,YAAaV,EAAaU,YAC1BC,YAAaX,EAAaW,YAC1BC,gBAAiBZ,EAAaY,gBAC9CC,YAAab,EAAaa,YAC1BC,YAAad,EAAac,YAC1BC,YAAaf,EAAae,YAC1BC,gBAAiBhB,EAAagB,gBAC9CC,YAAajB,EAAaiB,YAC1BC,YAAalB,EAAakB,YAC1BC,YAAanB,EAAamB,YAC1BC,gBAAiBpB,EAAaoB,gBAC9CC,YAAarB,EAAaqB,YAC1BC,YAAatB,EAAasB,YAC1BC,YAAavB,EAAauB,YAC1BC,gBAAiBxB,EAAawB,gBAC9CC,YAAazB,EAAayB,YAC1BC,YAAa1B,EAAa0B,YAC1BC,YAAa3B,EAAa2B,YAC1BC,gBAAiB5B,EAAa4B,gBAC9CC,YAAa7B,EAAa6B,YAC1BC,YAAa9B,EAAa8B,YAC1BC,YAAa/B,EAAa+B,YAC1BC,gBAAiBhC,EAAagC,gBAC9CC,YAAajC,EAAaiC,YAC1BC,YAAalC,EAAakC,YAC1BC,YAAanC,EAAamC,YAC1BC,gBAAiBpC,EAAaoC,gBAC9CC,YAAarC,EAAaqC,YAC1BC,YAAatC,EAAasC,YAC1BC,YAAavC,EAAauC,YAC1BC,gBAAiBxC,EAAawC,gBAC9CC,YAAazC,EAAayC,YAC1BC,YAAa1C,EAAa0C,YAC1BC,YAAa3C,EAAa2C,YAC1BC,gBAAiB5C,EAAa4C,gBAC9CC,YAAa7C,EAAa6C,YAC1BC,YAAa9C,EAAa8C,YAC1BC,YAAa/C,EAAa+C,YAC1BC,gBAAiBhD,EAAagD,gBAC9CC,YAAajD,EAAaiD,YAC1BC,YAAalD,EAAakD,YAC1BC,YAAanD,EAAamD,YAC1BC,gBAAiBpD,EAAaoD,gBAC9CC,YAAarD,EAAaqD,YAC1BC,YAAatD,EAAasD,YAC1BC,YAAavD,EAAauD,YAC1BC,gBAAiBxD,EAAawD,gBAC9CC,YAAazD,EAAayD,YAC1BC,YAAa1D,EAAa0D,YAC1BC,YAAa3D,EAAa2D,YAC1BC,gBAAiB5D,EAAa4D,gBAC9CC,YAAa7D,EAAa6D,YAC1BC,YAAa9D,EAAa8D,YAC1BC,YAAa/D,EAAa+D,YAC1BC,gBAAiBhE,EAAagE,gBAC9CC,YAAajE,EAAaiE,YAC1BC,YAAalE,EAAakE,YAC1BC,YAAanE,EAAamE,YAC1BC,gBAAiBpE,EAAaoE,gBAC9CC,YAAarE,EAAaqE,YAC1BC,YAAatE,EAAasE,YAC1BC,YAAavE,EAAauE,YAC1BC,gBAAiBxE,EAAawE,gBAC9CC,YAAazE,EAAayE,YAC1BC,YAAa1E,EAAa0E,YAC1BC,YAAa3E,EAAa2E,YAC1BC,gBAAiB5E,EAAa4E,gBAC9CC,YAAa7E,EAAa6E,YAC1BC,YAAa9E,EAAa8E,YAC1BC,YAAa/E,EAAa+E,YAC1BC,gBAAiBhF,EAAagF,gBAC9CC,YAAajF,EAAaiF,YAC1BC,YAAalF,EAAakF,YAC1BC,YAAanF,EAAamF,YAC1BC,gBAAiBpF,EAAaoF,gBAC9CC,YAAarF,EAAaqF,YAC1BC,YAAatF,EAAasF,YAC1BC,YAAavF,EAAauF,YAC1BC,gBAAiBxF,EAAawF,gBAC9CC,YAAazF,EAAayF,YAC1BC,YAAa1F,EAAa0F,YAC1BC,YAAa3F,EAAa2F,YAC1BC,gBAAiB5F,EAAa4F,gBAC9CC,YAAa7F,EAAa6F,YAC1BC,YAAa9F,EAAa8F,YAC1BC,YAAa/F,EAAa+F,YAC1BC,gBAAiBhG,EAAagG,gBAC9CC,YAAajG,EAAaiG,YAC1BC,YAAalG,EAAakG,YAC1BC,YAAanG,EAAamG,YAC1BC,gBAAiBpG,EAAaoG,gBAC9CC,YAAarG,EAAaqG,YAC1BC,YAAatG,EAAasG,YAC1BC,YAAavG,EAAauG,YAC1BC,gBAAiBxG,EAAawG,gBAC9CC,YAAazG,EAAayG,YAC1BC,YAAa1G,EAAa0G,YAC1BC,YAAa3G,EAAa2G,YAC1BC,gBAAiB5G,EAAa4G,gBAC9CC,YAAa7G,EAAa6G,YAC1BC,YAAa9G,EAAa8G,YAC1BC,YAAa/G,EAAa+G,YAC1BC,gBAAiBhH,EAAagH,gBAC9CC,YAAajH,EAAaiH,YAC1BC,YAAalH,EAAakH,YAC1BC,YAAanH,EAAamH,YAC1BC,gBAAiBpH,EAAaoH,gBAC9CC,YAAarH,EAAaqH,YAC1BC,YAAatH,EAAasH,YAC1BC,YAAavH,EAAauH,YAC1BC,gBAAiBxH,EAAawH,gBAC9CC,YAAazH,EAAayH,YAC1BC,YAAa1H,EAAa0H,YAC1BC,YAAa3H,EAAa2H,YAC1BC,gBAAiB5H,EAAa4H,gBAC9CC,YAAa7H,EAAa6H,YAC1BC,YAAa9H,EAAa8H,YAC1BC,YAAa/H,EAAa+H,YAC1BC,gBAAiBhI,EAAagI,gBAC9CC,YAAajI,EAAaiI,YAC1BC,YAAalI,EAAakI,YAC1BC,YAAanI,EAAamI,YAC1BC,gBAAiBpI,EAAaoI,gBAC9CC,YAAarI,EAAaqI,YAC1BC,YAAatI,EAAasI,YAC1BC,YAAavI,EAAauI,YAC1BC,gBAAiBxI,EAAawI,gBAC9CC,YAAazI,EAAayI,YAC1BC,YAAa1I,EAAa0I,YAC1BC,YAAa3I,EAAa2I,YAC1BC,gBAAiB5I,EAAa4I,gBAC9CC,YAAa7I,EAAa6I,YAC1BC,YAAa9I,EAAa8I,YAC1BC,YAAa/I,EAAa+I,YAC1BC,gBAAiBhJ,EAAagJ,gBAC9CC,YAAajJ,EAAaiJ,YAC1BC,YAAalJ,EAAakJ,YAC1BC,YAAanJ,EAAamJ,YAC1BC,gBAAiBpJ,EAAaoJ,gBAC9CC,YAAarJ,EAAaqJ,YAC1BC,YAAatJ,EAAasJ,YAC1BC,YAAavJ,EAAauJ,YAC1BC,gBAAiBxJ,EAAawJ,gBAC9CC,YAAazJ,EAAayJ,YAC1BC,YAAa1J,EAAa0J,YAC1BC,YAAa3J,EAAa2J,YAC1BC,gBAAiB5J,EAAa4J,gBAC9CC,YAAa7J,EAAa6J,YAC1BC,YAAa9J,EAAa8J,YAC1BC,YAAa/J,EAAa+J,YAC1BC,gBAAiBhK,EAAagK,gBAC9CC,YAAajK,EAAaiK,YAC1BC,YAAalK,EAAakK,YAC1BC,YAAanK,EAAamK,YAC1BC,gBAAiBpK,EAAaoK,gBAC9CC,YAAarK,EAAaqK,YAC1BC,YAAatK,EAAasK,YAC1BC,YAAavK,EAAauK,YAC1BC,gBAAiBxK,EAAawK,gBAC9CC,YAAazK,EAAayK,YAC1BC,YAAa1K,EAAa0K,YAC1BC,YAAa3K,EAAa2K,YAC1BC,gBAAiB5K,EAAa4K,gBAC9CC,YAAa7K,EAAa6K,YAC1BC,YAAa9K,EAAa8K,YAC1BC,YAAa/K,EAAa+K,YAC1BC,gBAAiBhL,EAAagL,gBAC9CC,YAAajL,EAAaiL,YAC1BC,YAAalL,EAAakL,YAC1BC,YAAanL,EAAamL,YAC1BC,gBAAiBpL,EAAaoL,gBAC9CC,YAAarL,EAAaqL,YAC1BC,YAAatL,EAAasL,YAC1BC,YAAavL,EAAauL,YAC1BC,gBAAiBxL,EAAawL,gBAC9CC,YAAazL,EAAayL,YAC1BC,YAAa1L,EAAa0L,YAC1BC,YAAa3L,EAAa2L,YAC1BC,gBAAiB5L,EAAa4L,gBAC9CC,YAAa7L,EAAa6L,YAC1BC,YAAa9L,EAAa8L,YAC1BC,YAAa/L,EAAa+L,YAC1BC,gBAAiBhM,EAAagM,gBAC9CC,YAAajM,EAAaiM,YAC1BC,YAAalM,EAAakM,YAC1BC,YAAanM,EAAamM,YAC1BC,gBAAiBpM,EAAaoM,gBAC9CC,YAAarM,EAAaqM,YAC1BC,YAAatM,EAAasM,YAC1BC,YAAavM,EAAauM,YAC1BC,gBAAiBxM,EAAawM,gBAC9CC,YAAazM,EAAayM,YAC1BC,YAAa1M,EAAa0M,YAC1BC,YAAa3M,EAAa2M,YAC1BC,gBAAiB5M,EAAa4M,gBAC9CC,YAAa7M,EAAa6M,YAC1BC,YAAa9M,EAAa8M,YAC1BC,YAAa/M,EAAa+M,YAC1BC,gBAAiBhN,EAAagN,gBAC9CC,YAAajN,EAAaiN,YAC1BC,YAAalN,EAAakN,YAC1BC,YAAanN,EAAamN,YAC1BC,gBAAiBpN,EAAaoN,gBAC9CC,YAAarN,EAAaqN,YAC1BC,YAAatN,EAAasN,YAC1BC,YAAavN,EAAauN,YAC1BC,gBAAiBxN,EAAawN,gBAC9CC,YAAazN,EAAayN,YAC1BC,YAAa1N,EAAa0N,YAC1BC,YAAa3N,EAAa2N,YAC1BC,gBAAiB5N,EAAa4N,gBAC9CC,YAAa7N,EAAa6N,YAC1BC,YAAa9N,EAAa8N,YAC1BC,YAAa/N,EAAa+N,YAC1BC,gBAAiBhO,EAAagO,gBAC9CC,YAAajO,EAAaiO,YAC1BC,YAAalO,EAAakO,YAC1BC,YAAanO,EAAamO,YAC1BC,gBAAiBpO,EAAaoO,gBAC9CC,YAAarO,EAAaqO,YAC1BC,YAAatO,EAAasO,YAC1BC,YAAavO,EAAauO,YAC1BC,gBAAiBxO,EAAawO,gBAC9CC,YAAazO,EAAayO,YAC1BC,YAAa1O,EAAa0O,YAC1BC,YAAa3O,EAAa2O,YAC1BC,gBAAiB5O,EAAa4O,gBAC9CC,YAAa7O,EAAa6O,YAC1BC,YAAa9O,EAAa8O,YAC1BC,YAAa/O,EAAa+O,YAC1BC,gBAAiBhP,EAAagP,gBAC9CC,YAAajP,EAAaiP,YAC1BC,YAAalP,EAAakP,YAC1BC,YAAanP,EAAamP,YAC1BC,gBAAiBpP,EAAaoP,gBAC9CC,YAAarP,EAAaqP,YAC1BC,YAAatP,EAAasP,YAC1BC,YAAavP,EAAauP,YAC1BC,gBAAiBxP,EAAawP,gBAC9CC,YAAazP,EAAayP,YAC1BC,YAAa1P,EAAa0P,YAC1BC,YAAa3P,EAAa2P,YAC1BC,gBAAiB5P,EAAa4P,gBAC9CC,YAAa7P,EAAa6P,YAC1BC,YAAa9P,EAAa8P,YAC1BC,YAAa/P,EAAa+P,YAC1BC,gBAAiBhQ,EAAagQ,gBAC9CC,YAAajQ,EAAaiQ,YAC1BC,YAAalQ,EAAakQ,YAC1BC,YAAanQ,EAAamQ,YAC1BC,gBAAiBpQ,EAAaoQ,gBAC9CC,YAAarQ,EAAaqQ,YAC1BC,YAAatQ,EAAasQ,YAC1BC,YAAavQ,EAAauQ,YAC1BC,gBAAiBxQ,EAAawQ,gBAC9CC,YAAazQ,EAAayQ,YAC1BC,YAAa1Q,EAAa0Q,YAC1BC,YAAa3Q,EAAa2Q,YAC1BC,gBAAiB5Q,EAAa4Q,gBAC9CC,YAAa7Q,EAAa6Q,YAC1BC,YAAa9Q,EAAa8Q,YAC1BC,YAAa/Q,EAAa+Q,YAC1BC,gBAAiBhR,EAAagR,gBAC9CC,YAAajR,EAAaiR,YAC1BC,YAAalR,EAAakR,YAC1BC,YAAanR,EAAamR,YAC1BC,gBAAiBpR,EAAaoR,gBAC9CC,YAAarR,EAAaqR,YAC1BC,YAAatR,EAAasR,YAC1BC,YAAavR,EAAauR,YAC1BC,gBAAiBxR,EAAawR,gBAC9CC,YAAazR,EAAayR,YAC1BC,YAAa1R,EAAa0R,YAC1BC,YAAa3R,EAAa2R,YAC1BC,gBAAiB5R,EAAa4R,gBAC9CC,YAAa7R,EAAa6R,YAC1BC,YAAa9R,EAAa8R,YAC1BC,YAAa/R,EAAa+R,YAC1BC,gBAAiBhS,EAAagS,gBAC9CC,YAAajS,EAAaiS,YAC1BC,YAAalS,EAAakS,YAC1BC,YAAanS,EAAamS,YAC1BC,gBAAiBpS,EAAaoS,gBAC9CC,YAAarS,EAAaqS,YAC1BC,YAAatS,EAAasS,YAC1BC,YAAavS,EAAauS,YAC1BC,gBAAiBxS,EAAawS,gBAC9CC,YAAazS,EAAayS,YAC1BC,YAAa1S,EAAa0S,YAC1BC,YAAa3S,EAAa2S,YAC1BC,gBAAiB5S,EAAa4S,gBAC9CC,YAAa7S,EAAa6S,YAC1BC,YAAa9S,EAAa8S,YAC1BC,YAAa/S,EAAa+S,YAC1BC,gBAAiBhT,EAAagT,gBAC9CC,YAAajT,EAAaiT,YAC1BC,YAAalT,EAAakT,YAC1BC,YAAanT,EAAamT,YAC1BC,gBAAiBpT,EAAaoT,gBAC9CC,YAAarT,EAAaqT,YAC1BC,YAAatT,EAAasT,YAC1BC,YAAavT,EAAauT,YAC1BC,gBAAiBxT,EAAawT,gBAC9CC,YAAazT,EAAayT,YAC1BC,YAAa1T,EAAa0T,YAC1BC,YAAa3T,EAAa2T,YAC1BC,gBAAiB5T,EAAa4T,gBAC9CC,YAAa7T,EAAa6T,YAC1BC,YAAa9T,EAAa8T,YAC1BC,YAAa/T,EAAa+T,YAC1BC,gBAAiBhU,EAAagU,gBAC9CC,YAAajU,EAAaiU,YAC1BC,YAAalU,EAAakU,YAC1BC,YAAanU,EAAamU,YAC1BC,gBAAiBpU,EAAaoU,gBAC9CC,YAAarU,EAAaqU,YAC1BC,YAAatU,EAAasU,YAC1BC,YAAavU,EAAauU,YAC1BC,gBAAiBxU,EAAawU,gBAC9CC,YAAazU,EAAayU,YAC1BC,YAAa1U,EAAa0U,YAC1BC,YAAa3U,EAAa2U,YAC1BC,gBAAiB5U,EAAa4U,gBAC9CC,YAAa7U,EAAa6U,YAC1BC,YAAa9U,EAAa8U,YAC1BC,YAAa/U,EAAa+U,YAC1BC,gBAAiBhV,EAAagV,gBAC9CC,YAAajV,EAAaiV,YAC1BC,YAAalV,EAAakV,YAC1BC,YAAanV,EAAamV,YAC1BC,gBAAiBpV,EAAaoV,gBAC9CC,YAAarV,EAAaqV,YAC1BC,YAAatV,EAAasV,YAC1BC,YAAavV,EAAauV,YAC1BC,gBAAiBxV,EAAawV,gBAC9CC,YAAazV,EAAayV,YAC1BC,YAAa1V,EAAa0V,YAC1BC,YAAa3V,EAAa2V,YAC1BC,gBAAiB5V,EAAa4V,gBAC9CC,YAAa7V,EAAa6V,YAC1BC,YAAa9V,EAAa8V,YAC1BC,YAAa/V,EAAa+V,YAC1BC,gBAAiBhW,EAAagW,gBAC9CC,YAAajW,EAAaiW,YAC1BC,YAAalW,EAAakW,YAC1BC,YAAanW,EAAamW,YAC1BC,gBAAiBpW,EAAaoW,gBAC9CC,YAAarW,EAAaqW,YAC1BC,YAAatW,EAAasW,YAC1BC,YAAavW,EAAauW,YAC1BC,gBAAiBxW,EAAawW,gBAC9CC,YAAazW,EAAayW,YAC1BC,YAAa1W,EAAa0W,YAC1BC,YAAa3W,EAAa2W,YAC1BC,gBAAiB5W,EAAa4W,gBAC9CC,YAAa7W,EAAa6W,YAC1BC,YAAa9W,EAAa8W,YAC1BC,YAAa/W,EAAa+W,YAC1BC,gBAAiBhX,EAAagX,gBAC9CC,YAAajX,EAAaiX,YAC1BC,YAAalX,EAAakX,YAC1BC,YAAanX,EAAamX,YAC1BC,gBAAiBpX,EAAaoX,gBAC9CC,YAAarX,EAAaqX,YAC1BC,YAAatX,EAAasX,YAC1BC,YAAavX,EAAauX,YAC1BC,gBAAiBxX,EAAawX,gBAC9CC,YAAazX,EAAayX,YAC1BC,YAAa1X,EAAa0X,YAC1BC,YAAa3X,EAAa2X,YAC1BC,gBAAiB5X,EAAa4X,gBAC9CC,YAAa7X,EAAa6X,YAC1BC,YAAa9X,EAAa8X,YAC1BC,YAAa/X,EAAa+X,YAC1BC,gBAAiBhY,EAAagY,gBAC9CC,YAAajY,EAAaiY,YAC1BC,YAAalY,EAAakY,YAC1BC,YAAanY,EAAamY,YAC1BC,gBAAiBpY,EAAaoY,gBAC9CC,YAAarY,EAAaqY,YAC1BC,YAAatY,EAAasY,YAC1BC,YAAavY,EAAauY,YAC1BC,gBAAiBxY,EAAawY,gBAC9CC,YAAazY,EAAayY,YAC1BC,YAAa1Y,EAAa0Y,YAC1BC,YAAa3Y,EAAa2Y,YAC1BC,gBAAiB5Y,EAAa4Y,gBAC9CC,YAAa7Y,EAAa6Y,YAC1BC,YAAa9Y,EAAa8Y,YAC1BC,YAAa/Y,EAAa+Y,YAC1BC,gBAAiBhZ,EAAagZ,gBAC9CC,YAAajZ,EAAaiZ,YAC1BC,YAAalZ,EAAakZ,YAC1BC,YAAanZ,EAAamZ,YAC1BC,gBAAiBpZ,EAAaoZ,gBAC9CC,YAAarZ,EAAaqZ,YAC1BC,YAAatZ,EAAasZ,YAC1BC,YAAavZ,EAAauZ,YAC1BC,gBAAiBxZ,EAAawZ,gBAC9CC,YAAazZ,EAAayZ,YAC1BC,YAAa1Z,EAAa0Z,YAC1BC,YAAa3Z,EAAa2Z,YAC1BC,gBAAiB5Z,EAAa4Z,gBAC9CC,YAAa7Z,EAAa6Z,YAC1BC,YAAa9Z,EAAa8Z,YAC1BC,YAAa/Z,EAAa+Z,YAC1BC,gBAAiBha,EAAaga,gBAC9CC,YAAaja,EAAaia,YAC1BC,YAAala,EAAaka,YAC1BC,YAAana,EAAama,YAC1BC,gBAAiBpa,EAAaoa,gBAC9CC,YAAara,EAAaqa,YAC1BC,YAAata,EAAasa,YAC1BC,YAAava,EAAaua,YAC1BC,gBAAiBxa,EAAawa,gBAC9CC,YAAaza,EAAaya,YAC1BC,YAAa1a,EAAa0a,YAC1BC,YAAa3a,EAAa2a,YAC1BC,gBAAiB5a,EAAa4a,gBAC9CC,YAAa7a,EAAa6a,YAC1BC,YAAa9a,EAAa8a,YAC1BC,YAAa/a,EAAa+a,YAC1BC,gBAAiBhb,EAAagb,gBAC9CC,YAAajb,EAAaib,YAC1BC,YAAalb,EAAakb,YAC1BC,YAAanb,EAAamb,YAC1BC,gBAAiBpb,EAAaob,gBAC9CC,YAAarb,EAAaqb,YAC1BC,YAAatb,EAAasb,YAC1BC,YAAavb,EAAaub,YAC1BC,gBAAiBxb,EAAawb,gBAC9CC,YAAazb,EAAayb,YAC1BC,YAAa1b,EAAa0b,YAC1BC,YAAa3b,EAAa2b,YAC1BC,gBAAiB5b,EAAa4b,gBAC9CC,YAAa7b,EAAa6b,YAC1BC,YAAa9b,EAAa8b,YAC1BC,YAAa/b,EAAa+b,YAC1BC,gBAAiBhc,EAAagc,gBAC9CC,YAAajc,EAAaic,YAC1BC,YAAalc,EAAakc,YAC1BC,YAAanc,EAAamc,YAC1BC,gBAAiBpc,EAAaoc,gBAC9CC,YAAarc,EAAaqc,YAC1BC,YAAatc,EAAasc,YAC1BC,YAAavc,EAAauc,YAC1BC,gBAAiBxc,EAAawc,gBAC9CC,YAAazc,EAAayc,YAC1BC,YAAa1c,EAAa0c,YAC1BC,YAAa3c,EAAa2c,YAC1BC,gBAAiB5c,EAAa4c,gBAC9CC,YAAa7c,EAAa6c,YAC1BC,YAAa9c,EAAa8c,YAC1BC,YAAa/c,EAAa+c,YAC1BC,gBAAiBhd,EAAagd,gBAC9CC,YAAajd,EAAaid,YAC1BC,YAAald,EAAakd,YAC1BC,YAAand,EAAamd,YAC1BC,gBAAiBpd,EAAaod,gBAC9CC,YAAard,EAAaqd,YAC1BC,YAAatd,EAAasd,YAC1BC,YAAavd,EAAaud,YAC1BC,gBAAiBxd,EAAawd,gBAC9CC,YAAazd,EAAayd,YAC1BC,YAAa1d,EAAa0d,YAC1BC,YAAa3d,EAAa2d,YAC1BC,gBAAiB5d,EAAa4d,gBAC9CC,YAAa7d,EAAa6d,YAC1BC,YAAa9d,EAAa8d,YAC1BC,YAAa/d,EAAa+d,YAC1BC,gBAAiBhe,EAAage,gBAC9CC,YAAaje,EAAaie,YAC1BC,YAAale,EAAake,YAC1BC,YAAane,EAAame,YAC1BC,gBAAiBpe,EAAaoe,gBAC9CC,YAAare,EAAaqe,YAC1BC,YAAate,EAAase,YAC1BC,YAAave,EAAaue,YAC1BC,gBAAiBxe,EAAawe,gBAC9CC,YAAaze,EAAaye,YAC1BC,YAAa1e,EAAa0e,YAC1BC,YAAa3e,EAAa2e,YAC1BC,gBAAiB5e,EAAa4e,gBAC9CC,YAAa7e,EAAa6e,YAC1BC,YAAa9e,EAAa8e,YAC1BC,YAAa/e,EAAa+e,YAC1BC,gBAAiBhf,EAAagf,gBAC9CC,YAAajf,EAAaif,YAC1BC,YAAalf,EAAakf,YAC1BC,YAAanf,EAAamf,YAC1BC,gBAAiBpf,EAAaof,gBAC9CC,YAAarf,EAAaqf,YAC1BC,YAAatf,EAAasf,YAC1BC,YAAavf,EAAauf,YAC1BC,gBAAiBxf,EAAawf,gBAC9CC,YAAazf,EAAayf,YAC1BC,YAAa1f,EAAa0f,YAC1BC,YAAa3f,EAAa2f,YAC1BC,gBAAiB5f,EAAa4f,gBAC9CC,YAAa7f,EAAa6f,YAC1BC,YAAa9f,EAAa8f,YAC1BC,YAAa/f,EAAa+f,YAC1BC,gBAAiBhg,EAAagg,gBAC9CC,YAAajg,EAAaig,YAC1BC,YAAalg,EAAakg,YAC1BC,YAAang,EAAamg,YAC1BC,gBAAiBpg,EAAaog,gBAC9CC,YAAarg,EAAaqg,YAC1BC,YAAatg,EAAasg,YAC1BC,YAAavg,EAAaug,YAC1BC,gBAAiBxg,EAAawg,gBAC9CC,YAAazg,EAAayg,YAC1BC,YAAa1g,EAAa0g,YAC1BC,YAAa3g,EAAa2g,YAC1BC,gBAAiB5g,EAAa4g,gBAC9CC,YAAa7g,EAAa6g,YAC1BC,YAAa9g,EAAa8g,YAC1BC,YAAa/g,EAAa+g,YAC1BC,gBAAiBhh,EAAagh,gBAC9CC,YAAajh,EAAaih,YAC1BC,YAAalh,EAAakh,YAC1BC,YAAanh,EAAamh,YAC1BC,gBAAiBph,EAAaoh,gBAC9CC,YAAarh,EAAaqh,YAC1BC,YAAath,EAAash,YAC1BC,YAAavh,EAAauh,YAC1BC,gBAAiBxh,EAAawh,gBAC9CC,YAAazh,EAAayh,YAC1BC,YAAa1h,EAAa0h,YAC1BC,YAAa3h,EAAa2h,YAC1BC,gBAAiB5h,EAAa4h,gBAC9CC,YAAa7h,EAAa6h,YAC1BC,YAAa9h,EAAa8h,YAC1BC,YAAa/h,EAAa+h,YAC1BC,gBAAiBhi,EAAagi,gBAC9CC,YAAaji,EAAaii,YAC1BC,YAAali,EAAaki,YAC1BC,YAAani,EAAami,YAC1BC,gBAAiBpi,EAAaoi,gBAC9CC,YAAari,EAAaqi,YAC1BC,YAAati,EAAasi,YAC1BC,YAAavi,EAAaui,YAC1BC,gBAAiBxi,EAAawi,gBAC9CC,YAAazi,EAAayi,YAC1BC,YAAa1i,EAAa0i,YAC1BC,YAAa3i,EAAa2i,YAC1BC,gBAAiB5i,EAAa4i,gBAC9CC,YAAa7i,EAAa6i,YAC1BC,YAAa9i,EAAa8i,YAC1BC,YAAa/i,EAAa+i,YAC1BC,gBAAiBhj,EAAagj,gBAC9CC,YAAajj,EAAaij,YAC1BC,YAAalj,EAAakj,YAC1BC,YAAanj,EAAamj,YAC1BC,gBAAiBpj,EAAaoj,gBAC9CC,YAAarj,EAAaqj,YAC1BC,YAAatj,EAAasj,YAC1BC,YAAavj,EAAauj,YAC1BC,gBAAiBxj,EAAawj,gBAC9CC,YAAazj,EAAayj,YAC1BC,YAAa1j,EAAa0j,YAC1BC,YAAa3j,EAAa2j,YAC1BC,gBAAiB5j,EAAa4j,gBAC9CC,YAAa7j,EAAa6j,YAC1BC,YAAa9j,EAAa8j,YAC1BC,YAAa/j,EAAa+j,YAC1BC,gBAAiBhk,EAAagk,gBAC9CC,YAAajk,EAAaik,YAC1BC,YAAalk,EAAakk,YAC1BC,YAAank,EAAamk,YAC1BC,gBAAiBpk,EAAaok,gBAC9CC,YAAark,EAAaqk,YAC1BC,YAAatk,EAAask,YAC1BC,YAAavk,EAAauk,YAC1BC,gBAAiBxk,EAAawk,gBAC9CC,YAAazk,EAAayk,YAC1BC,YAAa1k,EAAa0k,YAC1BC,YAAa3k,EAAa2k,YAC1BC,gBAAiB5k,EAAa4k,gBAC9CC,YAAa7k,EAAa6k,YAC1BC,YAAa9k,EAAa8k,YAC1BC,YAAa/k,EAAa+k,YAC1BC,gBAAiBhl,EAAagl,gBAC9CC,YAAajl,EAAail,YAC1BC,YAAall,EAAakl,YAC1BC,YAAanl,EAAaml,YAC1BC,gBAAiBpl,EAAaol,gBAC9CC,YAAarl,EAAaql,YAC1BC,YAAatl,EAAasl,YAC1BC,YAAavl,EAAaul,YAC1BC,gBAAiBxl,EAAawl,gBAC9CC,YAAazl,EAAayl,YAC1BC,YAAa1l,EAAa0l,YAC1BC,YAAa3l,EAAa2l,YAC1BC,gBAAiB5l,EAAa4l,gBAC9CC,YAAa7l,EAAa6l,YAC1BC,YAAa9l,EAAa8l,YAC1BC,YAAa/l,EAAa+l,YAC1BC,gBAAiBhm,EAAagm,gBAC9CC,YAAajm,EAAaim,YAC1BC,YAAalm,EAAakm,YAC1BC,YAAanm,EAAamm,YAC1BC,gBAAiBpm,EAAaom,gBAC9CC,YAAarm,EAAaqm,YAC1BC,YAAatm,EAAasm,YAC1BC,YAAavm,EAAaum,YAC1BC,gBAAiBxm,EAAawm,gBAC9CC,YAAazm,EAAaym,YAC1BC,YAAa1m,EAAa0m,YAC1BC,YAAa3m,EAAa2m,YAC1BC,gBAAiB5m,EAAa4m,gBAC9CC,YAAa7m,EAAa6m,YAC1BC,YAAa9m,EAAa8m,YAC1BC,YAAa/m,EAAa+m,YAC1BC,gBAAiBhn,EAAagn,gBAC9CC,YAAajn,EAAain,YAC1BC,YAAaln,EAAakn,YAC1BC,YAAann,EAAamn,YAC1BC,gBAAiBpn,EAAaon,gBAC9CC,YAAarn,EAAaqn,YAC1BC,YAAatn,EAAasn,YAC1BC,YAAavn,EAAaun,YAC1BC,gBAAiBxn,EAAawn,gBAC9CC,YAAazn,EAAayn,YAC1BC,YAAa1n,EAAa0n,YAC1BC,YAAa3n,EAAa2n,YAC1BC,gBAAiB5n,EAAa4n,gBAC9CC,YAAa7n,EAAa6n,YAC1BC,YAAa9n,EAAa8n,YAC1BC,YAAa/n,EAAa+n,YAC1BC,gBAAiBhoA,EAAagoA,gBAC9CC,YAAajoA,EAAaioA,YAC1BC,YAAaloA,EAAakoA,YAC1BC,YAAanoA,EAAamoA,YAC1BC,gBAAiBpoA,EAAaooA,gBAC9CC,YAAaroA,EAAaqoA,YAC1BC,YAAatoA,EAAasoA,YAC1BC,YAAavoA,EAAauoA,YAC1BC,gBAAiBxoA,EAAawoA,gBAC9CC,YAAazoA,EAAayoA,YAC1BC,YAAa1oA,EAAa0oA,YAC1BC,YAAa3oA,EAAa2oA,YAC1BC,gBAAiB5oA,EAAa4oA,gBAC9CC,YAAa7oA,EAAa6oA,YAC1BC,YAAa9oA,EAAa8oA,YAC1BC,YAAa/oA,EAAa+oA,YAC1BC,gBAAiBhpA,EAAagpA,gBAC9CC,YAAajpA,EAAaipA,YAC1BC,YAAalpA,EAAakpA,YAC1BC,YAAanpA,EAAampA,YAC1BC,gBAAiBppA,EAAaopA,gBAC9CC,YAAarpA,EAAaqpA,YAC1BC,YAAatpA,EAAaspA,YAC1BC,YAAavpA,EAAaupA,YAC1BC,gBAAiBxpA,EAAawpA,gBAC9CC,YAAazpA,EAAaypA,YAC1BC,YAAa1pA,EAAa0pA,YAC1BC,YAAa3pA,EAAa2pA,YAC1BC,gBAAiB5pA,EAAa4pA,gBAC9CC,YAAa7pA,EAAa6pA,YAC1BC,YAAa9pA,EAAa8pA,YAC1BC,YAAa/pA,EAAa+pA,YAC1BC,gBAAiBhqA,EAAagqA,gBAC9CC,YAAajqA,EAAaiqA,YAC1BC,YAAalqA,EAAakqA,YAC1BC,YAAanqA,EAAamqA,YAC1BC,gBAAiBpqA,EAAaoqA,gBAC9CC,YAAarqA,EAAaqqA,YAC1BC,YAAatqA,EAAasqA,YAC1BC,YAAavqA,EAAauqA,YAC1BC,gBAAiBxqA,EAAawqA,gBAC9CC,YAAazqA,EAAayqA,YAC1BC,YAAa1qA,EAAa0qA,YAC1BC,YAAa3qA,EAAa2qA,YAC1BC,gBAAiB5qA,EAAa4qA,gBAC9CC,YAAa7qA,EAAa6qA,YAC1BC,YAAa9qA,EAAa8qA,YAC1BC,YAAa/qA,EAAa+qA,YAC1BC,gBAAiBhrA,EAAagrA,gBAC9CC,YAAajrA,EAAairA,YAC1BC,YAAalrA,EAAakrA,YAC1BC,YAAanrA,EAAamrA,YAC1BC,gBAAiBprA,EAAaorA,gBAC9CC,YAAarrA,EAAaqrA,YAC1BC,YAAatrA,EAAasrA,YAC1BC,YAAavrA,EAAaurA,YAC1BC,gBAAiBxrA,EAAawrA,gBAC9CC,YAAazrA,EAAayrA,YAC1BC,YAAa1rA,EAAa0rA,YAC1BC,YAAa3rA,EAAa2rA,YAC1BC,gBAAiB5rA,EAAa4rA,gBAC9CC,YAAa7rA,EAAa6rA,YAC1BC,YAAa9rA,EAAa8rA,YAC1BC,YAAa/rA,EAAa+rA,YAC1BC,gBAAiBhsA,EAAagsA,gBAC9CC,YAAajsA,EAAaisA,YAC1BC,YAAalsA,EAAaksA,YAC1BC,YAAansA,EAAamsA,YAC1BC,gBAAiBpsA,EAAaosA,gBAC9CC,YAAarsA,EAAaqsA,YAC1BC,YAAatsA,EAAassA,YAC1BC,YAAavsA,EAAausA,YAC1BC,gBAAiBxsA,EAAawsA,gBAC9CC,YAAazsA,EAAaysA,YAC1BC,YAAa1sA,EAAa0sA,YAC1BC,YAAa3sA,EAAa2sA,YAC1BC,gBAAiB5sA,EAAa4sA,gBAC9CC,YAAa7sA,EAAa6sA,YAC1BC,YAAa9sA,EAAa8sA,YAC1BC,YAAa/sA,EAAa+sA,YAC1BC,gBAAiBhtA,EAAagtA,gBAC9CC,YAAajtA,EAAaitA,YAC1BC,YAAaltA,EAAaktA,YAC1BC,YAAantA,EAAamtA,YAC1BC,gBAAiBptA,EAAaotA,gBAC9CC,YAAartA,EAAaqtA,YAC1BC,YAAattA,EAAastA,YAC1BC,YAAavtA,EAAautA,YAC1BC,gBAAiBxtA,EAAawtA,gBAC9CC,YAAaztA,EAAaytA,YAC1BC,YAAa1tA,EAAa0tA,YAC1BC,YAAa3tA,EAAa2tA,YAC1BC,gBAAiB5tA,EAAa4tA,gBAC9CC,YAAa7tA,EAAa6tA,YAC1BC,YAAa9tA,EAAa8tA,YAC1BC,YAAa/tA,EAAa+tA,YAC1BC,gBAAiBhuA,EAAagtA,gBAC9CC,YAAajuA,EAAaiuA,YAC1BC,YAAaluA,EAAakuA,YAC1BC,YAAanuA,EAAamuA,YAC1BC,gBAAiBpuA,EAAaouA,gBAC9CC,YAAaruA,EAAaquA,YAC1BC,YAAatuA,EAAasuA,YAC1BC,YAAavuA,EAAauuA,YAC1BC,gBAAiBxuA,EAAawuA,gBAC9CC,YAAazuA,EAAayuA,YAC1BC,YAAa1uA,EAAa0uA,YAC1BC,YAAa3uA,EAAa2uA,YAC1BC,gBAAiB5uA,EAAa4uA,gBAC9CC,YAAa7uA,EAAa6uA,YAC1BC,YAAa9uA,EAAa8uA,YAC1BC,YAAa/uA,EAAa+uA,YAC1BC,gBAAiBhvA,EAAagvA,gBAC9CC,YAAajvA,EAAaiv

2C,GAAK,OAAA,IAAImE,WAAW1E,EAASC,GAAO0E,KAAK,KAErDvE,EAAoBL,MAAR0C,EAAQ1C,OAE1
BD,EACFD,UAAUG,EAAQC,IAASsE,EAAUC,GAAUzE,GAD5C2C,OAAQC,OAERM,EACLmB,qBAAqBG,E
AAUC,GAAUhC,MAClCjD,EAAI,EAAGA,EAAIS,EAAQT,GAAK,EAC/B,IAAK,IAAIqF,EAAI,EAAI,EAAGA,EAAI
3E,EAAO2E,GAAK,EAAG,CACjC,IAAMC,EAAItF,EAAIU,EAAQ2E,EAEtB,GAAa,IADArG,EAAasG,GACV,
CACd,IAAMb,EAAOR,0BACRjD,EAAGqE,EAAG/G,0B,GAAId,EAAa6F,EAAiBZ,GAC3CtD,MqC,
IAAQC,EAAQC,GAASM,GAAoBjD,EAAQC,GAC5DuC,EAAQU,GACRc,GAAQ,IACVS,EAAWT,GAAMa
AK,IAM9B,OAAOJ,EAGT,SAAgBK,2BACZvG,EAAA0Bs,EAAA1Bs,EAAA6Bs,EAAA7Bs,EAAA8Bs,EAAA9Bs,EAAA+Bs,EAAA/Bs,EAAAgCs,EAAAhCs,EAAAiCs,EAAAjCs,EAAAkCs,EA
AgBxG,EAC/B+D,EAAkBmD,EAAIlBQ,OAAFgCa,OAAUC,oBAE1Cd,KAWF,IAVA,IAAMe,EAAC4C,OAAOC,OAAOC,OAAOC

E5B,yBAEP,SAAMJ,EAAaqJ,eACrB,OADlBG,EAAoBjI,YACIrB,EAAYmJ,eACd,OADtBI,EAAkBlI,YACUoI,EAAiBN,eAA7CS,EAAsBvI,SAE5BsI,EAAgCtD,2BAC5BiD,EAAmBC,EAAiBK,EACpC/D,EAAiBtE,EAAQC,EAAAOuC,GAAAS+B,EAAAUC,GAAAUzE,EAAC7DmD,oBAGNSAAOkF,EAA8BxK,IACjCSAACgK,EAAM1D,GAAAMAMyC,EAAgBJ,GAAAI0D,OAAAM5H,SAAAQC,EAAAiBC5G7D,SAASqI,KAAAKpE,GACZ,OAAO9B,KAAAKmG,MAAAMrE,EAAAI,GAAGxB,uBAAKE,WAAAYsE,EAAiBC,GAAC3B1L,cAAAgB,IAAAIC,MAAAMH,GAAAC/BzL,cAAAkB,KAAAK6B,oBAAAkB,EAAAC,EAAAC,EAAAC

AAW8M,EAAS3B,IAC1B9H,SAAU2J,GAKZ,IAAK,IAAIC,EAAOpB,EAAW,EAAGoB,GAAQ,IAAKA,EAAM,CAC/C,IAAMC,EAAmB3B,mBAAmB0B,GACtChB,EAAmBT,mBAAmByB,GACxCJ,EAAkBK,KACjBL,EAAkBZ,KACrBY,EAAkBZ,GAAoBF,yBAClCkB,EAAMJ,EAAkBK,GAAmBjB,EAAkB3B,EAC7DlL,EAAStB,EAAAc8O,IAM/B,IAASK,EAAO,EAAGA,EAAOpB,IAAYoB,EAAM,CACpCC,EAAMpC,CAAcmC,GAAMC,IAAMpC,CAAcmC,GAAMC,IAAMpC,CAAcmC,GAAMC,I

KmG,MAAM0I,EAAW,GAC7BJ,EAAOH,GAAWC,EAAUlO,GAC5BrC,EAAO,EACPC,EAAO,EAkBT,OAAQ6Q,iBAfiBxV,KAAQ,WAE/B,IAAIyV,EAUJ,OAREA,EADEX,EACQY,MAASC,eACfC,QAAWf,EAAa,IAAKK,EAASD,IAEhCS,MAASC,eAAed,GAAcK,EAASD,IAG5CY,MAASJ,IAAW/Q,EAAMC,EAAQ,EAAMoO,IAAQ,EAAG,OAK1CW,WAAYpR,EAAMC,EAAQ,EAAMoO,IAAQ,KAG5D,BAAZC,EACA,EAAC1V,EACA8D,EACA6R,EAAO,EAAC3V,EAAO,EAAC8D,EAAO,EAAC

vG,MACN,yBAAyBuG,qCAI/B,GAAIC,GAAiB,EACnB,MAAM,IAAIxG,MACN,yBAAyBwG,qBAI/B,GAAI3K,EAAiB,GAAOA,EAAiB,EAC3C,MAAM,IAAImE,MACN,0BAA0BnE,qCAIhC,GAAIgD,GAAa,EACf,MAAM,IAAImB,MAAM,qBAAqBnB,OAIzC,SAAS8H,2CACLP,GAEA,IAAAG,EAMEH,wBALFI,EAKEJ,gBAJFK,EAIEL,iBAHFM,EAGEN,YAFFtN,EAEEsN,mBADFpR,EACEoR,cAEJ,cAAEJ,GAAgBA,EAAcS,EAAAA,EAAAA,GAAAA,EAAAA,GAAAA,EAAAA,G

QACvDgB,0BAEE4C,EAAyB9E,+BAC3ByD,GAAoBlV,EAAQC,IAASoV,EAAeC,KAClDvV,EAAQ0S,IAAK1S,EAAQ6S,SAAU7S,EAAQ2S,KAAM3S,EAAQ4S,QACvDgB,0BAGJ,OACEzL,iBACIpM,uBAHFP,aAAauC,QAAWyX,GAAsBd,GAGP8B,GACzCtY,gBACAG,UACAC,kBACAC,qBAlCF4J,qBACAjK,kBACAG,YACAC,oBACAC,oBAkCF,OADA6S,EAAQxS,WAENuJ,mBACAjK,gBACAG,UACAC,kBACAC,kBACAyB,UACAoV,qCA8BEH,+BAAN,SACI3X,EACAiX,uBAAAAA,sKAkBWW,8BAAW,OAAOC,KAAKC,MAAQ,KAAOD,KAAKE,UAAY,GAAK,GAAK,GAAK

B,yBAA2BD,EAC/BzB,EAAIQ,UAAU3c,EAAO,EAAG,GAG1B,SAAS8d,wBACP,GAAwB,oBAAbC,SACT,OAAOA,SASC,cAAc,UACzB,GAA+B,oBAApB3K,gBAChB,OAAO,IAAIA,gBAAgB,EAAG,GAE9B,MAAM,IAAIP,MAAM,0CAIpB,SAASmL,6BAA6BlP,GAIpC,kBAAkB7N,KACrB6N,kBAAkB7N,GAAG3B,SAASmP,yBACzBLle,EAAkBme,EAAoBlC,GACjCjC,IAAIArX,EAAiB5E,EAAiB6E,EAAiB,EAAS7E,QAClBmc,EAAMF,EAAOG,WAAWC,EAAMC,EAAOC,EAAMC,EAAOC,EAAMC,EAAO

C3D,IAAM0X,EAASD,EAA4BzX,GAAG0D,KAAKrI,GACnD,IAAgB,IAAZqc,EAAe,CACjB,IAAMV,EAAQQ,
EAAWE,GACzB,IAAKV,EACH,MAAM,IAAIhN,MAAM,uCAAuC0N,GAEzDhB,EAAMhW,EAAI,GAAKsW,E
AAM,GACrBN,EAAMhW,EAAI,GAAKsW,EAAM,GACrBN,EAAMhW,EAAI,GAAKsW,EAAM,GACrBN,EAA
MhW,EAAI,GAAK,MAIrB,OAAO,IAAI+J,UAAUiM,EAAO3a,EAAOD,GAGrC,IAAM6b,cAAS,UACT
C,YAAa,eACb1gB,KAAM,OACN2gB,eAAgB,oBAuBlB,SAAgBC,SACZ5E,EAAgBjc,EAAkB8gB,EAClCC,EA
AmBC,EAAoB5L,gBAAvC2L,mBAAmBC,kBAAoB5L,MACnC,IAAAxU,EAAkBuS,aAAanT,GAA9B,OAAQ
C,OACfoX,EAAOpX,MAAQA,EACfoX,EAAOrX,SAASA,EAAEhB,IAAMuX,EAAMF,EAAOG,WAAW,MAS9B
,GARAD,EAAIkC,OACAjJ,GACFoI,qBAAqBvB,GAGvBE,EAAIQ,UAAU3c,EAAO,EAAG,GAExBmc,EAAIO,
YAAcqE,EACdD,EAAW,CACb7D,sBAAsBpY,QAAOD,UASkc,EAAW,QAAS,QAE1D,IAEMH,EAAcpC,kCA
FPK,iCAAiCkC,EAAWL,aAAaxgB,MAG5D+gB,EAAgBP,aAAaE,EAAgBK,EAAWxE,EAAIyE,EAAIC,EAAIC,EAAIC

Found
in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/body-pix.esm.js.map
No license file was found, but licenses were detected in source scan.

/**
* @license
* Copyright 2019 Google Inc. All Rights Reserved.
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
* ===
*/

Found in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_instance_masks.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/mobilenet.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_masks_webgl.js
*
/tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_poses.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/max_heap.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/base_model.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_masks_cpu.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_masks_cpu.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/body_pix_model.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/max_heap.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/base_model.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_instance_masks.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/body_pix_model.d.ts
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_poses.d.ts
*
/tensorflow-models-zip/@tensorflow-models/body-pix/dist/mobilenet.js
* /tensorflow-models-zip/@tensorflow-models/body-pix/dist/multi_person/decode_multiple_masks_webgl.d.ts
No license file was found, but licenses were detected in source scan.

{"version":3,"sources":["../../src/backends/backend.ts","../src/util_base.ts","../src/environment.ts","node_modules/process/browser.js","../src/global_util.ts","../src/kernel_names.ts","../src/kernel_registry.ts","../src/util.ts","../src/profiler.ts","../src/tape.ts","../src/tensor_format.ts","../src/tensor.ts","../src/types.ts","../src/tensor_util.ts","../src/engine.ts","../src/device_util.ts","../src/flags.ts","../src/tensor_util_env.ts","../../src/ops/operation.ts","../../src/ops/complex.ts","../../src/ops/tensor_ops_util.ts","../../src/ops/tensor.ts","../../src/io/types.ts","node_modules/base64-

js/index.js","node_modules/ieee754/index.js","node_modules/isarray/index.js","node_modules/buffer/index.js","../../src/io/io_utils.ts","../../src/io/router_registry.ts","../../src/io/indexed_db.ts","../../src/io/local_storage.ts","../../src/io/model_management.ts","../../src/platforms/platform_browser.ts","../../src/platforms/platform_node.ts","../../src/ops/buffer.ts","../../src/ops/cast.ts","../../src/ops/clone.ts","../../src/ops/print.ts","../src/base_side_effects.ts","../../src/io/browser_files.ts","../../src/io/progress.ts","../../src/io/weights_loader.ts","../../src/io/http.ts","../../src/io/passthrough.ts","../../src/io/io.ts","../../src/ops/mat_mul.ts","../../src/ops/one_hot.ts","../../src/ops/transpose.ts","../../src/ops/confusion_matrix.ts","../src/math.ts","../../src/ops/tensor3d.ts","../../src/ops/browser.ts","../../src/ops/gather_nd_util.ts","../../src/ops/scatter_nd_util.ts","../../src/ops/slice_util.ts","../src/serialization.ts","../src/test_util.ts","../src/version.ts","../src/globals.ts","../../src/ops/add.ts","../../src/ops/floorDiv.ts","../../src/ops/div.ts","../../src/ops/mul.ts","../../src/ops/abs.ts","../../src/ops/acos.ts","../../src/ops/acosh.ts","../../src/ops/add_n.ts","../../src/ops/all.ts","../../src/ops/any.ts","../../src/ops/arg_max.ts","../../src/ops/arg_min.ts","../../src/ops/asin.ts","../../src/ops/asinh.ts","../../src/ops/atan.ts","../../src/ops/atan2.ts","../../src/ops/atanh.ts","../../src/ops/conv_util.ts","../../src/ops/reshape.ts","../../src/ops/avg_pool.ts","../../src/ops/avg_pool_3d.ts","../../src/ops/concat.ts","../../src/ops/sigmoid.ts","../../src/ops/slice.ts","../../src/ops/tanh.ts","../../src/ops/basic_lstm_cell.ts","../../src/ops/batch_to_space_nd.ts","../../src/ops/batchnorm_util.ts","../../src/ops/batchnorm.ts","../../src/ops/batchnorm2d.ts","../../src/ops/batchnorm3d.ts","../../src/ops/batchnorm4d.ts","../../src/ops/bincount.ts","../../src/ops/broadcast_to.ts","../../src/ops/ceil.ts","../../src/ops/clip_by_value.ts","../../src/ops/concat_1d.ts","../../src/ops/concat_2d.ts","../../src/ops/concat_3d.ts","../../src/ops/concat_4d.ts","../../src/ops/conv2d.ts","../../src/ops/conv1d.ts","../../src/ops/conv2d_backprop_input.ts","../../src/ops/conv2d_transpose.ts","../../src/ops/conv3d.ts","../../src/ops/conv3d_backprop_input.ts","../../src/ops/conv3d_transpose.ts","../../src/ops/cos.ts","../../src/ops/cosh.ts","../../src/ops/cumsum.ts","../../src/ops/dense_bincount.ts","../../src/ops/depth_to_space.ts","../../src/ops/depthwise_conv2d.ts","../../src/ops/diag.ts","../../src/ops/dilation2d.ts","../../src/ops/broadcast_util.ts","../../src/ops/equal.ts","../../src/ops/where.ts","../../src/ops/zeros_like.ts","../../src/ops/div_no_nan.ts","../../src/ops/dot.ts","../../src/ops/elu.ts","../../src/ops/erf.ts","../../src/ops/exp.ts","../../src/ops/expand_dims.ts","../../src/ops/expm1.ts","../../src/ops/tile.ts","../../src/ops/eye.ts","../../src/ops/fill.ts","../../src/ops/floor.ts","../../src/ops/gather.ts","../../src/ops/greater.ts","../../src/ops/greater_equal.ts","../../src/ops/imag.ts","../../src/ops/is_finite.ts","../../src/ops/is_inf.ts","../../src/ops/is_nan.ts","../../src/ops/leaky_relu.ts","../../src/ops/less.ts","../../src/ops/less_equal.ts","../../src/ops/linspace.ts","../../src/ops/local_response_normalization.ts","../../src/ops/log.ts","../../src/ops/log1p.ts","../src/gradients.ts","../../src/ops/neg.ts","../../src/ops/softplus.ts","../../src/ops/log_sigmoid.ts","../../src/ops/max.ts","../../src/ops/sub.ts","../../src/ops/sum.ts","../../src/ops/log_softmax.ts","../../src/ops/axis_util.ts","../../src/ops/log_sum_exp.ts","../../src/ops/logical_and.ts","../../src/ops/logical_not.ts","../../src/ops/logical_or.ts","../../src/ops/logical_xor.ts","../../src/ops/max_pool.ts","../../src/ops/max_pool_3d.ts","../../src/ops/max_pool_with_argmax.ts","../../src/ops/maximum.ts","../../src/ops/mean.ts","../../src/ops/min.ts","../../src/ops/minimum.ts","../../src/ops/mirror_pad.ts","../../src/ops/mod.ts","../../src/ops/square.ts","../../src/ops/moments.ts","../../src/ops/multi_rnn_cell.ts","../../src/ops/multinomial.ts","../../src/ops/not_equal.ts","../../src/ops/zeros.ts","../../src/ops/ones.ts","../../src/ops/ones_like.ts","../../src/ops/outer_product.ts","../../src/ops/pad.ts","../../src/ops/pad1d.ts","../../src/ops/pad2d.ts","../../src/ops/pad3d.ts","../../src/ops/pad4d.ts","../../src/ops/space_to_batch_nd.ts","../../src/ops/pool.ts","../../src/ops/pow.ts","../../src/ops/prelu.ts","../../src/ops/prod.ts","../../src/ops/rand.ts","node_modules/seedrandom/lib/alea.js","node_modules/seedrandom/lib/xor128.js","node_modules/seedrandom/lib/xorwow.js","node_modules/seedrandom/lib/xorshift7.js","node_modules/seedrandom/lib/xor4096.js","node_modules/seedrandom/lib/tychei.js","node_modules/seedrandom/seedrandom.js","node_modules/seedrandom/index.js","../../src/ops/rand_util.ts","../../src/ops/random_gamma.ts","../../src/ops/random_normal.ts","../../src/ops/random_uniform.ts","../../src/ops/range.ts","../../src/ops/real.ts","../../src/ops/reciprocal.ts","../../src/ops/relu.ts","../../src/ops/relu6.ts","../../src/ops/reverse.ts","../../src/ops/reverse_1d.ts","../../src/ops/reverse_2d.ts","../../src/ops/reverse_3d.ts","../../src/ops/reverse_4d.ts","../../src/ops/round.ts","../../src/ops/rsqrt.ts","../../src/ops/scalar.ts","../../src/ops/selu.ts","../../src/ops/separable_conv2d.ts","../../src/ops/setdiff1d_async.ts","../../src/ops/sign.ts","../../src/ops/sin.ts","../../src/ops/sinh.ts","../../src/ops/slice1d.ts","../../src/ops/slice2d.ts","../../src/ops/slice3d.ts","../../src/ops/slice4d.ts","../../src/ops/softmax.ts","../../../src/ops/spectral/fft.ts","../../../src/ops/spectral/ifft.ts","../../../src/ops/spectral/irfft.ts","../../src/ops/split.ts","../../../src/ops/spectral/rfft.ts","../../src/ops/sqrt.ts","../../src/ops/squared_difference.ts","../../src/ops/squeeze.ts","../../src/ops/stack.ts","../../src/ops/step.ts","../../src/ops/strided_slice.ts","../../src/ops/tan.ts","../../src/ops/tensor1d.ts","../../src/ops/tensor2d.ts","../../src/ops/tensor4d.ts","../

../src/ops/tensor5d.ts","../../src/ops/tensor6d.ts","../../src/ops/topk.ts","../../src/ops/truncated_normal.ts","../../src/ops/unique.ts","../../src/ops/unsorted_segment_sum.ts","../../src/ops/unstack.ts","../../src/ops/variable.ts","../../src/backends/where_impl.ts","../../src/ops/where_async.ts","../../src/ops/boolean_mask.ts","../../src/ops/norm.ts","../../src/ops/moving_average.ts","../../src/ops/scatter_nd.ts","../../src/ops/sparse_to_dense_util.ts","../../src/ops/sparse_to_dense.ts","../../src/ops/gather_nd.ts","../../src/ops/dropout_util.ts","../../src/ops/dropout.ts","../../src/ops/signal_ops_util.ts","../../src/ops/in_top_k.ts","../../src/ops/conv2d_backprop_filter.ts","../../src/ops/fused_util.ts","../../../src/ops/fused/conv2d.ts","../../src/ops/depthwise_conv2d_native_backprop_filter.ts","../../src/ops/depthwise_conv2d_native_backprop_input.ts","../../../src/ops/fused/depthwise_conv2d.ts","../../../src/ops/fused/mat_mul.ts","../../src/ops/fused_ops.ts","../../../src/ops/signal/hamming_window.ts","../../../src/ops/signal/hann_window.ts","../../../src/ops/signal/frame.ts","../../../src/ops/signal/stft.ts","../../../src/ops/image/crop_and_resize.ts","../../../src/ops/image/flip_left_right.ts","../../../src/ops/image/rotate_with_offset.ts","../../src/ops/nonmax_util.ts","../../../src/ops/image/non_max_suppression.ts","../../src/backends/non_max_suppression_util.ts","../../src/backends/non_max_suppression_impl.ts","../../../src/ops/image/non_max_suppression_async.ts","../../../src/ops/image/non_max_suppression_with_score.ts","../../../src/ops/image/non_max_suppression_with_score_async.ts","../../../src/ops/image/non_max_suppression_padded.ts","../../../src/ops/image/non_max_suppression_padded_async.ts","../../../src/ops/image/resize_bilinear.ts","../../../src/ops/image/resize_nearest_neighbor.ts","../../../src/ops/linalg/band_part.ts","../../../src/ops/linalg/gram_schmidt.ts","../../../src/ops/linalg/qr.ts","../../src/ops/loss_ops_utils.ts","../../../src/ops/losses/compute_weighted_loss.ts","../../../src/ops/losses/absolute_difference.ts","../../../src/ops/losses/cosine_distance.ts","../../../src/ops/losses/hinge_loss.ts","../../../src/ops/losses/huber_loss.ts","../../../src/ops/losses/log_loss.ts","../../../src/ops/losses/mean_squared_error.ts","../../../src/ops/losses/sigmoid_cross_entropy.ts","../../../src/ops/losses/softmax_cross_entropy.ts","../../src/ops/ops.ts","../../src/optimizers/optimizer.ts","../../src/optimizers/adadelta_optimizer.ts","../../src/optimizers/adagrad_optimizer.ts","../../src/optimizers/adam_optimizer.ts","../../src/optimizers/adamax_optimizer.ts","../../src/optimizers/sgd_optimizer.ts","../../src/optimizers/momentum_optimizer.ts","../../src/optimizers/rmsprop_optimizer.ts","../../src/optimizers/optimizer_constructors.ts","../src/train.ts","../src/browser_util.ts","../../src/ops/concat_util.ts","../../src/ops/reduce_util.ts","../../src/ops/rotate_util.ts","../../src/ops/array_ops_util.ts","../../src/ops/selu_util.ts","../../src/ops/erf_util.ts","../src/log.ts","../../src/backends/complex_util.ts","../../src/ops/split_util.ts","../../src/ops/segment_util.ts","../../src/backends/backend_util.ts","../../src/backends/kernel_impls.ts","../src/base.ts","../src/index.ts","../src/canvas_util.ts","../src/tex_util.ts","../src/webgl_util.ts","../src/flags_webgl.ts","../src/glsl_version.ts","../src/shader_compiler_util.ts","../src/decode_matrix_gpu.ts","../src/decode_matrix_packed_gpu.ts","../src/encode_float_gpu.ts","../src/encode_float_packed_gpu.ts","../src/encode_matrix_gpu.ts","../src/encode_matrix_packed_gpu.ts","../src/gpgpu_util.ts","../src/gpgpu_context.ts","../src/shader_compiler.ts","../src/gpgpu_math.ts","../src/cpu_util.ts","../../src/kernels/Abs.ts","../../src/utils/binary_impl.ts","../../src/kernels/Complex.ts","../../src/utils/zeros_impl.ts","../../src/kernels/Identity.ts","../../src/kernels/Real.ts","../../src/kernels/Cast.ts","../../src/utils/binary_utils.ts","../../src/kernels/Add.ts","../../src/kernels/Bincount_impl.ts","../../src/utils/unary_impl.ts","../../src/utils/unary_utils.ts","../../src/kernels/Ceil.ts","../../src/kernels/Concat_impl.ts","../../src/kernels/Exp.ts","../../src/kernels/Expm1.ts","../../src/kernels/Floor.ts","../../src/kernels/GatherV2_impl.ts","../../src/kernels/Greater.ts","../../src/kernels/Less.ts","../../src/kernels/LinSpace_impl.ts","../../src/kernels/Log.ts","../../src/kernels/Max_impl.ts","../../src/kernels/Maximum.ts","../../src/kernels/Minimum.ts","../../src/kernels/Multiply.ts","../../src/kernels/Neg.ts","../../src/kernels/NotEqual.ts","../../src/kernels/Transpose_impl.ts","../../src/kernels/Transpose.ts","../../src/kernels/Prod.ts","../../src/kernels/Range_impl.ts","../../src/kernels/Rsqrt.ts","../../src/kernels/Slice.ts","../../src/kernels/SquaredDifference.ts","../../src/kernels/StridedSlice_impl.ts","../../src/kernels/Sub.ts","../../src/kernels/Tile_impl.ts","../../src/kernels/TopK_impl.ts","../../src/kernels/Unique_impl.ts","../src/shared.ts","../../src/kernel_utils/shared.ts","../src/packing_util.ts","../src/pack_gpu.ts","../src/reshape_packed_gpu.ts","../src/texture_manager.ts","../src/unaryop_gpu.ts","../src/unaryop_packed_gpu.ts","../src/unpack_gpu.ts","../src/backend_webgl.ts","../src/webgl.ts","../src/binaryop_gpu.ts","../src/binaryop_packed_gpu.ts","../../src/kernels/LeakyRelu.ts","../../src/kernels/Prelu.ts","../../src/kernel_utils/kernel_funcs_utils.ts","../src/mulmat_packed_gpu.ts","../src/binaryop_complex_gpu.ts","../../src/kernel_utils/reshape.ts","../../src/kernels/Reshape.ts","../src/mean_gpu.ts","../src/reduce_gpu.ts","../../src/kernel_utils/reduce.ts","../src/transpose_gpu.ts","../src/transpose_packed_gpu.ts","../../src/kernels/Sum_impl.ts","../../src/kernels/Sum.ts","../../src/kernels/BatchMatMul_impl.ts","../../src/kernels/_FusedMatMul.ts","../../src/kernels/Acos.ts","../../src/kernels/Acosh.ts","../src/addn_gpu.

ts","../src/addn_packed_gpu.ts","../../src/kernels/AddN.ts","../../src/kernels/All.ts","../../src/kernels/Any.ts","../src/argminmax_gpu.ts","../src/argminmax_packed_gpu.ts","../../src/kernel_utils/arg_min_max.ts","../../src/kernels/ArgMax.ts","../../src/kernels/ArgMin.ts","../../src/kernels/Asin.ts","../../src/kernels/Asinh.ts","../../src/kernels/Atan.ts","../../src/kernels/Atan2.ts","../../src/kernels/Atanh.ts","../src/pool_gpu.ts","../../src/kernels/AvgPool.ts","../../src/kernels/AvgPool3D.ts","../src/avg_pool_backprop_gpu.ts","../../src/kernels/AvgPool3DGrad.ts","../../src/kernels/AvgPoolGrad.ts","../../src/kernels/BatchMatMul.ts","../src/batchnorm_gpu.ts","../src/batchnorm_packed_gpu.ts","../../src/kernels/BatchNorm.ts","../src/slice_gpu.ts","../src/slice_packed_gpu.ts","../../src/kernels/BatchToSpaceND.ts","../../src/kernels/Bincount.ts","../../src/kernel_utils/int.ts","../src/clip_gpu.ts","../src/clip_packed_gpu.ts","../../src/kernels/ClipByValue.ts","../src/complex_abs_gpu.ts","../../src/kernels/ComplexAbs.ts","../src/concat_gpu.ts","../src/concat_packed_gpu.ts","../../src/kernels/Imag.ts","../../src/kernels/Concat.ts","../src/conv_gpu.ts","../src/im2col_packed_gpu.ts","../../src/kernels/Conv2D_impl.ts","../../src/kernels/Conv2D.ts","../src/conv_backprop_gpu.ts","../../src/kernels/Conv2DBackpropFilter.ts","../../src/kernels/Conv2DBackpropInput.ts","../../src/kernels/Conv3D.ts","../../src/kernels/Conv3DBackpropFilterV2.ts","../../src/kernels/Conv3DBackpropInputV2.ts","../../src/kernels/Cos.ts","../../src/kernels/Cosh.ts","../src/crop_and_resize_gpu.ts","../../src/kernels/CropAndResize.ts","../src/cumsum_gpu.ts","../../src/kernels/Cumsum.ts","../../src/kernels/DenseBincount.ts","../src/depth_to_space_gpu.ts","../../src/kernels/DepthToSpace.ts","../src/conv_gpu_depthwise.ts","../src/conv_packed_gpu_depthwise.ts","../../src/kernels/DepthwiseConv2dNative.ts","../src/conv_backprop_gpu_depthwise.ts","../../src/kernels/DepthwiseConv2dNativeBackpropFilter.ts","../../src/kernels/DepthwiseConv2dNativeBackpropInput.ts","../src/diag_gpu.ts","../../src/kernels/Diag.ts","../src/dilation_gpu.ts","../../src/kernels/Dilation2D.ts","../../src/kernels/Elu.ts","../../src/kernels/EluGrad.ts","../../src/kernels/Equal.ts","../../src/kernels/Erf.ts","../../src/kernels/ExpandDims.ts","../src/fft_gpu.ts","../../src/kernels/FFT_impl.ts","../../src/kernels/FFT.ts","../src/fill_gpu.ts","../../src/kernels/Fill.ts","../src/flip_left_right_gpu.ts","../../src/kernels/FlipLeftRight.ts","../../src/kernels/FloorDiv.ts","../../../src/kernels/FromPixels_utils/from_pixels_gpu.ts","../../../src/kernels/FromPixels_utils/from_pixels_packed_gpu.ts","../../src/kernels/FromPixels.ts","../../src/kernels/FusedConv2D.ts","../../src/kernels/FusedDepthwiseConv2D.ts","../src/gather_nd_gpu.ts","../../src/kernels/GatherNd.ts","../src/gather_gpu.ts","../../src/kernels/GatherV2.ts","../../src/kernels/GreaterEqual.ts","../../src/kernels/IFFT.ts","../../src/kernels/IsFinite.ts","../../src/kernels/IsInf.ts","../../src/kernels/IsNaN.ts","../../src/kernels/LessEqual.ts","../../src/kernels/LinSpace.ts","../../src/kernels/Log1p.ts","../../src/kernels/LogicalAnd.ts","../../src/kernels/LogicalNot.ts","../../src/kernels/LogicalOr.ts","../src/lrn_gpu.ts","../src/lrn_packed_gpu.ts","../../src/kernels/LRN.ts","../src/lrn_grad_gpu.ts","../../src/kernels/LRNGrad.ts","../../src/kernels/Max.ts","../../src/kernels/MaxPool.ts","../../src/kernels/MaxPool3D.ts","../src/max_pool_backprop_gpu.ts","../../src/kernels/MaxPool3DGrad.ts","../../src/kernels/MaxPoolGrad.ts","../../src/kernels/MaxPoolWithArgmax_impl.ts","../../src/kernels/MaxPoolWithArgmax.ts","../../src/kernels/Mean_impl.ts","../../src/kernels/Mean.ts","../../src/kernels/Min.ts","../src/mirror_pad_gpu.ts","../src/mirror_pad_packed_gpu.ts","../../src/kernels/MirrorPad.ts","../../src/kernels/Mod.ts","../src/multinomial_gpu.ts","../../src/kernels/RealDiv.ts","../../src/kernels/Softmax.ts","../../src/kernels/Multinomial.ts","../../src/kernels/NonMaxSuppressionV3.ts","../../src/kernels/NonMaxSuppressionV4.ts","../../src/kernels/NonMaxSuppressionV5.ts","../src/onehot_gpu.ts","../../src/kernels/OneHot.ts","../../src/kernels/ZerosLike.ts","../../src/kernels/OnesLike.ts","../../src/kernels/Pack.ts","../src/pad_gpu.ts","../src/pad_packed_gpu.ts","../../src/kernels/PadV2.ts","../../src/kernels/Pow.ts","../../src/kernels/Range.ts","../../src/kernels/Reciprocal.ts","../../src/kernels/Relu.ts","../../src/kernels/Relu6.ts","../src/resize_bilinear_gpu.ts","../src/resize_bilinear_packed_gpu.ts","../../src/kernels/ResizeBilinear.ts","../src/resize_bilinear_backprop_gpu.ts","../../src/kernels/ResizeBilinearGrad.ts","../src/resize_nearest_neighbor_gpu.ts","../../src/kernels/ResizeNearestNeighbor.ts","../src/resize_nearest_neighbor_backprop_gpu.ts","../../src/kernels/ResizeNearestNeighborGrad.ts","../src/reverse_gpu.ts","../src/reverse_packed_gpu.ts","../../src/kernels/Reverse.ts","../src/rotate_gpu.ts","../../src/kernels/RotateWithOffset.ts","../../src/kernels/Round.ts","../src/scatter_gpu.ts","../../src/kernels/ScatterNd.ts","../src/select_gpu.ts","../../src/kernels/Select.ts","../../src/kernels/Selu.ts","../../src/kernels/Sigmoid.ts","../../src/kernels/Sign.ts","../../src/kernels/Sin.ts","../../src/kernels/Sinh.ts","../../src/kernels/Softplus.ts","../../src/kernels/SpaceToBatchND.ts","../../src/kernels/SparseToDense.ts","../../src/kernels/SplitV.ts","../../src/kernels/Sqrt.ts","../../src/kernels/Square.ts","../../src/kernels/Step.ts","../src/strided_slice_gpu.ts","../../src/kernels/StridedSlice.ts","../../src/kernels/Tan.ts","../../src/kernels/Tanh.ts","../src/tile_gpu.ts","../../src/kernels/Tile.ts","../../src/kernels/TopK.ts","../../src/kernels/Unique.ts","../../src/kernels/Unpack.ts","../src/segment_gpu.ts","../../src/kernels/UnsortedSegmen

tSum.ts","../src/register_all_kernels.ts","../../src/data/compiled_api.ts","../../../src/operations/custom_op/register.ts","../../../src/operations/executors/utils.ts","../../../src/operations/op_list/arithmetic.ts","../../../src/operations/op_list/basic_math.ts","../../../src/operations/op_list/control.ts","../../../src/operations/op_list/convolution.ts","../../../src/operations/op_list/creation.ts","../../../src/operations/op_list/dynamic.ts","../../../src/operations/op_list/evaluation.ts","../../../src/operations/op_list/graph.ts","../../../src/operations/op_list/hash_table.ts","../../../src/operations/op_list/image.ts","../../../src/operations/op_list/logical.ts","../../../src/operations/op_list/matrices.ts","../../../src/operations/op_list/normalization.ts","../../../src/operations/op_list/reduction.ts","../../../src/operations/op_list/slice_join.ts","../../../src/operations/op_list/spectral.ts","../../../src/operations/op_list/transformation.ts","../../src/operations/operation_mapper.ts","../../../src/operations/custom_op/node_value_impl.ts","../../src/ops/ops_for_converter.ts","../../../src/operations/executors/arithmetic_executor.ts","../../../src/operations/executors/basic_math_executor.ts","../../src/executor/tensor_utils.ts","../../src/executor/tensor_array.ts","../../src/executor/tensor_list.ts","../../../src/operations/executors/control_executor.ts","../../../src/operations/executors/convolution_executor.ts","../../../src/operations/executors/creation_executor.ts","../../../src/operations/executors/dynamic_executor.ts","../../../src/operations/executors/evaluation_executor.ts","../../../src/operations/executors/graph_executor.ts","../../src/executor/hash_table.ts","../../../src/operations/executors/hash_table_executor.ts","../../../src/operations/executors/image_executor.ts","../../../src/operations/executors/logical_executor.ts","../../../src/operations/executors/matrices_executor.ts","../../../src/operations/executors/normalization_executor.ts","../../../src/operations/executors/reduction_executor.ts","../../../src/operations/executors/slice_join_executor.ts","../../../src/operations/executors/spectral_executor.ts","../../../src/operations/executors/transformation_executor.ts","../../src/operations/operation_executor.ts","../../src/executor/execution_context.ts","../../src/executor/model_analysis.ts","../../src/executor/graph_executor.ts","../../src/executor/resource_manager.ts","../../src/executor/graph_model.ts","../src/decode_part_map.ts","../src/base_model.ts","../src/mobilenet.ts","../src/keypoints.ts","../../src/multi_person/util.ts","../../src/multi_person/decode_multiple_masks_cpu.ts","../../src/multi_person/decode_multiple_masks_webgl.ts","../../src/multi_person/decode_instance_masks.ts","../../src/multi_person/max_heap.ts","../../src/multi_person/build_part_with_score_queue.ts","../../src/multi_person/decode_pose.ts","../../src/multi_person/decode_multiple_poses.ts","../src/resnet.ts","../src/saved_models.ts","../src/body_pix_model.ts","../src/blur.ts","../src/output_rendering_util.ts","../src/part_channels.ts","../src/dat/index.js","../src/dat/color/toString.js","../src/dat/utils/common.js","../src/dat/color/interpret.js","../src/dat/color/math.js","../src/dat/color/Color.js","../src/dat/controllers/Controller.js","../src/dat/dom/dom.js","../src/dat/controllers/BooleanController.js","../src/dat/controllers/OptionController.js","../src/dat/controllers/StringController.js","../src/dat/controllers/NumberController.js","../src/dat/controllers/NumberControllerBox.js","../src/dat/controllers/NumberControllerSlider.js","../src/dat/controllers/FunctionController.js","../src/dat/controllers/ColorController.js","../src/dat/utils/css.js","../src/dat/gui/saveDialogue.html.js","../src/dat/controllers/ControllerFactory.js","../src/dat/utils/requestAnimationFrame.js","../src/dat/dom/CenteredDiv.js","../src/dat/gui/GUI.js","node_modules/stats.js/build/stats.min.js","node_modules/@tensorflow-models/posenet/dist/posenet.esm.js","demo_util.js","part_color_scales.js","index.js"],"names":["cachedSetTimeout","cachedClearTimeout","process","module","exports","defaultSetTimout","Error","defaultClearTimeout","runTimeout","fun","setTimeout","e","call","runClearTimeout","marker","clearTimeout","currentQueue","queue","draining","queueIndex","cleanUpNextTick","length","concat","drainQueue","timeout","len","run","Item","array","noop","nextTick","args","Array","arguments","i","push","prototype","apply","title","env","argv","version","versions","on","addListener","once","off","removeListener","removeAllListeners","emit","prependListener","prependOnceListener","listeners","name","binding","cwd","chdir","dir","umask","color","forceCSSHex","colorFormat","__state","conversionName","toString","r","Math","round","g","b","a","h","s","toFixed","v","str","hex","ARR_EACH","forEach","ARR_SLICE","slice","Common","target","each","obj","isObject","Object","keys","key","isUndefined","bind","toCall","itr","scope","l","BREAK","fnc","func","threshold","callImmediately","callNow","delayed","toArray","undefined","isNaN","isArray","constructor","INTERPRETATIONS","common","isString","original","test","match","parseInt","parseFloat","isNumber","result","toReturn","interpret","family","litmus","conversions","conversion","read","tmpComponent","ColorMath","hi","floor","f","p","q","t","c","min","max","delta","NaN","hex_with_component","componentIndex","value","Color","colorToString","write","defineRGBComponent","component","componentHexIndex","defineProperty","space","recalculateRGB","defineHSVComponent","recalculateHSV","math","component_from_hex

","extend","hsv_to_rgb","rgb_to_hsv","COMPONENTS","rgb_to_hex","Controller","object","property","initialVal
ue","domElement","document","createElement","__onChange","__onFinishChange","newValue","updateDisplay","
getValue","EVENT_MAP","EVENT_MAP_INV","k","CSS_VALUE_PIXELS","cssValueToPixels","val","isNull",
"dom","elem","selectable","style","onselectstart","MozUserSelect","KhtmlUserSelect","unselectable","hor","vert","
vertical","horizontal","position","left","right","top","bottom","eventType","pars","aux","params","className","evt"
,"createEvent","clientX","x","clientY","y","initMouseEvent","bubbles","cancelable","window","clickCount","init","
initKeyboardEvent","initKeyEvent","defaults","ctrlKey","altKey","shiftKey","metaKey","keyCode","charCode","in
itEvent","dispatchEvent","event","newBool","bool","addEventListener","attachEvent","removeEventListener","deta
chEvent","classes","split","indexOf","join","replace","removeAttribute","index","splice","RegExp","getComputedSt
yle","width","height","el","offset","offsetParent","offsetLeft","offsetTop","activeElement","type","href","BooleanC
ontroller","_this","__prev","__checkbox","setAttribute","onChange","setValue","appendChild","checked","OptionC
ontroller","opts","options","__select","map","element","opt","innerHTML","desiredValue","selectedIndex","isActiv
e","StringController","__input","onBlur","blur","numDecimals","_x","NumberController","_params","__min","__m
ax","__step","step","__impliedStep","pow","log","abs","LN10","__precision","_v","minValue","maxValue","stepV
alue","roundToDecimal","decimals","tenTo","NumberControllerBox","__truncationSuspended","prevY","onFinish"
,"onMouseDrag","diff","onMouseUp","unbind","attempted","onMouseDown","i1","i2","o1","o2","NumberControll
erSlider","preventDefault","bgRect","__background","getBoundingClientRect","onTouchMove","touches","onTouc
hEnd","__foreground","onTouchStart","addClass","pct","FunctionController","text","__button","fire","ColorContro
ller","__color","__temp","makeSelectable","__selector","__saturation_field","__field_knob","__field_knob_border"
,"__hue_knob","__hue_field","__input_textShadow","removeClass","valueField","fieldDown","setSV","fieldUpSV
","fieldDownH","setH","fieldUpH","toOriginal","fieldRect","mismatch","flip","_flip","toHexString","marginTop","
vendors","linearGradient","background","vendor","cssText","hueGradient","css","url","indoc","doc","link","rel","ge
tElementsByTagName","cssContent","injected","head","saveDialogContents","ControllerFactory","isFunction","isB
oolean","requestAnimationFrame","callback","webkitRequestAnimationFrame","mozRequestAnimationFrame","oR
equestAnimationFrame","msRequestAnimationFrame","CenteredDiv","backgroundElement","makeFullscreen","bo
dy","hide","display","opacity","webkitTransform","layout","defer","innerWidth","getWidth","innerHeight","getHei
ght","inject","styleSheet","CSS_NAMESPACE","HIDE_KEY_CODE","CLOSE_BUTTON_HEIGHT","DEFAUL
T_DEFAULT_PRESET_NAME","SUPPORTS_LOCAL_STORAGE","localStorage","SAVE_DIALOGUE","auto
PlaceVirgin","autoPlaceContainer","hideableGuis","GUI","__ul","__folders","__controllers","__rememberedObject
s","__rememberedObjectIndecesToControllers","__listening","DEFAULT_WIDTH","autoPlace","load","preset","p
arent","hideable","resizable","scrollable","useLocalStorage","root","getItem","getLocalStorageHash","saveToLocal
Storage","titleRow","defineProperties","closeOnTop","getRoot","revert","closed","CLASS_CLOSED","onResize","
__closeButton","TEXT_OPEN","TEXT_CLOSED","setItem","CLASS_MAIN","savedGui","JSON","parse","CLA
SS_CLOSE_BUTTON","CLASS_CLOSE_TOP","insertBefore","childNodes","CLASS_CLOSE_BOTTOM","title
RowName","createTextNode","addRow","CLASS_AUTO_PLACE_CONTAINER","CLASS_AUTO_PLACE","__
resizeHandler","onResizeDebounced","stringify","getSaveObject","saveToLocalStorageIfPossible","gui","newDom
","liBefore","li","removeListeners","markPresetModified","modified","__preset_select","augmentController","contr
oller","__li","__gui","nextSibling","nextElementSibling","add","remove","firstElementChild","listen","box","metho
d","pc","pb","returned","oldName","wasListening","newController","compose","fakeEvent","stopPropagation","bor
derLeftColor","isModified","recallSavedValue","matchedIndex","controllerMap","remembered","presetMap","facto
ryArgs","before","container","CLASS_CONTROLLER_ROW","location","addPresetOption","setSelected","showH
ideExplain","explain","addSaveMenu","div","__save_row","firstChild","gears","button","button2","button3","select
","getElementById","localStorageCheckBox","newConstructorTextArea","which","show","focus","save","presetNa
me","prompt","saveAs","addResizeHandle","pmouseX","drag","dragStop","CLASS_DRAG","dragStart","__resize_
handle","setWidth","w","getCurrentPreset","useInitialValues","savedValues","setPresetSelectIndex","updateDisplay
s","controllerArray","toggleHide","CLASS_TOO_TALL","_keydownHandler","removeChild","subfolder","remove
Folder","newGuiParams","folders","folder","parentElement","getOffset","node","offsetHeight","debounce","saveDi
alogueContents","controllers","domImport","GUIImport","VALID_OUTPUT_STRIDES","assertValidOutputStride

","assert","util","assertValidResolution","toFloatIfInt","dtype","toFloat","MobileNet","model","inputs","shape","outputStride","predict","expandDims","n","o","heatmapScores","squeeze","sigmoid","offsets","displacementFwd","displacementBwd","dispose","half","MaxHeap","priorityQueue","numberOfElements","getElementValue","enqueue","swim","dequeue","exchange","sink","empty","size","all","less","getValueAt","scoreIsMaximumInLocalWindow","u","d","m","get","buildPartWithScoreQueue","score","part","heatmapY","heatmapX","id","partNames","NUM_KEYPOINTS","partIds","reduce","connectedPartNames","poseChain","connectedPartIndices","partChannels","getOffsetPoint","getImageCoords","clamp","squaredDistance","addVectors","parentChildrenTuples","parentToChildEdges","childToParentEdges","getDisplacement","getStridedIndexNearPoint","traverseToTargetKeypoint","_","decodePose","withinNmsRadiusOfCorrespondingPoint","some","keypoints","getInstanceScore","kLocalMaximumRadius","decodeMultiplePoses","__assign","assign","hasOwnProperty","__awaiter","Promise","next","throw","done","then","__generator","label","sent","trys","ops","return","Symbol","iterator","TypeError","pop","eitherPointDoesntMeetConfidence","getAdjacentKeyPoints","NEGATIVE_INFINITY","Number","POSITIVE_INFINITY","getBoundingBox","maxX","maxY","minX","minY","getBoundingBoxPoints","toTensorBuffer","data","toTensorBuffers3D","scalePose","scalePoses","flipPoseHorizontal","flipPosesHorizontal","getInputTensorDimensions","Tensor","toInputTensor","browser","fromPixels","padAndResizeTo","resized","resizeBilinear","padding","scaleAndFlipPoses","mod","sub","mul","argmax2d","reshape","argMax","getPointsConfidence","Float32Array","getOffsetPoint$1","getOffsetVectors","valueOf","getOffsetPoints","toTensor","decodeSinglePose","from","MOBILENET_BASE_URL","RESNET50_BASE_URL","resNet50Checkpoint","mobileNetCheckpoint","toFloatIfInt$1","ResNet","MOBILENET_V1_CONFIG","architecture","multiplier","inputResolution","VALID_ARCHITECTURE","VALID_STRIDE","MobileNetV1","ResNet50","VALID_INPUT_RESOLUTION","VALID_MULTIPLIER","VALID_QUANT_BYTES","validateModelConfig","quantBytes","SINGLE_PERSON_INFERENCE_CONFIG","flipHorizontal","MULTI_PERSON_INFERENCE_CONFIG","maxDetections","scoreThreshold","nmsRadius","validateMultiPersonInputConfig","PoseNet","baseModel","estimateMultiplePoses","I","E","N","T","estimateSinglePose","estimatePoses","decodingMethod","loadMobileNet","tf","modelUrl","loadResNet","COLOR","BOUNDING_BOX_COLOR","LINE_WIDTH","TRY_RESNET_BUTTON_NAME","TRY_RESNET_BUTTON_TEXT","TRY_RESNET_BUTTON_TEXT_CSS","TRY_RESNET_BUTTON_BACKGROUND_CSS","isAndroid","navigator","userAgent","isiOS","isMobile","setDatGuiPropertyCss","propertyText","liCssString","spanCssString","spans","getElementsByClassName","textContent","innerText","parentNode","updateTryResNetButtonDatGuiCss","toggleLoadingUI","showLoadingUI","loadingDivId","mainDivId","drawPoint","ctx","beginPath","arc","PI","fillStyle","fill","drawSegment","ay","ax","by","bx","scale","moveTo","lineTo","lineWidth","strokeStyle","stroke","drawSkeleton","minConfidence","toTuple","posenet","drawKeypoints","keypoint","drawBoundingBox","boundingBox","rect","boundingBoxColor","renderToCanvas","imageData","ImageData","j","putImageData","renderImageToCanvas","image","canvas","getContext","drawImage","drawHeatMapValues","heatMapValues","drawPoints","scalar","points","radius","buffer","values","pointY","pointX","drawOffsetVectors","offsetPoints","singlePose","heatmapData","offsetPointsData","rainbow","warm","spectral","stats","Stats","state","video","stream","net","videoConstraints","changingArchitecture","changingMultiplier","changingStride","changingResolution","changingQuantBytes","getVideoInputs","mediaDevices","enumerateDevices","console","videoDevices","filter","device","kind","stopExistingVideoCapture","srcObject","getTracks","track","stop","getDeviceIdForLabel","cameraLabel","videoInputs","videoInput","deviceId","getFacingMode","toLowerCase","includes","getConstraints","facingMode","setupCamera","getUserMedia","videoElement","resolve","onloadedmetadata","videoWidth","videoHeight","loadVideo","info","play","defaultQuantBytes","defaultMobileNetMultiplier","defaultMobileNetStride","defaultMobileNetInternalResolution","defaultResNetMultiplier","defaultResNetStride","defaultResNetInternalResolution","guiState","algorithm","estimate","camera","input","internalResolution","multiPersonDecoding","numKeypointForMatching","refineSteps","segmentation","segmentationThreshold","effect","maskBackground","backgroundBlurAmount","maskBlurAmount","edgeBlurAmount","partMap","colorScale","blurBodyPartAmount","bodyPartEdgeBlurAmount","showFps","toCameraOptions","cameras","default","setupGui","dat","architectureController","changingCamera","algorithmController","addFolder","outputStrideController","updateGuiOutputStride","outputStrideArray","internalResolutionController","updateGuiInternalResolution","internalResolutionArray","multiplierController","updateGuiMultiplier","multiplierArray","quantBytesController","updateGuiInputSection",

"updateGuiQuantBytes","quantBytesArray","open","estimateController","segmentationEffectController","darkness Level","bokehBlurAmount","close","singlePersonDecoding","effectType","partColorScales","setShownPartColorSc ales","estimationType","colors","partColors","bodyPix","PART_CHANNELS","partColor","child","setupFPS","sho wPanel","estimateSegmentation","segmentMultiPerson","segmentPerson","multiPersonSegmentation","estimatePart Segmentation","segmentMultiPersonParts","segmentPersonParts","multiPersonPartSegmentation","drawPoses","per sonOrPersonPartSegmentation","flipHorizontally","personSegmentation","pose","allPoses","loadBodyPix","segmen tBodyInRealTime","bodySegmentationFrame","begin","foregroundColor","backgroundColor","mask","toMask","dr awMask","drawBokehEffect","coloredPartImageData","toColoredPartMask","pixelCellWidth","drawPixelatedMask ","blurBodyPartIds","blurBodyPart","end","bindPage","webkitGetUserMedia","mozGetUserMedia"],"mappings":" AyDGA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EAAA,MAAM,EAAU,QAAhB, QAAA,QAAAgB;AzDoJf,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,QAAA,YAAA, QAAA,gBAAA,QAAA,qBAAA,EAAnIM,MAAM,EAAkB,KAAmI9B,QAAA,gBAAA,EAAlIM,MAAM,EAAkB,KAAkI 9B,QAAA,gBAAA,EA1GK,MAAO,EAAIX,YAAoB,EAAgC,GAAhhC,KAAhC,KAAA,QAAA,EAAgC,KAAA,UAAA,EAAH 5C,KAAA,KAAO,IAAI,QAAX,KAAA,aAAe,EAAIvB,IAAI,GAAIK,OAAHF,KAAAK,KAAAK,IAAI,IAAZ,KAAA,UAAA,EAAU,KAAA,UAAA,EAAU,SAAS,KAAK,QAAS,GAAEjC,KAAK,KAAK,KAAK,IAAI,GAAvB,IAAI,EAAgB,GAAb,KAAA,eAAA,EAAa,KAAA,eAAA,EAAK,IAAI,EAAA,QAAA,GAAxB,IAAI,GAAK,OAAA,KAAK,KAAK,IAAI,GAAvB,OAAO,GAAE,OAAA,OAAA,KAAA,eAAA,EAAK,KAAA,eAAA,EAAK,KAAK,KAAK,OAAO,GAA1B,OAAO,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA

AK,EAGhB,OADP,EAAQ,GACD,EAGH,SAAU,EAAS,EAAW,GAC9B,OAAA,GAAQ,EAAE,OACL,EAEF,EA
AI,IAAI,OAAO,EAAO,EAAE,QAG3B,SAAU,EACZ,EAAwB,EAAW,CAAA,GAAoB,GACvD,GACK,OAAA,IA
AI,QAAc,CAAC,EAAS,KAC7B,IAAA,EAAW,EAET,MAAA,EAAQ,KCR,GAAA,IAEF,YADA,IAMI,MAAA,
EAAc,IAFpB,GAIkB,MAAd,GAAsB,GAAY,EACpC,IAGF,WAAW,EAAO,IAGpB,MAAE,SAAU,EACZ,EAAiB,
GACf,IAAA,EAAY,EACZ,GAAe,EAEd,IAAA,IAAI,EAAI,EAAG,EAAI,EAAM,SAAU,EAC9B,GAAA,EAAM,MAAM,
IAAM,EACd,CAAC,GAAA,IAAa,EAAG,IAAA,EAAM,EAAW,GAAA,IAAA,EAAM,GAAW,CAAC,tB,MAAA,4DA
CmB,aAAuB,KAEhD,EAAc,OACT,GAAI,EAAM,GAAK,EACd,CAAC,MAAA,sCAAsC,EAAM,aAAa,KAI/D,IAAiB,IA
AjB,EAAoB,CAClB,GAAA,EAAO,GAAK,IAAS,EACjB,CAAC,MAAA,cAAc,EAAM,aAAa,KAExC,EAAO,OAAA,
GAAgB,EAAM,IAAA,EAAM,EAAW,GAAA,IAAA,EAAM,GAAW,CAAC,tB,MAAA,4DACzD,CAAC,MAAA,
cAAc,EAAM,aAAa,KAAI/D,IAAiB,IAAjB,EAAoB,CAClB,GAAA,EAAO,GAAK,IAAS,EACjB,CAAC,MAAA,
cAAc,EAAM,aAAa,KAExC,EAAO,OAAA,

AAM,GAAK,EAEN,OAAA,EAGH,SAAU,EACZ,EAAc,GACZ,GAAS,MAAT,GAA2B,YAAV,GAAiC,cAAV,EACnC,OAAA,IAAI,aAAa,GACnB,GAAc,UAAV,EACF,OAAA,IAAI,WAAW,GACjB,GAAc,SAAV,EACF,OAAA,IAAI,WAAW,GAEhB,MAAA,IAAI,2BAA2B,KASnC,SAAU,EACZ,EAAiB,GACb,MAAA,EAAO,EAAM,OAAO,CAAC,EAAM,IAAS,EAAO,EAAM,GACnD,GAAS,MAAT,GAA2B,YAAV,EACZ,OAAA,EAAc,EAAO,IAAI,aAAa,IACxC,GAAc,UAAV,EACF,OAAA,EAAc,EAAO,IAAI,WAAW,IACtC,GAAc,SAAV,EACF,OAAA,EAAc,EAAO,IAAI,WAAW,IAEpC,MAAA,IAAI,2BAA2B,KAAI,nC,SAAU,EAAM,mBAAmB,GAAS,MAAT,GAA2B,YAAV,GAAiC,cAAV,EAAwB,OAAA,EAAc,EAAO,IAAI,aAAa,IAAS,GAAS,MAAT,GAA2B,YAAV,GAAiC,cAAV,EAAwB,OAAA,EAAc,EAAO,IAAI,WAAW,IAAS,MAAA,IAAI,2BAA2B,KAAI,m

A,IAAqBU,WAEdA,OAAAA,WAAWD,EAAK,GAGvB,IAACT,IAAqBK,IAAqBL,IAAqBU,WAEzDA,OADPV,
EAAmBU,WACZA,WAAWD,EAAK,GAEvB,IAEOT,OAAAA,EAAiBS,EAAK,GAC/B,MAAME,GACA,IAEOX
,OAAAA,EAAiBY,KAAAK,KAAMH,EAAK,GAC1C,MAAME,GAEGX,OAAAA,EAAiBY,KAAAK,KAAMH,EAAA
K,KAMpD,SAASI,EAAgBC,GACjBb,GAAAAA,IAAAuBc,aAEhBA,OAAAAA,aAAAaD,GAGpB,IAACb,IAAAuBM,IA
AwBN,IAAAuBc,aAEhEA,OADPd,EAAAqBc,aACdA,aAAaD,GAEpB,IAEOb,OAAAAA,EAAAmBa,GAC5B,MAAOH,
GACD,IAEOV,OAAAAA,EAAAmBW,KAAAK,KAAMH,EAAAGE,GAEV,IAAAuBC,aAEhEA,OADPd,EAAAqBc,aACdA,aAAaD,GAEpB,IAEOb,OAAAAA,EAAAmBa,GAC5B,MAAOH,
AME,MAjEhD,WACO,IAEId,EADsB,mBAAfU,WACYA,WAEALE,EAAzB,MAAOM,GACLX,GACLY,IAAAA,EAAAmBK,KAAAK,KAAMH,EAAAGE,GAEV,IAAAuBC,aAEhEA,OADPd,EAAAqBc,aACdA,aAAaD,GAEpB,IAEOb,OAAAAA,EAAAmBa,GAC5B,MAAOH,
,IAEIJ,EADwB,mBAAfU,WACYA,WAEALE,EAAzB,MAAOM,GACLX,GACLY,IAAAA,EAAAmBK,KAAAK,KAAMH,EAAAGE,GAEV,IAAAuBC,aAEhEA,OADPd,EAAAqBc,aACdA,aAAaD,GAEpB,IAEOb,OAAAAA,EAAAmBa,GAC5B,MAAOH,
,EAAAQD

A,QAAA,QAAA,QAAA,KAAA,QAAA,KAAA,QAAA,IAAA,QAAA,MAAA,QAAA,KAAA,QAAA,OAAA,QA
AA,UAAA,QAAA,MAAA,QAAA,MAAA,QAAA,QAAA,QAAA,MAAA,QAAA,mBAAA,QAAA,eAAA,QAAA,
0BAAA,QAAA,sBAAA,QAAA,QAAA,QAAA,KAAA,QAAA,WAAA,QAAA,KAAA,QAAA,MAAA,QAAA,KA
AA,QAAA,MAAA,QAAA,IAAA,QAAA,KAAA,QAAA,MAAA,QAAA,KAAA,QAAA,OAAA,QAAA,SAAA,Q
AAA,oBAAA,QAAA,yBAAA,EA12BA,MAAM,EAAM,MA02BZ,QAAA,IAAA,EAv2BA,MAAM,EAAO,OAu2
Bb,QAAA,KAAA,EAp2BA,MAAM,EAAQ,QAo2Bd,QAAA,MAAA,EAj2BA,MAAM,EAAM,MAi2BZ,QAAA,I
AAA,EA91BA,MAAM,EAAO,OA81Bb,QAAA,KAAA,EA31BA,MAAM,EAAM,MA21BZ,QAAA,IAAA,EAp1B
A,MAAM,EAAM,MAo1BZ,QAAA,IAAA,EA70BA,MAAM,EAAS,SA60Bf,QAAA,OAAA,EAv0BA,MAAM,EA
AS,SAu0Bf,QAAA,OAAA,EAj0BA,MAAM,EAAO,OAi0Bb,QAAA,KAAA,EA9zBA,MAAM,EAAQ,QA8zBd,Q
AAA,MAAA,EA3zBA,MAAM,EAAO,OA2zBb,QAAA,KAAA,EAxzBA,MAAM,EAAQ,QAwzBd,QAAA,MAAA
A,EArzBA,MAAM,EAAQ,QAqzBd,QAAA,MAAA,EAlzBA,MAAM,EAAU,UAkzBhB,QAAA,QAAA,EAzyBA,
MAAM,EAAc,cAyyBpB,QAAA,YAAA,EAjyBA,MAAM,EAAY,YAiyBlB,QAAA,UAAA,EAvxBA,MAAM,EA
AgB,gBAuxBtB,QAAA,cAAA,EA9wBA,MAAM,EAAc,cA8wBpB,QAAA,YAAA,EAvwBA,MAAM,EAAiB,iBA
uwBvB,QAAA,eAAA,EA9vBA,MAAM,EAAW,WA8vBjB,QAAA,SAAA,EAxvBA,MAAM,EAAc,cAwvBpB,QA
AA,YAAA,EAjvBA,MAAM,EAAO,OAivBb,QAAA,KAAA,EA3uBA,MAAM,EAAO,OA2uBb,QAAA,KAAA,E
AxuBA,MAAM,EAAc,cAwuBpB,QAAA,YAAA,EAjuBA,MAAM,EAAU,UAiuBhB,QAAA,QAAA,EA9tBA,MA
AM,EAAa,aA8tBnB,QAAA,WAAA,EA3tBA,MAAM,EAAS,SA2tBf,QAAA,OAAA,EArtBA,MAAM,EAAS,SAqt
Bf,QAAA,OAAA,EA3sBA,MAAM,EAAuB,uBA2sB7B,QAAA,qBAAA,EAjsBA,MAAM,EAAsB,sBAisB5B,QA
AA,oBAAA,EAvrBA,MAAM,EAAS,SAurBf,QAAA,OAAA,EA9qBA,MAAM,EAAyB,yBA8qB/B,QAAA,uBAA
A,EArqBA,MAAM,EAAwB,wBAqqB9B,QAAA,sBAAA,EA5pBA,MAAM,EAAM,MA4pBZ,QAAA,IAAA,EAzp
BA,MAAM,EAAO,OAypBb,QAAA,KAAA,EAtpBA,MAAM,EAAS,SAspBf,QAAA,OAAA,EA9oBA,MAAM,E
AAgB,gBA8oBtB,QAAA,cAAA,EAroBA,MAAM,EAAgB,gBAqoBtB,QAAA,cAAA,EA9nBA,MAAM,EAAe,eA
8nBrB,QAAA,aAAA,EAvnBA,MAAM,EAAwB,wBAunB9B,QAAA,sBAAA,EA5mBA,MAAM,EACT,sCA2mB
G,QAAA,oCAAA,EAhmBA,MAAM,EACT,qCA+lBG,QAAA,mCAAA,EAplBA,MAAM,EAAO,OAolBb,QAAA,
KAAA,EAjlBA,MAAM,EAAa,aAilBnB,QAAA,WAAA,EAzkBA,MAAM,EAA0B,0BAykBhC,QAAA,wBAAA,E
ArkBA,MAAM,EAA2B,2BAqkBjC,QAAA,yBAAA,EAjkBA,MAAM,EAAU,UAikBhB,QAAA,QAAA,EA9jBA,
MAAM,EAAM,MA8jBZ,QAAA,IAAA,EA3jBA,MAAM,EAAU,UA2jBhB,QAAA,QAAA,EAxjBA,MAAM,EAAM,MA
wjBZ,QAAA,IAAA,EArjBA,MAAM,EAAQ,QAqjBd,QAAA,MAAA,EAljBA,MAAM,EAAM,MAkjBZ,QAAA,IAAA,Q
AAA,IAAA,EA/iBA,MAAM,EAAa,aA+iBnB,QAAA,WAAA,EAziBA,MAAM,EAAQ,QAyiBd,QAAA,MAAA,E
AtiBA,MAAM,EAAM,MAsiBZ,QAAA,IAAA,GAAA,IAAA,EAniBA,MAAM,EAAO,OAmiBb,QAAA,KAAA,GA5hBA,
MAAM,EAAO,OA4hBb,QAAA,KAAA,GAzhBA,MAAM,EAAS,SAyhBf,QAAA,OAAA,GAAA,gBAAA,EAthBA,MAAM,
EAAS,SAshBf,QAAA,OAAA,GAAA,gBAAA,EAhhBA,MAAM,EAAO,OAghBb,QAAA,KAAA,GAAA,gBAAA,EA7gBA,
MAAM,EAAO,OA6gBb,QAAA,KAAA,GAAA,gBAAA,EAvgBA,MAAM,EAAO,OAugBb,QAAA,KAAA,GAAA,gBAAA,EA
pgBA,MAAM,EAAO,OAogBb,QAAA,KAAA,GAAA,gBAAA,EA9fA,MAAM,EAAO,OA8fb,QAAA,KAAA,GAAA,gBAA
A,EAxfA,MAAM,EAAO,OAwfb,QAAA,KAAA,GAAA,gBAAA,EAlfA,MAAM,EAAO,OAkfb,QAAA,KAAA,GAAA,gBA
A,EA5eA,MAAM,EAAO,OA4eb,QAAA,KAAA,GAAA,gBAAA,EAteA,MAAM,EAAO,OAseb,QAAA,KAAA,GAAA,gBA
A,EAheA,MAAM,EAAO,OAgeb,QAAA,KAAA,GAAA,gBAAA,EA1dA,MAAM,EAAO,OA0db,QAAA,KAAA,GAAA,gBA
A,EApdA,MAAM,EAAO,OAodb,QAAA,KAAA,GAAA,gBAAA,EAzcA,MAAM,EAAO,OAycb,QAAA,KAAA,GAAA,gBA
A,EAncA,MAAM,EAAO,OAmcb,QAAA,KAAA,GAAA,gBAAA,EAhcA,MAAM,EAAO,OAgcb,QAAA,KAAA,GAAA,gBA
A,EA1bA,MAAM,EAAO,OA0bb,QAAA,KAAA,GAAA,gBAAA,EApbA,MAAM,EAAO,OAobb,QAAA,KAAA,GAAA,gBA
A,EAzaA,MAAM,EAAO,OAyab,QAAA,KAAA,GAAA,gBAAA,EAnaA,MAAM,EAAO,OAmab,QAAA,KAAA,GAAA,gBA
A,EA7ZA,MAAM,EAAO,OA6Zb,QAAA,KAAA,GAAA,gBAAA,EAvZA,MAAM,EAAO,OAuZb,QAAA,KAAA,GAAA,gBA
A,EAjZA,MAAM,EAAO,OAiZb,QAAA,KAAA,GAAA,gBAAA,EA3YA,MAAM,EAAO,OA2Yb,QAAA,KAAA,GAAA,gBA
A,EArYA,MAAM,EAAO,OAqYb,QAAA,KAAA,GAAA,gBAAA,EA/XA,MAAM,EAAO,OA+Xb,QAAA,KAAA,GAAA,gBA
A,EAzXA,MAAM,EAAO,OAyXb,QAAA,KAAA,GAAA,gBAAA,EAnXA,MAAM,EAAO,OAmXb,QAAA,KAAA,GAAA,gBA
A,EA7WA,MAAM,EAAO,OA6Wb,QAAA,KAAA,GAAA,gBAAA,EAvWA,MAAM,EAAO,OAuWb,QAAA,KAAA,GAAA,gBA
A,EAjWA,MAAM,EAAO,OAiWb,QAAA,KAAA,GAAA,gBAAA,EA3VA,MAAM,EAAO,OA2Vb,QAAA,KAAA,GAAA,gBA
A,EArVA,MAAM,EAAO,OAqVb,QAAA,KAAA,GAAA,gBAAA,EA/UA,MAAM,EAAO,OA+Ub,QAAA,KAAA,GAAA,gBA
A,EAzUA,MAAM,EAAO,OAyUb,QAAA,KAAA,GAAA,gBAAA,EAnUA,MAAM,EAAO,OAmUb,QAAA,KAAA,GAAA,gBA
A,EA7TA,MAAM,EAAO,OA6Tb,QAAA,KAAA,GAAA,gBAAA,EAvTA,MAAM,EAAO,OAuTb,QAAA,KAAA,GAAA,gBA
A,EAjTA,MAAM,EAAO,OAiTb,QAAA,KAAA,GAAA,gBAAA,EA3SA,MAAM,EAAO,OA2Sb,QAAA,KAAA,GAAA,gBA
A,EArSA,MAAM,EAAO,OAqSb,QAAA,KAAA,GAAA,gBAAA,EA/RA,MAAM,EAAO,OA+Rb,QAAA,KAAA,GAAA,gBA
A,EAzRA,MAAM,EAAO,OAyRb,QAAA,KAAA,GAAA,gBAAA,EAnRA,MAAM,EAAO,OAmRb,QAAA,KAAA,GAAA,gBA
A,EA7QA,MAAM,EAAO,OA6Qb,QAAA,KAAA,GAAA,gBAAA,EAvQA,MAAM,EAAO,OAuQb,QAAA,KAAA,GAAA,gBA
A,EAjQA,MAAM,EAAO,OAiQb,QAAA,KAAA,GAAA,gBAAA,EA3PA,MAAM,EAAO,OA2Pb,QAAA,KAAA,GAAA,gBA
A,EArPA,MAAM,EAAO,OAqPb,QAAA,KAAA,GAAA,gBAAA,EA/OA,MAAM,EAAO,OA+Ob,QAAA,KAAA,GAAA,gBA
A,EAzOA,MAAM,EAAO,OAyOb,QAAA,KAAA,GAAA,gBAAA,EAnOA,MAAM,EAAO,OAmOb,QAAA,KAAA,GAAA,gBA
A,EA7NA,MAAM,EAAO,OA6Nb,QAAA,KAAA,GAAA,gBAAA,EAvNA,MAAM,EAAO,OAuNb,QAAA,KAAA,GAAA,gBA
A,EAjNA,MAAM,EAAO,OAiNb,QAAA,KAAA,GAAA,gBAAA,EA3MA,MAAM,EAAO,OA2Mb,QAAA,KAAA,GAAA,gBA
A,EArMA,MAAM,EAAO,OAqMb,QAAA,KAAA,GAAA,gBAAA,EA/LA,MAAM,EAAO,OA+Lb,QAAA,KAAA,GAAA,gBA
A,EAzLA,MAAM,EAAO,OAyLb,QAAA,KAAA,GAAA,gBAAA,EAnLA,MAAM,EAAO,OAmLb,QAAA,KAAA,GAAA,gBA
A,EA7KA,MAAM,EAAO,OA6Kb,QAAA,KAAA,GAAA,gBAAA,EAvKA,MAAM,EAAO,OAuKb,QAAA,KAAA,GAAA,gBA
A,EAjKA,MAAM,EAAO,OAiKb,QAAA,KAAA,GAAA,gBAAA,EA3JA,MAAM,EAAO,OA2Jb,QAAA,KAAA,GAAA,gBA
A,EArJA,MAAM,EAAO,OAqJb,QAAA,KAAA,GAAA,gBAAA,EA/IA,MAAM,EAAO,OA+Ib,QAAA,KAAA,GAAA,gBA
A,EAzIA,MAAM,EAAO,OAyIb,QAAA,KAAA,GAAA,gBAAA,EAnIA,MAAM,EAAO,OAmIb,QAAA,KAAA,GAAA,gBA
A,EA7HA,MAAM,EAAO,OA6Hb,QAAA,KAAA,GAAA,gBAAA,EAvHA,MAAM,EAAO,OAuHb,QAAA,KAAA,GAAA,gBA
A,EAjHA,MAAM,EAAO,OAiHb,QAAA,KAAA,GAAA,gBAAA,EA3GA,MAAM,EAAO,OA2Gb,QAAA,KAAA,GAAA,gBA
A,EArGA,MAAM,EAAO,OAqGb,QAAA,KAAA,GAAA,gBAAA,EA/FA,MAAM,EAAO,OA+Fb,QAAA,KAAA,GAAA,gBA
A,EAzFA,MAAM,EAAO,OAyFb,QAAA,KAAA,GAAA,gBAAA,EAnFA,MAAM,EAAO,OAmFb,QAAA,KAAA,GAAA,gBA
A,EA7EA,MAAM,EAAO,OA6Eb,QAAA,KAAA,GAAA,gBAAA,EAvEA,MAAM,EAAO,OAuEb,QAAA,KAAA,GAAA,gBA
A,EAjEA,MAAM,EAAO,OAiEb,QAAA,KAAA,GAAA,gBAAA,EA3DA,MAAM,EAAO,OA2Db,QAAA,KAAA,GAAA,gBA
A,EArDA,MAAM,EAAO,OAqDb,QAAA,KAAA,GAAA,gBAAA,EA/CA,MAAM,EAAO,OA+Cb,QAAA,KAAA,GAAA,gBA
A,EAzCA,MAAM,EAAO,OAyCb,QAAA,KAAA,GAAA,gBAAA,EAnCA,MAAM,EAAO,OAmCb,QAAA,KAAA,GAAA,gBA
A,EA7BA,MAAM,EAAO,OA6Bb,QAAA,KAAA,GAAA,gBAAA,EAvBA,MAAM,EAAO,OAuBb,QAAA,KAAA,GAAA,gBA
A,EAjBA,MAAM,EAAO,OAiBb,QAAA,KAAA,GAAA,gBAAA,EA3AA,MAAM,EAAO,OA2Ab,QAAA,KAAA,GAAA,gBA
A,EArAA,MAAM,EAAO,OAqAb,QAAA,KAAA,GAAA,gBAAA,EA/@A,MAAM,EAAO,OA+@b,QAAA,KAAA,GAAA,gBA
A,EAz@A,MAAM,EAAO,OAy@b,QAAA,KAAA,GAAA,gBAAA,EAn@A,MAAM,EAAO,OAm@b,QAAA,KAAA,GAAA,gBA
A,EA7?A,MAAM,EAAO,OA6?b,QAAA,KAAA,GAAA,gBAAA,EAv?A,MAAM,EAAO,OAu?b,QAAA,KAAA,GAAA,gBA
A,EAj?A,MAAM,EAAO,OAi?b,QAAA,KAAA,GAAA,gBAAA,EA3>A,MAAM,EAAO,OA2>b,QAAA,KAAA,GAAA,gBA
A,EAr>A,MAAM,EAAO,OAq>b,QAAA,KAAA,GAAA,gBAAA,EA/=A,MAAM,EAAO,OA+=b,QAAA,KAAA,GAAA,gBA
A,EAz=A,MAAM,EAAO,OAy=b,QAAA,KAAA,GAAA,gBAAA,EAn=A,MAAM,EAAO,OAm=b,QAAA,KAAA,GAAA,gBA
A,EA7<A,MAAM,EAAO,OA6<b,QAAA,KAAA,GAAA,gBAAA,EAv<A,MAAM,EAAO,OAu<b,QAAA,KAAA,GAAA,gBA
A,EAj<A,MAAM,EAAO,OAi<b,QAAA,KAAA,GAAA,gBAAA,EA3;A,MAAM,EAAO,OA2;b,QAAA,KAAA,GAAA,gBA
A,EAr;A,MAAM,EAAO,OAq;b,QAAA,KAAA,GAAA,gBAAA,EA/:A,MAAM,EAAO,OA+:b,QAAA,KAAA,GAAA,gBA
A,EAz:A,MAAM,EAAO,OAy:b,QAAA,KAAA,GAAA,gBAAA,EAn:A,MAAM,EAAO,OAm:b,QAAA,KAAA,GAAA,gBA
A,EA79A,MAAM,EAAO,OA69b,QAAA,KAAA,GAAA,gBAAA,EAv9A,MAAM,EAAO,OAu9b,QAAA,KAAA,GAAA,gBA
A,EAj9A,MAAM,EAAO,OAi9b,QAAA,KAAA,GAAA,gBAAA,EA38A,MAAM,EAAO,OA28b,QAAA,KAAA,GAAA,gBA
A,EAr8A,MAAM,EAAO,OAq8b,QAAA,KAAA,GAAA,gBAAA,EA/7A,MAAM,EAAO,OA+7b,QAAA,KAAA,GAAA,gBA
A,EAz7A,MAAM,EAAO,OAy7b,QAAA,KAAA,GAAA,gBAAA,EAn7A,MAAM,EAAO,OAm7b,QAAA,KAAA,GAAA,gBA
A,EA76A,MAAM,EAAO,OA66b,QAAA,KAAA,GAAA,gBAAA,EAv6A,MAAM,EAAO,OAu6b,QAAA,KAAA,GAAA,gBA
A,EAj6A,MAAM,EAAO,OAi6b,QAAA,KAAA,GAAA,gBAAA,EA35A,MAAM,EAAO,OA25b,QAAA,KAAA,GAAA,gBA
A,EAr5A,MAAM,EAAO,OAq5b,QAAA,KAAA,GAAA,gBAAA,EA/4A,MAAM,EAAO,OA+4b,QAAA,KAAA,GAAA,gBA
A,EAz4A,MAAM,EAAO,OAy4b,QAAA,KAAA,GAAA,gBAAA,EAn4A,MAAM,EAAO,OAm4b,QAAA,KAAA,GAAA,gBA
A,EA73A,MAAM,EAAO,OA63b,QAAA,KAAA,GAAA,gBAAA,EAv3A,MAAM,EAAO,OAu3b,QAAA,KAAA,GAAA,gBA
A,EAj3A,MAAM,EAAO,OAi3b,QAAA,KAAA,GAAA,gBAAA,EA32A,MAAM,EAAO,OA22b,QAAA,KAAA,GAAA,gBA
A,EAr2A,MAAM,EAAO,OAq2b,QAAA,KAAA,GAAA,gBAAA,EA/1A,MAAM,EAAO,OA+1b,QAAA,KAAA,GAAA,gBA
A,EAz1A,MAAM,EAAO,OAy1b,QAAA,KAAA,GAAA,gBAAA,EAn1A,MAAM,EAAO,OAm1b,QAAA,KAAA,GAAA,gBA
A,EA70A,MAAM,EAAO,OA60b,QAAA,KAAA,GAAA,gBAAA,EAv0A,MAAM,EAAO,OAu0b,QAAA,KAAA,GAAA,gBA
A,EAj0A,MAAM,EAAO,OAi0b,QAAA,KAAA,GAAA,gBAAA,EA3zA,MAAM,EAAO,OA2zb,QAAA,KAAA,GAAA,gBA
A,EArzA,MAAM,EAAO,OAqzb,QAAA,KAAA,GAAA,gBAAA,EA/yA,MAAM,EAAO,OA+yb,QAAA,KAAA,GAAA,gBA
A,EAzyA,MAAM,EAAO,OAyyb,QAAA,KAAA,GAAA,gBAAA,EAnyA,MAAM,EAAO,OAmyb,QAAA,KAAA,GAAA,gBA
A,EA7xA,MAAM,EAAO,OA6xb,QAAA,KAAA,GAAA,gBAAA,EAvxA,MAAM,EAAO,OAuxb,QAAA,KAAA,GAAA,gBA
A,EAjxA,MAAM,EAAO,OAixb,QAAA,KAAA,GAAA,gBAAA,EA3wA,MAAM,EAAO,OA2wb,QAAA,KAAA,GAAA,gBA
A,EArwA,MAAM,EAAO,OAqwb,QAAA,KAAA,GAAA,gBAAA,EA/vA,MAAM,EAAO,OA+vb,QAAA,KAAA,GAAA,gBA
A,EAzvA,MAAM,EAAO,OAyvb,QAAA,KAAA,GAAA,gBAAA,EAnvA,MAAM,EAAO,OAmvb,QAAA,KAAA,GAAA,gBA
A,EA7uA,MAAM,EAAO,OA6ub,QAAA,KAAA,GAAA,gBAAA,EAvuA,MAAM,EAAO,OAuub,QAAA,KAAA,GAAA,gBA
A,EAjuA,MAAM,EAAO,OAiub,QAAA,KAAA,GAAA,gBAAA,EA3tA,MAAM,EAAO,OA2tb,QAAA,KAAA,GAAA,gBA
A,EArtA,MAAM,EAAO,OAqtb,QAAA,KAAA,GAAA,gBAAA,EA/sA,MAAM,EAAO,OA+sb,QAAA,KAAA,GAAA,gBA
A,EAzsA,MAAM,EAAO,OAysb,QAAA,KAAA,GAAA,gBAAA,EAnsA,MAAM,EAAO,OAmsb,QAAA,KAAA,GAAA,gBA
A,EA7rA,MAAM,EAAO,OA6rb,QAAA,KAAA,GAAA,gBAAA,EAvrA,MAAM,EAAO,OAurb,QAAA,KAAA,GAAA,gBA
A,EAjrA,MAAM,EAAO,OAirb,QAAA,KAAA,GAAA,gBAAA,EA3qA,MAAM,EAAO,OA2qb,QAAA,KAAA,GAAA,gBA
A,EArqA,MAAM,EAAO,OAqqb,QAAA,KAAA,GAAA,gBAAA,EA/pA,MAAM,EAAO,OA+pb,QAAA,KAAA,GAAA,gBA
A,EAzpA,MAAM,EAAO,OAypb,QAAA,KAAA,GAAA,gBAAA,EAnpA,MAAM,EAAO,OAmpb,QAAA,KAAA,GAAA,gBA
A,EA7oA,MAAM,EAAO,OA6ob,QAAA,KAAA,GAAA,gBAAA,EAvoA,MAAM,EAAO,OAuob,QAAA,KAAA,GAAA,gBA
A,EAjoA,MAAM,EAAO,OAiob,QAAA,KAAA,GAAA,gBAAA,EA3nA,MAAM,EAAO,OA2nb,QAAA,KAAA,GAAA,gBA
A,EArnA,MAAM,EAAO,OAqnb,QAAA,KAAA,GAAA,gBAAA,EA/mA,MAAM,EAAO,OA+mb,QAAA,KAAA,GAAA,gBA
A,EAzmA,MAAM,EAAO,OAymb,QAAA,KAAA,GAAA,gBAAA,EAnmA,MAAM,EAAO,OAmmb,QAAA,KAAA,GAAA,gBA
A,EA7lA,MAAM,EAAO,OA6lb,QAAA,KAAA,GAAA,gBAAA,EAvlA,MAAM,EAAO,OAulb,QAAA,KAAA,GAAA,gBA
A,EAjlA,MAAM,EAAO,OAilb,QAAA,KAAA,GAAA,gBAAA,EA3kA,MAAM,EAAO,OA2kb,QAAA,KAAA,GAAA,gBA
A,EArkA,MAAM,EAAO,OAqkb,QAAA,KAAA,GAAA,gBAAA,EA/jA,MAAM,EAAO,OA+jb,QAAA,KAAA,GAAA,gBA
A,EAzjA,MAAM,EAAO,OAyjb,QAAA,KAAA,GAAA,gBAAA,EAnjA,MAAM,EAAO,OAmjb,QAAA,KAAA,GAAA,gBA
A,EA7iA,MAAM,EAAO,OA6ib,QAAA,KAAA,GAAA,gBAAA,EAviA,MAAM,EAAO,OAuib,QAAA,KAAA,GAAA,gBA
A,EAjiA,MAAM,EAAO,OAiib,QAAA,KAAA,GAAA,gBAAA,EA3hA,MAAM,EAAO,OA2hb,QAAA,KAAA,GAAA,gBA
A,EArhA,MAAM,EAAO,OAqhb,QAAA,KAAA,GAAA,gBAAA,EA/gA,MAAM,EAAO,OA+gb,QAAA,KAAA,GAAA,gBA
A,EAzgA,MAAM,EAAO,OAygb,QAAA,KAAA,GAAA,gBAAA,EAngA,MAAM,EAAO,OAmgb,QAAA,KAAA,GAAA,gBA
A,EA7fA,MAAM,EAAO,OA6fb,QAAA,KAAA,GAAA,gBAAA,EAvfA,MAAM,EAAO,OAufb,QAAA,KAAA,GAAA,gBA
A,EAjfA,MAAM,EAAO,OAifb,QAAA,KAAA,GAAA,gBAAA,EA3eA,MAAM,EAAO,OA2eb,QAAA,KAAA,GAAA,gBA
A,EAreA,MAAM,EAAO,OAqeb,QAAA,KAAA,GAAA,gBAAA,EA/dA,MAAM,EAAO,OA+db,QAAA,KAAA,GAAA,gBA
A,EAzdA,MAAM,EAAO,OAydb,QAAA,KAAA,GAAA,gBAAA,EAndA,MAAM,EAAO,OAmdb,QAAA,KAAA,GAAA,gBA
A,EA7cA,MAAM,EAAO,OA6cb,QAAA,KAAA,GAAA,gBAAA,EAvcA,MAAM,EAAO,OAucb,QAAA,KAAA,GAAA,gBA
A,EAjcA,MAAM,EAAO,OAicb,QAAA,KAAA,GAAA,gBAAA,EA3bA,MAAM,EAAO,OA2bb,QAAA,KAAA,GAAA,gBA
A,EArbA,MAAM,EAAO,OAqbb,QAAA,KAAA,GAAA,gBAAA,EA/aA,MAAM,EAAO,OA+ab,QAAA,KAAA,GAAA,gBA
A,EAzaA,MAAM,EAAO,OAyab,QAAA,KAAA,GAAA,gBAAA,EAnaA,MAAM,EAAO,OAmab,QAAA,KAAA,GAAA,gBA
A,EA7ZA,MAAM,EAAO,OA6Zb,QAAA,KAAA,GAAA,gBAAA,EAvZA,MAAM,EAAO,OAuZb,QAAA,KAAA,GAAA,gBA
A,EAjZA,MAAM,EAAO,OAiZb,QAAA,KAAA,GAAA,gBAAA,EA3YA,MAAM,EAAO,OA2Yb,QAAA,KAAA,GAAA,gBA
A,EArYA,MAAM,EAAO,OAqYb,QAAA,KAAA,GAAA,gBAAA,EA/XA,MAAM,EAAO,OA+Xb,QAAA,KAAA,GAAA,gBA
A,EAzXA,MAAM,EAAO,OAyXb,QAAA,KAAA,GAAA,gBAAA,EAnXA,MAAM,EAAO,OAmXb,QAAA,KAAA,GAAA,gBA
A,EA7WA,MAAM,EAAO,OA6Wb,QAAA,KAAA,GAAA,gBAAA,EAvWA,MAAM,EAAO,OAuWb,QAAA,KAAA,GAAA,gBA
A,EAjWA,MAAM,EAAO,OAiWb,QAAA,KAAA,GAAA,gBAAA,EA3VA,MAAM,EAAO,OA2Vb,QAAA,KAAA,GAAA,gBA
A,EArVA,MAAM,EAAO,OAqVb,QAAA,KAAA,GAAA,gBAAA,EA/UA,MAAM,EAAO,OA+Ub,QAAA,KAAA,GAAA,gBA
A,EAzUA,MAAM,EAAO,OAyUb,QAAA,KAAA,GAAA,gBAAA,EAnUA,MAAM,EAAO,OAmUb,QAAA,KAAA,GAAA,gBA
A,EA7TA,MAAM,EAAO,OA6Tb,QAAA,KAAA,GAAA,gBAAA,EAvTA,MAAM,EAAO,OAuTb,QAAA,KAAA,GAAA,gBA
A,EAjTA,MAAM,EAAO,OAiTb,QAAA,KAAA,GAAA,gBAAA,EA3SA,MAAM,EAAO,OA2Sb,QAAA,KAAA,GAAA,gBA
A,EArSA,MAAM,EAAO,OAqSb,QAAA,KAAA,GAAA,gBAAA,EA/RA,MAAM,EAAO,OA+Rb,QAAA,KAAA,GAAA,gBA
A,EAzRA,MAAM,EAAO,OAyRb,QAAA,KAAA,GAAA,gBAAA,EAnRA,MAAM,EAAO,OAmRb,QAAA,KAAA,GAAA,gBA
A,EA7QA,MAAM,EAAO,OA6Qb,QAAA,KAAA,GAAA,gBAAA,EAvQA,MAAM,EAAO,OAuQb,QAAA,KAAA,GAAA,gBA
A,EAjQA,MAAM,EAAO,OAiQb,QAAA,KAAA,GAAA,gBAAA,EA3PA,MAAM,EAAO,OA2Pb,QAAA,KAAA,GAAA,gBA
A,EArPA,MAAM,EAAO,OAqPb,QAAA,KAAA,GAAA,gBAAA,EA/OA,MAAM,EAAO,OA+Ob,QAAA,KAAA,GAAA,gBA
A,EAzOA,MAAM,EAAO,OAyOb,QAAA,KAAA,GAAA,gBAAA,EAnOA,MAAM,EAAO,OAmOb,QAAA,KAAA,GAAA,gBA
A,EA7NA,MAAM,EAAO,OA6Nb,QAAA,KAAA,GAAA,gBAAA,EAvNA,MAAM,EAAO,OAuNb,QAAA,KAAA,GAAA,gBA
A,EAjNA,MAAM,EAAO,OAiNb,QAAA,KAAA,GAAA,gBAAA,EA3MA,MAAM,EAAO,OA2Mb,QAAA,KAAA,GAAA,gBA
A,EArMA,MAAM,EAAO,OAqMb,QAAA,KAAA,GAAA,gBAAA,EA/LA,MAAM,EAAO,OA+Lb,QAAA,KAAA,GAAA,gBA
A,EAzLA,MAAM,EAAO,OAyLb,QAAA,KAAA,GAAA,gBAAA,EAnLA,MAAM,EAAO,OAmLb,QAAA,KAAA,GAAA,gBA
A,EA7KA,MAAM,EAAO,OA6Kb,QAAA,KAAA,GAAA,gBAAA,EAvKA,MAAM,EAAO,OAuKb,QAAA,KAAA,GAAA,gBA
A,EAjKA,MAAM,EAAO,OAiKb,QAAA,KAAA,GAAA,gBAAA,EA3JA,MAAM,EAAO,OA2Jb,QAAA,KAAA,GAAA,gBA
A,EArJA,MAAM,EAAO,OAqJb,QAAA,KAAA,GAAA,gBAAA,EA/IA,MAAM,EAAO,OA+Ib,QAAA,KAAA,GAAA,gBA
A,EAzIA,MAAM,EAAO,OAyIb,QAAA,KAAA,GAAA,gBAAA,EAnIA,MAAM,EAAO,OAmIb,QAAA,KAAA,GAAA,gBA
A,EA7HA,MAAM,EAAO,OA6Hb,QAAA,KAAA,GAAA,gBAAA,EAvHA,MAAM,EAAO,OAuHb,QAAA,KAAA,GAAA,gBA
A,EAjHA,MAAM,EAAO,OAiHb,QAAA,KAAA,GAAA,gBAAA,EA3GA,MAAM,EAAO,OA2Gb,QAAA,KAAA,GAAA,gBA
A,EArGA,MAAM,EAAO,OAqGb,QAAA,KAAA,GAAA,gBAAA,EA/FA,MAAM,EAAO,OA+Fb,QAAA,KAAA,GAAA,gBA
A,EAzFA,MAAM,EAAO,OAyFb,QAAA,KAAA,GAAA,gBAAA,EAnFA,MAAM,EAAO,OAmFb,QAAA,KAAA,GAAA,gBA
A,EA7EA,MAAM,EAAO,OA6Eb,QAAA,KAAA,GAAA,gBAAA,EAvEA,MAAM,EAAO,OAuEb,QAAA,KAAA,GAAA,gBA
A,EAjEA,MAAM,EAAO,OAiEb,QAAA,KAAA,GAAA,gBAAA,EA3DA,MAAM,EAAO,OA2Db,QAAA,KAAA,GAAA,gBA
A,EArDA,MAAM,EAAO,OAqDb,QAAA,KAAA,GAAA,gBAAA,EA/CA,MAAM,EAAO,OA+Cb,QAAA,KAAA,GAAA,gBA
A,EAzCA,MAAM,EAAO,OAyCb,QAAA,KAAA,GAAA,gBAAA,EAnCA,MAAM,EAAO,OAmCb,QAAA,KAAA,GAAA,gBA
A,EA7BA,MAAM,EAAO,OA6Bb,QAAA,KAAA,GAAA,gBAAA,EAvBA,MAAM,EAAO,OAuBb,QAAA,KAAA,GAAA,gBA
A,EAjBA,MAAM,EAAO,OAiBb,QAAA,KAAA,GAAA,gBAAA,EA3AA,MAAM,EAAO,OA2Ab,QAAA,KAAA,GAAA,gBA
A,EArAA,MAAM,EAAO,OAqAb,QAAA,KAAA,GAAA,gBAAA,EA/@A,MAAM,EAAO,OA+@b,QAAA,KAAA,GAAA,gBA
A,EAz@A,MAAM,EAAO,OAy@b,QAAA,KAAA,GAAA,gBAAA,EAn@A,MAAM,EAAO,OAm@b,QAAA,KAAA,GAAA,gBA
A,EA7?A,MAAM,EAAO,OA6?b,QAAA,KAAA,GAAA,gBAAA,EAv?A,MAAM,EAAO,OAu?b,QAAA,KAAA,GAAA,gBA
A,EAj?A,MAAM,EAAO,OAi?b,QAAA,KAAA,GAAA,gBAAA,EA3>A,MAAM,EAAO,OA2>b,QAAA,KAAA,GAAA,gBA
A,EAr>A,MAAM,EAAO,OAq>b,QAAA,KAAA,GAAA,gBAAA,EA/=A,MAAM,EAAO,OA+=b,QAAA,KAAA,GAAA,gBA
A,EAz=A,MAAM,EAAO,OAy=b,QAAA,KAAA,GAAA,gBAAA,EAn=A,MAAM,EAAO,OAm=b,QAAA,KAAA,GAAA,gBA
A,EA7<A,MAAM,EAAO,OA6<b,QAAA,KAAA,GAAA,gBAAA,EAv<A,MAAM,EAAO,OAu<b,QAAA,KAAA,GAAA,gBA
A,EAj<A,MAAM,EAAO,OAi<b,QAAA,KAAA,GAAA,gBAAA,EA3;A,MAAM,EAAO,OA2;b,QAAA,KAAA,GAAA,gBA
A,EAr;A,MAAM,EAAO,OAq;b,QAAA,KAAA,GAAA,gBAAA,EA/:A,MAAM,EAAO,OA+:b,QAAA,KAAA,GAAA,gBA
A,EAz:A,MAAM,EAAO,OAy:b,QAAA,KAAA,GAAA,gBAAA,EAn:A,MAAM,EAAO,OAm:b,QAAA,KAAA,GAAA,gBA
A,EA79A,MAAM,EAAO,OA69b,QAAA,KAAA,GAAA,gBAAA,EAv9A,MAAM,EAAO,OAu9b,QAAA,KAAA,GAAA,gBA
A,EAj9A,MAAM,EAAO,OAi9b,QAAA,KAAA,GAAA,gBAAA,EA38A,MAAM,EAAO,OA28b,QAAA,KAAA,GAAA,gBA
A,EAr8A,MAAM,EAAO,OAq8b,QAAA,KAAA,GAAA,gBAAA,EA/7A,MAAM,EAAO,OA+7b,QAAA,KAAA,GAAA,gBA
A,EAz7A,MAAM,EAAO,OAy7b,QAAA,KAAA,GAAA,gBAAA,EAn7A,MAAM,EAAO,OAm7b,QAAA,KAAA,GAAA,gBA
A,EA76A,MAAM,EAAO,OA66b,QAAA,KAAA,GAAA,gBAAA,EAv6A,MAAM,EAAO,OAu6b,QAAA,KAAA,GAAA,gBA
A,EAj6A,MAAM,EAAO,OAi6b,QAAA,KAAA,GAAA,gBAAA,EA35A,MAAM,EAAO,OA25b,QAAA,KAAA,GAAA,gBA
A,EAr5A,MAAM,EAAO,OAq5b,QAAA,KAAA,GAAA,gBAAA,EA/4A,MAAM,EAAO,OA+4b,QAAA,KAAA,GAAA,gBA
A,EAz4A,MAAM,EAAO,OAy4b,QAAA,KAAA,GAAA,gBAAA,EAn4A,MAAM,EAAO,OAm4b,QAAA,KAAA,GAAA,gBA
A,EA73A,MAAM,EAAO,OA63b,QAAA,KAAA,GAAA,gBAAA,EAv3A,MAAM,EAAO,OAu3b,QAAA,KAAA,GAAA,gBA
A,EAj3A,MAAM,EAAO,OAi3b,QAAA,KAAA,GAAA,gBAAA,EA32A,MAAM,EAAO,OA22b,QAAA,KAAA,GAAA,gBA
A,EAr2A,MAAM,EAAO,OAq2b,QAAA,KAAA,GAAA,gBAAA,EA/1A,MAAM,EAAO,OA+1b,QAAA,KAAA,GAAA,gBA
A,EAz1A,MAAM,EAAO,OAy1b,QAAA,KAAA,GAAA,gBAAA,EAn1A,MAAM,EAAO,OAm1b,QAAA,KAAA,GA

A,SAAA,GA5UA,MAAM,GAAsB,sBA4U5B,QAAA,oBAAA,GAnUA,MAAM,GAAsB,sBAmU5B,QAAA,oBAA
A,GAzTA,MAAM,GAAsB,sBAyT5B,QAAA,oBAAA,GA/SA,MAAM,GAAW,WA+SjB,QAAA,SAAA,GA5SA,
MAAM,GAAS,SA4Sf,QAAA,OAAA,GApSA,MAAM,GAAO,OAoSb,QAAA,KAAA,GA9RA,MAAM,GAAQ,Q
A8Rd,QAAA,MAAA,GAvRA,MAAM,GAAO,OAuRb,QAAA,KAAA,GApRA,MAAM,GAAM,MAoRZ,QAAA,I
AAA,GAjRA,MAAM,GAAQ,QAiRd,QAAA,MAAA,GA9QA,MAAM,GAAO,OA8Qb,QAAA,KAAA,GAvQA,M
AAM,GAAQ,QAuQd,QAAA,MAAA,GA/PA,MAAM,GAAO,OA+Pb,QAAA,KAAA,GA5PA,MAAM,GAAa,aA4
PnB,QAAA,WAAA,GAzPA,MAAM,GAAO,OAyPb,QAAA,KAAA,GAtPA,MAAM,GAAU,UAsPhB,QAAA,QA
AA,GAhPA,MAAM,GAAwB,wBAgP9B,QAAA,sBAAA,GAxOA,MAAM,GAA4B,4BAwOlC,QAAA,0BAAA,G
AnOA,MAAM,GAAiB,iBAmOvB,QAAA,eAAA,GA3NA,MAAM,GAAqB,qBA2N3B,QAAA,mBAAA,GAvNA,
MAAM,GAAQ,QAuNd,QAAA,MAAA,GApNA,MAAM,GAAU,UAoNhB,QAAA,QAAA,GA9MA,MAAM,GAAQ,Q
A8Md,QAAA,MAAA,GA3MA,MAAM,GAAQ,QA2Md,QAAA,MAAA,GAxMA,MAAM,GAAY,YAwMlB,
QAAA,UAAA,GAlMA,MAAM,GAAS,SAkMf,QAAA,OAAA,GA/LA,MAAM,GAAO,OA+Lb,QAAA,KAAA,GA5LA,MAAM,GAAQ,QA4Ld,QAAA,MAAA,GAtLA,MAAM,GAAM,MAsLZ,QAAA,IAAA,GAnLA,MAAM,GAAO,OAmLb,QAAA,KAAA,GA7KA,MAAM,GAAU,UA6KhB,
QAAA,QAAA,GA1KA,MAAM,GAAW,WA0KjB,QAAA,SAAA,GAvKA,MAAM,GAAO,OAuKb,QAAA,KAAA,GAAA
,GApKA,MAAM,GAAM,MAoKZ,QAAA,IAAA,GA7JA,MAAM,GAAS,SA6Jf,QAAA,OAAA,GAtJA,MAAM,GAAO,OAsJb,QAAA,KAAA,GAAA
,GAAS,SAsJf,QAAA,OAAA,GA/IA,MAAM,GAAU,UA+IhB,QAAA,QAAA,GAzIA,MAAM,GAAO,OAyIb,
QAAA,kBAAA,GAtIA,MAAM,GAAS,SAsIf,QAAA,OAAA,GAnIA,MAAM,GAAO,OAmIb,QAAA,KAAA,GAhIA,MAAM,GAAM,MAmIZ,QAAA,IAAA,GA7HA,MAAM,GAAO,OA6Hb,QAAA,KAAA,GAvHA,MAAM,GAAO,OAuHb,QAAA,KAAA,GAAA
IA,MAAM,GAAgB,gBAgHtB,QAAA,cAAA,GAzGA,MAAM,GAAO,OAyGb,QAAA,KAAA,GAtGA,MAAM,GAAO,OAsGb,QAAA,KAAA,GAnGA,MAAM,GAAO,OAmGb,QAAA,KAAA,GAAA
AM,MA4GZ,QAAA,IAAA,GAzGA,MAAM,GAAO,OAyGb,QAAA,KAAA,GAtGA,MAAM,GAAO,OAsGb,QAAA,KAAA,GAAA
AA,KAAA,GAhGA,MAAM,GAAO,OAgGb,QAAA,KAAA,GA7FA,MAAM,GAAO,OA6Fb,QAAA,KAAA,GAAA
FA,MAAM,GAAS,SAmFf,QAAA,OAAA,GA3EA,MAAM,GAAS,SA2Ef,QAAA,OAAA,GAxEA,MAAM,GAAO,OAwEb,QAAA,KAAA,GAAA
B,qBAqE3B,QAAA,mBAAA,GAlEA,MAAM,GAAO,OAkEb,QAAA,KAAA,GA/DA,MAAM,GAAO,OA+Db,QAAA,KAAA,GA5DA,MAAM,GAAO,OA4Db,QAAA,KAAA,GAAA
QAAA,KAAA,GAlDA,MAAM,GAAO,OAkDb,QAAA,KAAA,GA/CA,MAAM,GAAO,OA+Cb,QAAA,KAAA,GA5CA,MAAM,GAAO,OA4Cb,QAAA,KAAA,GAAA
AA,GAAjCA,MAAM,GAAO,OAiCb,QAAA,KAAA,GA9BA,MAAM,GAAO,OA8Bb,QAAA,KAAA,GA3BA,MAAM,GAAO,OA2Bb,QAAA,KAAA,GAAA
,GAAuB,uBAA7B,QAAA,qBAAA;;AC7qBN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,
UAAA,EAAA,QAAA,YAAA,EAAA,QAAA,qBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,iBA
BAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,sBAAA,EAAA,EAAAtMD,IAAA,EAAA,QAAA,iBAEA,EAAA,QAAA,iBA
KA,MAAM,GACF,EAAU,EAAA,WAAA,iBAAAkB,IAAM,IAAI,KACpC,GACF,EAAU,EAAA,WAAA,eAAAgB,IA
AM,IAAI,KAAoElC,SAAU,EACZ,EAAoB,GAChB,MAAA,EAAM,EAAQ,EAAY,GACzB,OAAA,EAAe,IAAI,GA
OtB,SAAU,EAAY,GACnB,OAAA,EAAa,IAAI,GAGpB,SAAU,EAAqB,GAC7B,MAAA,EAAK,EAAe,UACpB,E
AAyB,GAExB,OAAM,CACL,MAAA,KAAC,EAAD,MAAO,GAAS,EAAG,OACrB,GAAA,EAAC,MAAE,EAAK,IAAI,MAAC,EAAK,
EAAK,GAAU,GACf,EAAA,GAAI,EAAK,MAAM,KAAC1B,IAAY,EAAO,KAAK,GAGT,OAAA,EAAA,EAAc,H,SAAU,EA
Ae,GACvB,MAAA,WAAC,EAAD,YAAa,GAAe,EAAC,5B,EAAM,EAAQ,EAAY,GAAC5B,B,EAAM,EAAe,IAAI,IACrB,QAAA
Q,oBACW,sBACX,4BAEV,EAAe,IAAI,EAAK,GAAWpB,SAAU,EAAiB,GACzB,MAAA,WAAC,GAAc,EAAC,EAAjB
EAAa,IAAI,KAGf,EAAM,EAAA,OAAA,QAAA,UAAA,qBAAA,EAAA,aAAA,GAAA,EAAA,IAAA,EAAA,YAAA,GAAA,SA
AAU,EACZ,EAAoB,GAChB,MAAA,EAAM,EAAQ,EAAY,GAAC,B,EAAM,EAAe,IAAI,GAAC,EAAK,IAAI,qB
ACS,sBACX,wBAEV,EAAe,OAAO,GAAIlB,SAAU,EAAiB,GACzB,MAAA,EAAC,EAAjB,EAAa,IAAI,GAAC,EAAK,IAAI,uBA
CW,oCAEV,EAAe,OAAO,GAAShB,SAAU,EAAY,EAA+B,GAACjB,IAAY,EAAO,KAAK,GAAC,EAAK,IAAI,
OAAO,GAAI,EAAc,CAAC,YAAa,OAAKtD,SAAS,EAAAQ,QAAA,EAAAoB,GAAA,SAAA,EAAA,QAAA,EAAA,QAAA,
eAAA,EAAA,QAAA,aAAA,EAAA,QAAA,CAAA,OAAA,IAAA,QAAA,UAAA,aAAA,EAAA,QAAA,YAAA,EAAA,QAAA,
CAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,
EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,
MAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,
EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,
gBAgHC,SAAA,IAAA,GAAA,EAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,
OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,WAAA,AA,OAAA,GAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,
QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,
QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,
EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,
IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,
OAAA,EAAA,QAAA,IAAA,QAAA,OAAA,EAAA,QAAA,IAAA,QAAA,O

AAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GA
AA,EAAA,IAAA,EAAA,GAAA,EA1GK,SAAU,EACZ,EAAiB,GACf,MAAU,WAAV,EACK,EAAa,GAGf,EAAa
,CAAC,GAAQ,GAG/B,SAAS,EAAmB,EAAe,GACjC,OAAA,aAAa,cAA0B,YAAV,GAChC,aAAa,YAAwB,UAA
V,GAC3B,aAAa,YAAwB,SAAV,EAG5B,SAAU,EAAa,EAAe,GACtC,GAAU,WAAV,EACI,MAAA,IAAI,MAA
M,6CASd,GAPA,MAAM,QAAQ,KAChB,EAAI,EAAK,QAAQ,KAGf,EAAM,EAAA,OAAA,QAAQ,UAChB,EA
AK,yBAAyB,EAAe,GAE3C,EAAmB,EAAG,GACjB,OAAA,EAEL,GAAS,MAAT,GAA2B,YAAV,GAAiC,cAA
V,EACnC,OAAA,IAAI,aAAa,GACnB,GAAc,UAAV,EACF,OAAA,IAAI,WAAW,GACjB,GAAc,SAAV,EAAkB,
CACrB,MAAA,EAAO,IAAI,WAAY,EAAe,QACvC,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,SAAU,EACM,IAAn
C,KAAK,MAAO,EAAe,MAC7B,EAAK,GAAK,GAGP,OAAA,EAED,MAAA,IAAI,2BAA2B,KAAenC,SAAU,IAC
P,OAAA,EAAM,EAAA,OAAA,SAAS,MAmBlB,SAAU,EACZ,EAAc,GACT,OAAA,EAAM,EAAA,OAAA,SAAS,MAAM,EAAM,GAW9B,SAAU,EAAa,EAAW,EAAW,SE1C,OADP,EAAW,GAAY,SAChB,B,EAAM,EAAA,O
AAA,SAAS,OAAO,EAAG,GAW5B,SAAU,EAAa,EAAe,EAAmB,EAAW,SAElD,OADP,EAAW,GAAY,SAChB,B,EAAM,EAAA,OA

,EACZ,EAAkB,EAAc,GAG5B,MAAA,EAA8C,GAC9C,EAA0C,GAC3C,IAAA,IAAI,EAAI,EAAG,EAAI,EAAG,
OAAQ,IAC7B,EAAa,EAAG,GAAG,KAAM,EAGtB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,OAAQ,IAAK,CAC9
B,MAAA,EAAO,EAAK,GACZ,EAAa,EAAK,OACnB,IAAA,MAAM,KAAa,EAAY,CAC5B,MAAA,EAAQ,EAA
W,GAErB,IAAA,GAAgB,EACf,IAAA,IAAI,EAAI,EAAG,EAAI,EAAG,OAAQ,IACzB,GAAA,EAAa,EAAM,IA
AK,CAC1B,EAAK,QAAQ,QAAQ,GAAU,EAAa,EAAO,KAAM,GACzD,GAAgB,EAChB,EAAW,EAAK,KAAM,
EACtB,MAIA,GAAA,EACF,OAMA,MAAA,EAAgD,GACtD,GAAe,EAAe,KAAM,EACjB,MAAA,EAAwC,GAE
zC,IAAA,IAAI,EAAI,EAAK,OAAS,EAAG,GAAK,EAAG,IAAK,CACnC,MAAA,EAAO,EAAK,GACZ,EAAa,E
AAK,OAGnB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,QAAQ,OAAQ,IACnC,C,GAAA,EAAe,EAAK,QAAQ,GAAG
,IAAK,CACjC,IAAA,MAAM,KAAa,EAAY,GAAW,EAAS,EAAK,KAAM,EAC3C,EAAS,EAAK,KAAM,EAEtB
,OAMA,MAAA,EAA2B,GAC5B,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,OAAQ,IAAK,CAC9B,MAAA,EAAO,EAAK,GACZ,EAAa,E
AAK,GAEd,GAAA,EAAW,EAAK,KAAO,EAAS,EAAK,IAAK,CAEtC,MAAA,EAA8C,GAC/C,IAAA,MAAM,K
AAa,EAAK,OAAQ,CAC7B,MAAA,EAAY,EAAK,OAAO,GAC1B,EAAa,EAAU,MACzB,EAAa,GAAa,GAKxB,
MAAA,EAAa,OAAO,OAAO,GAAI,GACrC,E,AAAW,EAAK,KAAO,EAAS,EAAK,KAAK
,IAIf,OAAA,EAAU,SAAU,EACZ,EAAA,EAA0B,EAC1B,GAAE,G,IAAA,EAAI,EAAI,EAAa,OAAS,EAAG,GAAK,
EAAG,IAAK,CAC3C,MAAA,EAAO,EAAK,GACZ,EAAa,EAAK,OAAO,GAAI,GAAK,EAAK,QAAQ,QAAQ,IAAb,B,MAAA,
EAAa,EAA6B,EAAK,IAAK,CAAE,EAAK,OAAO,EAAG,GAAI,EAAK,GAAI,EAAK,GAAI,EAAK

AAI,EAAI,EAAO,EAA4B,EAAI,EAAM,IAAK,CACvD,MAAA,EAAQ,EAAI,EACZ,EAAM,EAAQ,EACpB,EAAM,QAAQ,EACV,EAAK,MAAM,EAAO,GAAM,EAAU,EAAO,EAAY,EACrD,IAAM,EAAO,UAGd,IAAA,IAAI,EAAI,EAAG,EAAI,EAAM,IAAK,CACvB,MAAA,EAAQ,EAAI,EACZ,EAAM,EAAQ,EACpB,EAAM,QAAQ,EACV,EAAK,MAAM,EAAO,GAAM,EAAU,EAAO,EAAY,EACrD,IAAM,EAAO,IAGf,MAAA,EAAA,EAAA,E

M,KAAK,aAGT,IAAY,cAAc,MACrB,KAAA,oBAAqB,GAIxB,iBACK,OAAA,KAAK,mBAGd,kBACM,GAAA,
KAAK,WACD,MAAA,IAAI,MAAM,uBAYpB,MAAM,GAAU,GACP,OAAA,EAAU,MAAM,KAAM,GAO/B,Q
AES,OADF,KAAA,kBACE,EAAU,MAAM,MAQzB,SAAS,GAAU,GACX,MAAA,EAAO,KAAK,WACX,OAAA,
EAAe,EAAA,gBAAA,EAAM,KAAK,MAAO,KAAK,MAAO,GAGtD,KAAqB,GAEZ,OADF,KAAA,kBACE,EA
AU,KAAK,KAAW,GAEnC,SAAS,GAAY,EAAM,EAAe,GAEjC,OADF,KAAA,kBACE,IAAY,aAAa,KAAM,EA
AW,EAAM,IAgBrD,SAAU,IAIP,OAAA,EAAU,EAAA,WAAA,SAAU,IAClB,GAgFX,QAAA,OAAA,EAAjGA,
AO,eAAe,EAAQ,OAAO,YAAa,CAChD,MAAQ,KAAMC,GAAG,GAAA6B,MAAA,CAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,
GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,G

I,QAOjB,KAAA,WAAY,EACZ,KAAA,cAA6B,CAC3B,SAAU,EACV,WAAY,EACZ,UAAW,EACX,QAAS,GAC
T,OAAQ,KACJ,kBAES,OAAA,MAAM,KAAK,IAAI,IAAI,KAAK,QAAQ,IAAI,GAAK,EAAE,UAI1D,UACO,IA
AA,MAAM,KAAgB,KAAK,oBACzB,KAAA,oBAAoB,GAAc,WAKvC,MAAO,EAgBX,YAAmB,GAAA,KAAA,
IAAA,EAbnB,KAAA,SAA0C,GAC1C,KAAA,gBAKI,GAKI,KAAA,qBAAuB,EAGxB,KAAA,MAAQ,IAAI,EAG
b,cACA,GAA2B,MA3B,KAAK,mBACA,OAAA,KAAK,mBAAmB,KAAK,QAElC,GAAwB,MAAxB,KAAK,g
BACP,OAEI,MAAA,EAAiB,KAAK,oBAEvB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAe,OAAQ,IAAK,CACxC,MA
AA,EAAc,EAAe/B,SADkB,KAAK,kBAAkB,GAAa,QAGxD,kBADM,KAAK,WAAW,IAKpB,MAAA,IAAI
,MACN,0EAIF,cACE,GAA2B,MA3B,KAAK,mBACD,OAAA,IAAI,kBACM,KAAK,mDACjB,kFAGF,GAAw
B,MAAxB,KAAK,gBAAyB,CAC1B,MAAA,KAAC,EAAD,UAAO,GAAa,KAAK,kCAC3B,GAAA,EACI,EAAA,EACI,MAAA
,IAAI,uCAC2B,uBACjC,oGAGD,KAAA,WAAW,GAEX,OAAA,KAAK,gBAGd,eACS,OAAA,OAAO,KAAK,K
AAK,iBAG1B,YAAY,GACN,KAAE,KAAe,KAAK,UAAW,CAAG,KAAA,KAAA,iBAAO,OAAA,KAAP,kBAAO,CAAP,
CACjC,MAAA,UAAC,GAAa,kBAAkB,GACvC,GAAA,EAEK,MAAA,MAAN,OAAA,KAAA,SAAA,GAAA,GAAA,GAAA,GAAA,
GvB,mBAAmB,GAEb,OAAE,KAAe,KAAK,gBAGnB,KAAK,gBAAgB,GAAa,QAFhC,KAKX,gBACI,EACA,EA
CA,EAAW,GACT,OAAA,KAAe,KAAK,iBACtB,QAAQ,QACD,qCACH,sCACG,IAEJ,KAAA,gBAAgB,GAAe,C
AAC,QAAA,EAAS,SAAA,IACvC,GAAH,iBAAW,GACX,KAAA,qBAAuB,GAAa,uBAAuB,4BAG/D,GADC,KAAA,YAAc,
jB,MAAA,QAAC,EAAD,UAAU,GAAa,kBAAkB,GAEhD,KADW,QAAA,kBAAkB,GAAa,EAAU,GAElC,OAAA,EAAQ,
OALF,KAAA,gBAAgB,kBAAK,KAAK,SAAS,GAChC,KAAA,yBAEA,KAAA,SAAW,IAAI,EAAJ,SAAa,KAAK,kBAE3
B,EAGD,0BACU,EAAqB,EAAA,sBAAA,KAAK,aAClC,QAAQ,IACU,MAApB,EAAO,WACT,EAAO,UAAU,K
AAK,mBAAKpB,yBAAA,yBAAA,IACf,EAAqB,EAAA,sBAAA,KAAK,GAC7B,QAAQ,IACY,MAAtB,EAAO,aACT,EAAO,YA
AY,KAAK,SAAS,MAW/B,kBAAgB,GAAA,KAAA,gBAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,
MAAA,IAAI,mCACuB,6BAG/B,IACI,MAAA,EAAU,EAAA,QAAA,EAAA,QAAA,UAAA,GAAA,IAAA,GAAA,aAAA,mBA
AjB,EAAQ,KA4BV,OADF,KAAA,SAAS,GAAe,EACtB,CAAC,SAAS,EAAM,WAAW,GA5BhC,SAAA,IAAA,IAAA,
IAAc,qBACnB,EACF,EACK,KAAK,wBAAS,KAAA,SAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,
,mBAAqB,MACnB,IAER,MAAM,KAED,EAAA,wBAAS,KAAA,SAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,GAAA,
WAAW,IAK9B,MAAO,GAGA,OAAA,KAAA,EAAA,QAAA,EAAA,QAAA,UAAA,GAAA,IAAA,GAAA,aAAA,mBAAA,KAAA,
ACjC,QAAQ,KAAK,EAAI,OAAS,EAAI,UACvB,mBAAqB,EAAA,QAAA,EAAA,QAAA,UAAA,GAAA,IAAA,GAAA,aAAA,mBAAA,
WAAW,IAK9B,MAAO,GAAA,KAAA,EAAA,QAAA,EAAA,QAAA,UAAA,GAAA,IAAA,GAAA,aAAA,mBAAA,KAAA,SAAA,G

IAAI,iBAAiB,kCACvB,KAAK,gBAEJ,OAAA,KAAK,cAAc,CAAC,WAAA,EAAY,OAAA,EAAQ,MAAA,IAGz
C,yBACC,OAAA,KAAK,IAAI,QAAQ,WAGlB,sBACJ,EAAoB,EACpB,GACI,MAAA,EAAkB,KAAK,QAAQ,aA
GjC,IAAA,EAAmB,EACvB,EAAS,QAAQ,IAGf,GAAoC,cAAf,EAAK,MAAwB,EAAI,IAQlD,MAAA,EACF,KA
AK,MAAM,kBAAkB,KAAK,MAAM,kBAAkB,OAAS,GACjE,EACF,EAAkB,EAAmB,EAAmB,EACxD,GAAA,
EAAgB,EACZ,MAAA,IAAI,kBACM,KAAK,gDACb,8BAA0C,MAS9C,cACJ,GAEE,IAAA,EACA,EAAkB,GAC
hB,MAAA,EAAW,KAAK,WEhB,EAAoB,KAAK,MAAM,SAC/B,EAAqB,KAAK,MAAM,WAMlC,IAAA,EAU
A,EAdA,KAAK,0BACF,KAAA,MAAM,kBAAkB,KAAK,GAIZ,MAApB,KAAK,aMF,KAAA,QAKD,MAAA,E
AAoB,EA6B,GACnD,EAAa,WCa,MA1B,KAAK,MAAM,YAsB,KAAK,MAAM,YAAY,KAAO,GAM/D,G
AAA,EA6B,GAAe,CACxC,MAAA,WAAC,EAAD,OAAa,EAAb,MAAqB,GAAS,EACZ,MAApB,KAAK,aMF
,KAAA,QAED,MAAA,GAAS,EAAU,EAAA,WAAA,EAAY,KAAK,aAC1C,sCAAA
wC,mBACpC,KAAK,gBAEb,EAAa,MACL,MAAA,EAAmB,KAAK,QAAQ,aACtC,EAAM,EAAO,WAAW,CAA
C,OAAA,EAAQ,MAAA,EAAO,QAAS,KAAK,UAChD,MAAA,EAAW,MAAM,QAAQ,GAAO,EAAM,CAAC,G
ACzC,KAAK,0BACF,KAAA,sBAAsB,EAAY,EAAkB,GAGrD,MAAA,EAAa,GAE3D,IAAA,IAAI1B,GAA2B,MAA
3B,EAAmB,KACf,OAAA,EAAH,MAAA,OAAC,EAAD,MAAS,EAAT,MAAgB,GAAS,EAAU,EACxB,OAAA,KAAK,q
BAAqB,EAAQ,EAAO,KAQ9C,GAAA,EAAU,CACN,EAAA,MAAC,EAAD,OAAa,EAAb,MAAqB,GAAS,EAAU,GAAC
nD,EA
AQ,KAAK,2BAA2B,GAAnC,OAAA,QAAJ,EAAI,CACC,MAAA,YAAC,EAAD,QAAc,EAAd,MAAsB,GAAS,EAAU,
EAAhB,MAAA,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA,MAAA,OAAA,GrD,EAAa,MACL,MAAA,EAAmB,KAAK,QAAQ,aACtC,
EAAM,KAAK,KAAK,IAAM,EAAY,KAAK,QAAS,IAC1C,1C,MAAA,EAAA,EAAA,MAAA,QAAA,GAAA,EAAA,MAAA,
,GAKnC,OAJH,KAAK,0BAEF,KAAA,sBAAsB,EAAY,EAAkB,GAE3D,3D,IAAA,OAAL,MAAA,EAAA,OAAA,EAAA,MAAA,
AAS,EAClB,EAAgB,EAA6B,GAC/C,C/C,KACA,EAAa,cAEb,IAAA,EAAmB,EAAA,MAAA,CI,OAAlH,KAAK,WEK,IAAA,KAAK,MAAM,
AAM,cAAe,IAAM,KAAK,MAAM,WAAG5C,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
AAM,cAAe,KACzB,MAAA,cAAe,KAAK,IAAI,QAAQ,UAAa,KAAK,MAAM,WAAW5C,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,KAAK,SAAS,cAAC1B,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
AmB,EAAA,QAAQ,IAAA,KAAK,MAAM,UAAA,KAAK,MAAM,WAAG5C,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,KAAK,SAAS,iBAAC1B,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
EjC,
EAAU,EAAc,SAAPxB,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,MAAM,WACR,KAAA,MAAM,cAAQ,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
ClC,mBAAoB,KAAK,MAAM,SAAC,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
AAa,KAAK,MAAM,WAAC,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
AAa,OAAO,KAAK,GAAQ,IAAC7B,EAAA,gBAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,
,EAAA,MAAA,EAAA,MAAA,EAAA,MAAA,EAAA,M

AO,EAAE,QAGxB,aAAa,EAAgB,GACvB,KAAK,MAAM,WAAW,IAAI,IAC1B,KAAK,MAAM,WAAW,IAAI,GAAQ,UAAY,IAC3C,KAAA,MAAM,WAAW,OAAO,GACxB,KAAA,MAAM,kBAGf,cAAc,GACR,IAAC,KAAK,MAAM,WAAW,IAAI,EAAE,QAC/B,OAEI,MAAA,EAAO,KAAK,MAAM,WAAW,IAAI,EAAE,QASrC,GAPC,KAAA,MAAM,aACK,WAAZ,EAAE,QACC,KAAA,MAAM,mBACN,KAAA,MAAM,UAAY,EAAK,OAId,cAAA Z,EAAE,OAAqC,WAAZ,EAAE,MAAoB,CAC7C,MAAA,EAAQ,EAAE,KAAO,EAAK,gBAAgB,EAAE,OACzC,KAAA,MAAM,UAAY,EAIrB,QAAQ,YAAY,EAAE,SACxB,KAAA,aAAa,EAAE,OAAQ,EAAK,SAQrC,mBACO,IAAA,MAAM,KAAW,oBAAqB,CAC9C,MAAA,EAAI,KAAK,MAAM,oBAAqB,GACpC,CAAA,KAAA,gBAAgB,IAAI,IAAI,gBAAgB,IAAI,IAAI,GACnD,CAAA,KAAA,MAAM,UAAY,EAAK,OAAA,EAAC,EAAC,KAAK,MAAM,oBAAqB,EAAE,EAAE,cAAc

AAQ,KAKd,SAAS,GAGA,OADM,KAAK,MAAM,WAAW,IAAI,GAC3B,QAAQ,SAAS,GAE/B,KAAK,GAGI,OADM,KAAK,MAAM,WAAW,IAAI,GAC3B,QAAQ,KAAK,GAGrB,WAAK,GACH,MAAA,GAAQ,EAAd,EAAAA,OACM,QAAAmB,KAAAK,QAAQ,KAAK,GAEpC,OADP,EAAAW,QAAAS,EAAAQ,EAAAA,OAAAA,EACrB,EASD,MAAAwB,GAMvB,OALuB,MAA1B,KAAAK,MAAM,cACb,EAAAO,QAAAU,KAAAK,MAAAM,YAAAY,GACnC,KAAAA,MAAM,YAAAY,MAAM,KAAAK,IAG7B,EAGL,0BACK,KAAAA,MAAM,oBAAAO,QAAAO,KAAAA,MAAM,oBAAAO,QAAAO,KAAAA,MAAM,kBAAAO,QAAAO,KAAAA,MAAM,kBAAAO,QAAAO,KAAAA,MAAM,k

B,kDACF,MAElC,MAAA,EAAgB,EAAW,EAAG,IAC/B,EAAa,EAAA,cAAA,IAAO,MAAM,QAAQ,KACrC,EA
AI,CAAC,IAED,MACA,EAA2B,WAAlB,GACX,EAAa,EAAA,cAAA,EAAG,IAChB,EAAQ,EAAA,SAAA,EAAe
,IAHJ,GAIhB,OAAA,EAAO,OAAA,WAAW,EAAQ,EAAe,GAG5C,SAAU,EACZ,EAA0B,EAAiB,EAC3C,EAAu
D,WACrD,IAAC,MAAM,QAAQ,GACX,MAAA,IAAI,kBACM,eAAqB,eACjC,gCAGC,OADS,EACD,IACX,CA
AC,EAAG,IACA,EAAgB,KAAM,KAAW,KAAM,EAAc;;ACrE9D,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,GAAA,EAAA,QAAA,qBAAA,EAAjDD,IAAA,EAAA,QAAA,aACA,CAA,EAAA,QAAA,WAEO,M
AAM,EAAkB,OAOzB,SAAU,EAAuB,GAC/B,MAAA,EAAO,OAAO,KAAK,GACrB,GAAgB,IAAhB,EAAK,OACD,MAAA,IAAI,MACN,4GAEG,EAAK,gBAGV,IAAA,EAAS,EAAK,GACZ,EAAA,GAAA,EAAA,EAAA,QAAA,GACZ,MAAA,EAAA,EAAK,GAAA,EAAA,GAAA,EAAA,QAAA,GAAA,EAAA,EAAA,GAAA,T,EAAA,O
AAS,SAAO,ClB,EAAA,SAAA,EAAA,OAAA,UAAA,EAAA,SAAA,EAAA,OAAA,OAAA,IAAA,C/B,GAAA,EAAA,kBAAA,
EAAA,OAAA,WAAA,GACd,CAd,IACC,MAAA,IAAA,EAAA,EAAA,QAAA,GAAA,EAAA,EAAA,G

AAA,EAAA,WAAA,KAAA,GACA,EAAA,EAAA,WAAA,EAAA,KAAA,GACA,EAAA,EAAA,WAAA,EAAA,
KAAA,EACA,EAAA,EAAA,WAAA,EAAA,IACA,EAAA,KAAA,GAAA,GAAA,IACA,EAAA,KAAA,GAAA,E
AAA,IACA,EAAA,KAAA,IAAA,EAmBA,OAhBA,IAAA,IACA,EACA,EAAA,EAAA,WAAA,KAAA,EACA,EA
AA,EAAA,WAAA,EAAA,KAAA,EACA,EAAA,KAAA,IAAA,GAGA,IAAA,IACA,EACA,EAAA,EAAA,WAA
A,KAAA,GACA,EAAA,EAAA,WAAA,EAAA,KAAA,EACA,EAAA,EAAA,WAAA,EAAA,KAAA,EACA,EAA
A,KAAA,GAAA,EAAA,IACA,EAAA,KAAA,IAAA,GAGA,EAGA,SAAA,EAAA,GACA,OAAA,EAAA,GAAA,
GAAA,IACA,EAAA,GAAA,GAAA,IACA,EAAA,GAAA,EAAA,IACA,EAAA,GAAA,GAGA,SAAA,EAAA,EA
AA,EAAA,GAGA,IAFA,IAAA,EACA,EAAA,GACA,EAAA,EAAA,EAAA,GAAA,EACA,GACA,EAAA,
IAAA,GAAA,WACA,EAAA,EAAA,IAAA,EAAA,QACA,IAAA,EAAA,EAAA,IACA,EAAA,KAAA,EAAA,IAE
A,OAAA,EAAA,KAAA,IAGA,SAAA,EAAA,GAQA,IAPA,IAAA,EACA,EAAA,EAAA,OACA,EAAA,EAAA,E
ACA,EAAA,GAIA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GAHA,MAIA,EAAA,KAAA,EACA,EAA
A,EAAA,EALA,MAKA,EAAA,EAAA,EALA,QA2BA,OAjBA,IAAA,GACA,EAAA,EAAA,EAAA,GACA,EAA
A,KACA,EAAA,GAAA,GACA,EAAA,GAAA,EAAA,IACA,OAEA,IAAA,IACA,GAAA,EAAA,EAAA,IAAA,G
AAA,EAAA,EAAA,GACA,EAAA,KACA,EAAA,GAAA,IACA,EAAA,GAAA,EAAA,IACA,EAAA,GAAA,EAAA
A,IACA,MAIA,EAAA,KAAA,IApIA,EAAA,IAAA,WAAA,IAAA,GACA,EAAA,IAAA,WAAA,IAAA;;ACnBA,
QAAA,KAAA,SAAA,EAAA,EAAA,EAAA,EAAA,GACA,IAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,EA
CA,GAAA,GAAA,GAAA,EACA,EAAA,GAAA,EACA,GAAA,EACA,EAAA,EAAA,EAAA,EAAA,EACA,EAA
A,GAAA,EAAA,EACA,EAAA,EAAA,EAAA,GAOA,IALA,GAAA,EAEA,EAAA,GAAA,IAAA,GAAA,EACA,K
AAA,EACA,GAAA,EACA,EAAA,EAAA,EAAA,IAAA,EAAA,EAAA,EAAA,GAAA,GAAA,EAAA,GAAA,GA
KA,IAHA,EAAA,GAAA,IAAA,GAAA,EACA,KAAA,EACA,GAAA,EACA,EAAA,EAAA,EAAA,IAAA,EAAA,
EAAA,EAAA,GAAA,GAAA,EAAA,GAAA,GAEA,GAAA,IAAA,EAAA,EAAA,MACA,CAAA,GAAA,I
AAA,EACA,OAAA,EAAA,IAAA,EAAA,GAAA,GAAA,EAAA,GAEA,GAAA,KAAA,IAAA,EAAA,GACA,GA
AA,EAEA,OAAA,GAAA,EAAA,GAAA,EAAA,KAAA,IAAA,EAAA,EAAA,IAGA,QAAA,MAAA,SAAA,EAAA
A,EAAA,EAAA,EAAA,EAAA,GACA,IAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,EACA,GAAA,
GAAA,GAAA,EACA,EAAA,GAAA,EACA,EAAA,KAAA,EAAA,KAAA,IAAA,GAAA,IAAA,KAAA,IAAA,GA
AA,IAAA,EACA,EAAA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,GAAA,EACA,EAAA,EAAA,GAAA,IAAA,
GAAA,EAAA,EAAA,EAAA,EAAA,EAmCA,IAjCA,EAAA,KAAA,IAAA,GAEA,MAAA,IAAA,IAAA,EAAA,G
ACA,EAAA,MAAA,GAAA,EAAA,EACA,EAAA,IAEA,EAAA,KAAA,MAAA,KAAA,IAAA,GAAA,KAAA,KA
CA,GAAA,EAAA,KAAA,IAAA,GAAA,IAAA,IACA,IACA,GAAA,IAGA,GADA,EAAA,GAAA,EACA,EAAA,E
AEA,EAAA,KAAA,IAAA,EAAA,EAAA,IAEA,GAAA,IACA,IACA,GAAA,GAGA,EAAA,GACA,GAAA,I
AEA,EAAA,EAAA,KAAA,IAAA,EAAA,EAAA,GAAA,KAAA,IAAA,EAAA,GACA,EAAA,IAIA,GAAA,EAAA
,EAAA,EAAA,GAAA,IAAA,EAAA,GAAA,EAAA,GAAA,IAAA,GAAA,GAIA,IAFA,EAAA,GAAA,EAAA,
EACA,GAAA,EACA,EAAA,EAAA,EAAA,EAAA,GAAA,IAAA,EAAA,GAAA,EAAA,GAAA,IAAA,GAAA,GAEA
,EAAA,EAAA,EAAA,IAAA,IAAA;;AClFA,IAAA,EAAA,GAAA,SAEA,GAAA,EAAA,KAAA,IAAA,GA
ACA,MAAA,kBAAA,EAAA,KAAA;;;;AC0vDA,IAAA,EAAA,UAAA,GAnvDA,EAAA,QAAA,aACA,EAAA,Q
AAA,WACA,EAAA,QAAA,WAuCA,SAAA,IACA,IACA,IAAA,EAAA,UAAA,GAAA,EAAA,UAAA,CAAA,UAAA,
AAA,UAAA,WAAA,UAAA,IAAA,WAAA,OAAA,KACA,KAAA,EAAA,OACA,mBAAA,EAAA,UACA,I
AAA,EAAA,SAAA,EAAA,GAAA,WACA,MAAA,GACA,OAAA,GAIA,SAAA,IACA,EACA,OAAA,EAAA,oBACA,C
ACA,WAGA,SAAA,EAAA,EAAA,GACA,GAAA,IAAA,EACA,MAAA,IAAA,WAAA,8BAcA,OAZA,qB
AEA,EAAA,IAAA,WAAA,IACA,UAAA,EAAA,WGA,OAAA,IACA,EACA,OAAA,IAAA,EAAA,IEA,EAAA,OAA
A,GAGA,EAaA,SAAA,EAAA,EAAA,EAAA,GACA,KAAA,EAAA,qBAAA,gBAAA,GACA,OAAA,IAAA,EAA
A,EAAA,EAAA,GAIA,GAAA,iBAAA,EAAA,EAAA,CACA,GAAA,EAAA,iBAAA,EACA,MAAA,IAAA,MACA,qEAGA
,GAAA,iBAAA,EACA,MAAA,IAAA,UAAA,yCAGA,MAAA,oBAAA,aAAA,aAAA,YACA,EAAA,EAAA,EAA
A,EAAA,GAGA,iBAAA,EACA,EAAA,EAAA,EAAA,GAGA,EAAA,EAAA,GA4BA,SAAA,EAAA,GAAA,GAA
A,iBAAA,EACA,MAAA,IAAA,UAAA,oCACA,MAAA,IAAA,WAAA,wCAIA,SAAA,EAAA,EAAA,EAAA,EA
AA,EAAA,EAAA,EAAA,QAEA,IAAA,EAIA,iBAAA

,EACA,EAAA,EAAA,GAAA,KAAA,EAAA,GACA,EAAA,EAAA,GAAA,KAAA,GAEA,EAAA,EAAA,GAWA,
SAAA,EAAA,EAAA,GAGA,GAFA,EAAA,GACA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,K
ACA,EAAA,oBACA,IAAA,IAAA,EAAA,EAAA,EAAA,IAAA,EACA,EAAA,GAAA,EAGA,OAAA,EAgBA,SA
AA,EAAA,EAAA,EAAA,GAKA,GAJA,iBAAA,GAAA,KAAA,IACA,EAAA,SAGA,EAAA,WAAA,GACA,MA
AA,IAAA,UAAA,8CAGA,IAAA,EAAA,EAAA,EAAA,EAAA,GAGA,GAFA,EAAA,EAAA,EAAA,IAEA,MAA
A,EAAA,GASA,OAPA,IAAA,IAIA,EAAA,EAAA,MAAA,EAAA,IAGA,EAGA,SAAA,EAAA,EAAA,GACA,IA
AA,EAAA,EAAA,OAAA,EAAA,EAAA,EAAA,EAAA,EAAA,QACA,EAAA,EAAA,EAAA,GACA,IAAA,IAAA,
EAAA,EAAA,EAAA,EAAA,GAAA,EACA,EAAA,GAAA,IAAA,EAAA,GAEA,OAAA,EAGA,SAAA,EAAA,EA
AA,EAAA,EAAA,GAGA,GAFA,EAAA,WAEA,EAAA,GAAA,EAAA,WAAA,EACA,MAAA,IAAA,WAAA,6B
AGA,GAAA,EAAA,WAAA,GAAA,GAAA,GACA,MAAA,IAAA,WAAA,6BAmBA,OAfA,OADA,IAAA,QAAA,
IAAA,EACA,IAAA,WAAA,QACA,IAAA,EACA,IAAA,WAAA,EAAA,GAEA,IAAA,WAAA,EAAA,EAAA,GA
GA,EAAA,qBAEA,EAAA,GACA,UAAA,EAAA,UAGA,EAAA,EAAA,EAAA,GAEA,EAGA,SAAA,EAAA,EAA
A,GACA,GAAA,EAAA,SAAA,GAAA,CACA,IAAA,EAAA,EAAA,EAAA,EAAA,QAGA,OAAA,KAFA,EAAA,
EAAA,EAAA,IAEA,OACA,GAGA,EAAA,EAAA,KAAA,EAAA,EAAA,GACA,GAGA,GAAA,EAAA,CACA,G
AAA,oBAAA,aACA,EAAA,kBAAA,aAAA,WAAA,EACA,CACA,MAAA,iBAAA,EAAA,QAAA,EAAA,EAAA,QACA,
EAAA,EAAA,GAEA,EAAA,EAAA,GAGA,GAAA,WAAA,EAAA,MAAA,EAAA,EAAA,MACA,OAAA,EAAA,
EAAA,EAAA,MAIA,MAAA,IAAA,UAAA,sFAGA,SAAA,EAAA,GAGA,GAAA,GAAA,IACA,CAA,WAAA,W
AAA,0DACA,IAAA,SAAA,IAAA,UAEA,OAAA,EAAA,EAGA,SAAA,EAAA,GAIA,OAHA,GAAA,IACA,EAA
A,GAEA,EAAA,OAAA,GA+EA,SAAA,EAAA,EAAA,GACA,GAAA,EAAA,SAAA,GACA,OAAA,EAAA,OAAA,EAAA,OAE
A,GAAA,oBAAA,aAAA,mBAAA,YAAA,SACA,CAA,YAAA,OAAA,IAAA,aAAA,aACA,OAAA,EAAA,WAEA,iBA
AA,IACA,EAAA,GAAA,GAGA,IAAA,EAAA,EAAA,OACA,GAAA,IAAA,EAAA,OAAA,EAIA,IADA,IAAA,G
AAA,IAEA,OAAA,GACA,IAAA,QACA,IAAA,SACA,IAAA,SACA,OAAA,EACA,IAAA,OACA,IAAA,QACA,
UAAA,EACA,OAAA,EAAA,GAAA,OACA,IAAA,OACA,IAAA,QACA,IAAA,UACA,IAAA,WACA,OAAA,EA
AA,EACA,IAAA,MACA,OAAA,IAAA,EACA,IAAA,SACA,OAAA,EAAA,GAAA,OACA,QACA,GAAA,EAAA
,OAAA,EAAA,GAAA,OACA,GAAA,GAAA,GAAA,cACA,GAAA,GAMA,SAAA,EAAA,EAAA,GACA,IAAA,GAAA,
GAAA,EAcA,SALA,IAAA,GAAA,EAAA,KACA,EAAA,GAIA,EAAA,KAAA,OACA,MAAA,GAOA,SAJ
A,IAAA,GAAA,EAAA,KAAA,UACA,EAAA,KAAA,QAGA,GAAA,EACA,MAAA,GAOA,IAHA,KAAA,KACA
,KAAA,GAGA,MAAA,GAKA,IAFA,IAAA,EAAA,UAGA,OAAA,GACA,IAAA,MACA,OAAA,EAAA,KAAA,E
AAA,GAEA,IAAA,OACA,IAAA,QACA,OAAA,EAAA,KAAA,EAAA,GAEA,IAAA,QACA,OAAA,EAAA,KAA
A,EAAA,GAEA,IAAA,SACA,IAAA,SACA,OAAA,EAAA,KAAA,EAAA,GAEA,IAAA,SACA,OAAA,EAAA,K
AAA,EAAA,GAEA,IAAA,OACA,IAAA,QACA,IAAA,UACA,IAAA,WACA,OAAA,EAAA,KAAA,EAAA,GAE
A,QACA,GAAA,EAAA,MAAA,IAAA,UAAA,qBAAA,GACA,GAAA,EAAA,IAAA,cACA,GAAA,GASA,SAAA
,EAAA,EAAA,EAAA,GACA,IAAA,EAAA,EAAA,GACA,GAAA,EAAA,GAAA,GAAA,EAAA,IAAA,EAAA,GACA,
MAAA,IAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAmIA,S
AAA,EAAA,EAAA,EAAA,EAAA,EAAA,GAEA,GAAA,IAAA,EAAA,OAAA,OAAA,EAmBA,GAhBA,iBAAA,
GACA,EAAA,EACA,EAAA,GACA,EAAA,WACA,EAAA,WACA,GAAA,aACA,GAAA,YAEA,GAAA,EACA,
MAAA,KAEA,EAAA,EAAA,EAAA,EAAA,OAAA,GAIA,IAAA,EAAA,EAAA,EAAA,OAAA,GACA,GAAA,GAAA,E
AAA,OAAA,CACA,GAAA,EAAA,OAAA,EACA,EAAA,EAAA,EAAA,OAAA,OACA,GAAA,EAAA,EAAA,CACA,IA
AA,EACA,OAAA,EADA,EAAA,EAUA,GALA,iBAAA,IACA,EAAA,EAAA,KAAA,EAAA,IAIA,EAAA,SAAA,
GAEA,OAAA,IAAA,EAAA,QACA,EAEA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GACA,GAAA,GAAA,iBAAA,EAEA,O
ADA,GAAA,IACA,EAAA,qBACA,mBAAA,WAAA,UAAA,QACA,EACA,WAAA,UAAA,QAAA,KAAA,EAAA,EAAA
,EAAA,GAEA,WAAA,UAAA,YAAA,KAAA,EAAA,EAAA,GAGA,EAAA,EAAA,CAAA,GAAA,EAAA,EAAA,
GAGA,MAAA,IAAA,UAAA,wCAGA,SAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GACA,IA0BA,EA1BA,EAAA
,EACA,EAAA,EAAA,OACA,EAAA,EAAA,OAEA,QAAA,EAAA,IAAA,EAAA,IAEA,UADA,EAAA,EAAA,GAAA,gBACA,CA
CA,UAAA,GACA,YAAA,GAAA,aAAA,GAAA,CACA,CACA,EAAA,OAAA,GAAA,EAAA,OAAA,EAAA,EACA,E
AEA,EAAA,EACA,GAAA,EACA,GAAA,EACA,GAAA,EAIA,SAAA,EAAA,EAAA,GACA,IAAA,EAAA,EAAA,EAAA,GACA,
EAAA,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,EAAA,IACA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
IAAA,EAAA,EAAA,GACA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,EAAA,EAAA,EAA

A,OAKA,IADA,EAAA,EAAA,IAAA,EAAA,EAAA,GACA,EAAA,EAAA,GAAA,EAAA,IAAA,CAEA,IADA,IA
AA,GAAA,EACA,EAAA,EAAA,EAAA,EAAA,IACA,GAAA,EAAA,EAAA,EAAA,KAAA,EAAA,EAAA,GAA
A,CACA,GAAA,EACA,MAGA,GAAA,EAAA,OAAA,EAIA,OAAA,EAeA,SAAA,EAAA,EAAA,EAAA,EAAA,
GACA,EAAA,OAAA,IAAA,EACA,IAAA,EAAA,EAAA,OAAA,EACA,GAGA,EAAA,OAAA,IACA,IACA,EAA
A,GAJA,EAAA,EASA,IAAA,EAAA,EAAA,OACA,GAAA,EAAA,GAAA,EAAA,MAAA,IAAA,UAAA,sBAEA,
EAAA,EAAA,IACA,EAAA,EAAA,GAEA,IAAA,IAAA,EAAA,EAAA,EAAA,IAAA,EAAA,CACA,IAAA,EAAA
,SAAA,EAAA,OAAA,EAAA,EAAA,GAAA,IACA,GAAA,MAAA,GAAA,OAAA,EACA,EAAA,EAAA,GAAA,E
AEA,OAAA,EAGA,SAAA,EAAA,EAAA,EAAA,EAAA,GACA,OAAA,EAAA,EAAA,EAAA,EAAA,OAAA,GA
AA,EAAA,EAAA,GAGA,SAAA,EAAA,EAAA,EAAA,EAAA,GACA,OAAA,EAAA,EAAA,GAAA,EAAA,EAA
A,GAGA,SAAA,EAAA,EAAA,EAAA,EAAA,GACA,OAAA,EAAA,EAAA,EAAA,EAAA,GAGA,SAAA,EAAA,
EAAA,EAAA,EAAA,GACA,OAAA,EAAA,EAAA,GAAA,EAAA,EAAA,GAGA,SAAA,EAAA,EAAA,E
AAA,GACA,OAAA,EAAA,EAAA,EAAA,EAAA,OAAA,GAAA,EAAA,EAAA,GAkFA,SAAA,EAAA,EAAA,E
AAA,GACA,OAAA,IAAA,GAAA,IAAA,EAAA,OACA,EAAA,cAAA,GAEA,EAAA,cAAA,EAAA,MAAA,EAA
A,IAIA,SAAA,EAAA,EAAA,EAAA,GACA,EAAA,KAAA,IAAA,EAAA,OAAA,GAIA,IAHA,IAAA,EAAA,GA
EA,EAAA,EACA,EAAA,GAAA,CACA,IAQA,EAAA,EAAA,EAAA,EARA,EAAA,EAAA,GACA,EAAA,KACA
,EAAA,EAAA,IAAA,EACA,EAAA,IAAA,EACA,EAAA,IAAA,EACA,EAEA,GAAA,EAAA,GAAA,EAGA,OA
AA,GACA,KAAA,EACA,EAAA,MACA,EAAA,GAEA,MACA,KAAA,EAEA,MAAA,KADA,EAAA,EAAA,EA
AA,OAEA,GAAA,GAAA,IAAA,EAAA,GAAA,GACA,MACA,EAAA,GAGA,MACA,KAAA,EACA,EAAA,EA
AA,EAAA,GACA,EAAA,EAAA,EAAA,GACA,MAAA,IAAA,IAAA,MAAA,IAAA,KACA,GAAA,GAAA,IAAA
,IAAA,GAAA,IAAA,EAAA,GAAA,GACA,OAAA,EAAA,OAAA,EAAA,SACA,EAAA,GAGA,MACA,KAAA,E
ACA,EAAA,EAAA,EAAA,GACA,EAAA,EAAA,EAAA,GACA,EAAA,EAAA,EAAA,GACA,MAAA,IAAA,IAA
A,MAAA,IAAA,IAAA,MAAA,IAAA,KACA,GAAA,GAAA,IAAA,IAAA,GAAA,IAAA,IAAA,GAAA,IAAA,EA
AA,GAAA,GACA,OAAA,EAAA,UACA,EAAA,GAMA,OAAA,GAGA,EAAA,MACA,EAAA,GACA,EAAA,QA
EA,GAAA,MACA,EAAA,KAAA,IAAA,GAAA,KAAA,OACA,EAAA,MAAA,KAAA,GAGA,EAAA,KAAA,GA
CA,GAAA,EAGA,OAAA,EAAA,GA98BA,QAAA,OAAA,EACA,QAAA,WAAA,EACA,QAAA,kBAAA,GA0B
A,EAAA,yBAAA,IAAA,EAAA,oBACA,EAAA,oBACA,IAKA,QAAA,WAAA,IAkEA,EAAA,SAAA,KAGA,EA
AA,SAAA,SAAA,GAEA,OADA,EAAA,UAAA,EAAA,UACA,GA2BA,EAAA,KAAA,SAAA,EAAA,EAAA,GA
CA,OAAA,EAAA,KAAA,EAAA,EAAA,IAGA,EAAA,sBACA,EAAA,UAAA,UAAA,WAAA,UACA,EAAA,UA
AA,WACA,oBAAA,QAAA,OAAA,SACA,EAAA,OAAA,WAAA,GAEA,OAAA,eAAA,EAAA,OAAA,QAAA,C
ACA,MAAA,KACA,cAAA,KAiCA,EAAA,MAAA,SAAA,EAAA,EAAA,GACA,OAAA,EAAA,KAAA,EAAA,E
AAA,IAiBA,EAAA,YAAA,SAAA,GACA,OAAA,EAAA,KAAA,IAKA,EAAA,gBAAA,SAAA,GACA,OAAA,EA
AA,KAAA,IAiHA,EAAA,SAAA,SAAA,GACA,QAAA,MAAA,IAAA,EAAA,YAGA,EAAA,QAAA,SAAA,EAA
A,GACA,IAAA,EAAA,SAAA,KAAA,EAAA,SAAA,GACA,MAAA,IAAA,UAAA,6BAGA,GAAA,IAAA,EAAA,
OAAA,EAKA,IAHA,IAAA,EAAA,EAAA,OACA,EAAA,EAAA,OAEA,EAAA,EAAA,EAAA,EAAA,KAAA,IAAA,EA
AA,GAAA,EAAA,IAAA,EACA,GAAA,EAAA,KAAA,EAAA,GAAA,CACA,EAAA,EAAA,EAAA,GACA,MAIA,
EAAA,EAAA,GACA,MAIA,OAAA,EAAA,GAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,SA
AA,EACA,GAAA,EAAA,GAAA,OAIA,IAAA,EAAA,EAAA,YAAA,GACA,EAAA,EACA,IAAA,EAAA,EAAA,
EAAA,EAAA,SAAA,EAAA,CACA,IAAA,EAAA,EAAA,GACA,IAAA,EAAA,SAAA,GACA,MAAA,IAAA,UA
AA,+CAEA,EAAA,KAAA,EAAA,GACA,GAAA,EAAA,OAEA,EAAA,GA8CA,EAAA,WAAA,EA0EA,EAAA,
UAAA,WAAA,EAQA,EAAA,UAAA,OAAA,WACA,IAAA,EAAA,KAAA,OAAA,GAAA,EAAA,EAAA,KAAA,OACA,
MAAA,IAAA,WAAA,6CAEA,IAAA,IAAA,EAAA,EAAA,EAAA,EAAA,GAAA,EACA,EAAA,KAAA,EAAA,E
AAA,GAEA,OAAA,MAGA,EAAA,UAAA,WAAA,OAAA,WACA,IAAA,EAAA,KAAA,OAAA,GAAA,EAAA,EAAA,KAAA,OACA,
MAAA,IAAA,WAAA,6CAEA,IAAA,IAAA,EAAA,EAAA,EAAA,EAAA,GAAA,EACA,EAAA,KAAA,EAAA,KAAA,EA
AA,EAAA,GACA,EAAA,KAAA,EAAA,EAAA,EAAA,EAAA,GAEA,OAAA,MAGA,EAAA,UAAA,WAAA,OAAA,WA
CA,OAAA,EAAA,KAAA,EAAA,KAAA,OAAA,GAAA,EAAA,EAAA,KAAA,OAAA,GAAA,EAAA,EAAA,KAAA,OAAA,IA

AA,EAAA,KAAA,OACA,GAAA,EAAA,GAAA,EACA,MAAA,IAAA,WAAA,6CAEA,IAAA,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GAAA,EACA,EAAA,KAAA,EAAA,EAAA,GACA,EAAA,KAAA,EAAA,EAAA,EAAA,GACA, EAAA,KAAA,EAAA,EAAA,EAAA,GACA,EAAA,KAAA,EAAA,EAAA,EAAA,GAEA,OAAA,MAGA,EAAA,UAAA,SAAA,WACA,IAAA,EAAA,EAAA,KAAA,OACA,OAAA,IAAA,EAAA,GACA,IAAA,UAAA,OAAA,EAAA,KAAA,EAAA,GACA,EAAA,MAAA,KAAA,YAGA,EAAA,UAAA,OAAA,SAAA,GACA,IAAA,EAAA,SAAA ,GAAA,MAAA,IAAA,UAAA,6BACA,OAAA,OAAA,GACA,IAAA,EAAA,QAAA,KAAA,IAGA,EAAA,UAAA, QAAA,WACA,IAAA,EAAA,GACA,EAAA,QAAA,kBAKA,OAJA,KAAA,OAAA,IACA,EAAA,KAAA,SAAA, MAAA,EAAA,GAAA,MAAA,SAAA,KAAA,KACA,KACA,OAAA,IAAA,GAAA,UAEA,WAAA,EAAA,KAGA, EAAA,UAAA,QAAA,SAAA,EAAA,EAAA,EAAA,EAAA,GACA,IAAA,EAAA,SAAA,GACA,WACA,IAAA,UAAA,OAAA,IAAA,EAAA,UAAA, 6BAgBA,QAAbA,IAAA,IACA,EAAA,QAEA,IAAA,IACA,EAAA,EAAA,EAAA,OAAA,QAEA,IAAA,IACA, EAAA,QAEA,IAAA,IACA,EAAA,KAAA,QAGA,EAAA,EAAA,EAAA,QAAA,EAAA,GAAA,EAAA,KAAA,EAAA,GAAA,EAAA,KAAA,OACA,MAAA,IAAA,WAAA,sBAGA,GAAA,GAAA,GAAA,GAAA,EACA,OAAA,EAEA,GAAA,GAAA,E ACA,OAAA,EAEA,GAAA,GAAA,EACA,OAAA,EAQA,GAAA,OAAA,EAAA,OAAA,EASA,IAPA,IAAA,GAJ A,KAAA,IADA,KAAA,GAMA,GAPA,KAAA,IADA,KAAA,GASA,EAAA,KAAA,IAAA,EAAA,GAEA,EAAA, KAAA,MAAA,EAAA,GACA,EAAA,EAAA,MAAA,EAAA,GAEA,EAAA,EAAA,EAAA,IAAA,EACA,GAAA,E AAA,KAAA,EAAA,GAAA,CACA,EAAA,EAAA,GACA,EAAA,EAAA,GACA,MAIA,OAAA,EAAA,GAAA,EA CA,EAAA,EAAA,EACA,GA6HA,EAAA,UAAA,SAAA,SAAA,EAAA,EAAA,GACA,OAAA,IAAA,KAAA,QAA A,EAAA,EAAA,IAGA,EAAA,UAAA,QAAA,SAAA,EAAA,EAAA,GACA,OAAA,EAAA,KAAA,EAAA,EAAA, GAAA,IAGA,EAAA,UAAA,YAAA,SAAA,EAAA,EAAA,GACA,OAAA,EAAA,KAAA,EAAA,EAAA,GAAA,I AkDA,EAAA,UAAA,MAAA,SAAA,EAAA,EAAA,EAAA,GAEA,QAAA,IAAA,EACA,EAAA,OACA,EAAA,K AAA,OACA,EAAA,OAEA,QAAA,IAAA,GAAA,iBAAA,EACA,EAAA,EACA,EAAA,KAAA,OACA,EAAA,MA EA,CAAA,IAAA,SAAA,GAWA,MAAA,IAAA,MACA,2EAXA,GAAA,EACA,SAAA,IACA,GAAA,OACA,IAA A,IAAA,EAAA,UAEA,EAAA,EACA,OAAA,GASA,IAAA,EAAA,KAAA,OAAA,EAGA,SAFA,IAAA,GAAA,E AAA,KAAA,EAAA,GAEA,EAAA,OAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,KAAA,OACA,MAAA,IAAA A,WAAA,0CAGA,GAAA,IAAA,EAAA,QAGA,IADA,IAAA,GAAA,IAEA,OACA,IAAA,EAAA,QACA,QACA, KAAA,EAAA,EAAA,GAEA,IAAA,OACA,IAAA,QACA,OAAA,EAAA,KAAA,EAAA,EAAA,GAEA,IAAA,QA CA,OAAA,EAAA,KAAA,EAAA,EAAA,GAEA,IAAA,SACA,IAAA,SACA,OAAA,EAAA,KAAA,EAAA,EAAA, GAEA,IAAA,SAEA,OAAA,EAAA,KAAA,EAAA,EAAA,GAEA,IAAA,OACA,IAAA,QACA,IAAA,UACA,IAAA, WACA,OAAA,EAAA,KAAA,EAAA,EAAA,GAEA,QACA,GAAA,QACA,GAAA,GAAA,GAAA,cACA,GAAA, GAAA,IAKA,EAAA,UAAA,WACA,MAAA,CACA,SAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA, UAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA, MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA, KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA,KAAA,MAAA,KAAA, K

A,GACA,EAAA,IAAA,EAAA,WAAA,EAAA,GACA,IAAA,IAAA,EAAA,EAAA,EAAA,KAAA,IAAA,EAAA,O
AAA,EAAA,GAAA,EAAA,IAAA,EACA,EAAA,EAAA,GAAA,IAAA,GAAA,EAAA,EAAA,EAAA,GAAA,IAm
JA,SAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GACA,GAAA,EAAA,EAAA,EAAA,OAAA,MAAA,IAAA
,WAAA,sBACA,GAAA,EAAA,EAAA,MAAA,IAAA,WAAA,sBAGA,SAAA,EAAA,EAAA,EAAA,EAAA,EAA
A,GAKA,OAJA,GACA,EAAA,EAAA,EAAA,EAAA,EAAA,uBAAA,uBAEA,EAAA,MAAA,EAAA,EAAA,EAA
A,EAAA,GAAA,GACA,EAAA,EAWA,SAAA,EAAA,EAAA,EAAA,EAAA,EAAA,GAKA,OAJA,GACA,EAAA,
EAAA,EAAA,EAAA,EAAA,wBAAA,wBAEA,EAAA,MAAA,EAAA,EAAA,EAAA,EAAA,GAAA,GACA,EAA
A,EA/cA,EAAA,UAAA,MAAA,SAAA,EAAA,GACA,IAoBA,EApBA,EAAA,KAAA,OAqBA,IApBA,IAAA,GA
GA,GACA,GAAA,GACA,IAAA,EAAA,GACA,EAAA,IACA,EAAA,IANA,OAAA,IAAA,EAAA,IAAA,GASA,G
ACA,GAAA,GACA,IAAA,EAAA,GACA,EAAA,IACA,EAAA,GAGA,EAAA,IAAA,EAAA,GAGA,EAAA,qBA
CA,EAAA,KAAA,SAAA,EAAA,IACA,UAAA,EAAA,cACA,CACA,IAAA,EAAA,EAAA,EACA,EAAA,IAAA,E
AAA,OAAA,GACA,IAAA,IAAA,EAAA,EAAA,EAAA,IAAA,EACA,EAAA,GAAA,KAAA,EAAA,GAIA,OAA
A,GAWA,EAAA,UAAA,WAAA,SAAA,EAAA,EAAA,GACA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,EAA
A,EAAA,KAAA,QAKA,IAHA,IAAA,EAAA,KAAA,GACA,EAAA,EACA,EAAA,IACA,EAAA,IAAA,GAAA,M
ACA,GAAA,KAAA,EAAA,GAAA,EAGA,OAAA,GAGA,EAAA,UAAA,WAAA,SAAA,EAAA,EAAA,GACA,G
AAA,EACA,GAAA,EACA,GACA,EAAA,EAAA,EAAA,KAAA,QAKA,IAFA,IAAA,EAAA,KAAA,IAAA,GAC
A,EAAA,EACA,EAAA,IAAA,GAAA,MACA,GAAA,KAAA,IAAA,GAAA,EAGA,OAAA,GAGA,EAAA,UAAA,
UAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QACA,KAAA,IAGA,EAAA,UAAA,a
AAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QACA,KAAA,GAAA,KAAA,EAAA,IA
AA,GAGA,EAAA,UAAA,aAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QACA,KAA
A,IAAA,EAAA,KAAA,EAAA,IAGA,EAAA,UAAA,aAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,GAGA,
KAAA,IACA,KAAA,EAAA,IAAA,GACA,KAAA,EAAA,IAAA,EACA,KAAA,EAAA,KAGA,EAAA,UAAA,UA
AA,SAAA,EAAA,EAAA,GACA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,EAAA,EAAA,KAAA,QAKA,IAH
A,IAAA,EAAA,KAAA,GACA,EAAA,EACA,EAAA,IACA,EAAA,IAAA,GAAA,MACA,GAAA,KAAA,EAAA,
GAAA,EAMA,OAFA,IAFA,GAAA,OAEA,GAAA,KAAA,IAAA,EAAA,EAAA,IAEA,GAGA,EAAA,UAAA,UA
AA,SAAA,EAAA,EAAA,GACA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,EAAA,EAAA,KAAA,QAKA,IAH
A,IAAA,EAAA,EACA,EAAA,EACA,EAAA,EAAA,KAAA,IAAA,GACA,EAAA,IAAA,GAAA,MACA,GAAA,KAAA,
IAAA,GAAA,EAMA,OAFA,IAFA,GAAA,OAEA,GAAA,KAAA,IAAA,EAAA,EAAA,IAEA,GAGA,EAAA,UAA
A,SAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QACA,IAAA,KAAA,IACA,GAAA,I
AAA,KAAA,GAAA,GADA,KAAA,IAIA,EAAA,UAAA,YAAA,SAAA,EAAA,GAAA,EAAA,EAAA,EA
AA,KAAA,QACA,IAAA,EAAA,KAAA,GAAA,KAAA,EAAA,IAAA,EACA,OAAA,MAAA,EAAA,WAAA,EAAA
A,GAGA,EAAA,UAAA,YAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QACA,IAAA,EAAA,
KAAA,EAAA,GAAA,KAAA,IAAA,EACA,OAAA,MAAA,EAAA,WAAA,EAAA,GAGA,EAAA,UAAA,YAAA,
SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,KAAA,QAEA,KAAA,GACA,KAAA,IAAA,EACA,OAAA,
MAAA,EAAA,WAAA,EAAA,GAGA,EAAA,UAAA,YAAA,SAAA,EAAA,GAEA,OADA,GAAA,EAAA,EAAA,EAAA,
KAAA,QAEA,KAAA,GAC

AA,EADA,KAAA,IAAA,EAAA,EAAA,GAAA,EACA,GAGA,IAAA,EAAA,EAAA,EACA,EAAA,EAEA,IADA,KAAA,EAAA,GAAA,IAAA,IACA,GAAA,IAAA,GAAA,MACA,KAAA,EAAA,GAAA,EAAA,EAAA,IAGA,OAAA,EAAA,GAGA,EAAA,UAAA,WAAA,SAAA,EAAA,EAAA,GAMA,OALA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,KAAA,EAAA,EAAA,EAAA,IAAA,GACA,EAAA,sBAAA,EAAA,KAAA,MAAA,IACA,KAAA,GAAA,IAAA,EACA,EAAA,GAWA,EAAA,UAAA,cAAA,SAAA,EAAA,EAAA,GAUA,OATA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,KAAA,EAAA,EAAA,EAAA,MAAA,GACA,EAAA,qBACA,KAAA,GAAA,IAAA,EACA,KAAA,EAAA,GAAA,IAAA,GAEA,EAAA,KAAA,EAAA,GAAA,GAEA,EAAA,GAGA,EAAA,UAAA,cAAA,SAAA,EAAA,EAAA,GAUA,OATA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,KAAA,EAAA,EAAA,EAAA,MAAA,GACA,EAAA,qBACA,KAAA,GAAA,IAAA,EACA,KAAA,EAAA,GAAA,IAAA,GAEA,EAAA,KAAA,EAAA,GAAA,GAEA,EAAA,GAUA,OATA,GAAA,EACA,GAAA,EACA,GAAA,EAAA,KAAA,EAAA,EAAA,EAAA,MAAA,GACA,EAAA,qBACA,KAAA,GAAA,IAAA,EACA,KAAA,EAAA,GAAA,IAAA,GAEA,EAAA,KAAA,EAAA,GAAA,GAEA,EAAA,GAGA,EAAA,UAAA,cAAA,SAAA,EAA

OAAA,EAAA,GAGA,IACA,EADA,EAAA,EAAA,EAGA,GAAA,OAAA,GAAA,EAAA,GAAA,EAAA,EAEA,IA
AA,EAAA,EAAA,EAAA,GAAA,IAAA,EACA,EAAA,EAAA,GAAA,KAAA,EAAA,QAEA,GAAA,EAAA,MAA
A,EAAA,oBAEA,IAAA,EAAA,EAAA,EAAA,IAAA,EACA,EAAA,EAAA,GAAA,KAAA,EAAA,QAGA,WAAA
,UAAA,IAAA,KACA,EACA,KAAA,SAAA,EAAA,EAAA,GACA,GAIA,OAAA,GAOA,EAAA,UAAA,KAAA,S
AAA,EAAA,EAAA,EAAA,GAEA,GAAA,iBAAA,EAAA,CASA,GARA,iBAAA,GACA,EAAA,EACA,EAAA,E
ACA,EAAA,KAAA,QACA,iBAAA,IACA,EAAA,EACA,EAAA,KAAA,QAEA,IAAA,EAAA,OAAA,CACA,IAA
A,EAAA,EAAA,WAAA,GACA,EAAA,MACA,EAAA,GAGA,QAAA,IAAA,GAAA,iBAAA,EACA,MAAA,IAA
A,UAAA,6BAEA,GAAA,iBAAA,IAAA,EAAA,WAAA,GACA,MAAA,IAAA,UAAA,qBAAA,OAEA,iBAAA,IA
CA,GAAA,KAIA,GAAA,EAAA,GAAA,KAAA,OAAA,GAAA,KAAA,OAAA,EACA,MAAA,IAAA,WAAA,sBA
GA,GAAA,GAAA,EACA,OAAA,KAQA,IAAA,EACA,GANA,KAAA,EACA,OAAA,IAAA,EAAA,KAAA,OAA
A,IAAA,EAEA,IAAA,EAAA,GAGA,iBAAA,EACA,IAAA,EAAA,EAAA,EAAA,IAAA,EACA,KAAA,GAAA,M
AEA,CACA,IAAA,EAAA,EAAA,SAAA,GACA,EACA,EAAA,IAAA,EAAA,EAAA,GAAA,YACA,EAAA,EAA
A,OACA,IAAA,EAAA,EAAA,EAAA,EAAA,IAAA,EACA,KAAA,EAAA,GAAA,EAAA,EAAA,GAIA,OAAA,M
AMA,IAAA,EAAA,qBAEA,SAAA,EAAA,GAIA,IAFA,EAAA,EAAA,GAAA,QAAA,EAAA,KAEA,OAAA,EAA
A,MAAA,GAEA,KAAA,EAAA,OAAA,GAAA,GACA,GAAA,IAEA,OAAA,EAGA,SAAA,EAAA,GACA,OAAA
,EAAA,KAAA,EAAA,OACA,EAAA,QAAA,aAAA,IAGA,SAAA,EAAA,GACA,OAAA,EAAA,GAAA,IAAA,EA
AA,SAAA,IACA,EAAA,SAAA,IAGA,SAAA,EAAA,EAAA,GAEA,IAAA,EADA,EAAA,GAAA,EAAA,EAMA,I
AJA,IAAA,EAAA,EAAA,OACA,EAAA,KACA,EAAA,GAEA,EAAA,EAAA,EAAA,IAAA,EAAA,CAIA,IAHA,
EAAA,EAAA,WAAA,IAGA,OAAA,EAAA,MAAA,CAEA,IAAA,EAAA,CAEA,GAAA,EAAA,MAAA,EAEA,G
AAA,IAAA,GAAA,EAAA,KAAA,IAAA,IAAA,KACA,SACA,GAAA,EAAA,IAAA,EAAA,EAEA,GAAA,IAAA,
GAAA,EAAA,KAAA,IAAA,IAAA,KACA,SAIA,EAAA,EAEA,SAIA,GAAA,EAAA,MAAA,EACA,GAAA,IAA
A,GAAA,EAAA,KAAA,IAAA,IAAA,KACA,EAAA,EACA,SAIA,EAAA,OAAA,EAAA,OAAA,GAAA,EAAA,Y
ACA,IAEA,GAAA,IAAA,GAAA,EAAA,KAAA,IAAA,IAAA,KAMA,GAHA,EAAA,KAGA,EAAA,IAAA,CAC
A,IAAA,GAAA,GAAA,EAAA,MACA,EAAA,KAAA,QACA,GAAA,EAAA,KAAA,CACA,IAAA,GAAA,GAAA
,EAAA,MACA,EAAA,KACA,GAAA,EAAA,IACA,GAAA,EAAA,UAEA,GAAA,EAAA,MAAA,CACA,IAAA,G
AAA,GAAA,EAAA,MACA,EAAA,KACA,GAAA,GAAA,IACA,GAAA,EAAA,GAAA,IACA,GAAA,EAAA,SA
EA,CAAA,KAAA,EAAA,SASA,MAAA,IAAA,MAAA,sBARA,IAAA,GAAA,GAAA,EAAA,MACA,EAAA,KA
CA,GAAA,GAAA,IACA,GAAA,GAAA,IACA,GAAA,EAAA,GAAA,IACA,GAAA,EAAA,MAOA,OAAA
A,EAGA,SAAA,EAAA,GAEA,IADA,IAAA,EAAA,GACA,EAAA,EAAA,EAAA,EAAA,SAAA,EAEA,EAAA,K
AAA,IAAA,EAAA,WAAA,IAEA,OAAA,EAGA,SAAA,EAAA,GAIA,IAFA,IAAA,EAAA,EAAA,GAGA,IAFA,
,EAAA,GACA,EAAA,EAAA,EAAA,WACA,GAAA,GAAA,KADA,EAAA,GADA,EAAA,EAAA,EAAA,EACA
,EAAA,GACA,EAAA,EAAA,EAAA,WACA,GAAA,GAAA,KADA,EAAA,GADA,EAAA,EAAA,EAAA,SA
EA,CAAA,KAAA,EAAA,SASA,MAAA,IAAA,MAAA,sBARA,IAAA,GAAA,GAAA,EAAA,MACA,EAAA,KA
CA,GAAA,GAAA,IACA,GAAA,GAAA,IACA,GAAA,EAAA,GAAA,IACA,GAAA,EAAA,MAOA,OAAA
A,EAGA,SAAA,EAAA,GAEA,IAD

GAAU,EAAI,OAEhB,EAAQ,KAEV,EAAa,KAAK,QAElB,EAAa,KAAK,EAAE,QAET,MAAT,IACF,EAAK,MA
AQ,GAEf,EAAM,KAAK,GAIN,MAAA,CAAC,KAAM,QADa,QAAQ,IAAI,IACa,MAAA,GAkBhD,SAAU,EACZ
,EAAqB,GAEjB,MAAA,EAAsB,GACxB,IAAA,EACA,EAAS,EACR,IAAA,MAAM,KAAQ,EAAO,CAClB,MAA
A,EAAO,EAAK,KACZ,EAAQ,EAAK,MCb,EAAQ,EAAK,MCb,GAAO,EAAc,EAAA,eAAA,GCvB,IAAA,
EAEA,GAAA,iBAAkB,EAAM,CACpB,MAAA,EAAe,EAAK,aCtB,GAAuB,UAAvB,EAAa,OAA4C,WAAvB,E
AAa,OAC7C,KAAE,QAAS,GAAgB,UAAW,GAClC,MAAA,IAAI,gBCI,EAAK,0BAA0B,EAAa,SCtD,0DAE
D,CAAA,GAA2B,YAAvB,EAAa,MAOhB,MAAA,IAAI,gBCI,EAAK,0CACO,EAAa,UCnC,wEATA,GAAU,
YAAV,EACI,MAAA,IAAI,gBCI,EAAK,0BAA0B,EAAa,4DACH,MASrD,MAAA,EAAyB,EAAqB,qBAAA,EA
Aa,OAC3D,EACF,EAAO,MAAM,EAAQ,EAAS,EAAO,GCnC,EAAyC,UAAvB,EAAa,MCjC,IAAI,WAAW,G
ACf,IAAI,YAAY,GAChB,GAAU,YAAV,EACE,GAAuB,UAAvB,EAAa,OAA4C,WAAvB,EAAa,MAAoB,CCr
E,EAAS,IAAI,aAAa,EAAe,QCpC,IAAA,IAAI,EAAI,EAAQ,EAAS,EAAI,EAAe,OAAQ,IAAK,CACCxC,MAAA,EAAA,
EAAe,GCzB,EAAO,GAAK,EAAK,SAE/C,MAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,G

AJ,IACN,GAAK,QACL,IAAM,EAKD,OAHP,IAAK,UACL,GAAK,YAKD,EAAe,IAAI,YAAY,MAErC,EAAa,GAAK,EACb,IAAA,IAAI,EAAI,EAAG,EAAI,KAAM,IACxB,EAAa,GAAK,EAAgB,GAE/B,IAAA,IAAI,EAAI,KAAM,EAAI,KAAM,IAC3B,EAAa,GAAK,WAAe,EAAI,MAAS,IAGzC,OAAA,EAST,SAAS,IACD,MAAA,EAAgB,IAAI,YAAY,IAEtC,EAAc,GAAK,EACnB,EAAc,IAAM,WACpB,EAAc,IAAM,WACpB,EAAc,IAAM,WACf,IAAA,IAAI,EAAI,EAAG,EAAI,GAAI,IACtB,EAAc,GAAK,GAAK,GAErB,IAAA,IAAI,EAAI,GAAI,EAAI,GAAI ,IACvB,EAAc,GAAK,YAAe,EAAI,MAAS,IAGzC,OAAA,EAAA,EAAc,IAAI,YAAY,IAE/B,IAAA,IAAI,EAAI,EAAG,EAAI,GAAI,IACtB,EAAa,GAAK,EAAY,GAAK,KAIZ,OAAF,EAAY,GAAK,EAAY,IAAM,EAAE5B,EAAA,EAAA,EAAA

AA,gBAAA,EA9BpC,EAAiB,iBAAA,mBAAmB,GACpC,EAAiB,iBAAA,mBAAmB,GA6B9B,MAAO,EAGX,cA
CO,KAAA,UAAY,IAGb,mBACG,OAAA,IAAI,QACP,CAAC,EAAS,KACF,MAAA,EACF,KAAK,UAAU,KAAK
,EAAe,GACvC,EAAY,gBAAkB,KAAM,EAAc,IAElD,EAAY,UAAY,MAChB,MAAA,EAAK,EAAY,OACjB,EA
AK,EAAG,YAAY,EAAiB,YAUrC,EATQ,EAAG,YAAY,GASY,SACzC,EAAkB,UAAY,MACtB,MAAA,EAA4C,
GAC7C,IAAA,MAAM,KAAQ,EAAkB,OACnC,EAAI,EAAK,WAAa,EAAK,mBAE7B,EAAQ,KAEV,EAAkB,Q
AAU,CAAA,IAC1B,EAAG,QACI,EAAO,EAAkB,SAElC,EAAG,WAAa,KAAM,EAAG,WE3B,EAAY,QAAU,
CAAA,GAAS,EAAO,EAAY,UAIpD,kBAAY,GAET,OADP,EAAO,EAAiB,GACjB,IAAI,QA4B,CAAC,EAAS,
KACzC,MAAA,EAAc,KAAK,UAAU,KAAK,EAAe,GACvD,EAAY,gBAAkB,KAAM,EAAc,IAElD,EAAY,UAAY,MAChB,MAAA,EAAK,EAAY,OACjB,EAAS,EAAG,YAAY,EAAiB,aACzC,EAAY,EAAO,YAAY,GAE/B,EA
AiB,EAAU,IAAI,GACjC,IAAA,EACJ,EAAe,UAAY,MAAA,EAAK,EAAe,OAAO,GACtD,EAAe,QAAU,KAAM,
EAAG,QACI,EAAO,IAAI,sCACkB,MAChC,kBACC,CAEC,MAAA,EAAO,EAAU,OAAO,GACrC,EAAe,QAAU,KAAM,EAAG,QAAI,EAAO,IAAI,sCAAkB,MAAM,kBAAC,CAAE,MAAA,EAAK,EAAe,OAAO,GACtD

AC5B,EAAI,OAAS,EAAQ,OACrB,EAAI,YAAc,EAAQ,YAC1B,EAAI,YAAc,EAAQ,YACG,MAAzB,EAAQ,YACV,EAAI,UAAY,EAAQ,WAEa,MAAnC,EAAQ,sBACV,EAAI,oBAAsB,EAAQ,qBAEA,MAAhC,EAAQ,mBACV,EAAI,iBAAmB,EAAQ,kBAK7B,MAAA,EAAmB,KAAK,GAAG,QAAQ,KAAK,KAAK,YAC/C,GAAoB,MApB,EACI,MAAA,IAAI,MACN,2DACI,KAAK,2BAIR,OAFP,EAAI,YAAa,EAA0B,EAAA,2BAAA,GAEpC,GAAA+C4B,QAAA,oBAAA,EAAA,WAAa,kBA8JxB,MAAM,EAAgC,IACtC,MAAM,QAAQ,IAAQ,MAAM,EAAA,WAAA,GAAA,QAAA,GAAA,MAAA,GAAA,QAAA,GAAA,MAAA,GAAA,QAAA,GAAA,M

,eAI7B,IAAI,EAGE,SAAU,IACd,EAAc,KAEV,SAAU,EAAe,GAC7B,EAAc,EAEV,SAAU,IACP,OAAA,EAiDR,QAAA,aAAA,EA9CK,MAAO,EAKX,cAEO,KAAA,KAAO,QAAQ,QAGf,KAAA,YAAc,IAAI,KAAK,KAAK,YAGnC,MAAM,EAAc,GACd,OAAsB,OAAtB,EAAM,EAAA,OAAA,OAAO,OACR,EAAM,EAAA,OAAA,OAAO,MAAM,EAAM,IAGf,MAAf,IACF,EAAE,EAAtB,EAAY,EAAM,IAAG3B,MACQ,EAAA,MAAA,EAAO,EAAA,EAAQ,SACd,OAAU,IAAV,EAAK,EAAA,KAAA,GAAA,EAAA,KAAA,GAAA,IAAGpC,OAAO,EAAA,EAAc,GACf,OAAf,EAAA,EAAA,KAAA,GAAA,EAAA,KAAA,GAAA,IAAGf,GAAA,UAAA,EAAA,SAAA,EAAA,EAAA,CAAA,EAAA,MAAA,EAAA,EAAA,E

AAe,sBACjB,EAA+B,oBAC3B,EAAe,qBAEkB,MAAnC,EAAe,mBACjB,EAA+B,iBAC3B,EAAe,kBAEf,MAAA,EACF,OAAO,IAAI,gBAAgB,IAAI,KAC3B,CAAC,KAAK,UAAU,IAChB,CAAC,KAAM,sBAIT,EAAgC,MAAnB,KAAK,WAAqB,SAAS,cAAc,KACvB,QAAQ,WAAW,SAAS,KAAK,sBAC3B,EAAW,KAAO,QAAIZ,EAAAM,IAAAM,EAAAW,cAAAC,IAAAC,WAAWC,EAAAC,EAAAC,EAAA

AAY,WANH,EACF,KAQQ,IAAI,GAAY,EAAS,eAUnD,OALmC,MAA1B,EAAY,iBAClB,QAAQ,IAAI,SACZ,EACF,EAAA,yBAAA,EAAgB,EAAY,WANR,GACF,GAmBrB,eAAe,EAClB,EAAiC,EAAiB,GAClD,EACA,GAWK,OAFa,EAFE,GAClB,EAAyB,EAAW,CAAC,YAAA,IAGlC,CAAY,EAAU,EAAgB,GA2BzC,SAAU,EACZ,GAGK,OAAA,MACI,EAAiC,EAAiB,GAClD,KAAGH,MAAA,EAAAA,KAAM,GAAC,EAAK,GAAC,EAAK,GAAC,EAAK

AQ,GAAU,EAAS,GAC5B,EAAa,KAAK,kBAAoB,EAEtC,EAAc,GACf,IAAA,MAAM,KAAS,EAClB,EAAY,QA
AQ,EAAM,SAGtB,MAAA,EAAsB,GACtB,EAAsC,GACvC,IAAA,MAAM,KAAgB,EACpB,IAAA,MAAM,KAA
Q,EAAa,MACC,MAA3B,KAAK,mBACP,EAAY,KAAK,KAAK,mBAAmB,IAEzC,EAAU,KAAK,EAAa,EAAO,
GAKrC,KAAK,oBACP,EAAU,cAAc,QAAQ,IAAI,IAGhC,MAAA,QAAgB,EAAyB,EAAA,0BAAA,EAAW,CAC
xD,YAAa,KAAK,YAClB,UAAW,KAAK,MAChB,WAAY,KAAK,aEZ,MAAA,CAAC,GAAa,EAAwB,EAAA,y
BAAA,KAe3C,SAAU,EAAS,GACjB,MAAA,EAAY,EAAI,YAAY,KAC5B,IAAA,UAAU,EAAG,GAAf,IADb,EAAkB,EAAY,EAAI,UAAU,GAAmB,IAI/D,SAAU,EAAA,a,GAAA,P,MAAA,C,MAAA,C,MAAA,C

A,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EA1DP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eAiDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,IAAA,QAAA,iBAAA,QAAA,EA7EP,IAAA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,UACA,EAAA,QAAA,aACA,EAAA,QAAA,aACA,EAAA,QAAA,eACA,EAAA,QAAA,eAqEO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,IAAA,QAAA,iBAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,E

GACzB,OAAA,EAAO,OAAA,UACV,EADG,WACS,EACZ,GAGA,MAAC,EAAO,GAAU,EACpB,CACG,EAA4B,WAC5B,EAA4B,aAE/B,CAAC,EAAO,MAAO,EAAO,QACtB,IAAA,EAkBA,EACA,GAjBA,EACF,EAEK,EAAe,WAAW,MAAM,aAAa,EAAG,EAAG,EAAO,GAAQ,KAC9D,GAAe,EACxB,EAAQ,EAAAiC,MAChC,GAAW,GAAW,KACJ,MAAvB,IACF,EAAS,BAAS,SAAS,cAAc,UAAU,WAAW,OAAEpE,EAAOB,OAAO,MAAQ,EACnC,EAAA,oB,OAAO,OAAS,EACpC,EAAAoB,UAChB,B,EAA4B,EAAG,EAAG,EAAO,GAAC7C,EAAO,EAAAoB,UAAoB,aAAa,EAAG,E,AAAG,EAAO,GAAQ,MAAG3C,IAAAhB,EACF,EAAS,EAAA,IAAW,WAAW,OAAC,CAAnB,B,EAAA,EAAS,IAAW,WAAW,EAAY,GAAC,B,IAAA,IAAA,EAAA,EAAA,EAAA,IAAA,EAAA,IAAA,EAAA,EAAA,E,AAAA,IAAA,EAAA,EAAA,E

MAAA,IAAI,mEACuD,KAG/D,GAAiB,IAAjB,EAAM,OAAc,CAClB,GAAiB,IAAjB,EAAQ,KACJ,MAAA,IAAI,
4DACN,EAAQ,SAEV,GAAiB,IAAjB,EAAQ,KACJ,MAAA,IAAI,4DACN,EAAQ,SAIhB,EAAoB,EAAO,EAAS,
GAYhC,SAAU,EACZ,EAAqB,EACrB,GAEI,MAAA,EAAc,EAAQ,MAAM,OAC5B,EAAa,EAAc,EAAK,EAAQ,
MAAM,EAAc,GAAK,EAKjE,EAAU,EAAM,OAElB,IAAA,EAAY,EACX,IAAA,IAAI,EAAI,EAAW,EAAI,IAA
W,EACrC,GAAa,EAAM,GAGf,MAAA,EAAgB,EAAY,EAAK,EAAI,EAKpC,MAAA,CAAC,UAAA,EAAW,YAJ
A,EAAc,EAAA,eAAA,EAAQ,OAAS,EAInB,UAAA,EAAW,QAF1B,KAAI,EAAe,EAAA,gBAAA,EAAM,MAA
M,EAAG,IAAa,GAEZ,YADhC,EAAc,EAAA,eAAA;;AC8RlC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA
,IAAA,QAAA,kBAAA,EAAA,QAAA,WAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,kBA
AA,EAAA,QAAA,2BAAA,EAAA,QAAA,0BAAA,EAAA,QAAA,eAAA,EAAA,QAAA,aAAA,EAAA,QAAA,Y
AAA,EAAA,QAAA,iBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,UAAA,EA9ZD,IAAA,
EAAA,EAAA,QAAA,YA8ZC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,OAAA,
OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,
IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GA
AA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OA
AA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAA
A,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,
QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAlZK,SAAU,EACZ,EAAmB,EAAiB,GAChC,MAAA,EAAA
Y,EAAM,MAAM,OAC9B,EAAK,OACD,IAAc,EAAM,OACpB,qBAAuB,uBA+B,0CAClB,OACxC,EAAK,OA
CD,IAAc,EAAK,OACnB,qBAAuB,sBA8B,0CAjB,OAEnC,IAAA,IAAI,EAAI,EAAG,EAAI,IAAa,EAC/B,EA
AK,OACD,EAAM,GAAK,EAAK,IAAM,EAAM,MAAM,GAClC,qBAAuB,aAAqB,aAAa,UACjD,EAAM,GAAK,
EAAK,kCAAkC,OAChD,EAAM,MAAM,OAKxB,SAAU,EAAW,GACnB,MAAA,EAAO,IAAA,EAAO,E
ACJ,KAAA,EAAO,GACD,EAAP,GACF,EAAK,KAAK,GAEZ,GAAQ,EAAR,GAAQ,IAAA,EAAA,GAAA,EAAA,GAAA,EAAA,G

EAAQ,IACV,GAAS,GAIX,EAAQ,EAAK,MAAM,EAAG,EAAO,EAAW,GAKpC,SAAU,EACZ,EAAiB,EAAuB,EACxC,EAAsB,EAAc,GAElC,IAAA,EAAO,EAAY,GACjB,MAAA,EAAS,EAAQ,IAAS,GAI5B,EAAW,GAAK,GAAS,EAAgB,GAAK,GAAiB,MAAR,KAAIvD,EAHE,EAAS,EAAGJ,OAAO,iBAGP,OAAO,kBAAKZ,MAAA,EAAA,EAAA W,EAAAW,GAAfX,EAAeW,GAAfX,EAAeW,GAAfX,EAAe

mB,QAAQ,eAAe,QAAQ,oBAC3C,oBACA,OAUjB,SAAU,EAAoB,EAAuB,GACzD,IAAK,KAAK,IAAM,EAAK,OAAQ,IAAM,KAG/B,SAAU,EAAkB,EAAoB,GAC9C,MAAA,EAA0B,iBAAb,GAA6C,iBAAb,GACvB,kBAAb,EACX,CAAC,GACD,EACA,OAAA,EAAS,EAAA,UAAA,KAAW,EAAU,EAAA,UAAA,EAAoB,MAClD,EAAS,EAAA,UAAA,KAAa,EAAU,EAAA,UAAA,EAAsB,IAEjD,EAAsB,EAAQ,EAAK,CAAC,EAAG,IAAM,GAAK,GAEpD,EACH,EAAQ,EAAU,CAAC,EAAG,IAAM,EAAS,EAAA,EAAA,IAG/D,SAAU,EAAmB,EAAW,EAAW,GAAK,GAAK,GAAK

,EA5CP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,kBACA,EAAA,QAAA,sBAGA,EAAA,QAAA,eA2BA,SAAS,EAAAuB,EAAsB,GAChD,IAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,OAC7B,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,QAChC,EAAI,IAAM,EAAe,EAAA,gBAAA,EAAI,GAExB,MAAA,EAAyB,CAAC,EAAG,EAAI,EAAG,GAEnC,OAAA,EAAO,OAAA,UAAU,EAAjB,SAA2B,GAAA,EAAM,GAAK,EAAA,GAAM,EAAA,GAAM,EAAA,GAAM

QAAA,OAAA;;AClBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA1BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAaA,SAAS,EAAwB,GACzB,MACA,EAAqB,CAAC,GADjB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAG5B,OAAA,EAAO,OAAA,UAAU,EAAA jB,KAAAuB,GAAEzB,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAAjB,QAAA,KAAA;;ACGA,aAAA,O AAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EA7BP,IAAA,EAAA,QAAA,aACA,EAAA,QA AA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAeA,SAAS,EAAyB,GAC1B,MAEA,EAAsB,CAAC,GAFlB, EAAgB,EAAA,iBAAA,EAAG,IAAK,UAI5B,OAAA,EAAO,OAAA,UAAU,EAAAjB,MAAwB,GAE1B,MAAM,G AAQ,EAAG,EAAA,IAAA,CAAC,OAAA,IAAlB,QAAA,MAAA;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CA AA,OAAA,IAAA,QAAA,UAAA,EA5BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sB AGA,EAAA,QAAA,eAcA,SAAS,EAAqB,GACtB,MAAA,EAAkB,CAAC,GAAlB,EAAgB,EAAA,iBAAA ,EAAG,IAAK,SAI5B,OAAA,EAAO,OAAA,UAAU,EAAAjB,MAAwB,GAAE,MAAM,GAAO,EAAG,EAAA ,IAAA,CAAC,MAAA,IAAAjB,QAAA,KAAA;;ACSA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA ,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA ,EArCP,CP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAeA,SAAS ,EAAqB,GACtB,MAAA,EAAkB,CAAC,GAAlB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAI5B,OAAA,EAAO,OAAA ,UAAU,EAAAjB,MAAwB,GAAE,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAAjB,QAAA,KAAA;;ACRA ,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA ,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA ,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA ,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA ,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA ,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA ,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA ,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,EAAA,IAAA ,QAAA,WAAA,EAAA,IAAA,QAAA,UAAA,E

AA,EACA,WAAA,EACA,SAAA,EACA,UAAA,EACA,SAAA,EACA,YAAA,EACA,QAAA,EACA,YAAA,EAC
A,aAAA,EACA,YAAA,EACA,YAAA,EACA,aAAA,EACA,YAAA,EACA,qBAAA,EACA,sBAAA,EACA,qBAA
A,EACA,cAAA,EACA,eAAA,EACA,cAAA,EACA,QAAA,EACA,SAAA,EACA,YAAA,GAIJ,SAAS,EACL,EAA
2B,EAAmB,EAC9C,EAAkB,GACL,MAAX,IACF,EAAU,EAAkB,EAAS,EAAW,IAE5C,MAAA,EAAY,EAAQ,G
ACpB,EAAY,EAAQ,GAOnB,MAAA,CAJH,GAAO,EAAY,EAAY,EAAI,GAAW,EAAS,EAAG,GAE1D,GAAO,
EAAY,EAAY,EAAI,GAAW,EAAS,EAAG,IAKhE,SAAS,EACL,EAA2C,EAC3C,EAAqB,EAAgB,EACrC,GACa,
MAAX,IACF,EAAU,EAAkB,EAAS,EAAW,IAE5C,MAAA,EAAa,EAAQ,GACrB,EAAY,EAAQ,GACpB,EAAY,
EAAQ,GASnB,MAAA,CANH,GAAO,EAAa,EAAY,EAAI,GAAW,EAAS,EAAG,GAE3D,GAAO,EAAY,EAAY,
EAAI,GAAW,EAAS,EAAG,GAE1D,GAAO,EAAY,EAAY,EAAI,GAAW,EAAS,EAAG,GAEhB,GAG1C,SAAU,
EACZ,EACA,EAAmB,EAAgB,EAAW,GAC1C,MAAA,EAAqB,EAAuB,EAAW,GACtD,OAAA,KAAK,OACP,E
AAW,IAAM,EAAS,GAAK,EAAS,GAAsB,GAGrE,SAAS,EAAgB,GAAK,EAAgB,GACnB,MAAA,IAAiB,EACF,
,EAAO,GAEH,IAAjB,EAAmB,OACD,CAAC,EAAM,GAAI,EAAM,GAAI,GAEvB,EAGT,SAAS,EAAS,EAAW,
MAAiB,iBAAV,EAAqB,EAAqB,EAAO,GAAK,EAAO,GAAK,EAAO,GAAK,EAAO,GAAK,EAAO,
CAAC,EAAO,OAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,
GAAA,EAAA,G

A,QAAA,kBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,+BAAA,EAAA,QAAA,wBAAA
;;ACvhBM,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EA7CP,IAAA,EAAA,QAAA,
aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eA4BA,SAAS,EACL,EAAsB,GAClB,MAE
A,EAAwB,CAAC,GAFpB,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAAW,sBAGxC,EAAsB,CAAC,MAAA,GACtB
,OAAA,EAAO,OAAA,UACV,EADG,QACM,EAAgC,GAExC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAA
A,IAApB,QAAA,QAAA;;ACqCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EAlF
P,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA
,QAAA,UACA,EAAA,EAAA,QAAA,gBACA,EAAA,QAAA,eACA,EAAA,QAAA,aAsEO,SAAA,IAAA,GAAA,
mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,
EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,G
AAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBA
AA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAA
A,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAA
A,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,
EAhDP,SAAS,EACL,EAAiB,EACjB,EAAkC,EAClC,GACI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK
,UAAW,WAG9C,EAAK,OACD,EAAU,+BA+B,EAH3B,GAId,IAAM,2EACa,uBAEnB,IAAA,EAAM,EACN,G
AAe,EACH,IAAZ,EAAG,OACL,GAAe,EACf,GAAM,EAAQ,EAAA,SAAA,EAAI,CAAC,EAAG,EAAG,MAAM,
GAAI,EAAG,MAAM,GAAI,EAAG,MAAM,MAG3D,EAAK,OACY,IAAb,EAAI,KACJ,uDAAyD,EAAI,SAE1C,
MAAnB,GACF,EAAK,OACD,EAAK,MAAM,GACX,IAAM,2EACiB,iBAA+B,MAGtD,MAAA,EAAwB,CAAC,
EAAG,GAE5B,EAAsB,CAAC,WAAA,EAAY,QAAA,EAAS,IAAA,EAAK,gBAAA,GAAgB,GAGnD,IAAA,EAAM,EAA
O,OAAA,UACH,EADJ,QACa,EACT,GAIV,OAFJ,GAAM,EAAK,MAAA,EAAK,EAAK,GAAG,OAEf,EAAK,GAAG,EAAA,
AQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAM,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,KAGtD,EAAG,MAA
M,GAAU,EAAG,EAAA,IAAA,CAAC,SAA,IAApB,QAAA,QAAA;;ACiBA,aAAA,OAAA,eAAA,QAAA,aAAA
,CAAA,OAAA,IAAA,QAAA,eAAA,EAAnG P,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sB
BAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,UACA,EAAA,QAAA,eACA,EAAA,QAAA,aAwFO,SAAA,I
AAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,
EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,E
AAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,
OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAA
A,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAA
A,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,
EAAA,GAAA,EAAlDP,SAAS,EACL,EAAiB,EAA0C,EAAC,EACA,EAA8B,SAC1B,MAAA,GAAK,EAAgB
gB,EAAA,iBAAA,EAAG,IAAK,UAAW,YAAa,WAE5C,EAAK,OACD,EAAU,+BAAyB,EAAI,SAE1C,
EACf,GAAM,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAM,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,MA
AM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IAAA,QAAA,QAAA;;ACjDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EA5
EAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA
,QAAA,UACA,EAAA,EAAA,QAAA,gBACA,EAAA,QAAA,eACA,EAAA,QAAA,aAAA,EAAA,SAAA,E

BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAcA,SAAS,EAA
2B,GAC5B,MAEA,EAAwB,CAAC,GAFpB,EAAgB,EAAA,iBAAA,EAAG,IAAK,YAI5B,OAAA,EAAO,OAAA,
UAAU,EAAjB,QAA0B,GAE5B,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IApB,QAAA,QAA;;AC+
BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EA3DP,IAAA,EAAA,QAAA,aACA
,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAoCA,SAAS,EACL,EAAiB,EAAwB,GACrC,MA
AA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,QAAS,qBAExC,GAAY,IAAZ,EAAG,KACC,MAAA,IAAI,MA
AM,kCAGZ,MAAA,EAAsB,CAAC,EAAG,GAC1B,EAAoB,CAAC,MAAA,EAAO,KAAA,GE3B,OAAA,EAAA
O,OAAA,UACV,EADG,MACI,EAAgC,GAGtC,MAAM,GAAQ,EAAG,EAAA,IAAA,CAAC,OAAA,IAAlB,QAAA
A,MAAA;;AC/BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA5BP,IAAA,EAAA
A,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAcA,SAAS,EAAwB,GACzB,M
AEA,EAAqB,CAAC,GAFjB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAI5B,5BAAO,OAAA,EAAO,OAAA,UAAU,EAAjB,jB,
KAAuB,GAEzB,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,KAAA;;ACkCA,aAAA,OAA
AA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mBAAA,EA7DP,IAAA,EAAA,QAAA,sBAGA,EAAA,QAAA,
AA,SACA,EAAA,QAAA,YACA,EAAA,QAAA,aACA,EAAA,QAAA,SACA,EAAA,QAAA,eACA,EAAA,QAAA
,aACA,EAAA,QAAA,WACA,EAAA,QAAA,UAkBA,SAAS,EAAC,EAAC,EAAC

AA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WA
AA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,
EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,
EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,
GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IA
AA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAtDP,SAAS,EACL,EAAyB,EACzB,EACA,EACA,EACA,GACqB,MAAnB,IACF,EAAkB,MAEd,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aA
C7B,GAAQ,EAAgB,EAAA,iBAAA,EAAM,OAAQ,aACtC,GAAY,EAAgB,EAAA,iBAAA,EAAU,WAAY,aACp
D,IAAA,EAIA,EAHS,MAAT,IACF,GAAS,EAAgB,EAAA,iBAAA,EAAO,QAAS,cAG7B,MAAV,IACF,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,cAG9C,EAAK,OACD,EAAM,OAAS,EAAU,KACzB,IAAM,gFAEV,EAAK,
OACU,MAAX,GAAmB,EAAM,OAAS,EAAQ,KAC1C,IAAM,8EAEV,EAAK,OACS,MAAV,GAAkB,EAAM,OA
AS,EAAO,KACxC,IAAM,6EAGJ,MAEA,EAA+B,CACnC,GAHoB,EAAM,EAAA,OAAA,GAI1B,9B,MAAO,EACP,
OAAQ,EACR,KAAM,EACN,SAAU,GAGN,EAA6B,CAAC,gBAAA,GAG9B,9B,EAAM,EAAO,OAAA,UACH,EAD
J,eACoB,EAChB,GAET,OAAA,EAAQ,EAAA,SAAA,EAAK,EAAG,OAGlB,MAAM,GAAY,EAAG,EAAA,IAA
A,CAAC,WAAA,IAAA,tB,QAAA,UAAA,;;AC/BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA
A,iBAAA,EA9DP,IAAA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eACA,EAAA,QAAA,
A,eAyDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,
A,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,
GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,C
AAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,K
AAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EA
AA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAA
A,EAAA,IAAA,EAAA,GAAA,EA5CP,SAAS,EACL,EAAwB,EACxB,EACA,EAAuC,EACvC,GACI,MAAA,GA
AK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAC7B,GAAQ,EAAgB,EAAA,iBAAA,EAAM,OAAQ,aACtC,GAAY,EAAgB,EAAA,iBAAA,EAAU,WAAY,aACpD,IAAA,EAIA,EA6BG,OAAA,EAAA,IAAA,EAAA,GAAA,EAAA,MAAA,EAAA,IAAA,EAAA,KAAA,EAAA,IAAA,EAAA,QAAA,EAAA,sBAAA,EAAA,YAAA,EAAA,QAAA,EAAA,eACA,EAAA,QAAA,eAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5CP,SAAS,EACL,EAAwB,EACxB,EACA,EAAuC,EACvC,GACI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAC7B,GAAQ,EAAgB,EAAA,iBAAA,EAAM,OAAQ,aACtC,GAAY,EAAgB,EAAA,iBAAA,EAAU,WAAY,aACpD,IAAA,EAIA,EA6BG,OAAA,EAAA,IAAA,EAAA,GAAA,EAAA,MAAA,EAAA,IAAA,EAAA,KAAA,EAAA,IAAA,EAAA,QAAA,EAAA,sBAAA,EAAA,YAAA,EAAA,QAAA,EAAA,eACA,EAAA,QAAA,eAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,I

AAA,YAAA;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,iBAAA,EA7DP,IAAA,EA
AA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eACA,EAAA,QAAA,eAwDO,SAAA,IAAA,GA
AA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SA
AA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAA
A,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,
gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,
IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,E
AAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GA
AA,EA3CP,SAAS,EACL,EAAAwB,EACCxB,EACCA,EAAAuC,EACCvC,GACI,MAAA,GAAK,EAAAgB,EAAA,iBAAA,
EAAG,IAAK,aAC7B,GAAAQ,EAAAgB,EAAA,iBAAA,EAAAM,OAAAQ,aACtC,GAAAY,EAAAgB,EAAA,iBAAA,EAA
U,WAAY,aACpD,IAAA,EAIA,EA4BG,OA/BM,MAAT,IACF,GAAS,EAAAgB,EAAA,iBAAA,EAAO,QAAS,cAG
7B,MAAV,IACF,GAAU,EAAAgB,EAAA,iBAAA,EAAQ,SAAU,cAE9C,EAAK,OACW,IAAZ,EAAG,KACH,IAA
M,0DACC,EAAG,SACd,EAAK,OACc,IAAf,EAAM,MA6B,IAAf,EAAM,KAC1B,IAAM,uEACU,EAAM,SAC1
B,EAAK,OACkB,IAAnB,EAAU,MAAiC,IAAnB,EAAU,KAClC,IAAM,2EACc,EAAU,SACpB,MAAV,GACF,E
AAK,OACe,IAAhB,EAAO,MA8B,IAAhB,EAAO,KAC5B,IAAM,wEACc,EAAO,SAElB,MAAX,GACF,EAAK,
OACgB,IAAjB,EAAQ,MA+B,IAAjB,EAAQ,KAC9B,IAAM,yEACc,EAAQ,UAE3B,EAAU,EAAA,WAAA,EA
AI,EAAO,EAAW,EAAS,EAAQ,GAGnD,MAAM,GAAc,EAAG,EAAA,IAAA,CAAC,aAAA,IAAxB,QAAA,YAA
A;;ACVA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,EAnDP,IAAA,EAAA,QAAA,
aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eA0CO,SAAA,
IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,
EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,E
AAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAA
A,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAA
A,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAA
A,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,
EAAA,GAAA,EAvBP,SAAS,EACL,EAAAiB,EAAAuB,GACCpC,MAAA,GAAK,EAAAgB,EAAA,iBAAA,EAAO,IAA
K,YAC7B,GAAAW,EAAAgB,EAAA,iBAAA,EAAS,UAAW,YAErD,EAAK,OACY,UAAb,EAAG,MACH,IAAM,4D
AC8B,EAAG,SAC3C,EAAK,OAAO,GAAQ,EAAG,0CAA4C,MACnE,EAAK,OACD,EAAS,OAAS,EAAG,MAA
0B,IAAlB,EAAS,KACtC,IAAM,mGACgC,EAAG,4BAClC,EAAS,UAEd,MAAA,EAAyB,CAAC,EAAG,EAAI,Q
AAS,GAC1C,EAAuB,CAAC,KAAA,GAEvB,OAAA,EAAO,OAAA,UACV,EADG,SACO,EAAgC,GAAzC,MAA
M,GAAW,EAAG,EAAA,IAAA,CAAC,UAAA,IAArB,QAAA,SAAA;;ACoBA,aAAA,OAAA,eAAA,QAAA,aAAA,
A,CAAA,OAAA,IAAA,QAAA,iBAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,
sBAGA,EAAA,QAAA,WACA,EAAA,QAAA,eACA,EAAA,QAAA,aAAA,gBAAA,SAAS,EACL,EAAsB,GAAC,IAAA
A,GAAA,EAAA,EAAA,MAAA,EAAA,EAAA,KAAA,CAAC,MAAA,GAAK,EAAA,EAAA,EAAA,iBAAA,EAAO,IAAA,
EAAG,IAAK,YAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,E

A,EAAA,QAAA,YAEA,EAAA,QAAA,eA+BO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,I

AA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA7DP,SAAS,EACL,EAAiB,EAA6B,EAC9C,EA
CA,EAA0B,MAAO,EAAW,EAC5C,GACI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAC7B,GAAU,
EAAgB,EAAA,iBAAA,EAAQ,SAAU,UAE9C,IAAA,EAAM,EACN,GAAe,EACH,IAAZ,EAAG,OACL,GAAe,E
ACf,GAAM,EAAQ,EAAA,SAAA,EAAI,CAAC,EAAG,EAAG,MAAM,GAAI,EAAG,MAAM,MAG9C,EAAK,O
ACY,IAAb,EAAI,KACJ,2DAA6D,EAAI,SACrE,EAAK,OACgB,IAAjB,EAAQ,KACR,IAAM,2DACC,EAAQ,SA
CI,MAAnB,GACF,EAAK,OACD,EAAK,MAAM,GACX,IAAM,0EACiB,iBAA+B,MAG5D,EAAK,OACD,EAAI,
MAAM,KAAO,EAAQ,MAAM,GAC/B,wCAA0C,EAAI,MAAM,4CACtB,EAAQ,MAAM,OAChD,EAAK,OACD,
EAAU,+BAA+B,EAAQ,GACjD,IAAM,uEACY,mBAAwB,MAC9C,EAAK,OACc,QAAf,EACA,0CACI,0CAEF,
MAAA,GAAW,EACb,EAAA,SAAA,EAAS,CAAC,EAAG,EAAQ,MAAM,GAAI,EAAQ,MAAM,GAAI,EAAQ,M
AAM,KAC7D,GAAU,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAM,GAAI,EAAI,MAAM,GAAI,EA
AI,MAAM,KACjE,EAA4B,CAAC,EAAG,GAChC,EAA8B,CAAC,EAAG,GAIlC,GAAM,EACP,EAAQ,QAAA,,EA
AuB,EAAuB,EAAS,EAHnC,OAIH,EAAW,GAE7B,OAAA,GACK,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAM,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,
GAAI,EAAI,MAAM,MAGxC,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAM,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,
GAAI,EAAI,MAAM,KAGtD,MAAM,GAAS,EAAG,EAAA,IAAA,,QAAA,,IAAA,QAAA,OAAA;;ACEA,
aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,yBAAA,EAAA,IAAA,EAAA,QAAA,aAAA,CAAA,EA
AA,QAAA,mBAAA,IAAA,EAAA,EAAA,QAAA,YAAA,GAAA,EAAA,QAAA,eAAA,CAAA,EAAA,QAAA,aA4FO,SAAA,IAAA,,GA
AA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SA
AA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAA
A,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,
gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,
IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,E
AAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GA
AA,EAlEP,SAAS,EACL,EAAmE,EAAnE,EAAkB,EAAlB,EAAiB,EAAjB,EAAgB,EAA4B,OAC5B,SAAW,EAAG,KAAK,EAAO,SAAS,EAAO,KAAK,EAAO,SAAS,EAAO,KAAK,EAAO,SAAS,EAAO

P,SAAS,EACL,EAAiB,EACjB,EAA0C,EAC1C,EAA8B,QAC9B,EAA6C,CAAC,EAAG,EAAG,IAChD,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAC7B,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,UAE9C,IAAA,EAAM,EACN,GAAe,EAAH,IAAZ,EAAG,OACL,GAAe,EACf,GAAM,EAAQ,EAAA,SAAA,EAAI,CAAC,EAAG,EAAG,MAAM,GAAI,EAAG,MAAM,GAAI,EAAG,MAAM,GAAI,EAAG,MAAM,MAExE,EAAK,OACY,IAAb,EAAI,KACJ,2DAA6D,EAAI,SACrE,EAAK,OACgB,IAAjB,EAAQ,KACR,IAAM,2DACC,EAAQ,SACnB,EAAK,OACD,EAAI,MAAM,KAAO,EAAQ,MAAM,GAC/B,wCAA0C,EAAI,MAAM,4CACtB,EAAQ,MAAM,OAChD,EAAK,QACD,EAA+B,EAAA,gCAAA,EAAK,OACc,UAAf,EAAA,CACvC,0CAAI,4CAAE,MAAA,EAAA,uBAAA,CAAA,EAAA,QAAA,EAAA,GAAA,EAAA,OAAA,GAAA,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA,E

,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eAmDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,GAAA,EAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA9BP,SAAS,EACL,EAAiB,EAAuB,EACxC,GAAe,GACX,MAAA,GAAK,MAAA,EAAgB,EAAA,iBAAA,EAAA,IAAA,iBAAC7B,GAAA,WAAE,EAAgB,EAAA,iBAAA,EAAA,SAAA,UAAA,WAAiB,EAAA,iBAAA,EAAA,KAAA,OAAA,CAAY,UAAA,b,EAAA,GAAA,MAAA,CAAA,IAAA,MAAA,iBAAC8B,EAAA,GAAA,EAAA,KAAA,EAAA,IAAA,EAAA,GAAA,EAAA,KAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,I

,UAAA,EArCP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAEA,EAAA,QAAA,eAuB
A,SAAS,EAAM,GACP,MAEA,EAAqB,CAAC,GAFjB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAI5B,OAAA,EAA
O,OAAA,UAAU,EAAjB,KAAAuB,GAGzB,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,K
AAA;;ACkDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,EAAvFP,IAAA,EAAA,EAAA,Q
AAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eACA,E
AAA,QAAA,aA6EO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,A
AAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,E
AAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAA
A,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAA
A,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA
,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,E
AAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5CP,SAAS,EACL,EAAiB,EACjB,EAAkC,EAAClC,EAAqC,CAAC,E
AAG,GACzC,EAAqB,QACjB,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,cAC7B,GAAU,EAAgB,EAAA
A,iBAAA,EAAQ,SAAU,cAElD,EAAK,OACW,IAAZ,EAAG,MA0B,IAAZ,EAAG,KACpB,EAAM,mEACC,EA
AG,SACd,EAAK,OACgB,IAAjB,EAAQ,KACR,IAAM,+DACC,EAAQ,SACnB,EAAK,OACc,SAAf,EACA,IAA
M,mFACuB,KAE7B,IAAA,EAAM,EACN,GAAe,EAEH,IAAZ,EAAG,OACL,GAAM,EAAQ,EAAA,SAAA,EAAI
,CAAC,EAAG,EAAG,MAAM,GAAI,EAAG,MAAM,GAAI,EAAG,MAAM,KACzD,GAAe,GAGX,MAAA,EAA2
B,CAAC,EAAG,EAAK,OAAQ,GAC5C,EAAyB,CAAC,QAAA,EAAS,IAAA,EAAK,UAAA,GAGxC,EAAM,EA
AO,OAAA,UACH,EADJ,WACgB,EACZ,GAEZ,OAAA,GACK,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAAA
M,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,KAGtD,EAAG,EAAG,MAAM,GAAa,EAAG,EAAA,IAAA,CAAC,YAAA,I
AAvB,QAAA,WAAA;;AClBN,aA5DK,SAAU,EACZ,GAAA,EAAA,OAAA,EAAA,EAAA,EAAA,QAAA,OACjB,EAAA,EAAA,
B,IAAA,EAAI,EAAI,EAAG,EAAI,EAAQ,IAAK,CAAC,CAAzB,EAAM,EAAA,MAAA,EAAA,EAAA,IAAA,EAAA,
Q,GAAhB,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
O,OAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,SAAU,EAAC,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
ClC,MAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
MAAT,GAA4B,IAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
M,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
B,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
Q,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,SAAU,EAAC

A6B,GAC9B,MACA,EAA0B,CAAC,GADtB,EAAgB,EAAA,iBAAA,EAAG,IAAK,cAE5B,OAAA,EAAO,OAAA,UAAU,EAAjB,UA4B,GAE9B,MAAM,GAAY,EAAG,EAAA,IAAA,CAAC,WAAA,IAAtB,QAAA,UAA;;AC2BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,OAAA,EArDP,IAAA,EAAA,QAAA,kBACA,EAAA,QAAA,sBAGA,SACA,EAAA,QAAA,WACA,EAAA,QAAA,eACA,EAAA,QAAA,WACA,EAAA,QAAA,gBAgCA,SAAS,EACL,EAAAsB,GAEpB,IAAA,GAAK,EAAAgB,EAAA,iBAAA,EAAG,IAAK,OAC7B,GAAK,EAAAgB,EAAA,iBAAA,EAAG,IAAK,QAChC,hC,EAAA,I,IAAA,M,EAAA,e,EAAA,gB,IAAA,E,EAAA,iB

AA,EAAG,IAAK,QAG5B,OAAA,EAAO,OAAA,UAAU,EAAjB,IAAsB,GAExB,MAAM,GAAM,EAAG,EAAA,IAAA,CAAC,KAAA,IAAhB,QAAA,IAAA;;ACYA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,EAAvCP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAAIA,EAAA,QAAA,sBAAEA,EAAA,EAAA,QAAA,YAAEA,EAAA,QAAA,eA8BO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,A,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,A,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,GAAA,KAAA,A,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAZP,SAAS,EAA8B,EAAA,SAAA,EAAA,QAAA,GAAA,EAAA,KAAA,EAAA,GAAA,EAAA,KAAA,EAAA,GAAA,EAAA,KAAA,E

AAyB,CAAC,GAHrB,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAGI,SAFtB,EAAgB,EAAA,iBAAA,EAAS,UAAW,
SAAU,UAGzD,EAAuB,CAAC,KAAA,EAAM,UAAA,GAE7B,OAAA,EAAO,OAAA,UACV,EADG,SACO,EAA
gC,GAGzC,MAAM,GAAS,EAAG,EAAA,IAAA,CAAC,QAAA,IAAnB,QAAA,OAAA;;ACVA,aAAA,OAAA,eA
AA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EAvCP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAG
A,EAAA,QAAA,kBACA,EAAA,QAAA,sBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,eAiBA,SAAS,EACL,EA
AsB,GACpB,IAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,WC7B,GAAK,EAAgB,EAAA,iBAAA,EAAG
,IAAK,YAChC,EAAI,IAAM,EAAe,EAAA,gBAAA,EAAI,IAEH,EAAA,EAAA,4BAAA,EAAG,MAAO,EAAG,O
AElC,MAAA,EAAwB,CAAC,EAAG,EAAI,EAAG,GAElC,OAAA,EAAO,OAAA,UAAU,EAAjB,QAA0B,GAG5
B,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IAApB,QAAA,QAAA;;ACAA,aAAA,OAAA,eAAA,QAAA
A,aAAA,CAAA,OAAA,IAAA,QAAA,kBAAA,EAAvC,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,eAiBA,SAAS,EACL,EAAAsB,GA
CpB,IAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,gBAC7B,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,iB
AChC,EAAI,IAAM,EAAe,EAAA,gBAAA,EAAI,IAEH,EAAA,EAAA,4BAAA,EAAG,MAAO,EAAG,OAElC,M
AAA,EAA6B,CAAC,EAAG,EAAI,EAAG,GAEvC,OAAA,EAAO,OAAA,UAAU,EAAjB,aA+B,GAAjC,MAAM
,GAAe,EAAG,EAAA,IAAA,CAAC,cAAA,IAAzB,QAAA,aAAA;;ACVA,aAAA,OAAA,eAAA,QAAA,aAAA,CA
AA,OAAA,IAAA,QAAA,UAAA,EA5BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,eAiBA,SAAS,EAAA,sB,GA
CpB,IAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,QAAS,EAAG,EAAA,IAAA,CAAC,SAAA,IAAnB,QAA
A,QAAA,OAAA,EAAO,OAAA,UAAU,EAAjB,QAA0B,GAAjC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,
IAApB,QAAA,QAAA;;ACVA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,kBAAA,EAAvC,IA
AA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,eAiBA,SAAS,EACL,EAAAsB,GA
CpB,IAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,QAAS,EAAG,EAAA,IAAA,CAAC,SAAA,IAAnB,Q

A,GACpC,OAAA,EAAO,OAAA,UAAU,EAAjB,SAA2B,GAAI;;ACuCjC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gCAAA,EA9DP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,eACA,EAAA,QAAA,aAoDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,IAAA,EAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,EAnCP,SAAS,EACL,EAAAiB,EAAAc,EAAAG,EAAAQ,EAAAG,EAAAO,IAC1D,MAAA,GAAA,KAAA,EAAAgB,EAAA,iBAAA,EAAAG,IAAK,8BAAnC,EAAAK,KAAA,OAAA,IAAA,EAAA,GAAA,MAA0B,IAAA,EAAA,KAAA,EAAA,+BAAA,EAAA,GAAA,SAAA,EAAA,KAAA,OAAA,EAAA,KAAA,MAAA,GAAA,IAAA,EAAA,GAAA,EAAA,GAAA,EAAA,G

Ac,EADhC,OAEI,IAAM,gEACJ,MAAA,EAAM,EAAO,OAAA,UAAU,IAAM,KAAK,GAAO,EAAM,GAQ9C,OA
PG,MAAN,GACF,EAAK,kBACD,EAAI,MAAM,MAAO,EAAG,MACpB,yGAGN,EAAW,EAAI,OACR,GAkCX,
SAAS,EAAc,EAAiB,GAEtC,EAAK,OACD,EAAK,WAAW,GAChB,IAAM,uDACV,EAAK,OACU,MAAX,GACI
,MAAM,QAAQ,IAAY,EAAQ,MAAM,GAAK,aAAa,EAAhC,UAC9B,IACI,iFAGF,MAAA,EAA8B,MAAX,EACr
B,IAAC,EAAkB,CAErB,EAAU,GACL,IAAA,MAAM,KAAW,EAAO,OAAA,oBAC3B,EAAQ,KAAK,EAAO,OA
AA,oBAAoB,IAItC,MAAA,EACF,EAAmB,EAAQ,OAAO,IAAa,EAAS,WAAa,KAGnE,EAAmB,EAAQ,OACjC,
EAAU,EAAQ,OAAO,GAAY,EAAS,WC9C,EAAK,OACD,EAAQ,OAAS,EACjB,mGAC+B,kBACjC,cA
EF,MACA,MAAC,EAAD,MAAQ,GAAS,EAAO,OAAA,UAAU,EAAG,EAAS,MD3B,GAGzB,EAAK,OACD,E
AAM,KAAK,GAAU,MAAL,GAChB,IAAM,gMAGV,EAAK,OACCc,IAAf,EAAM,KACN,IAAM,oFACV,EAAM,
eAE3B,MAAA,EAA6B,GAW5B,QAVP,CAAC,EAAG,KACF,EAAO,QAAQ,CAAC,EAAG,KACjB,MAAM,EAAM,EAAE,QAAQ,
MAAQ,GAAS,EAAO,OAAA,UAAU,EAAG,EAAS,

AAS,YAAY,EAAI,EAAA,MAAA,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,GAAU,GAJvC,KAKjB,EAAK,CAAC,IAQC,MAAA,CAAC,MAAA,EAAO,SANE,CAAC,EAAY,KACtB,MAAC,GAAS,EAEV,GAAU,EAAI,EAAA,KAAA,GACb,OAAA,EAAI,EAAA,KAAA,GAAI,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAI,GAFV,GAE2B,OAKzC,CAAS,GAUX,MAAM,GAAa,EAAG,IAAA,CAAC,YAAA,IAAA,vB,QAAA,WAAA;;ACGN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,qBAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,0BAAA,EAAA,QAAA,qBAAA,EAAA,QAAA,2BAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,uBAAA,EAAA,QAAA,iBAAA,EA3FD,IAAA,EAAA,EAAA,QAAA,YA2FC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,EAAA,EAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,EAAA,KAAA,EAAA,GAAA,EAAA,EAAA,OAAA,eAAA,EAAA,EAAA,EAAA,EAAA,EAAA,yBAAA,EAAA,EAAA,GAAA,EAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,E

AA0B,CAAC,EAAG,EAAI,EAAG,GACpC,OAAA,EAAO,OAAA,UAAU,EAAjB,UAA4B,GAE9B,MAAM,GAAA
Y,EAAG,EAAA,IAAA,CAAC,WAAA,IAAtB,QAAA,UAAA;;ACGA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,
OAAA,IAAA,QAAA,gBAAA,EAlCP,IAAA,EAAA,QAAA,sBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,iBAC
A,EAAA,QAAA,iBACA,EAAA,QAAA,gBACA,EAAA,QAAA,eAiBA,SAAS,EACL,EAAsB,GAClB,MAAA,GA
AK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAAc,QAC3C,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAAc,QAI
1C,OAHoB,EAAA,EAAA,4BAAA,EAAG,MAAO,EAAG,QAGjC,EAAW,EAAA,aAAA,EAAU,EAAA,WAAA,E
AAG,IAAI,EAAW,EAAA,aAAA,EAAW,EAAA,YAAA,EAAG,KAGvD,MAAM,GAAa,EAAG,EAAA,IAAA,CA
AC,YAAA,IAAvB,QAAA,WAAA;;AC8CA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aA
AA,EAjFP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,sBAAA,EAAA,QAAA,YAEA,EAAA,EAAA,QAAA,gBACA,EAAA,QAAA,eACA,EAAA,QAAA,aAAA,EAAA,QAAA,YAEA,EAAA,EAAA,QAAA,gBACA,EAAA,QAAA,eACA,EAAA,QAAA,aAsEO,SAAA,IAAA,GAAA,mBAAA,QA
AA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA
A,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,
EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,y
BAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EA
AA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GA
AA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA3CP,SAA
S,EACL,EAAiB,EAAjB,EAAkC,EAAlC,GACI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,WAG/B,IA
AA,EAAM,EAAN,GAAe,EAAH,IAAZ,EAAG,OAAL,GAAe,EAAf,EAAC,GAAD,EAAA,EAAA,SAAA,EAAI,CAAC,E
AAG,EAAG,MAAM,GAAI,EAAG,MAAM,GAAI,EAAG,MAAM,MAG3D,EAAK,OAAY,IAAb,KAAJ,2D
AA6D,EAAI,SAAC,E,EAAK,OAAD,EAAU,+BAA+B,EAAb3B,GAAd,IAAM,2EACa,uBACA,MAAnB,GACF,K,OAAD,EAAK,MAAM,GAAX,IAAM,2EACiB,iBAA+B,MAAG,tD,MAAA,EAAA,wB,CAAA,EAAA,G,E5B,SAAA,E
AAB,CAAC,WAAA,EAAA,YAAA,QAAA,EAAA,SAAA,IAAA,EAAA,KAAA,gBAAA,EAAA,KAAA,EAAA,GAAA,
EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,I

A,EAAA,QAAA,oBACA,EAAA,QAAA,UACA,EAAA,QAAA,eA6BA,SAAS,EACL,EAAsB,GACpB,IAAA,GA
AK,EAAgB,EAAA,iBAAA,EAAG,IAAK,WAC7B,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,YAChC,EAAI,I
AAM,EAAe,EAAA,gBAAA,EAAI,GAEb,SAAb,EAAG,QACL,GAAK,EAAK,EAAA,MAAA,EAAI,SACd,GAA
K,EAAK,EAAA,MAAA,EAAI,WAEW,EAAA,EAAA,4BAAA,EAAG,MAAO,EAAG,OAElC,MAAA,EAAwB,C
AAC,EAAG,EAAI,EAAG,GAElC,OAAA,EAAO,OAAA,UAAU,EAAjB,QAA0B,GAG5B,MAAM,GAAU,EAAG,
EAAA,IAAA,CAAC,SAAA,IAApB,QAAA,QAAA;;ACNA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IA
AA,QAAA,UAAA,EAAlDP,IAAA,EAAA,QAAA,aACA,CAAA,EAAA,QAAA,mBAIA,IAAA,EAAA,QAAA,sBAGA,GAAA,EAAA,QAAA,eA+BA,SAAS,EAAC,EAAA,sBAAA,EAAA,wB,KAAA,M,GAAA,W,
GAC3D,MAAE,EAAAoB,CAAC,GAAFhB,EAAAgB,EAAAgB,EAAA,iBAAA,EAAG,IAAK,QAAG7B,EAAAkB,EAAA,kBAAA,EAAC,KAAA,E
AAM,SAAA,GAAGxB,EAAO,OAAA,EAAA,OAAA,UACH,EADJ,IACS,EAAC,L,GAAN,W,GAAM,MAAA,GAAA,EAAA,IA
AA,CAAC,KAAA,IAAhB,QAAA,IAAA;;ACMA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA
A,aAAA,EAAzDP,IAAA,EAAA,QAAA,aACA,CAAA,EAAA,QAAA,mBAIA,IAAA,EAAA,QAAA,sBAGA,GAAA,EAAA,QAAA,eA+BA,SAAS,EAAC,EAAA,sBAAA,EAAA,wB,KAAA,M,GAAA,W,
GAC3D,MAAE,EAAAoB,CAAC,GAAFhB,EAAAgB,EAAAgB,EAAA,iBAAA,EAAG,IAAK,QAAG7B,EAAAkB,EAAA,kBAAA,EAAC,KAAA,E
AAM,SAAA,GAAGxB,EAAO,OAAA,EAAA,OAAA,UACH,EADJ,IACS,EAAC,L,GAAN,W,GAAM,MAAA,GAAA,EAAA,IA
AA,CAAC,KAAA,IAAhB,QAAA,IAAA;;ACgBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA
A,aAAA,EAAzDP,IAAA,EAAA,QAAA,aACA,CAAA,EAAA,QAAA,mBAIA,IAAA,EAAA,QAAA,sBAGA,GAAA,EAAA,QAAA,eA+BA,SAAS,EAAC,EAAA,sBAAA,EAAA,wB,KAAA,M,GAAA,W,
GAC3D,MAAE,EAAAoB,CAAC,GAAFhB,EAAAgB,EAAAgB,EAAA,iBAAA,EAAG,IAAK,QAAG7B,EAAAkB,EAAA,kBAAA,EAAC,KAAA,E
AAM,SAAA,GAAGxB,EAAO,OAAA,EAAA,OAAA,UACH,EADJ,IACS,EAAC,L,GAAN,W,GAAM,MAAA,GAAA,EAAA,IA
AA,CAAC,KAAA,IAAhB,QAAA,IAAA;;ACzBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA
A,aAAA,EAAz

AEA,EAAA,QAAA,eACA,EAAA,QAAA,UACA,EAAA,QAAA,UACA,EAAA,QAAA,eACA,EAAA,QAAA,aAC
A,EAAA,QAAA,YACA,EAAA,QAAA,SAgBA,SAAS,EACL,EAAsB,EAAwB,KAC9C,GAAW,GACb,GAAI,EA
AgB,EAAA,iBAAA,EAAG,IAAK,WACtB,MAAA,GAAO,EAAe,EAAA,gBAAA,EAAM,EAAE,OAC9B,GAAQ,
EAAK,EAAA,MAAA,EAAG,EAAM,GACxB,IAAA,EAAgB,EAAM,MACrB,IACH,GAAgB,EAAqB,EAAA,sBA
AA,EAAM,MAAO,IAE9C,MAAA,GACF,EAAO,EAAA,SAAA,EAAI,EAAA,MAAA,EAAK,EAAA,MAAA,EA
AG,YAAY,EAAQ,EAAA,SAAA,EAAO,KAE3C,MAAA,CAAC,KAAM,EAAO,UADJ,EAAK,EAAA,MAAA,EA
AY,EAAM,IAInC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IApB,QAAA,QAAA;;ACQA,aAAA,OA
AA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,kBAAA,EAnDP,IAAA,EAAA,QAAA,sBAEA,EAAA,QA
AA,eAyBA,SAAS,EACL,EAA2B,EAC3B,EACA,GACI,MAAA,GAAQ,EAAgB,EAAA,iBAAA,EAAM,OAAQ,g
BACtC,GAAK,EAAqB,EAAA,sBAAA,EAAG,IAAK,gBAClC,GAAK,EAAqB,EAAA,sBAAA,EAAG,IAAK,gBA
EpC,IAAA,EAAQ,EACN,MAAA,EAAY,GACb,IAAA,IAAI,EAAI,EAAG,EAAI,EAAU,OAAQ,IAAK,CACnC,M
AAA,EAAS,EAAU,GAAG,EAAO,EAAG,GAAI,EAAG,IAC7C,EAAU,KAAK,EAAO,IACtB,EAAU,KAAK,EAA
O,IACtB,EAAQ,EAAO,GAEX,MAAA,EAAmB,GACnB,EAAmB,GACpB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAA
U,OAAQ,GAAK,EACzC,EAAK,KAAK,EAAU,IACpB,EAAK,KAAK,EAAU,EAAI,IAEnB,MAAA,CAAC,EAAA
M,GAET,MAAM,GAAe,EAAG,EAAA,IAAA,CAAC,cAAA,IAAA,IAAzB,QAAA,aAAA;;ACcA,aAAA,OAAA,eAAA,
QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,iBAAA,EAjPP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,
AAA,QAAA,sBAGA,GAAA,GACA,EAAA,QAAA,eACA,EAAA,QAAA,aAsBA,SAAS,EACL,EAAsC,EAAA
c,EAAA,QAAA,KAAA,CAAA,EAAA,WAAA,EAAA,QAAA,KAAA,rB,GAAA,EAAA,Ac,EACV,MAAA,IAAI,MAAA,N,kEACG,G,MAAA,E
AEO,GAAA,QAAA,KAAA,SAAA,Gd,MAAA,GAAA,EAAA,QAAA,KAAA,SAAA,IAAA,EAAA,QAAA,KAAA,SAAA,IAAA,EAAA,QAAA,KAAA,
SAAA,IAAA,EAAA,QAAA,KAAA,SAAA,I

eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EA
AA,GAAA,EAfP,SAAS,EACL,EAAyB,GACrB,MAAA,GAAM,EAAgB,EAAA,iBAAA,EAAI,KAAM,gBAChC,
GAAM,EAAgB,EAAA,iBAAA,EAAI,KAAM,gBAEtC,EAAK,OACY,IAAb,EAAI,MAA2B,IAAb,EAAI,KACtB,I
AAM,kEACC,EAAI,YAAY,EAAI,SAEzB,MAAA,GAAO,EAAQ,EAAA,SAAA,EAAK,EAAE,EAAG,IACzB,GA
AO,EAAQ,EAAA,SAAA,EAAK,CAAC,GAAI,IACxB,OAAA,EAAO,EAAA,QAAA,EAAM,GAGf,MAAM,GAA
e,EAAG,EAAA,IAAA,CAAC,cAAA,IAAzB,QAAA,aAAA;;ACYA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,SAAA,EAjDP,IAAA,EAAA,QAAA,aCA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EA
AA,QAAA,eA2BA,SAAS,EACL,EAAiB,EAAAmC,EAAgB,GAChE,MAAA,GAAK,IAAK,OAC/B,IAAA,EAAA,GAAG,IAAK,OAAC/B,SAAA,DAGZ,IAAA,EAAA,EAAG,KAAC,CAAC,MAAA,IAAA,EAAM,MAAM,sDAGZ,MAAA,EAAA,OAAA,oBAAC,CAAC,SAAA,IAAA,
G,IAAK,OAAC/B,GAAY,IAAA,IAAZ,EAAG,KAAC,CAAC,MAAA,IAAA,EAAM,MAAM,sDAGZ,MAAA,EAAA,OAAA,oBAAC,CAAC,SAAA,IAAA,
U,cAAA,GAAC/B,EAAsB,CAAC,EAAG,GAAC,CAAC,OAAA,EAAO,OAAA,UAAC,V,EAAD,G,MAAC,I
M,GAAM,EAAG,EAAA,IAAA,CAAC,KAAA,IAAA,hB,QAAA,IAAA,IAAA;;AChCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
A,CAAA,OAAA,IAAA,QAAA,WAAA,EAhBP,IAAA,EAAA,QAAA,WCA,EAAA,QAAA,eAIA,EAAA,QAAA,sBAGA,EA
A,SAAK,SAAS,EAAC,CAAC,EAAA,wB,EAAC,CAAC,EAAA,gB,GAAC,IAAA,G,OAAA,F,EAAA,K,GAAA,I
gB,GAKX,OAHH,EAAA,EAAA,QAAA,oB,IAAA,pB,EAAA,S,QAAA,uC,IAAA,vB,EAAA,S,GAAA,G,QAAA,V,IAAA,vB,EAAA,S,GA
AG,OAChB,IAAM,0DACH,EAAI,EAAA,KAAA,EAAA,G,EAAU,GAAnB,MAAM,GAAQ,EAAG,EAAA,IAAA,C
AAC,OAAA,IAAlB,QAAA,MAAA;;ACCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,WAAA,EAlBP,IAAA,EAAA,QAAA,WCA,EAAA,QAAA,eAIA,EAAA,QAAA,sBAGA,EA
AA,SAAK,SAAS,EAAC,CAAC,EAAA,wB,EAAC,CAAC,EAAA,gB,GAAC,IAAA,G,OAAA,F,EAAA,K,GAAA,I
gB,GAKX,OAHH,EAAA,EAAA,QAAA,oB,IAAA,pB,EAAA,S,QAAA,uC,IAAA,vB,EAAA,S,GAAA,G,QAAA,V,IAAA,vB,EAAA,S,GA
AG,OAChB,IAAM,0DACH,EAAI,EAAA,KAAA,EAAA,G,EAAU,GAAnB,MAAM,GAAQ,EAAG,EAAA,IAAA,C
AAC,OAAA,IAAlB,QAAA,MAAA;;ACCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
A,CAAA,OAAA,IAAA,QAAA,WAAA,EAlBP,IAAA,EAAA,QAAA,WCA,EAAA,QAAA,eAIA,EAAA,QAAA,sBAGA,EA
A

AAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAxGP,SAAS,EACL,EAAAqB,EACrB,EAA0B,EAC1B,EAAAqC,GACtB,MAAb,IACF,EAAAY,CAAC,EAAAG,IAEH,MAAAX,IACF,EAAAU,GAEA,IAAAR,IACF,EAAAM,SAAGF,MAAAA,GAAAK,EAAAgB,EAAAA,iBAAAA,EAAAO,IAAAK,WAAAnC,IAAAA,EAAAA,SAAAA,EAAAA,SAAAA,EAAAA,GAAC/C,CAAAA,EAAAA,EAAAA,E

AAA,EAAA,QAAA,EAAA,GAAA,uBAAA,EAAA,EAGA,OAFA,EAAA,GAAA,EAAA,GACA,EAAA,GAAA,E
AAA,GACA,EAAA,GAAA,GAAA,EAAA,EAAA,EAAA,IAIA,EAAA,EAAA,EACA,EAAA,GAAA,EAAA,KAC
A,EAAA,GAAA,EAAA,KACA,EAAA,GAAA,EAAA,KACA,EAAA,IAAA,EAAA,GACA,EAAA,GAAA,IAAA,
EAAA,IAAA,GACA,EAAA,IAAA,EAAA,GACA,EAAA,GAAA,IAAA,EAAA,IAAA,GACA,EAAA,IAAA,EAA
A,GACA,EAAA,GAAA,IAAA,EAAA,IAAA,GACA,EAAA,KAGA,SAAA,EAAA,EAAA,GAKA,OAJA,EAAA,E
AAA,EAAA,EACA,EAAA,GAAA,EAAA,GACA,EAAA,GAAA,EAAA,GACA,EAAA,GAAA,EAAA,GACA,EA
GA,SAAA,EAAA,EAAA,GACA,IAAA,EAAA,IAAA,EAAA,GACA,EAAA,GAAA,EAAA,MACA,EAAA,EAAA
,KAUA,OATA,EAAA,MAAA,WAAA,OAAA,WAA,EAAA,OAAA,GACA,EAAA,OAAA,WACA,OAAA,IAA
A,wBAAA,QAAA,IAAA,IAEA,EAAA,MAAA,EACA,IACA,iBAAA,GAAA,EAAA,EAAA,GACA,EAAA,MAA
A,WAAA,OAAA,EAAA,EAAA,MAEA,EAyBA,GAAA,EAAA,QACA,EAAA,QAAA,EACA,GAAA,EAAA,IAC
A,EAAA,WAAA,OAAA,IAEA,KAAA,KAAA,EA7EA,CAiFA,EACA,iBAAA,QAAA,OACA,mBAAA,GAAA;;;
AC7BA,IAAA,GA9EA,SAAA,EAAA,EAAA,GAEA,SAAA,EAAA,GACA,IAAA,EAAA,KAAA,EAAA,GAEA,E
AAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EAGA,EAAA,KAAA,WACA,IAA
A,EAAA,EAAA,EAAA,EAAA,GAAA,GAIA,OAHA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EACA,
EAAA,EAAA,EAAA,EACA,EAAA,GAAA,EAAA,IAAA,GAAA,EAAA,IAAA,GAGA,KAAA,EAAA,GAEA,EA
AA,EAAA,EAGA,GAAA,EAIA,IAAA,IAAA,EAAA,EAAA,EAAA,EAAA,OAAA,GAAA,IACA,EAAA,GAAA,
EAAA,EAAA,WAAA,GACA,EAAA,OAIA,SAAA,EAAA,EAAA,GAKA,OAJA,EAAA,EAAA,EAAA,EACA,
EAAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EAGA,EAGA,KAAA,EAAA,
,GACA,IAAA,EAAA,IAAA,EAAA,GACA,EAAA,GAAA,EAAA,MACA,EAAA,WAAA,OAAA,EAAA,SAAA,G
AAA,YAeA,OAdA,EAAA,OAAA,WACA,GACA,IAEA,IAFA,EAAA,SAAA,KACA,EAAA,SAAA,GAAA,aACA
,GAAA,UACA,IAAA,GACA,OAAA,GAEA,EAAA,MAAA,EAAA,KACA,EAAA,MAAA,EACA,IACA,iBAAA,
GAAA,EAAA,EAAA,GACA,EAAA,MAAA,WAAA,OAAA,EAAA,EAAA,MAEA,EAGA,GAAA,EAAA,QACA,
EAAA,QAAA,EACA,GAAA,EAAA,IACA,EAAA,WAAA,OAAA,IAEA,KAAA,OAAA,EApEA,CAwEA,EACA,i
BAAA,QAAA,OACA,mBAAA,GAAA;;;ACSA,IAAA,GAnFA,SAAA,EAAA,EAAA,GAEA,SAAA,EAAA,GAC
A,IAAA,EAAA,KAAA,EAAA,GAGA,EAAA,KAAA,WACA,IAAA,EAAA,EAAA,EAAA,EAAA,IAAA,EAEA,O
ADA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EA
AA,GACA,EAAA,EAAA,EAAA,EAAA,OAAA,IACA,EAAA,EAAA,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA
,GAAA,GAAA,GAGA,EAAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EACA,EAAA,EAAA,EACA,E
AAA,EAAA,EAEA,KAAA,EAAA,GAEA,EAAA,EAAA,EAGA,GAAA,EAIA,IAAA,IAAA,EAAA,EAAA,EAAA
,EAAA,OAAA,GAAA,IACA,EAAA,GAAA,EAAA,EAAA,WAAA,GACA,GAAA,EAAA,SACA,EAAA,EAAA,E
AAA,GAAA,GAAA,EAAA,IAAA,GAEA,EAAA,OAIA,SAAA,EAAA,EAAA,GAAA,EAAA,EAAA,GAOA,OANA,EAAA,EAAA,EAAA,
A,EACA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,E
AAA,EACA,EAAA,EAAA,EAAA,EACA,EAGA,SAAA,EAAA,EAAA,GACA,IAAA,EAAA,IAAA,EAAA,GAC
A,EAAA,GAAA,EAAA,MACA,EAAA,WAAA,OAAA,EAAA,SAAA,GAAA,YAeA,OAdA,EAAA,OAAA,WAC
A,GACA,IAEA,IAFA,EAAA,SAAA,KACA,EAAA,SAAA,GAAA,aACA,GAAA,UACA,IAAA,GACA,OAAA,G
AEA,EAAA,MAAA,EAAA,KACA,EAAA,MAAA,EACA,IACA,iBAAA,GAAA,EAAA,EAAA,GACA,EAAA,M
AAA,WAAA,OAAA,EAAA,EAAA,MAEA,EAGA,GAAA,EAAA,QACA,EAAA,QAAA,EACA,GAAA,EAAA,IA
CA,EAAA,WAAA,OAAA,IAEA,KAAA,OAAA,EAAA,EAzEA,CA6EA,EACA,iBAAA,QAAA,OACA,mBAAA,GAAA;;
;ACeA,IAAA,GA5FA,SAAA,EAAA,EAAA,GAEA,SAAA,EAAA,GACA,IAAA,EAAA,KAAA,EAAA,GAGA,EAAA,KAAA,WA
AEA,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAQA,OAPA,EAAA,EAAA,GAAA,GAAA,GAA
A,IAAA,GAAA,GAAA,GACA,IAAA,EAAA,EAAA,EAAA,EAAA,IAAA,IAAA,GACA,IAAA,EAAA,EAAA,EA
AA,EAAA,IAAA,IAAA,EACA,IAAA,EAAA,EAAA,EAAA,EAAA,IAAA,GAAA,EACA,EAAA,EAAA,GAAA,GAA
A,IAAA,EAAA,EAAA,EAAA,EAAA,IAAA,GAAA,EACA,EAAA,EAAA,GAAA,EAAA,IAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,E

CAAA,EAAA,GAGA,SAAA,EAAA,EAAA,GAGA,OAFA,EAAA,EAAA,EAAA,EAAA,QACA,EAAA,EAAA,E
AAA,EACA,EAGA,SAAA,EAAA,EAAA,GACA,MAAA,IAAA,GAAA,IAAA,MACA,IAAA,EAAA,IAAA,EAA
A,GACA,EAAA,GAAA,EAAA,MACA,EAAA,WAAA,OAAA,EAAA,SAAA,GAAA,YAeA,OAdA,EAAA,OAA
A,WACA,GACA,IAEA,IAFA,EAAA,SAAA,KACA,EAAA,SAAA,GAAA,aACA,GAAA,UACA,IAAA,GACA,O
AAA,GAEA,EAAA,MAAA,EAAA,KACA,EAAA,MAAA,EACA,IACA,EAAA,GAAA,EAAA,EAAA,GACA,EA
AA,MAAA,WAAA,OAAA,EAAA,EAAA,MAEA,EAGA,GAAA,EAAA,QACA,EAAA,QAAA,EACA,GAAA,EA
AA,IACA,EAAA,WAAA,OAAA,IAEA,KAAA,UAAA,EAnFA,CAuFA,EACA,iBAAA,QAAA,OACA,mBAAA,G
AAA;;;ACoDA,IAAA,GAzHA,SAAA,EAAA,EAAA,GAEA,SAAA,EAAA,GACA,IAAA,EAAA,KAGA,EAAA,K
AAA,WACA,IACA,EAAA,EADA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,EAAA,EAcA,OAZA,EAA
A,EAAA,EAAA,EAAA,WAAA,EAEA,EAAA,EAAA,EAAA,GAAA,KACA,EAAA,EAAA,EAAA,EAAA,EAAA,
KACA,GAAA,GAAA,GACA,GAAA,GAAA,GACA,GAAA,IAAA,GACA,GAAA,IAAA,GAEA,EAAA,EAAA,G
AAA,EAAA,EACA,EAAA,EAAA,EAEA,GAAA,EAAA,IAAA,IAAA,GAGA,SAAA,EAAA,GACA,IAAA,EAAA
,EAAA,EAAA,EAAA,EAAA,EAAA,GAAA,EAAA,IAYA,IAXA,KAAA,EAAA,IAEA,EAAA,EACA,EAAA,OA
GA,GAAA,KACA,EAAA,EACA,EAAA,KAAA,IAAA,EAAA,EAAA,SAGA,EAAA,EAAA,GAAA,GAAA,EAAA
A,IAAA,EAEA,IAAA,GAAA,EAAA,YAAA,EAAA,IAAA,EAAA,SAEA,IAAA,IAAA,EAAA,GACA,GAAA,GA
AA,GACA,GAAA,IAAA,GACA,GAAA,GAAA,EACA,GAAA,IAAA,GACA,GAAA,IACA,EAAA,EAAA,WAA
A,EAEA,EAAA,IADA,EAAA,EAAA,IAAA,IAAA,EAAA,GACA,EAAA,EAAA,GAWA,IAPA,GAAA,MACA,E
AAA,KAAA,GAAA,EAAA,QAAA,KAAA,GAKA,EAAA,IACA,EAAA,IAAA,EAAA,IAAA,EACA,EAAA,EAAA
A,EAAA,GAAA,KACA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,KACA,GAAA,GAAA,GACA,GAAA,GAAA,GAC
A,GAAA,IAAA,GACA,GAAA,IAAA,GACA,EAAA,GAAA,EAAA,EAGA,EAAA,EAAA,EACA,EAAA,EAAA,
EACA,EAAA,EAAA,EAGA,CAAA,EAAA,GAGA,SAAA,EAAA,GAIA,OAHA,EAAA,EAAA,EAAA,EAAA,EA
CA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,QACA,EAGA,SAAA,EAAA,GACA,MAAA
A,IAAA,GAAA,IAAA,MACA,IAAA,EAAA,IAAA,EAAA,GACA,EAAA,GAAA,EAAA,MACA,EAAA,WAAA,
OAAA,EAAA,SAAA,GAAA,YAeA,OAdA,EAAA,OAAA,WACA,GACA,IAEA,IAFA,EAAA,SAAA,KACA,EA
AA,SAAA,GAAA,aACA,GAAA,UACA,IAAA,GACA,OAAA,GAEA,EAAA,MAAA,EAAA,KACA,EAAA,MAAA
A,EACA,IACA,EAAA,GAAA,EAAA,EAAA,GACA,EAAA,MAAA,WAAA,OAAA,EAAA,EAAA,MAEA,EAGA
,GAAA,EAAA,QACA,EAAA,QAAA,EACA,GAAA,EAAA,IACA,EAAA,WAAA,OAAA,IAEA,KAAA,QAAA,E
AjHA,CAqHA,EACA,iBAAA,QAAA,OACA,mBAAA,GAAA;;;ACzCA,IAAA,GAnGA,SAAA,EAAA,EAAA,GA
EA,SAAA,EAAA,GACA,IAAA,EAAA,KAAA,EAAA,WACA,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA
,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAQA,OAPA,EAAA,GAAA,GAAA,IAAA,IAAA,EAAA,
EACA,EAAA,EAAA,EAAA,EACA,EAAA,GAAA,GAAA,IAAA,GAAA,EAAA,EAAA,EAAA,EACA,EAAA
A,EAAA,EAAA,GAAA,GAAA,IAAA,GAAA,EACA,EAAA,EAAA,EAAA,EAAA,EAAA,GAmBA,EAAA,EAAA,EACA,EAAA
,EACA,EAAA,EAAA,EAAA,WACA,EAAA,KAAA,IAEA,KAAA,EAAA,EAAA,WAEA,IAAA,KAAA,MAAA,IAEA,EAAA
,WAA,EACA,EAAA,EAAA,GAGA,IAAA,EAAA,EAIA,IAAA,EAAA,GACA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAA

CAAA,SAAA,GAAA,GAAA,IAIA,QAAA,CAAA,EAAA,EAAA,IACA,MAAA,EA+IA,WACA,IACA,IAAA,EA
QA,OAPA,IAAA,EAAA,EAAA,aAEA,EAAA,EAAA,IAEA,EAAA,IAAA,WAAA,IACA,EAAA,QAAA,EAAA,U
AAA,gBAAA,IAEA,EAAA,GACA,MAAA,GACA,IAAA,EAAA,EAAA,UACA,EAAA,GAAA,EAAA,QACA,M
AAA,EAAA,IAAA,KAAA,EAAA,EAAA,EAAA,OAAA,EAAA,KA7JA,GAAA,EAAA,GAAA,GAGA,EAAA,IA
AA,EAAA,GAIA,EAAA,WAIA,IAHA,IAAA,EAAA,EAAA,EAAA,GACA,EAAA,EACA,EAAA,EACA,EAAA,
GACA,GAAA,EAAA,GAAA,EACA,GAAA,EACA,EAAA,EAAA,EAAA,GAEA,KAAA,GAAA,GACA,GAAA,E
ACA,GAAA,EACA,KAAA,EAEA,OAAA,EAAA,GAAA,GAWA,OARA,EAAA,MAAA,WAAA,OAAA,EAAA,E
AAA,EAAA,IACA,EAAA,MAAA,WAAA,OAAA,EAAA,EAAA,GAAA,YACA,EAAA,OAAA,EAGA,EAAA,EA
AA,EAAA,GAAA,IAGA,EAAA,MAAA,GACA,SAAA,EAAA,EAAA,EAAA,GAUA,OATA,IAEA,EAAA,GAAA
,EAAA,EAAA,GAEA,EAAA,MAAA,WAAA,OAAA,EAAA,EAAA,MAKA,GAAA,EAAA,GAAA,EAAA,GAIA,
IAEA,EACA,EACA,WAAA,EAAA,EAAA,OAAA,MAAA,EACA,EAAA,OAcA,SAAA,EAAA,GACA,IAAA,EA
AA,EAAA,EAAA,OACA,EAAA,KAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAA
A,EAAA,GAMA,IAHA,IAAA,EAAA,CAAA,MAGA,EAAA,GACA,EAAA,GAAA,IAEA,IAAA,EAAA,EAAA,E
AAA,EAAA,IACA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,IAAA,EAAA,EAAA,KACA,EAA
A,GAAA,GAIA,EAAA,EAAA,SAAA,GAIA,IAFA,IAAA,EAAA,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,EA
AA,EAAA,EAAA,EAAA,EACA,KACA,EAAA,EAAA,EAAA,EAAA,EAAA,GACA,EAAA,EAAA,EAAA,EAA
A,GAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,KAAA,EAAA,GAAA,IAGA,OADA,EAAA,EAAA,EAAA,
EAAA,EAAA,EACA,IAIA,GAOA,SAAA,EAAA,GAIA,OAHA,EAAA,EAAA,EAAA,EAAA,EACA,EAAA,EAAA,EA
A,EAAA,EACA,EAAA,EAAA,EAAA,EAAA,QACA,EAsBA,SAAA,EAAA,EAAA,GAEA,IADA,IAAA,EAAA,E
AAA,EAAA,GAAA,EAAA,EACA,EAAA,EAAA,QACA,EAAA,EAAA,GACA,GAAA,GAAA,GAAA,EAAA,EA
AA,IAAA,EAAA,WAA,KAEA,OAAA,EAAA,GA8BA,SAAA,EAAA,GACA,OAAA,OAAA,aAAA,MAAA,EA
AA,GAgBA,GAhIA,EAAA,OAAA,GAAA,EA0HA,EAAA,EAAA,SAAA,GAMA,iBAAA,QAAA,OAAA,QAAA,
CACA,OAAA,QAAA,EAEA,IACA,EAAA,QAAA,UACA,MAAA,SACA,mBAAA,GAAA,EAAA,KACA,EAAA,
WAAA,OAAA,IAvNA,CA4NA,GACA;;ACzOA,IAAA,EAAA,QAAA,cAKA,EAAA,QAAA,gBAKA,EAAA,
AA,gBAQA,EAAA,QAAA,mBASA,EAAA,QAAA,iBAOA,EAAA,QAAA,gBAIA,EAAA,QAAA,gBAEA,EAAA,
KAAA,EACA,EAAA,OAAA,EACA,EAAA,OAAA,EACA,EAAA,UAAA,EACA,EAAA,QAAA,EACA,EAAA,O
AAA,EAEA,OAAA,QAAA;;ACoOC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,IAAA,QAAA,wBAAA,
EAAA,QAAA,0BAAA,EAAA,QAAA,cAAA,QAAA,UAAA,QAAA,iBAAA,EA9QD,IAAA,EAAA,EAAA,QAAA
,eAEA,EAAA,QAAA,gBA4QC,SAAA,IAAA,IAAA,GAAA,mBAAA,QAAA,QAAA,KAAA,KAAA,IAAA,KAAA,
,IAAA,EAAA,IAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GA
AA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OA
AA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,IAAA,EAAA,GAAA,IAA
A,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,GAAA,EAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,IAAA,EAAA,
QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAtPK,MAAO,EAUX,YACI,EAAc,EAAsB,EACpC,GAAqB,
GAClB,KAAA,KAAA,KAAO,EACP,KAAA,OAAS,EACT,KAAA,MAAQ,EACR,KAAA,QAAU,IACV,KAAA,UAAY,E
ACb,KAAK,YACF,KAAA,MAAQ,KAAK,KAAqB,EAAd,KAAK,OACzB,KAAA,MAAQ,KAAK,KAAqB,EAAd,
KAAK,QAE1B,MAAA,EAAY,GAAc,KAAK,SAChC,KAAA,OAAS,EAAW,KAAK,EAAU,YAInC,YACD,
MAAM,KAAK,SAAU,CAClB,MAAA,EAAQ,KAAK,QAEZ,OADF,KAAA,QAAU,IACR,EAGL,IAAA,EAAiB,E
ACjB,GAAU,EACP,MAAC,GAAS,CACX,IAAA,EAAY,EAAY,EACzB,GAGD,GAFA,EAAK,EAAI,KAAK,SA
AW,GAEhB,GADT,EAAK,EAAI,KAAK,SAAW,GACN,QACZ,QAAE,GAAK,EAAK,GAAK,IAAA,EAAM,MA
AK,MAAM,EAAM,KAAK,IAAI,GAAK,OAAK,EAAK,EAAK,EAAK,EAAK,EAAK,EAAK,EAAK,EAAK,
KAAK,KAAO,KAAK,OAAS,EAAK,KAAK,EAAK,KAAK,EAAK,KAAK,EAAK,KAAK,EAAK,KAAK,
KAAK,KAAO,KAAK,OAAS,EAAK,KAAK,EAAK,KAAK,iBAAiB,KAC3C,GAAU,GAAO,OAHF,KAAK,Y
AAa,KAAK,iBAAiB,KACtC,QAAU,KAAK,aAAa,IAE5B,GAAI,GAAI,GAAI

AA,EADH,EAAQ,EACD,EAAS,EAAI,EAEb,EAAS,EAAI,EAEnB,KAAA,EAAI,EAAI,KAAK,KAAK,EAAI,KAAK,GAI3B,YACD,IAAA,EAAY,EAAY,EAAY,EAAW,EAAW,EACvD,OAAM,CACR,GACD,EAAI,KAAK,MAAM,YACf,EAAI,EAAK,KAAK,EAAI,QACX,GAAK,GAMV,GALJ,EAAI,GAET,EAAK,EAAK,MADV,EAAK,EAAI,GACc,EACvB,EAAM,GAAM,EAAO,KAAK,GAAK,EAAI,EAAI,KAAK,IAAI,KAC9C9C,EAAI,KAAK,SACD,GAAM,KAAK,IAAI,GAAK,EAC1B1B,OAJP,EAAK,EAAI,KAAK,EAAK,KAAQ,EAAI,KAAQ,EAAK,KAAK,EAAI,KAAK,EAAI,EAC3B3B,KAAK,KAAK,KAAK

,EAAjB,KAAuB,GAGzB,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,KAAA;;ACHA,aA
AA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,EA3BP,IAAA,EAAA,QAAA,aACA,EAA
A,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAcA,SAAS,EAA8B,GAC/B,MAEA,EAA2B,CAAC,G
AFvB,EAAgB,EAAA,iBAAA,EAAG,IAAK,eAG5B,OAAA,EAAO,OAAA,UAAU,EAAjB,WA6B,GAE/B,MAAA
M,GAAa,EAAG,EAAA,IAAA,CAAC,YAAA,IAAvB,QAAA,WAA;;ACGA,aAAA,OAAA,eAAA,QAAA,aAAA
,CAAA,OAAA,IAAA,QAAA,UAAA,EA9BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAeA,S
AAS,EAAwB,GACzB,MAEA,EAAsB,CAAC,GAFlB,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAI5B,OAAA,EAAO
,OAAA,UAAU,EAAjB,MAAwB,GAG1B,MAAM,GAAQ,EAAG,EAAA,IAAA,CAAC,OAAA,IAAlB,QAAA,MA
A;;ACsBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EApDP,IAAA,EAAA,QAAA,aA
A,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAiCA,SAAS,EACL,EAAiB,GACjB,MAEA,
EAAwB,CAAC,GAFpB,EAAgB,EAAA,iBAAA,EAAG,IAAK,YAG7B,EAAsB,CAAC,KAAM,GAE5B,OAAA,
EAAO,OAAA,UACV,EADG,QACM,EAAgC,GAAxC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IAAA
B,QAAA,QAAA;;AChCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAAnP,IAAA
,EAAA,QAAA,sBAAA,EAAA,QAAA,YACA,EAAA,QAAA,eACA,EAAA,QAAA,aAAe,GAAA,eAAA,EAAA,SAAA
AA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IA
AA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAA
A,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAA
A,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA
,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,G
AAA,EARP,SAAS,EAAW,GACZ,MAAA,GAAK,KAAA,EAAA,iBAAA,EAAG,IAAK,WI5B,OAHP,EAAK,O
ACW,IAAZ,EAAG,KACH,yDAA2D,EAAG,UAC3D,EAAQ,EAAA,SAAA,EAAI,GAGd,MAAM,GAAY,EAAG,
EAAA,IAAA,CAAC,WAAA,IAAtB,QAAA,UAAA;;ACEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,I
AAA,QAAA,eAAA,EArBP,IAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,YACA,EAAA,QAAA,eACA,EAAA,QAAA,aAAe,GAAA,eAAA,EAAA,SAAA
AA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IA
AA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OA
A,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,C

BP,IAAA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YACA,EAAA,QAAA,eACA,EAAA,QAAA,aAiBO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EARP,SAAS,EAAW,EAAwB,GACpC,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAA,GAAG,IAAK,WI5B,OAHP,EAAK,OACW,IAAA,EAAA,KAAA,CH,yDAAA,EAAA,GAAA,UAAC,3D,EAAA,Q,EAAA,GAAA,S,EAAA,I,EAAA,G,EAAA,Y,EAAA,G,EAAA,Q

AA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WA
AA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,
EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,
EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,
GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IA
AA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAtCP,eAAe,EACX,EAAsB,GAClB,MAA
A,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAC7B,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,aAEnC,EA
AK,OACD,EAAG,QAAU,EAAG,MAChB,sDACI,EAAG,iBAAiB,EAAG,WAE/B,EAAK,OACW,IAAZ,EAAG,K
AAY,yCAA2C,EAAG,WAEjE,EAAK,OACW,IAAZ,EAAG,KAAY,yCAA2C,EAAG,WAE3D,MAAA,QAAc,EA
AG,OACjB,QAAc,EAAG,OACjB,EAAO,IAAI,IAAI,GAEjB,IAAA,EAAa,EACZ,IAAA,IAAI,EAAI,EAAG,EAAI
,EAAM,OAAQ,IAC3B,EAAK,IAAI,EAAM,KAClB,IAIE,MAAA,EAAS,IAAI,EAAJ,aAAiB,CAAC,GAAa,EAA
G,OAC3C,EAAU,IAAI,EAAJ,aAAiB,CAAC,GAAa,SAC1C,IAAA,IAAI,EAAI,EAAG,EAAI,EAAG,EAAI,EAA
M,OAAQ,IAClC,EAAK,IAAI,EAAM,MAClB,EAAO,OAAO,GAAK,EAAM,GACzB,EAAQ,OAAO,GAAK,EAC
pB,KAGG,MAAA,CAAC,EAAO,WAAY,EAAQ,YAE9B,MAAM,EAAiB,EAAvB,QAAA,eAAA;;AC7CA,aAAA,
OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA1BP,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,IAAA,EAA
AA,mBAGA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAcA,SAAS,EAAwB,GACzB,MACA,EAAqB,CAAC,GADjB
,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAE5B,OAAA,EAAO,OAAA,UAAU,EAAjB,KAAuB,GAEzB,MAAM,GA
AO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,KAAA;;ACEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,CAA
A,OAAA,IAAA,QAAA,SAAA,EA5BP,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,mBAGA,EAAA,QAAA,sBAG
A,EAAA,QAAA,eAcA,SAAS,EAAuB,GACxB,MAEA,EAAoB,CAAC,GAFhB,EAAe,EAAA,iBAAA,EAAG,IAAK,QAI5B,OAAA,EAAO,OAAA,UAAU,EAAjB,KAAuB,IAAI,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,IAAA,IAAhB;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA3BP,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,IAAA,EAAA,QAAA,aAAA,CAAC,EAAO,mBAGA,EAAA,QAAA,sBAG
A,EAAA,QAAA,eAcA,SAAS,EAAwB,GACzB,MACA,EAAqB,CAAC,GADjB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAE5B,OAAA,EAAO,OAAA,UAAU,EAAjB,KAAuB,GAEzB,MAAM,GA
AO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,KAAA;;ACE

GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA
,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,I
AAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OA
AA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CA
AA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAA
A,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,
GAAA,EAVP,SAAS,EACL,EAAwB,EACxB,GACI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,WK5
B,OAJP,EAAK,OACW,IAAZ,EAAG,KCH,uDACuD,EAAG,gBACvD,EAAM,EAAA,OAAA,EAAI,EAAO,GA
EnB,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IApB,QAAA,QAA;;ACAA,aAAA,OAAA,eAAA,QA
AA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EArBP,IAAA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAE
A,EAAA,QAAA,eACA,EAAA,QAAA,WAgBO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EA
AA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WA
AA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,
EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,
EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,
GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IA
AA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAVP,SAAS,EACL,EAAwB,EACxB,GA
CI,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAG,IAAK,WK5B,OAJP,EAAK,OACW,IAAZ,EAAG,KCH,uDA
CuD,EAAG,gBACvD,EAAM,EAAA,OAAA,EAAI,EAAO,GAEnB,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,S
AAA,IApB,QAAA,QA;;AC4BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EA
AlDP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAuBA,SAAS,E
AA2B,EAAsB,GAAM,CAAC,MAAA,GAAU,EAAgB,EAAA,iBAAA,EAAA,EAAQ,SAAU,UAAW,WAKzD,IAHS,IA
AT,IACF,EAAM,EAAQ,KAAO,GAEnB,IAAQ,EAAQ,KAAO,EACnB,MAAA,MACF,+EACmB,EAAQ,oBAAoB
,KAG/C,MAAA,EAAwB,CAAC,OAAQ,GACjC,EAAsB,CAAC,IAAA,GAEtB,OAAA,EAAO,OAAA,UACV,EA
DG,QACM,EAAgC,GAGxC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IApB,QAAA,QA;;ACfA,a
AAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAnCP,IAAA,EAAA,QAAA,gBACA,CA
AA,QAAA,sBAGA,EAAA,QAAA,eAAA,QAAA,gBAmBA,SAAS,EAAM,IAET,EAAQ,SAAU,UAAW,WAKzD,IAHS,IA
AT,IACF,EAAM,EAAQ,KAAO,EACnB,MAAA,MACF,+EACmB,EAAQ,oBAAoB
,KAAuB,GAAzC,MAAA,EAAwB,CAAC,OAAQ,GACjC,EAAsB,CAAC,IAAA,GAEtB,OAAA,EAAO,OAAA,UACV,EA
DG,QACM,EAAgC,GAGxC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IApB,QAAA,QA;;ACiCA,a
AAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,W

GF,MAAM,GAAQ,EAAG,EAAA,IAAA,CAAC,OAAA,IAAlB,QAAA,MAAA;;ACZA,aAAA,OAAA,eAAA,QA
AA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EAzDP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAA
A,QAAA,sBAGA,EAAA,QAAA,eAqCA,SAAS,EACL,EAAsB,EAAkC,EAAO,GAC3D,MAEA,EAAuB,CAAC,G
AFnB,EAAgB,EAAA,iBAAA,EAAG,IAAK,UAG7B,EAAoB,CAAC,gBAAA,EAAiB,KAAA,GAErC,OAAA,EA
AO,OAAA,UACH,EADJ,OACY,EACR,GAGN,MAAM,GAAQ,EAAG,EAAA,IAAA,CAAC,OAAA,IAAlB,QAA
A,MAAA;;ACyBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAhFP,IAAA,EAAA
A,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,aACA,EAAA,QAAA,WACA,EAAA,QAAA,gBACA,EAAA
,QAAA,WACA,EAAA,QAAA,cACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,
QAAA,iBAEA,EAAA,QAAA,SAiBA,SAAS,EAAM,EAAe,IExB,EAAA,EAAA,QAAgB,YAAhB,EAAM,MAC
N,uDAAyD,EAAM,SAE/D,IAAA,EAAqB,EAAM,MAAM,EAAM,MAAM,OAAS,GACpD,MAAA,EAAQ,EAA
M,KAAO,EAEvB,IAAA,EACA,GAAa,MAAb,GAAqB,EAAY,EAAoB,CAEjD,MAAA,EAAQ,EAAM,MAAM,IA
AI,GAAK,GAC7B,EAAO,EAAM,MAAM,IAAI,GAAK,GAClC,EAAK,EAAM,MAAM,OAAS,GAAK,EAC/B,G
AgB,EAAM,EAAA,OAAA,EAAO,EAAO,GACpC,EAAqB,OAChB,GAAA,EAAiB,MAAb,GAAqB,EAAY,EAAoB,CA
ExD,MAAA,EAAa,EAAM,MAAM,IAAI,GAAK,GACxC,EAAW,EAAM,MAAM,OAAS,GAAK,EACjD,
GAAgB,EAAO,EAAA,QAAA,CAAC,GAAO,EAAM,EAAA,OAAA,IAAc,EAAM,MAAM,OAAS,GAAS,E,Aq
B,OAErB,EAAgB,EAAI,Z,MAAA,GAAa,EAAU,EAAA,WAAA,GAAc,EAAU,EAAA,UAAA,EAAa,EAAQ,
A,SAAA,EAAe,EAAa,CAAC,EAAO,IAAlD,GAAM,EAAI,EAAA,KAAA,GAAV,EAAO,KAAK,MAAM,EAAqB
,GAAK,EAC5C,GAAa,EAAK,EAAA,MAAA,GAAC,lB,GAAa,EAAK,EAAA,MAAA,GAAC,lB,GAAuB,EAAzB,
AA,OAAA,EAAY,CAAC,EAAM,EAAqB,GAAC,xC,EAAW,MAAM,OAAS,GAAC,xB,GAAuB,EAAzB,EAAA,OAA
A,EAAY,CAAC,EAAM,EAAqB,GAAC,xC,EAAW,MAAM,OAAS,GAAE,xB,EAAc,EAAM,MAAM,QAGjC,O,FP,E
AAY,EAAc,MAAM,OAAS,GAAK,GAEvC,EAAO,EAAA,QAAA,CAAC,EAAM,EAAA,SAAA,EAAA,EAAA,QAAA,GAAA,I,GAAA,EAAA,
AAK,GAG1D,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAA,jB,QAAA,EAAA,KAAA,;;ACrDA,aAAA,OAAA,eA,
eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA5EP,EA5BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,aACA,EAAA,QAAA,WACA,EAAA,QAAA,gBACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,iBAEA,EAAA,QAAA,SAiBA,SAAS,EAAM,EAAe,IExB,EAAA,EAAA,QAAgB,YAAhB,EAAM,MAC
N,uDAAyD,EAAM,SAE/D,IAAA,EAAqB,EAAM,MAAM,EAAM,MAAM,OAAS,GACpD,MAAA,EAAQ,EAA
M,KAAO,EAEvB,IAAA,EACA,GAAa,MAAb,GAAqB,EAAY,EAAoB,CAEjD,MAAA,EAAQ,EAAM,MAAM,IA
AI,GAAK,GAC7B,EAAO,EAAM,MAAM,IAAI,GAAK,GAClC,EAAK,EAAM,MAAM,OAAS,GAAK,EAC/B,G
AgB,EAAM,EAAA,OAAA,EAAO,EAAO,GACpC,EAAqB,OAChB,GAAA,EAAiB,MAAb,GAAqB,EAAY,EAAoB,CA
ExD,MAAA,EAAa,EAAM,MAAM,IAAI,GAAK,GACxC,EAAW,EAAM,MAAM,OAAS,GAAK,EACjD,
GAAgB,EAAO,EAAA,QAAA,CAAC,GAAO,EAAM,EAAA,OAAA,IAAc,EAAM,MAAM,OAAS,GAAS,E,Aq
B,OAErB,EAAgB,EAAI,Z,MAAA,GAAa,EAAU,EAAA,WAAA,GAAc,EAAU,EAAA,UAAA,EAAa,EAAQ,
A,SAAA,EAAe,EAAa,CAAC,EAAO,IAAlD,GAAM,EAAI,EAAA,KAAA,GAAV,EAAO,KAAK,MAAM,EAAqB
,GAAK,EAC5C,GAAa,EAAK,EAAA,MAAA,GAAC,lB,GAAa,EAAK,EAAA,MAAA,GAAC,lB,GAAuB,EAAzB,
AA,OAAA,EAAY,CAAC,EAAM,EAAqB,GAAC,xC,EAAW,MAAM,OAAS,GAAC,xB,GAAuB,EAAzB,EAAA,OA
A,EAAY,CAAC,EAAM,EAAqB,GAAC,xC,EAAW,MAAM,OAAS,GAAE,xB,EAAc,EAAM,MAAM,QAGjC,O,FP,E
AAY,EAAc,MAAM,OAAS,GAAK,GAEvC,EAAO,EAAA,QAAA,CAAC,EAAM,EAAA,SAAA,EAAA,EAAA,QAAA,GAAA,I,GAAA,EAAA,
AAK,GAG1D,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAA,jB,QAAA,EAAA,KAAA,;;ACrDA,aAAA,OAAA,eA,
eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EA5EP,EA5BP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,aACA,EAAA,QAAA,WACA,EAAA,QAAA,gBACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,iBAEA,EAAA,QAAA,SiBAE

AAA,OAAA,IAAA,QAAA,UAAA,EAhCP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eAeA,SAAS,EAAwB,EAAiB,EAAQ,GAClD,MAEA,EAAqB,CAAC,GAFjB,EAAgB,EAAA,iBAAA,EAAG,IAAK,SAG7B,EAAmB,CAAC,MAAA,GAEnB,OAAA,EAAO,OAAA,UACV,EADG,KACG,EAAgC,GAErC,MAAM,GAAO,EAAG,EAAA,IAAA,CAAC,MAAA,IAAjB,QAAA,KAAA;;ACkCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,aAAA,OAAA,IAAA,QAAA,kBAAA,EAAA,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAAA,GAAA,EAAA,QAAA,eAAA,mCAAA,SAAA,EAAA,CAAA,EAAA,QAAA,EAAA,EAAA,E

AI,EAAI,EAAG,EAAI,EAAI,OAAO,OAAQ,IACrC,EAAI,OAAO,GAAK,EAAU,YAErB,OAAA,EAAI,WAGN,MAAM,GAAkB,EAAG,EAAA,IAAA,CAAC,iBAAA,IAA5B,QAAA,gBAAA;;AC+BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,EAAzEP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAAE,EAAA,QAAA,WAAE,EAAA,QAAA,eAAmDA,SAAS,EACL,EAAAiB,EAAO,GACpB,MAAA,GAAA,KAAE,EAAAgB,EAAA,EAAA,iBAAA,EAAA,IAAG,EAAA,SAAU,sBACtC,EAAA,EAAA,QAAA,EAAG,GAAO,EAAG,GAAA,IAAM,wCAAA,EAAA,MAAA,EAAA,uBAAA,CAAA,EAAA,GAAA,GAAC,3BAAA,EAAA,QAAA,EAAA,OAAA,EAAA,UAAA,CAAA,EAAA,OAAA,EAAA,GAAA,CAAA,EAAA,OAAA,EAAA,EAAA,QAAA,GAAA,MAAA,GAAA,EAAA,EAAA,IAAA,CAAA,EAAA,IAAA,QAAA,IAAA,EAAA,OAAA;;AC7BA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,EAAA,wBAAA,QAAA,IAAA,EAAA,EAAA,QAAA,aAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,WAAA,EAAA,Q

b,IAAA,IAAI,EAAI,EAAU,EAAI,EAAW,EAAS,IAC7C,GAAe,EAAY,GAEvB,MAAA,EACF,EAAY,MAAM,EA
AG,GAChB,OAAO,CAAC,GAAc,EAAY,MAAM,EAAW,IACtD,GAAiB,EAAQ,EAAA,SAAA,EAAS,GAClC,G
AAe,EAAQ,EAAA,SAAA,EAAO,EAAE,IAChC,QAA0B,EAAW,EAAA,YAAA,GACrC,GAAU,EAAQ,EAAA,S
AAA,EAAmB,CAAC,IAEtC,GAAM,EAAO,EAAA,QAAA,EAAgB,EAAS,GAcrC,OAXH,IAAW,GACb,U
AEN,IAAS,GACX,EAAM,UAER,EAAQ,UACR,EAAe,UACf,EAAa,UACb,EAAkB,UAEX,EAGF,MAAM,EAA
mB,EAAzB,QAAA,iBAAA;;ACkDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,E
AzHP,IAAA,EAAA,QAAA,sBAEA,EAAA,QAAA,WAEA,EAAA,QAAA,SACA,EAAA,EAAA,QAAA,gBACA,E
AAA,QAAA,SACA,EAAA,QAAA,SACA,EAAA,QAAA,eACA,EAAA,QAAA,SACA,EAAA,QAAA,aACA,EAA
A,QAAA,YACA,EAAA,QAAA,UACA,EAAA,QAAA,YACA,EAAA,QAAA,SA2GO,SAAA,IAAA,GAAA,mBA
AA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAA
A,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,
OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,O
AAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EA
AA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EA
AA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAnE
P,SAAS,EAAC,EAAsB,EAAgC,YAAtD,EAAwB,KAAA,GAAW,GAAG,MAAA,EAAO,EAAb,GAAI,EAAgB,E
AAA,iBAAA,EAAG,IAAK,QAAH,EAAK,GAAC,1B,IAAA,EAAA,gBAAA,EAAK,MAAC,rB,GAAA,EAAU,CAAN,MAAA,
GAAO,EAAe,EAAA,gBAAA,EAAA,EAAA,OAAC,pC,EAAA,gBAAA,EAAA,U,qBAAA,qB,EAAA,K,MAAA,O,GAAA,EtD,OAAA,EA
AQ,EAAA,SAAA,EAAA,GAAM,GAAG,vB,SAAS,EAAC,L,EAAA,W,EAAA,kB,EAAA,wB,MAAA,nD,GAAA,W,IAAA,X,EAAA,E,KAAC,G,
OAAA,EAAI,EAAA,KAAA,GAAI,T,GAAA,W,IAAA,X,EAAA,E,MAAA,uB,OAAA,T,EAAC,X,OAAA,E,GAAA,S,EAAA,Q,EAAA,S,A
AA,EAAG,EAAA,E,IAAA,K,EAAA,G,GAAA,I,nC,GAAA,W,IAAA,X,EAAA,E,MAAA,8B,iBAAA,T,GAAC,vB,MAAA,M,QAAA,Q,IAAA,y,B,I
AAhB,EAAA,K,OAAA,c,CAAC,xC,GAAA,M,IAAA,N,EAAA,C,K,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAAA,A,GAAA,I,GA
EjB,GAAA,A,IAAA,M,EAAA,A,EAAA,C,D,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAAA,A,GAAA,I,GAEjB,GAAA,A,KAAA,O
,EAAA,A,EAAC,F,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAAA,A,GAAA,I,GAEjB,GAAA,M,cAAA,N,GA2B,IAAA,N,E
AEhB,OAAA,EAAA,K,EAAA,A,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAAA,A,IAAA,I,EAA
O,EAAA,A,QAAA,A,EAAA,G,UAAA,W,IAAA,G7C,MAAA,A,IAAA,I,2CAA2C,KAAA,InD,GAAA,A,MAAA,M,QAAA,Q,IAAA,yB,IAAA,hB,E
AAK,OAAA,c,CAAC,xC,GAAA,M,IAAA,N,EAAA,C,K,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAA
A,GAAA,I,EAAA,K,IAAA,K,EAAA,K,GAAA,K,GAAA,zC,GAAA,A,IAAA,M,EAAA,A,EAAA,C,D,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,E
AAA,MAAA,A,EAAA,I,EAAA,A,KAAA,A,GAAA,I,EAAA,K,IAAA,K,EAAA,K,IAAA,pC,GAAA,A,KAAA,O,EAAA,A,EAAC,F,OAAA,A,EAAA,I
,EAAA,A,MAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,I,EAAA,A,KAAA,A,GAAA,I,EAAA,K,IAAA,K,EAAA,K,IAAA,pC,GAAA,M,QAAA,N,G
AAqB,cAAA,N,EAAA,E,V,OAAA,A,EAAA,K,EAAA,A,OAAA,A,EAAA,I,EAAA,A,MAAA,A,EAAA,O,EAAA,A,QAAA,A,GAAA,I,IAAA,vB,MA
AA,IAAA,I,2CAA2C,KAAA,jD,MAAA,A,IAAA,I,sCAAsC,KAAA,3C,MAAA,M,GAAA,O,EAAA,G,EAAA,A,IAAA,M,EAAA,K,IAAA,
AAjB,QAAA,KAAA;;ACxDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,mB,EAAA,jE,P,
IAAA,EAAA,QAAA,kBAEA,EAAA,QAAA,sBAEA,EAAA,QAAA,YAEA,EAAA,QAAA,SACA,EAAA,QAAA,
QAAA,SACA,EAAA,QAAA,SACA,EAAA,QAAA,eACA,EAAA,QAAA,SACA,EAAA,QAAA,YACA,EAAA,Q
AAA,SAsDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,W
AAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IA
AA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAA
A,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eA
A,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,OAA
A,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,
GAAA,EAAA,IAAA,EAAA,GAAA,EAxBP,SAAS,EAAC,L,EAAA,W,EAAA,kB,EAAA,wB,MAAA,nD,GAAA,W,IAAA,X,EAAA,E,KAAC,G,
iBAAA,T,GAAC,vB,MAAA,M,QAAA,Q,IAAA,y,B,IAAA

AErC,OAAA,EAAI,EAAA,KAAA,EAAI,GAGV,MAAM,GAAgB,EAAG,EAAA,IAAA,CAAC,eAAA,IA1B,QA
AA,cAAA;;ACpBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EA9CP,IAAA,EAA
A,QAAA,aACA,EAAA,QAAA,mBAIA,EAAA,QAAA,sBAGA,EAAA,QAAA,eACA,EAAA,EAAA,QAAA,sBAq
CO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OA
AA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAA
A,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,
IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,
EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,K
AAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EA
AA,IAAA,EAAA,GAAA,EAhBP,SAAS,EACL,EAA4B,EAC5B,GACI,MAAA,GAAW,EAAgB,EAAA,iBAAA,E
AAS,UAAW,YAAa,SAC5D,GAAW,EAAgB,EAAA,iBAAA,EAAS,UAAW,aACrD,EAAgB,cAAc,EAAU,EAAU,
GAE5C,MAAA,EA A0B,CAAC,QAAS,EAAU,QAAS,GACvD,EAAwB,CAAC,MAAA,GAGxB,OAAA,EAAO,O
AAA,UACH,EADJ,UACe,EACX,GAGN,MAAM,GAAY,EAAG,EAAA,IAAA,CAAC,WAAA,IAAtB,QAAA,UA
AA;;ACEN,aAlCK,SAAU,EACZ,EAAuB,EAAsB,EAC7C,GACE,GAAwB,UAAxB,EAAc,MACV,MAAA,IAAI,
MACN,iFACsB,EAAc,UAEtC,GAAA,EAAc,KAAO,EACjB,MAAA,IAAI,MACN,yEACkB,EAAc,UAGhC,MAA
A,EAAW,EAAc,KAAO,EAAI,EAAc,MAAM,GAAK,EAC7D,EAAU,EAAc,KAAO,EAAI,EAAc,MAAM,GAAK,
EAE9D,GAAA,EAAY,SAAW,EACnB,MAAA,IAAI,MACN,qDACI,EAAY,sBAAsB,MAGtC,MAAA,EAAY,EA
Aa,KAC3B,GAAwB,IAAtB,EAAa,OACS,IAAtB,EAAa,MAAc,IAAc,GACvC,MAAA,IAAI,MACN,uCACG,EAA
a,2BAA2B,MAG7C,GAAA,EAAa,QAAU,EAAc,MACjC,MAAA,IAAI,MAAM,qDAEnB,OAAA,eAAA,QAAA,a
AAA,CAAA,OAAA,IAAA,QAAA,cAAA;;AC2BM,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QA
AA,mBAAA,EA3EP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAEA,EAAA,EAAA,QAAA,gCAGA,EAAA,QAAA,sBAAA,EAAA,
QAAA,sBAGA,EAAA,QAAA,eAkEO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,
QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA
,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GA
AA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GA
AA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KA
AA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA
,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA1BP,SAAS,EACL,EAAkC,EAClC,EAA0B,EAAA k
C,GACxD,MAAA,GACF,EAAgB,EAAA,iBAAA,gBAAA,iBAAA,SAC/D,SAAC,EAAgB,EAAA,iBAAA
,EAAc,eAAgB,iBAC5C,GAAgB,EAClB,EAA0B,EAAA,iBAAA,EAAc,eAAgB,gBAAA iB,EAAc,OAEjE,EAAgB,cAAc,EA
AgB,EAAe,EAAa,GAE1C,MAAA,EAA8B,CAClC,cAAe,cAAe,GAAA,GAAA,EAA4B,CAAC,YAAA
,GAE5D,OAAA,EAAO,OAAA,UACV,EADG,cACY,EACf,GAGC,MAAM,GAAgB,EAAG,EAAA,IAAA,CAAC,YAAA,IAAA,E
AvDP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAEA,EAAA,QAAA,eAAA,CA,SAAS,
EAAU,EAAsB,GACjC,MAAA,GAAW,EAAgB,EAAA,iBAAA,EAAS,UAAW,WAAY,SAAG3D,EAAgB,yB,CAAC,Q
AFrB,EAAgB,EAAA,iBAAA,EAAG,IAAK,YAES,QAAS,GAE9C,OAAA,EAAO,OAAA,UAAU,EAAjB,jB,SAA2B,
GAG7B,MAAM,GAAW,EAAG,EAAA,IAAA,CAAC,UAAA,IAAA rB,QAAA,aAAA;;ACvBN,aAAA,OAAA,eAAA,QAAA,aA
A,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EA9BD,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAAA,EAAA,
QAAA,sBAGA,EAAA,QAAA,eAAA,EAAA,QAAA,YA8BC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,
QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA
,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GA
AA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GA
AA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KA
AA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA
,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,EA1BP,SAAS,EACL,EAAkC,EAClC,EAA0B,EAAA k
C,GACxD,MAAA,GACF,EAAgB,EAAA,iBAAA,gBAAA,iBAAA,SAC/D,SAAC,EAAgB,EAAA,iBAAA
,EAAc,eAAgB,iBAC5C,GAAgB,EAClB,EAA0B,EAAA,iBAAA,EAAc,eAAgB,gBAAA iB,EAAc,OAEjE,EAAgB,cAAc,EA
AgB,EAAe,EAAa,GAE1C,MAAA,EAA8B,CAClC,cAAe,cAAe,GAAA,GAAA,EAA4B,CAAC,YAAA
,GAE5D,OAAA,EAAO,OAAA,UACV,EADG,cACY,EACf,GAGC,MAAM,GAAgB,EAAG,EAAA,IAAA,CAAC,YAAA,IAAA,E
AvDP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAGA,EAAA,QAAA,sBAEA,EAAA,QAAA,eAAA,CA,SAAS,
EAAU,EAAsB,GACjC,MAAA,GAAW,EAAgB,EAAA,iBAAA,EAAS,UAAW,WAAY,SAAG3D,EAAgB,yB,CAAC,Q
AFrB,EAAgB,EAAA,iBAAA,EAAG,IAAK,YAES,QAAS,GAE9C,OAAA,EAAO,OAAA,UAAU,EAAjB,jB,SAA2B,
GAG7B,MAAM,GAAW,EAAG,EAAA,IAAA,CAAC,UAAA,IAAA rB,QAAA,aAAA;;ACvBN,aAAA,OAAA,eAAA,QAAA,aA
A,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EA9BD,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,mBAAA,EAAA,
QAAA,sBAGA,EAAA,QAAA,eAAA,EAAA,QAAA,YA8BC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,
QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA
,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GA
AA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GA
AA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KA
AA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA
,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,EA1BP,SAAS,EACL,EAAkC,EAClC,EAA0B,EAAA k
C,GACxD,MAAA,GACF,EAAgB,EAAA,iBAAA,gBAAA,iBAAA,SAC/D,SAAC,EAAgB,EAAA,iBAAA
,EAAc,eAAgB,iBAC5C,GAAgB,EAClB,EAA0B,EAAA,iBAAA,EAAc,eAAgB,gBAAA iB,EAAc,OAEjE,EAAgB,cAAc,EA
AgB,EAAe,EAAa,GAE1C,MAAA,EAA8B,CAClC,cAAe,cAAe,GAAA,GAAA,E

F,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EA7DP,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,sBAEA,EAAA,EAAA,QAAA,YAEA,EAAA,QAAA,SACA,EAAA,QAAA,SACA,EAAA,QAAA,kBACA,EAAA,QAAA,WACA,EAAA,QAAA,SACA,EAAA,QAAA,eACA,EAAA,QAAA,oBAkDO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA1BP,SAAS,EACL,EAAsB,EAAc,EACpC,GACI,MAAA,GAAK,EAAA,gB,EAAA,iBAAA,EAAA,EAAG,IAAK,W AU/B,GARJ,EAAK,OACY,YAAb,EAAA,G,MACH,IAAM,mFACmB,EAAA,G,yBAChC,EAAK,OACD,GAAQ,GAA K,EAAO,EACpB,yDAA2D,MAElD,IAAT,EACK,OAAA,aAAa,EAAb,OAAsB,EAAA,G,QAAU,EAAA,GtC,MAAA,GA Ac,EAAc,EAAA,eAAA,EAAA,GAChC,EAAA,EAAA,EAAA,QAAA,E AAI,EAAA,MAAA,EAAc,EAAA,eAAA,EAAA,EAAA,EAAA,G,EAAA,UAAA,GAAO,IAC7D,7D,GAAE,G,EAAA,OAAA,EAAA,I A,KAAA,EAAI,GAAV,MAAM,GAAU,I,EAAA,CAAA,C,SAAA,aAAA A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,oBAAA,EAAA,IAAA,EAAA,QAAA,iBAAA,EAAA,EAAA,QAAA,sBAAA,EAAA,EAAA,QAAA,WAAA,EAAA,EAAA,QAAA,SAAA,EAAA,EAAA,QAAA,SAAA,EAAA,EAAA,QAAA,kBAAA,EAAA,EAAA,QAAA,eAAA,EAAA,EAAA,QAAA,oBAAA,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA1BP,SAAS,EACL,EAAsB,EAAc,EACpC,GACI,MAAA,GAAK,EAAA,gB,EAAA,iBAAA,EAAA,EAAG,IAAK,W AU/B,GARJ,EAAK,OACY,YAAb,EAAA,G,MACH,IAAM,mFACmB,EAAA,G,yBAChC,EAAK,OACD,GAAQ,GAA K,EAAO,EACpB,yDAA2D,MAElD,IAAT,EACK,OAAA,aAAa,EAAb,OAAsB,EAAA,G,QAAU,EAAA,GtC,MAAA,GA Ac,EAAc,EAAA,eAAA,EAAA,GAChC,EAAA,EAAA,EAAA,QAAA,E AAI,EAAA,MAAA,EAAc,EAAA,eAAA,EAAA,EAAA,EAAA,G,EAAA,UAAA,GAAO,IC

EAAwB,EAAK,MAAM,GAAK,EAAK,MAAM,GACpE,EAAK,OACD,IAAY,EAAY,GACxB,gDAAkD,2CACd,EAAY,OACpD,EAAK,OACD,IAAa,EAAY,GACzB,8CAAgD,6CACV,EAAY,QAC/B,MAAnB,GACF,EAAK,OACD,EAAK,MAAM,GACX,IAAM,mFACiB,iBAA+B,MAAG,tD,MAAA,EAAA,qC,CAAA,C,EAAA,G,EAAA,K,GAAA,I,GAAA,C,lD,EAAA,C,F,CAAA,C,QAAA,E,AAAA,S,IAAA,E,AAAA,K,WAAA,E,AAAA,K,gBAAA,E,AAAA,K,E

ACF,GAA0B,EACtB,EAAA,iBAAA,EAAwB,gBAAiB,iBAGzC,MAAA,EAAO,CAAC,EAAc,KACpB,MAAC,E
AAS,EAAK,EAAG,GACpB,EAEE,GAAe,EAAqB,EAAA,sBAAA,EAAI,EAAG,GAEjD,EAAK,OACD,EAAU,kB
AAkB,GAC5B,IAAM,0HAEoD,MAExD,MAIA,EAAgB,EAHlB,EAAoB,EAAA,qBAAA,EAAI,MAAO,EAAc,EA
AS,EAAS,IAE/D,EAAqB,EAAA,sBAAA,EAAK,EAAc,EAAQ,MAAO,EAAS,IAGhE,GAAS,MAAT,EAAe,CAC
X,MAAA,GAAU,EAAqB,EAAA,sBAAA,EAAO,GAC5C,EAAI,KAAK,GAEJ,OAAA,GAGH,EAA4B,CAChC,E
AAG,EACH,OAAQ,EACR,KAAM,EACN,uBAAwB,GAGpB,EAA0B,QAAA,EAAA,IAAA,EAAA,CA,WAA
A,EACA,UAAA,EACA,gBAAA,EACA,WAAA,EACA,eAAA,GAKE,GAAQ,MAAR,EAAc,CAmBT,OAjBH,EA
AW,EAAA,YAAA,CAAC,EAAe,EAAkB,KACvC,IAAA,EAEO,EAAA,OAAA,UACH,EADJ,YACiB,EACb,GAU
D,OARP,EAAK,CAAC,EAAQ,EAAK,IAEf,IAEF,GAAM,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAQ,GAAA,EAI
AI,EAAI,MAAM,GAAI,EAAI,MAAM,MAIrD,CAAC,MAAO,EAAK,SAAU,IAE7B,CAAA,iB,EAAK,EAAS,GAGnC,
B,QAAA,EAAA,OAAA;;AC/NA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,OAAA,IAAA,QAAA,aAAA,OAAA,IAAA,
OAAA,IAAA,QAAA,yCAAA,EAAA,IAAA,EAAA,QAAA,aAAA,CAAA,OAAA,IAAA,OAAA,IAAA,QAAA,aAAA,CAAA,OAAA,IAAA,
OAAA,IAAA,QAAA,mBAAA,KAAA,EAAA,IAAA,EAAA,QAAA,e

B,EAAK,OACgB,IAAjB,EAAQ,KACR,IAAM,0EACc,EAAQ,SAChC,EAAK,OACD,EAAI,MAAM,KAAO,EAAA
Q,MAAM,GAC/B,IAAM,gEACE,EAAI,MAAM,wDACJ,EAAQ,MAAM,OACf,MAAb,IACF,EAAY,CAAC,EAA
G,IAElB,EAAK,OACD,EAAU,+BAA+B,EAAS,GAClD,IACI,yFACqB,oBAA0B,MAEhC,MAAnB,GACF,EAAK
,OACD,EAAK,MAAM,GACX,IAAM,wFACuB,iBAA+B,MAG5D,MAAA,EAAW,EAAU,kBACvB,EAAI,MAA
O,EAAQ,MAAO,EAAS,EAAW,EAAK,GACnD,GAEA,IAAA,EAQA,EAPQ,MAAR,IACF,GAAQ,EAAgB,EAA
A,iBAAA,EAAM,OAAQ,iBACrC,IAAS,EAAe,EAAA,gBAAA,EAAO,GAEhC,2E,EAAS,SAAU,EA
AM,QAIvC,MAA1B,IACF,GAA0B,EACtB,EAAA,iBAAA,EAAwB,gBAAiB,0BAGzC,MAAA,EAAO,CAAC,EA
Ac,KAC1B,EAAK,OACD,EAAU,kBAAkB,GAC5B,IAAM,sHAEE,MACN,MAAC,EAAS,EAAK,EAAG,GAAQ,
EAE1B,GAAe,EAAqB,EAAA,sBAAA,EAAI,EAAG,GAE3C,GAAO,EACR,EAAA,oCAAA,EAAO,EAAiB,MAAO,EAA
c,EAAqB,EAC5D,EAAK,EAAW,GACd,GAAY,EACd,EAAA,qCAAA,EAAO,EAAiB,EAAe,EAAqB,MAAO,EAC5D,E
AAK,EAAW,GAEhB,GAAQ,MAAR,EAAc,CAET,MAAA,CAAC,EAAM,GAAD,EAAK,GAAD,EAAK,GAAD,EAAK

A1B,IACF,GAA0B,EACtB,EAAA,iBAAA,EAAwB,gBAAiB,iBAGzC,MAAA,EAAO,CAAC,EAAc,KACpB,MA
AC,EAAK,EAAK,EAAG,GAAS,EAIvB,GACF,EAAqB,EAAA,uBAAA,EAAQ,EAAA,SAAA,EAAI,EAAE,OAA
Q,EAAG,GAC9C,IAAA,EACA,EAgBA,GAdC,GAAe,GAGR,GAAc,GACxB,GAAO,EAAc,EAAA,QAAA,EAAc,
GAAK,GAAO,GAC/C,GAAO,EAAc,E
AAA,QAAA,EAAK,GAAc,GAAO,GAC/C,GAAO,EAAc,EAAA,QAAA,EAAK,GAAc,GAAO,KAE/C,GAAO,EA
Ac,EAAA,QAAA,EAAK,GAAc,GAAM,GAC9C,GAAO,EAAc,EAAA,QAAA,EAAc,GAAK,GAAM,KAV9C,GA
AO,EAAc,EAAA,QAAA,EAAc,GAAK,GAAO,GAC/C,GAAO,EAAc,EAAA,QAAA,EAAK,GAAc,GAAM,IAYp
C,MAAR,EAAc,CAET,MAAA,CAAC,EAAM,GADE,EAAqB,EAAA,sBAAA,EAAO,IAGrC,MAAA,CAAC,EAAA
M,IAIZ,EAA6B,CACjC,EAAG,EACH,EAAG,EACH,KAAM,EACN,uBAAwB,GAEpB,EACF,CAAC,WAAA,EA
AY,WAAA,EAAY,WAAA,EAAY,eAAA,GAIrC,GAAQ,MAAR,EAAc,CAaT,OAXH,EAAW,EAAA,YAAA,CA
AC,EAAe,EAAe,KAClC,MAAA,EAAK,EAAA,OAAA,UACH,EADJ,aACkB,EACd,GAID,OAFP,EAAK,CAAC,
EAAK,EAAK,IAET,CAAC,OAAO,EAAQ,EAAA,SAAA,EAAK,GAAW,SAAU,IAEhD,SAAS,EAAK,GAed,OAb
kB,EACrB,EAAA,YAAA,CAAC,EAAe,EAAe,EAAe,KACtC,MAAA,EAAK,EAAA,OAAA,UACH,EADJ,aACkB
,EACd,GAID,OAFP,EAAK,CAAC,EAAK,EAAK,IAEd,CAAC,OAAO,EAAQ,EAAA,SAAA,EAAK,GAAW,SAAU,IAGhD
W,SAAU,IAGhD,CAAiB,EAAK,EAAK,GAI/B,MAAM,GAAS,EAAG,EAAA,IAAA,CAAC,aAAA,IAAA,IAAnB,QAAA
A,OAAA;;AC3MT,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,eAAA,OAAA,IAAA,OAAA,eAAA,QAAA,eAAA,QAAA,SAAA,CAAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,kBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,
A,WAAA,OAAA,EAAA,mBAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EA
AA,UAFA,IAAA,EAAA,QAAA,kBACA,EAAA,QAAA,4BACA,EAAA,QAAA;;ACiBO,aAAA,OAAA,eAAA,Q
AAA,aAAA,CAAA,OAAA,eAAA,OAAA,IAAA,QAAA,mBAAA,EAAlBP,IAAA,EAAA,QAAA,gBACA,EAAA,QAAA,sBAAcA,S
AAS,EAAe,GACf,OAAA,EAAA,EAAa,cAAA,EAAc,IAAM,KAAE,nC,MAAM,GAAA,gB,EAAA,EAAA,IAAA,CAA
C,eAAA,IAA1B,QAAA,cAAA;;ACCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,eAAA,OAAA,IAAA,OAAA,eAAA,QAAA,eAAA,QAAA,SAAA,CAAA
,EAAnBP,IAAA,EAAA,QAAA,gBACA,EAAA,QAAA,sBAAcA,SAAS,EAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,
AAc,GAAK,IAAGlC,MAAM,GAAA,a,EAAA,EAAA,IAAA,CAAC,YAAA,IAAA,IAAA,QAAA,WAAA;;AC+BA,aAAA,OAAA,eAAA,Q
AAA,aAAA,CAAA,OAAA,eAAA,OAAA,IAAA,QAAA,WAAA,EAAlBP,IAAA,EAAA,QAAA,gBACA,EAAA,QAAA,sBAAcA,SAAS,EAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,
A,WACA,EAAA,QAAA,gBACA,EAAA,QAAA,cACA,EAAA,QAAA,YACA,EAAA,QAAA,eAAkBA,SAAS,EAAC
L,EAAkB,EAAqB,EAAmB,GAAS,EAAnE,GAAW,IAAA,EAAA,EAAA,QAAA,aAAA,EAAA,QAAA,eAAA,EAAA,QAAA,
EAAQ,GAAe,EAAO,MAAnC,EAAqB,EAAO,MAAK,EAAM,EAAA,EAAA,OAAA,EAAA,EAAA,QAAA,EAAA,EAAO,IAAA,EAAA,
EACK,KAAA,EAAA,EAAA,QAAA,EAAO,MAAM,CAAC,EAAM,MAAA,EAAA,EAAA,QAAA,EAAA,EAAO,KAAA,EAAA,EAAA,GAAA,EAAA,EAAO,EAAA
A,QAAA,EAAA,EAAA,IAAA,CAAC,EAAM,EAAA,EAAA,OAAA,EAAA,EAAA,QAAA,EAAA,EAAO,EAAA,EAAA,IAAA,EAAA,EAAA,GAAA,EAAA,EAAA,MAAA,EAAA,CAAA,GAAA,S,KAAA,E7D
,EAAO,KAAK,GAAA,Z,EAAA,GAAA,S,EAAA,EAAA,IAAA,CAAA,OAAA,IAAA,IAAA,EAAA,OAAA,QAAA,EAAA,O

AAS,EACL,EACA,EACA,EACA,EACA,EAA+B,WAC/B,EAAqB,GAEjB,MAAA,GAAS,EAAgB,EAAA,iBAAA
,EAAO,QAAS,iBACzC,GAAS,EAAgB,EAAA,iBAAA,EAAO,QAAS,gBAAiB,WAC1D,GAAU,EAAgB,EAAA,i
BAAA,EAAQ,SAAU,gBAAiB,SAE7D,EAAW,EAAO,MAAM,GAE9B,EAAK,OACe,IAAhB,EAAO,KACP,IAA
M,gEACc,EAAO,SAC/B,EAAK,OACe,IAAhB,EAAO,MAAkC,IAApB,EAAO,MAAM,GAClC,wDAA0D,yBACr
C,EAAO,UAChC,EAAK,OACgB,IAAjB,EAAQ,MAAc,EAAQ,MAAM,KAAO,EAC3C,yDAA2D,uBACtC,EAAO
,UAChC,EAAK,OACmB,IAApB,EAAS,OACT,IAAM,2EACQ,EAAS,WAC3B,EAAK,OACD,EAAS,IAAM,GAA
K,EAAS,IAAM,EACnC,+CAAiD,KACrD,EAAK,OACU,aAAX,GAAoC,YAAX,EACzB,mDAAqD,KAEnD,MA
AA,EACoB,CAAC,MAAO,EAAQ,MAAO,EAAQ,OAAQ,GAC3D,EAA4B,CAAC,OAAA,EAAQ,mBAAA,EAAo
B,SAAA,GAIxD,OAHK,EAAO,OAAA,UACf,EADQ,cACO,EACf,GAIC,MAAM,GAAgB,EAAG,EAAA,IAAA,C
AAC,eAAA,IAA1B,QAAA,cAAA;;AClDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mB
AAA,EA9BP,IAAA,EAAA,QAAA,gBACA,CAAA,EAAA,QAAA,sBAGA,EAAA,QAAA,yBAEA,EAAA,EAAA,QAAA,
eACA,EAAA,QAAA,gBAuBO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,
OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,
IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GA
AA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OA
AA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAA
A,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,
QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAdP,SAAS,EAAe,GAChB,MAAA,GAAS,EAAgB,EAAA,iB
AAA,EAAO,QAAS,gBAAiB,WAEhE,EAAK,OACe,IAAhB,EAAO,KACP,IAAM,gEACc,EAAO,SAEzB,MAAA,
EAA8B,CAAC,MAAO,GAGrC,OADH,EAAO,OAAA,UAAU,EAAjB,cAAA,IAAA,QAAA,cAAA;;ACgBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mB
AAA,EA9CP,IAAA,EAAA,QAAA,gBACA,CAAA,EAAA,QAAA,sBAGA,EAAA,QAAA,yBAEA,EAAA,EAAA,QAAA,
eAEA,EAAA,QAAA,gBAqCO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,
OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,
IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GA
AA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OA
AA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAA
A,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,
QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA

A,QAAA,kBACA,EAAA,QAAA,gBAoBA,SAAS,EACL,EAA4B,EAC5B,EAAuB,EAAe,GACtC,EAAiB,OAAO,
mBACpB,MAAA,GAAS,EAAgB,EAAA,iBAAA,EAAO,QAAS,qBACzC,GAAU,EAAgB,EAAA,iBAAA,EAAQ,
SAAU,qBAE5C,GAAS,EACX,EAAA,uBAAA,EAAQ,EAAS,EAAe,EAAc,GAK5C,EAAQ,CAAC,cAJf,EAAgB,E
AO,cAIO,aAH9B,EAAe,EAAO,aAGsB,eAF5C,EAAiB,EAAO,gBAGjB,OAAA,EAAO,OAAA,UACV,EADG,o
BACkB,CAAC,MAAO,EAAQ,OAAQ,GAAU,GAGtD,MAAM,GAAoB,EAAG,EAAA,IAAA,CAAC,mBAAA,IA
A9B,QAAA,kBAAA;;AC0BN,aA1DK,SAAU,EACZ,EAAU,EAAY,GAClB,MAAA,EAAQ,EAAa,EAAK,EAAS,
GACnC,EAAiB,EAAQ,IAAM,EAAQ,GAAK,EAClD,EAAI,OAAO,EAAgB,EAAG,GAAkB1B,SAAU,EACZ,EAA
U,EAAW,GAChB,OAAA,EAAc,EAAK,EAAQ,GAAc,GAUlD,SAAS,EAAqB,EAAM,GAAM,EAAM,GAAM,EAAM,
EAAI,EAAI,EAAI,GAAK,EAAI,EAGlC,SAAS,EACL,EAAU,EAAW,GAAO,EAAO,EAAS,GAEhE,EAAS,
EAAQ,EAAQ,GAAQ,EAAO,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
,EAAQ,IAAU,KAAhC,EAAgB,EAAO,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
EAAO,EAC/B,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,eAAA,IAAA,QAAA,aAAA,EAAA,QAAA,aAAA;;ACoHA,a
AAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,eAAA,IAAA,QAAA,wBAAA,EAAA,QAAA,wBAAA,EAAA,QAAA,
wBAAA,EA1LD,IAAA,EAAA,QAAA,8BAiBM,SAAU,EACZ,EAAU,EAAW,GAAO,EAAO,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
EACH,EAAO,EAAQ,EAAe,EAAc,EAC5C,GAGA,SAAU,EACZ,EAAU,EAAW,GAAO,EAAO,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
K,OAAA,EACH,EAAO,EAAQ,EAAe,EAAc,EAC5C,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
AoB,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
,EAAO,EAAQ,EAAe,EAAc,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
ACL,EAAmB,EAAoB,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,GAAS,EAAS,
A,EAAa,GAAE,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
C,MAAO,EAAO,GAAA,EAAU,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
M,EAAgB,EAAE,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
hE,MAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
ClB,MASE,IAAA,GAAkB,EAAC,EAAA,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
A,EAAM,EAAA,EAAO,EAAA,EAAU,EAAA,EAAgB,EAAE,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
AU,MACN,EAAU,MAAQ,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
OAE1C,IAGC,EAAU,QAAU,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAA,EAAA,cAAA,EAAA,EAAA,IAAMpC,MAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,IACrC,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA

IAAA,QAAA,gCAAA,EApEP,IAAA,EAAA,QAAA,gBACA,EAAA,QAAA,sBAIA,EAAA,QAAA,yBAGA,EAAA,QAAA,kBACA,EAAA,QAAA,gBA+BA,SAAS,EACL,EAA4B,EAC5B,EAAuB,EAAe,GACtC,EAAiB,OAAO,kBACxB,EAAe,GACX,MAAA,GAAS,EAAgB,EAAA,iBAAA,EAAO,QAAS,qBACzC,GAAU,EAAgB,EAAA,iBAAA,EAAO,QAAS,qBAE5C,SAAU,qBAE5C,GAAS,EACX,EAAA,uBAAA,EAAQ,EAAS,EAAe,EAAc,EAC9C,GAAM,EAAQ,CAAC,EAAQ,OAAQ,GAC5C,5D,EAAU,OAAO,GAAK,EAAO,OAAO,GAAK,EAAO,OAAO,GAAK,EAAO

AA3B,QAAA,eAAA;;ACIA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,2BAAA,EA3EP,IA
AA,EAAA,QAAA,gBACA,EAAA,QAAA,sBAIA,EAAA,QAAA,yBAEA,EAAA,EAAA,QAAA,eAEA,EAAA,QA
AA,gBACA,EAAA,QAAA,cAiEO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QA
AA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EA
AA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,
GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,
OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,I
AAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EA
AA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA7CP,SAAS,EACL,EAAsB,EAAwB,GAAe,EAC7D,GA
AmB,GACf,MAAA,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,yBAElD,EAAK,OACgB,IAAjB,EAAQ,MA+
B,IAAjB,EAAQ,KAC9B,IAAM,0EACM,EAAQ,SCxB,EAAK,OACe,IAAhB,EAAK,OACL,IACI,uEACG,MAC
X,EAAK,OACiB,YAAlB,EAAQ,OAAyC,UAAlB,EAAQ,MCvC,IAAM,oDACV,EAAK,QACoB,IAArB,U
AjB,EAC9B,4FAEN,IAAA,EAAc,EACd,GAAe,EACE,IAAjB,EAAQ,OACV,GAAe,EACf,GAAc,EACV
,EAAA,SAAA,EAAS,CAAC,EAAG,EAAQ,MAAM,GAAI,EAAQ,MAAM,GAAI,EAAQ,MAAM,MAE/D,QAAK,
EAEL,EAAsC,CAAC,OAAQ,GAC/C,EAC2B,CAAC,aAAA,EAAc,iBAAA,EAAkB,KAAA,GAG5D,EAAM,EAA
O,OAAA,UACH,EADJ,sBAC2B,EACvB,GAEZ,OAAA,GACK,EAAQ,EAAA,SAAA,EAAK,CAAC,EAAI,MAA
M,GAAI,EAAI,MAAM,GAAI,EAAI,MAAM,KAEtD,EAGF,MAAM,GAAwB,EAAG,EAAA,IAAA,CAAC,uBAA
A,IAAlC,QAAA,sBAAA;;ACiCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,EA3G
P,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,cAEA,EAAA,QAAA,oBACA,EAAA,QAAA,iBACA,EAAA,QAA
A,kBACA,EAAA,QAAA,gBACA,EAAA,QAAA,YACA,EAAA,QAAA,cACA,EAAA,QAAA,aACA,EAAA,QAA
A,YACA,EAAA,QAAA,UACA,EAAA,QAAA,cACA,EAAA,QAAA,YACA,EAAA,QAAA,YAwCA,SAAS,EAC
L,EAAiB,EAAkB,IAEjC,EAAA,EAAA,QAAA,EAAW,GAAM,EACjB,oDAAsD,OAEtD,EAAA,EAAA,QAAA,E
AAW,GAAM,EACjB,oDAAsD,MAEpD,MAAA,GAAK,EAAgB,EAAA,iBAAA,EAAK,IAAK,aAG/B,EAAA,EA
AA,QAAA,EAAG,MAAQ,EACX,gDAAkD,EAAG,SAEnD,MAAA,EAAQ,EAAG,OACV,EAAG,GAAK,EAAG,
MAAM,OAAO,GAE3B,KAAE,GAAY,GACV,MAAA,IAAI,+BACmB,sDACwB,OAEnD,KAAE,GAAY,GACV,
MAAA,IAAI,+BACmB,yDAC2B,OAGtD,EAAW,IACb,EAAW,GAET,EAAW,IACb,EAAW,GAGP,MAAA,GAAA
I,EAAQ,EAAA,UAAA,EAAM,EAAA,OAAA,EAAG,EAAG,EAAG,SAAU,EAAE,EAAG,IAC1C,GAAI,EAAM,
EAAA,OAAA,EAAG,EAAG,EAAG,SACnB,EAAK,GAAK,EAAG,EAAA,KAAA,EAAG,GAEZ,GAAS,EACX,EAAA,aA
AA,EAAU,EAAA,WAA,GAAI,EAAO,EAAA,SAAC,EAAU,WAChC,EAAa,EAAA,cAAA,GAAI,EAAO,EAAA
,SAAC,EAAU,WAEjC,GAAO,EAAM,EAAA,OAAA,CAAC,EAAG,GAAI,EAAG,OAEvB,EAAA,UAAA,EAAM,EAAA
UAAA,EAAQ,EAAA,UAAA,EAAQ,EAAA,SAAA,EAAI,EAAI,EAAE,EAAG,EAAG,KACvB,IAAI,IAAO,EAAM,EAAA
,OAAA,EAAQ,EAAA,KAAC,EAAK,GAAG,EAAG,EAAG,EAAG,EAAG,EAAG,SAAU,EAAG,EAAA,IAAA,CAAC,U
AAA,IAArB,QAAA,SAAA;;ACjBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,iBAAA,EA
A3F,IAAA,EAAA,QAAA,gBAEA,EAAA,QAAA,cAEA,EAAA,QAAA,UACA,EAAA,QAAA,UACA,EAAA,Q
AAA,WACA,EAAA,QAAA,gBACA,EAAA,QAAA,YACA,EAAA,QAAA,cACA,EAAA,QAAA,YACA,EAAA,Q
AAA,UACA,EAAA,QAAA,UA8BA,SAAS,EAAa,GAChB,IAAA,EACA,IAAA,GAAM,MAAM,QAAQ,GAAG,
GAAkB,GAEd,EAAA,EAAA,QAAA,EAAG,MAAM,EAAG,GAAG,OAAS,EAAC1B,qEAEJ,MAAA,EAAA,EAAM,EAAG
,GAAG,MAAM,GACnB,IAAA,IAAI,EAAA,EAAI,EAAG,EAAA,EAAI,EAAG,SAAU,GAE3B,EAAA,EAAA,QAAA,EAAG,
GAAG,MAAM,KAAO,EAAG,EAAA,IAAA,CAAC,UAAU,WAGpD,EAAA,EAAA,QAAA,EAAG,MAAM,EAAG,GAAG,
GAAG,MAAM,UAAU,WAAgD,GAAG,EAAA,IAAA,CAAC,GAAG,EAAA,IAAA,CAAC,GAAG,EAAA,IAAA,CAAC,GAAG,
GAAG,MAAM,KAAO,EAAG,EAAA,IAAA,CAAC,UAAU,WAAgD,GAAG,EAAA,IAAA,CAAC,GAAG,EAAA,IAAA,CAAC

AA,QAAA,YACA,EAAA,QAAA,aACA,EAAA,QAAA,UACA,EAAA,QAAA,UACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,UACA,EAAA,QAAA,UACA,EAAA,QAAA,WACA,EAAA,QAAA,gBACA,EAAA,QAAA,cACA,EAAA,QAAA,YACA,EAAA,QAAA,YACA,EAAA,QAAA,UACA,EAAA,QAAA,eACA,EAAA,QAAA,gBACA,EAAA,QAAA,cACA,EAAA,QAAA,YA6CA,SAAS,EAAI,EAAW,GAAe,GAAMjC,IAAJA,EAAAA,EAAAA,QAAAA,EAAAA,MAAAQ,EACV,oEACI,EAAAE,QAAEK,IAAAX,EAAAE,KACG,OAAAA,EAAAK,EAAAe,GACtB,CAAAA,KAAC,MAAAA,EAAAA,gBAAAA,EAAAE,MAAAM,MAAAM,EAAAG,EAAAE,MAAAM,OAAAS,GAAC7B,OAAAO,CAAAC,EAAAO,IAAAS,EAAAA,QAAAA,GACrD,GAAAO,EACT,EAAAA,UAAAA,EACI,SAAAA,EAAAA,EAAAA,MAAAA,EAAAA,MAAAA,OAAAA,KAAAE/B,GACE,EAAAA,mBAAAA,GACnB,EAAAA,mBAAAA,GAAAQlB,OAAAP,EAAAK,QAAAA,QAAAA,IAACL,MAAAC,EAAAA,GAAAA,EAAAA,EAAAA,GAAAA,EAAAA,EAAAA,iBAAAA,GAAAA,cAAAA,EAAAA,EAAAA,QAAAA,EAAAA,EAAAA,UAAAA,EAAAA,EAAAA,QAAAA,EAAAA,EAAAA,UAAAA,EAAAA,EAAAA,QAAAA,EAAAA,EAAAA,O

I,EAAI,EAAA,KAAA,GAAQ,EAAO,EAAA,QAAA,IACnB,GAG7B,GAAA,IAAc,EAAU,UAAA,uBAAwB,CAC
9C,GAAY,MAAZ,EACK,OAAA,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,IAAe,EAAO,EAAA,QAAA,EAAQ,
OACxC,CACC,MAAA,GAAqB,EAAI,EAAA,KAAA,GAAU,EAAK,EAAA,MAAA,EAAQ,QAEhD,GACF,EAA
K,EAAA,OAAA,EAAI,EAAA,MAAA,EAAS,EAAA,UAAA,GAAoB,EAAO,EAAA,QAAA,KAAM,WAChD,OA
AA,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,GAAe,IAI5B,MAAA,4BAA4B,KAE7B,MAAM,GAAsB,E
AAA,IAAA,CAAC,qBAAA,IAAhC,QAAA,oBAAA;;ACtBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,I
AAA,QAAA,wBAAA,EA3CP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,cACA,EAAA,QAAA,UACA,EAAA,
QAAA,qBACA,EAAA,QAAA,gBACA,EAAA,QAAA,UAEA,EAAA,QAAA,2BAiBA,SAAS,EACL,EAAsB,EACt
B,EACA,EAAY,EAAU,UAAA,wBAClB,MAAA,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,sBAC5C,GACF,
EAAgB,EAAA,iBAAA,EAAa,cAAe,sBAC5C,IAAA,EAAmB,KACR,MAAX,IACF,GAAW,EAAgB,EAAA,iBAA
A,EAAS,UAAW,wBAG7C,EAAA,EAAA,mBAAA,EAAQ,MAAO,EAAa,MAAO,iCAEjC,MAAA,GAAS,EAAI,E
AAA,MAAA,EAAI,EAAA,KAAA,EAAS,IACzB,OAAA,EAAoB,EAAA,qBAAA,EAAQ,GAAU,C,MAAM,
GAAqB,EAAG,EAAA,IAAA,CAAC,oBAAA,IAA/B,QAAA,mBAAA;;ACEA,aAAA,OAAA,eAAA,QAAA,aAAA,CA
A,CAAA,OAAA,IAAA,QAAA,oBAAA,EA9CP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,cACA,EAAA,QAAA,UA
A,qBACA,EAAA,QAAA,UACA,EAAA,QAAA,gBACA,EAAA,QAAA,UACA,EAAA,QAAA,UACA,EAAA,QA
AA,UAEA,EAAA,QAAA,2BAkBA,SAAS,EACL,EAAsB,EA2B,EACjD,EACA,EAAY,EAAU,UAAA,wBAClB
,MAAA,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,kBAC5C,GACF,EAAgB,EAAA,iBAAA,EAAa,cAAe,kBA
C5C,IAAA,EAAmB,KACR,MAAX,IACF,GAAW,EAAgB,EAAA,iBAAA,EAAS,UAAW,oBAG7C,EAAA,EAAA
,mBAAA,EAAQ,MAAO,EAAa,MAAO,6BAEjC,MAAA,GAAS,EAAI,EAAA,QAAA,GACb,GAAS,EAAI,EAAA
A,KAAA,GAAK,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAS,GAAe,GAAM,IACvD,OAAA,EAAoB,EAAA
,qBAAA,EAAQ,GAAU,C,MAAM,GAAiB,EAAG,EAAA,IAAA,CAAC,gBAAA,IAA3B,QAAA,eAAA;;AC
DA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,oBAAA,EA7CP,IAAA,EAAA,QAAA,yBAEA,EAAA,
QAAA,cACA,EAAA,QAAA,UACA,EAAA,QAAA,qBACA,EAAA,QAAA,UACA,EAAA,QAAA,gBACA,EAAA,QAAA,
UACA,EAAA,QAAA,UACA,EAAA,QAAA,2BAiBA,SAAS,EACL,EAAsB,EACtB,EACA,EA
AY,EAAU,UAAA,wBACpB,IAAA,GAAU,EAAgB,EAAA,iBAAA,EAAQ,SAAU,aAC1C,MAAA,GAAe,EAAgB,
EAAA,iBAAA,EAAa,cAAe,aAC7D,IAAA,EAAmB,KACR,MAAX,IACF,GAAW,EAAgB,EAAA,iBAAA,EAAS,UAAW,eAE/C,EAAA,EAAA,mBAAA,EAAQ,MAAO,EAAa,MAAO,wBAEvC,MAAA,GAAS,EAAI,EAAA,QAAA,GACb,GAAS,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAS,GAAe,GAAM,IACvD,OAAA,EAAoB,EAAA
,qBAAA,EAAQ,GAAU,C,MAAM,GAAiB,EAAG,EAAA,IAAA,CAAC,gBAAA,IAA3B,QAAA,eAAA;;AC
QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,oBAAA,EA/

AAA,GAAS,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAc,MAC5C,GACF,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAK,IAAU,EAAI,EAAA,MAAA,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAK,GAAe,KACrD,GAAAS,EAAI,EAAA,KAAA,EAAI,GAChB,OAAA,EAAoB,EAAA,qBAAA,EAAQ,EAAU,GAExC,MAAM,GAAU,EAAG,EAAA,IAAA,CAAC,SAAA,IAApB,QAAA,QAA;;ACVA,aAAA,OAAA,eAAA,QAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,sBAAA,EAAzC,PAAA,IAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,cAAA,EAAA,QAAA,qBAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,2BAAA,SAAA,EAAA,CAL,UAAA,wBAAA,MAAA,GAAA,UAAA,EAAA,iBAAA,EAAA,QAAA,SAAA,oBAAA,EAAA,5C,GAAA,F,EAAA,iBAAA,EAAA,EAAA,cAAA,oBAAA,EAAA,5C,IAAA,EAAA,mBAAA,KAAA,MAAA,IAAA,F,EAAA,gBAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,2BAAA,SAAA,EAAA,CAAA

AA,EAAA,KAAA,EAAA,MAAA,EAAA,OAAA,EAAA,KAAA,EAAA,MAAA,EAAA,KAAA,EAAA,KAAA,EA
AA,QAAA,EAAA,QAAA,EAAA,MAAA,EAAA,OAAA,EAAA,MAAA,EAAA,OAAA,EAAA,OAAA,EAAA,SA
AA,EAAA,WAAA,EAAA,eAAA,EAAA,gBAAA,EAAA,WAAA,EAAA,aAAA,EAAA,aAAA,EAAA,aAAA,EAA
A,UAAA,EAAA,aAAA,EAAA,QAAA,EAAA,MAAA,EAAA,MAAA,EAAA,aAAA,EAAA,OAAA,EAAA,SAAA
,EAAA,QAAA,EAAA,UAAA,EAAA,UAAA,EAAA,UAAA,EAAA,UAAA,EAAA,QAAA,EAAA,QAAA,EAAA,i
BAAA,EAAA,QAAA,EAAA,iBAAA,EAAA,KAAA,EAAA,MAAA,EAAA,QAAA,EAAA,eAAA,EAAA,cAAA,E
AAA,iBAAA,EAAA,MAAA,EAAA,YAAA,EAAA,KAAA,EAAA,UAAA,EAAA,KAAA,EAAA,KAAA,EAAA,O
AAA,EAAA,KAAA,EAAA,KAAA,EAAA,YAAA,EAAA,OAAA,EAAA,KAAA,EAAA,MAAA,EAAA,OAAA,E
AAA,UAAA,EAAA,QAAA,EAAA,SAAA,EAAA,cAAA,EAAA,MAAA,EAAA,UAAA,EAAA,OAAA,EAAA,OA
AA,EAAA,WAAA,EAAA,MAAA,EAAA,WAAA,EAAA,UAAA,EAAA,4BAAA,EAAA,KAAA,EAAA,OAAA,E
AAA,YAAA,EAAA,YAAA,EAAA,WAAA,EAAA,YAAA,EAAA,YAAA,EAAA,WAAA,EAAA,YAAA,EAAA,Q
AAA,EAAA,KAAA,EAAA,SAAA,EAAA,WAAA,EAAA,mBAAA,EAAA,SAAA,EAAA,MAAA,EAAA,KAAA,
EAAA,SAAA,EAAA,WAAA,EAAA,KAAA,EAAA,SAAA,EAAA,KAAA,EAAA,cAAA,EAAA,aAAA,EAAA,K
AAA,EAAA,UAAA,EAAA,QAAA,EAAA,MAAA,EAAA,UAAA,EAAA,cAAA,EAAA,KAAA,EAAA,OAAA,EA
AA,OAAA,EAAA,OAAA,EAAA,OAAA,EAAA,MAAA,EAAA,KAAA,EAAA,OAAA,EAAA,OAAA,EAAA,MA
AA,EAAA,MAAA,EAAA,aAAA,EAAA,cAAA,EAAA,eAAA,EAAA,OAAA,EAAA,MAAA,EAAA,YAAA,EAA
A,MAAA,EAAA,OAAA,EAAA,SAAA,EAAA,SAAA,EAAA,WAAA,EAAA,WAAA,EAAA,WAAA,EAAA,WA
AA,EAAA,OAAA,EAAA,OAAA,EAAA,QAAA,EAAA,MAAA,EAAA,iBAAA,EAAA,gBAAA,EAAA,SAAA,E
AAA,MAAA,EAAA,KAAA,EAAA,MAAA,EAAA,OAAA,EAAA,SAAA,EAAA,SAAA,EAAA,SAAA,EAAA,SA
AA,EAAA,SAAA,EAAA,UAAA,EAAA,gBAAA,EAAA,KAAA,EAAA,MAAA,EAAA,OAAA,EAAA,MAAA,EA
AA,OAAA,EAAA,MAAA,EAAA,QAAA,EAAA,mBAAA,EAAA,SAAA,EAAA,OAAA,EAAA,MAAA,EAAA,c
AAA,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA,EAAA,MAAA,EAAA,QAAA,EAAA,UAAA,EAAA,UAAA,E
AAA,UAAA,EAAA,UAAA,EAAA,UAAA,EAAA,UAAA,EAAA,MAAA,EAAA,MAAA,EAAA,iBAAA,EAAA,
QAAA,EAAA,oBAAA,EAAA,SAAA,EAAA,UAAA,EAAA,OAAA,EAAA,YAAA,EAAA,OAAA,EAAA,WAAA,
EAAA,IAAA,EAAA,iBAAA,EAAA,OAAA,GAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,
WAAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,
QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,Q
AAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,OAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,O
AAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QA
AA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA
,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,
QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,E
AAA,IAAA,WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,O
AAA,EAAA,aAAA,OAAA,eAAA,QAAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,O
AAA,eAAA,QAAA,iBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,kBAAA,OAAA,eAAA,QAAA,Y
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YAAA,EA
AA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAA
A,EAAA,eAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,
eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,cAAA,C
AAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IA
AA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EA
AA,QAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAA
A,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,QAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,W

AAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,U
AAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,Q
AAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,WAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UA
AA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAA
A,kBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,mBAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,kBAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,EAAA,mBAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,O
AAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QA
AA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,gBAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,EAAA,gBAAA,OAAA,eAAA,QAAA,kBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,mB
AAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QA
AA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,OAA
A,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAA
A,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cAA
,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,
MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,
EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,
OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,
OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,U
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,E
AAA,IAAA,WAAA,OAAA,GAAA,gBAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,O
AAA,GAAA,QAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,O
AAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,QA
AA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EA
AA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAA
A,GAAA,QAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAA
A,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,6BA
AA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,8BAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,E
AAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,O
AAA,GAAA,SAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cAA,OA
AA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cAA,OAAA,eAAA,QAAA,YAA
A,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,
IAAA,WAAA,OAAA,GAAA,cAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,G
AAA,cAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eA
AA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cAA,OAAA,eAAA,QAAA,SAAA,CAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAA
A,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAA
A,WAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eA
A,QAAA,oBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,qBAAA,OAAA,eAAA,QAAA,UAAA,CA
AA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IA
AA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,G

AAA,OAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,e
AAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAAA,MAAA,C
AAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IA
AA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,G
AAA,OAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,gBAAA,OAAA,e
AAA,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,eAAA,OAAA,eAAA,QAAA,MAAA,CA
AA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IA
AA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GA
AA,UAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eA
AA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,eAAA,CA
AA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,gBAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IA
AA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GA
AA,SAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAA
A,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,QAAA,CAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,
WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA
,OAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,
QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,OAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,
WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,
eAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,gBAAA,OAAA,eAAA,Q
AAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,iBAAA,OAAA,eAAA,QAAA,QAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cA
AA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QA
AA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aA
AA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAA
A,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YA
A,EAAA,IAAA,WAAA,OAAA,GAAA,aAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAA
,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,
OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,O
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,kBAAA,CAAA,YAAA,E
AAA,IAAA,WAAA,OAAA,GAAA,mBAAA,OAAA,eAAA,QAAA,iBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,
OAAA,GAAA,kBAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAA
A,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAA
A,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WA
A,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QA
A,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YA
A,EAAA,IAAA,WAAA,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WA
A,OAAA,GAAA,WAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YA
AA,OAAA,eAAA,QAAA,iBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,kBAAA,OAAA,eAAA,Q
AAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,OAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,Q

AAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QA
AA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,oBAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,GAAA,qBAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,W
AAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QA
AA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,GAAA,gBAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,GAAA,OAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OA
AA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,OAAA,OAAA,eAAA,QA
AA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YA
AA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QA
AA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,WAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,GAAA,YAAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,Q
AAA,OAAA,eAAA,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,QAAA,OAAA,eAAA,Q
AAA,kBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,mBAAA,OAAA,eAAA,QAAA,SAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,UAAA,OAAA,eAAA,QAAA,qBAAA,CAAA,YAAA,EAAA,IAAA,
WAAA,OAAA,GAAA,sBAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA
,WAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,YAAA,OAAA,eAA
,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,aAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,cAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,GAAA,SAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,aA
AA,OAAA,eAAA,QAAA,KAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,MAAA,OAAA,eAAA,QA
AA,kBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,mBAAA,QAAA,MAAA,QAAA,OAAA,QAAA,
SAAA,QAAA,OAAA,QAAA,OAAA,QAAA,WAAA,EApRA,IAAA,EAAA,QAAA,SCA,EAAA,QAAA,UCA,
EAAA,QAAA,WCA,EAAA,QAAA,SCA,EAAA,QAAA,WCA,EAAA,QAAA,SCA,EAAA,QAAA,SCA,E
AAA,QAAA,aACA,EAAA,QAAA,aACA,EAAA,QAAA,UCA,EAAA,QAAA,WCA,EAAA,QAAA,UCA,EA
AA,QAAA,WCA,EAAA,QAAA,WCA,EAAA,QAAA,cACA,EAAA,QAAA,iBACA,EAAA,QAAA,qBCA,E
AAA,QAAA,uBCA,EAAA,QAAA,eACA,EAAA,QAAA,iBACA,EAAA,QAAA,iBACA,EAAA,QAAA,iBCA,
EAAA,QAAA,cACA,EAAA,QAAA,kBCA,EAAA,QAAA,YACA,EAAA,QAAA,UCA,EAAA,QAAA,UCA,
EAAA,QAAA,mBCA,EAAA,QAAA,WCA,EAAA,QAAA,aACA,EAAA,QAAA,YACA,EAAA,QAAA,eCA,
EAAA,QAAA,eACA,EAAA,QAAA,eCA,EAAA,QAAA,eCA,EAAA,QAAA,YACA,EAAA,QAAA,YCA,EA
AA,QAAA,sBCA,EAAA,QAAA,YCA,EAAA,QAAA,sBCA,EAAA,QAAA,SCA,EAAA,QAAA,UCA,EA
AA,QAAA,YACA,EAAA,QAAA,oBCA,EAAA,QAAA,oBCA,EAAA,QAAA,sBCA,EAAA,QAAA,UCA,E
AAA,QAAA,gBCA,EAAA,QAAA,SCA,EAAA,QAAA,gBCA,EAAA,QAAA,SCA,EAAA,QAAA,SCA,E
AAA,QAAA,WCA,GAAA,QAAA,SCA,GAAA,QAAA,SCA,GAAA,QAAA,iBCA,GAAA,QAAA,WCA,
GAAA,QAAA,SCA,GAAA,QAAA,UCA,GAAA,QAAA,WCA,GAAA,QAAA,cACA,GAAA,QAAA,YCA,
GAAA,QAAA,aACA,GAAA,QAAA,mBCA,GAAA,QAAA,UCA,GAAA,QAAA,eCA,GAAA,QAAA,YCA
,GAAA,QAAA,YCA,GAAA,QAAA,gBCA,GAAA,QAAA,UCA,GAAA,QAAA,gBCA,GAAA,QAAA,cCA
A,GAAA,QAAA,kCACA,GAAA,QAAA,SCA,GAAA,QAAA,WCA,GAAA,QAAA,iBCA,GAAA,QAAA,iB
CA,GAAA,QAAA,iBCA,GAAA,QAAA,iBCA,GAAA,QAAA,iBCA,GAAA,QAAA,gBCA,GAAA,QAAA
A,iBCA,GAAA,QAAA,aACA,GAAA,QAAA,SCA,GAAA,QAAA,cACA,GAAA,QAAA,iBCA,GAAA,QAA
A,0BCA,GAAA,QAAA,aACA,GAAA,QAAA,UCA,GAAA,QAAA,SCA,GAAA,QAAA,aACA,GAAA,QAA
A,gBCA,GAAA,QAAA,SCA,GAAA,QAAA,aCA,GAAA,QAAA,SCA,GAAA,QAAA,oBCA,GAAA,QA
AA,iBCA,GAAA,QAAA,SCA,GAAA,QAAA,eCA,GAAA,QAAA,aCA,GAAA,QAAA,UCA,GAAA,QA
AA,eCA,GAAA,QAAA,mBCA,GAAA,QAAA,SCA,GAAA,QAAA,WCA,GAAA,QAAA,WCA,GAAA,Q

AAA,WACA,GAAA,QAAA,WACA,GAAA,QAAA,UACA,GAAA,QAAA,SACA,GAAA,QAAA,WACA,GAAA,QAAA,WACA,GAAA,QAAA,UACA,GAAA,QAAA,UACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,oBACA,GAAA,QAAA,WACA,GAAA,QAAA,UACA,GAAA,QAAA,gBACA,GAAA,QAAA,UACA,GAAA,QAAA,WACA,GAAA,QAAA,aACA,GAAA,QAAA,aACA,GAAA,QAAA,gBACA,GAAA,QAAA,gBACA,GAAA,QAAA,gBACA,GAAA,QAAA,gBACA,GAAA,QAAA,WACA,GAAA,QAAA,WACA,GAAA,QAAA,YACA,GAAA,QAAA,UACA,GAAA,QAAA,sBACA,GAAA,QAAA,qBACA,GAAA,QAAA,aACA,GAAA,QAAA,UACA,GAAA,QAAA,SACA,GAAA,QAAA,UACA,GAAA,QAAA,WACA,GAAA,QAAA,aACA,GAAA,QAAA,aACA,GAAA,QAAA,aACA,GAAA,QAAA,aACA,GAAA,QAAA,cACA,GAAA,QAAA,uBACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,oBACA,GAAA,QAAA,mBACA,GAAA,QAAA,WACA,GAAA,QAAA,UACA,GAAA,QAAA,YACA,GAAA,QAAA,wBACA,GAAA,QAAA,aACA,GAAA,QAAA,WACA,GAAA,QAAA,UACA,GAAA,QAAA,mBACA,GAAA,QAAA,SACA,GAAA,QAAA,SACA,GAAA,QAAA,SACA,GAAA,QAAA,UACA,GAAA,QAAA,YACA,GAAA,QAAA,cACA,GAAA,QAAA,cACA,GAAA,QAAA,cACA,GAAA,QAAA,cACA,GAAA,QAAA,UACA,GAAA,QAAA,UACA,GAAA,QAAA,sBACA,GAAA,QAAA,YACA,GAAA,QAAA,0BACA,GAAA,QAAA,aACA,GAAA,QAAA,cACA,GAAA,QAAA,WACA,GAAA,QAAA,iBACA,GAAA,QAAA,WACA,GAAA,QAAA,gBAEA,GAAA
,QAAA,kBAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,
KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SACA,IA
AA,GAAA,QAAA,eAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAA
A,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,
SACA,IAAA,GAAA,QAAA,UAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OA
AA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAA
A,GAAA,SACA,IAAA,GAAA,QAAA,oBAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAA
A
,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,gBAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,G
AAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAA
A,IAAA,WAAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,qBAAA,OAAA,KAAA,IAAA,QAAA,SAAA,GAA
A,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,
YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,eAAA,OAAA,KAAA,IAAA,QAAA,SA
AA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA
,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,aAAA,OAAA,KAAA,IAAA,Q
AAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAA
A,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,qBAAA,OAAA,KAA
A,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,e
AAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SACA,IAAA,GAAA,QAAA,cAAA,OA
AA,KAAA,IAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,
OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,GAAA,SAEA,IAAA,GAAA,QAAA,e
AaA,GAAA,GAAA,QAAA,gBAAuEA,QAAA,MAAA,GArEA,IAAA,GAAA,QAAA,2BACA,GAAA,QAAA,wBA
CA,GAAA,QAAA,kBACA,GAAA,QAAA,iBASA,GAAA,QAAA,2BACA,GAAA,QAAA,2BACA,GAAA,QAAA,
8BACA,GAAA,QAAA,+BACA,GAAA,QAAA,qCACA,GAAA,QAAA,0CACA,GAAA,QAAA,gDACA,GAAA,Q
AAA,sCACA,GAAA,QAAA,4CACA,GAAA,QAAA,2BACA,GAAA,QAAA,mCAgBA,GAAA,QAAA,sBACA,G
AAA,QAAA,yBACA,GAAA,QAAA,eAQA,GAAA,QAAA,gCACA,GAAA,QAAA,kCACA,GAAA,QAAA,4BAC
A,GAAA,QAAA,uBACA,GAAA,QAAA,uBACA,GAAA,QAAA,qBACA,GAAA,QAAA,+BACA,GAAA,QAAA,
kCACA,GAAA,QAAA,kCAaA,SAAA,KAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA
A,OAAA,GAAA,WAAA,OAAA,GAAA,EAAA,SAAA,GAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EA
AA,IAAA,EAAA,KAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,
GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,
OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,I
AAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EA

AA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA9EA,MAAM,GAAW,CACf,IAAA,GADe,IAEf,KAAA
,GAFe,KAGf,KAAA,GAHe,KAIf,MAAA,GAAA,OA0EF,QAAA,SAAA,GAjEA,MAAM,GAAS,CACb,cAAA,G
ADa,cAEb,WAAA,GAFa,WAGb,MAAA,GAHa,MAIb,KAAA,GAAA,MA6DF,QAAA,OAAA,GA9CA,MAAM,G
AAQ,CACZ,cAAA,GADY,cAEZ,sBAAA,GAFY,sBAGZ,eAAA,GAHY,eAIZ,iBAAA,GAJY,iBAKZ,cAAA,GAL
Y,cAMZ,kBAAA,GANY,kBAOZ,uBAAA,GAPY,uBAQZ,2BAAA,GARY,2BASZ,gCAAA,GATY,gCAUZ,wBA
AA,GAVY,wBAWZ,6BAAA,GAAA,8BAmCF,QAAA,MAAA,GA5BA,MAAM,GAAS,CACb,SAAA,GADa,SAE
b,YAAA,GAFa,YAGb,GAAA,GAAA,IAyBF,QAAA,OAAA,GAZA,MAAM,GAAS,CACb,mBAAA,GADa,mBA
Eb,oBAAA,GAFa,oBAGb,eAAA,GAHa,eAIb,UAAA,GAJa,UAKb,UAAA,GALa,UAMb,QAAA,GANa,QAOb,iB
AAA,GAPa,iBAQb,oBAAA,GARa,oBASb,oBAAA,GAAA,qBAGF,QAAA,OAAA;;AC/HA,aAAA,OAAA,eAAA,
QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAtJA,IAAA,EAAA,QAAA,cACA,EAAA,QAAA,gBACA,EAAA,QAAA,oBAqBM,MAAgB,UAAkB,EAAlC,aAiBJ,SAAS,EAAA,WAAA,GAAA,KAAA,GAAA,KAAA,GAAA,K

AA,cACA,EAAA,QAAA,eACA,EAAA,QAAA,cACA,EAAA,QAAA,eACA,EAAA,QAAA,iBACA,EAAA,QAAA
,oBAGA,EAAA,QAAA,eAGM,MAAO,UAAyB,EAAhC,UAMJ,YACc,EAA8B,EAA0B,IACpE,QADY,KAAA,aA
AA,EAA8B,KAAA,wBAAA,EAHpC,KAAA,iBAAwC,GAOhD,eAAe,IACS,MAAM,QAAQ,GAChC,EAAkB,IA
AI,GAAQ,EAAK,MACnC,OAAO,KAAK,IAEF,QAAQ,CAAC,EAAM,KCrB,MAAA,EAAQ,EAAO,OAAA,oB
AAoB,GACrC,GAA4B,MAA5B,KAAK,iBAAiB,GAAY,CAC9B,CAA4B,MAAA,GAAY,EAAb,KAAA,iBAAiB,GAAK,C
ACzB,gBAAiB,gBACjB,UAAU,EACN,EAAA,MAAA,KAAM,EAAK,EAAA,MAAA,EAAM,MAAO,KAAK,yB
AClB,SAAS,KAItB,MAAA,EAAW,MAAM,QAAQ,GAC3B,EAAkB,GAAG,OACrB,EAAkB,GAClB,GAAY,MA
AZ,EACF,OAGI,MAAA,EAAkB,KAAK,iBAAiB,GAAG,UAE5C,EAAA,EAAA,MAAA,KACG,MAAA,GAAqB,
EAAI,EAAA,KAAA,GAAiB,EAAO,EAAA,QAAA,IACvD,EAAgB,OAAO,GAEjB,MAAA,GAAW,EACb,EAAA
,MAAA,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,GACA,EAAK,EAAA,OAAA,EAAI,EAAA,KAAA,EAAO,EAAO,E
AAO,OAAA,QAAQ,cAC/C,KAAK,cACV,GACJ,EAAM,OAAO,OAGZ,KAAA,sBAGP,UAC+B,MAAA,zB,MAAK
mBACC,EAAA,EAAA,SAAA,KAAK,iBAAiB,IAAI,GAAK,EAAE,WAIvC,mBAEG,MAAA,OAAO,KAAK,kBA
AkB,OAAO,KAAK,iBAAiB,IAC9D,IAAM,CAAC,KAAM,EAAE,aAAc,OAAQ,EAAE,aAGvC,iBAAW,GACf,Q
AAqB,KAAK,kBAAkB,GAEvC,KAAA,iBAAmB,EAAa,IACjC,IAAM,CAAC,aAAc,EAAE,KAAM,SAAU,EAAE
,OAAO,UAFlC,MAKpB,YACS,MAAA,CAAW,aAAA,KAAK,aAAc,wBAAA,KAAK,yBAK7B,7B,kBACH,GAC5B
,OAAA,IAAI,EAAI,EAAM,aAAkB,EAAM,0BAGjD,QAAA,iBAAA,EAAlS,EAAA,UAAY,WAAkB,FrB,EA
Ac,EAAA,eAAA;;ACgEd,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mBAAA,EAAlKA,IAAA
A,EAAA,QAAA,aACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,E
AAA,QAAA,cACA,EAAA,QAAA,iBACA,EAAA,QAAA,eACA,EAAA,QAAA,iBACA,EAAA,QAAA,cACA,EA
AA,QAAA,qBACA,EAAA,QAAA,oBAIA,EAAA,QAAA,eAEM,MAAO,UAAsB,EAA7B,UAAS,YAAC,EAAgC,E
AChC,EAAyB,EAAkB,MACvD,QAFY,KAAA,aAAA,EAAgC,KAAA,MAAA,EAAA,EAAA,KAAA,MAAA,EAAyB,K
AAA,QAAA,EAAL/B,KAAA,uBAA8C,GAC9C,KAAA,wBAAA,+BAAA,IAAA,CAAA,IAAA,IAAA,I

,EAAM,aAAkB,EAAM,MAAW,EAAM,MAC/C,EAAM,UAGd,QAAA,cAAA,EA/IS,EAAA,UAAY,QA+IrB,EA
Ac,EAAA,eAAA;;ACtBd,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,qBAAA,EA5IA,IAA
A,EAAA,QAAA,aACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,E
AAA,QAAA,kBACA,EAAA,QAAA,cACA,EAAA,QAAA,iBACA,EAAA,QAAA,cACA,EAAA,QAAA,qBACA,E
AAA,QAAA,oBAIA,EAAA,QAAA,eAEM,MAAO,UAAwB,EAA/B,UASJ,YACc,EAAgC,EAChC,EAAyB,EAAk
B,KAC3C,EAAQ,GACpB,QAHY,KAAA,aAAA,EAAgC,KAAA,MAAA,EAChC,KAAA,MAAA,EAAyB,KAAA,
QAAA,EACzB,KAAA,MAAA,EANN,KAAA,uBA8C,GAC9C,KAAA,2BAAkD,IAQnD,EAAA,EAAA,MAAA,
KACE,KAAA,WAAY,EAAO,EAAA,QAAA,GAAG,WACtB,KAAA,UAAW,EAAO,EAAA,QAAA,GAAO,aAGj
B,MAAX,IACG,KAAA,QAAU,EAAO,OAAA,QAAQ,WAIlC,eAAe,GACP,MAAA,EAAgB,MAAM,QAAQ,GAC
hC,EAAkB,IAAI,GAAQ,EAAK,MACnC,OAAO,KAAK,IAEX,EAAA,EAAA,MAAA,KACG,MAAA,GAAmB,E
AAI,EAAA,KAAA,EAAG,KAAK,UAC/B,GACF,EAAI,EAAA,MAAC,KAAK,cAAc,EAAI,EAAA,MAAA,EAAI
,EAAA,KAAA,KAAK,UAAW,KAAK,OAAQ,IAEjE,EAAc,QAAQ,CAAC,EAAM,KACrB,MAAA,EAAQ,EAAO
,OAAA,oBAAoB,GAEH,MAAlC,KAAK,uBAAuB,KACzB,uBAAuB,GAAK,CAC/B,gBAAiB,MACjB,U
AAU,EAAU,EAAA,WAAA,GAAO,UAAb,KAAO,wB,MAAtC,KAAK,2BAA2B,KAAK,7B,KAAA,2BAA2B,GAAK,C
ACnC,gBAAiB,MACjB,UAAU,EAAU,EAAA,WAAA,GAAO,UAAV,KAAc,Z,MAAA,EAAW,MAAM,QAAQ,GAC
3B,EAAkB,GAAG,OACrB,EAAkB,GAClB,GAAY,MAAZ,EACF,OAGI,MAAA,EAAc,EAAA,MAAC,KAAK,uBAAuB,GAAG,
SAC7C,EAAkB,KAAK,2BAA2B,GAAG,SAErD,GACF,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAA,aAAK,KAAK
,QAAQ,EAAI,EAAA,KAAA,EAAU,EAAI,KAAK,QAEvD,GAAM,EAAI,EAAA,KAAA,EAAA,aAAiB,KAAK,OAChC,
GAAM,EAAI,EAAA,KAAA,GAAW,GAAA,qB,EAAA,QAAA,EAAA,SAAA,EAAA,KAAA,GAAA,cAAA,EAAA,OAAO,GACnB,EAAA
gB,OAAO,GAEjB,MAAA,GACF,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,EAAA,MAAK,EAAI,EAAA,KAAA,EAAA,MAAK,EAAI,EAAA,KAAA,EAAA,aAAK,EAAI,IACR,E
AAI,EAAA,KAAA,GAAA,gB,EAAI,EAAA,KAAA,EAAA,aAAK,KAAK,WACrD,GAER,EAAM,OAAO,KAAG,V,KAAA,UAAA,EAAA,QAAA,EAAA,KAAA,EAAA,KAAA,EAAA,UAAA,IACrC,C,KAAA,SAAA,QAAA,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA,EAAA,UAAA,IAAA

M,QAAQ,GAC3B,EAAkB,GAAG,OACrB,EAAkB,GACN,MAAZ,IAIC,EAAA,EAAA,MAAA,KACC,IAAA,EA
CE,MAAA,GAAkB,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,KAAK,EAAG,GAAe,GAErD,EADE,KAAK,aACI
,EACP,EAAA,MAAA,EAAI,EAAA,KAAA,KAAK,GAAG,EAAI,EAAA,KAAA,GAAU,EAAI,EAAA,KAAA,EA
AiB,KAAK,KAAM,IAEnD,EAAI,EAAA,MAAA,EAAI,EAAA,KAAA,KAAK,EAAG,GAAkB,GAE/C,EAAa,OA
AO,GACpB,EAAM,OAAO,OAGZ,KAAA,sBAGP,UACO,KAAA,EAAE,UACmB,MAAtB,KAAK,gBACC,EAA
A,EAAA,SAAA,KAAK,cAAc,IAAI,GAAK,EAAE,WAS1C,YAAY,GACL,KAAA,SAAW,EAGZ,mBAEG,MAA
A,OAAO,KAAK,kBAAkB,OAAO,KAAK,cAAc,IAC3D,IAAM,CAAC,KAAM,EAAE,aAAc,OAAQ,EAAE,aAGv
C,iBAAW,GACf,QAAAqB,KAAK,kBAAkB,GAEvC,KAAA,cAAgB,EAAa,IAC9B,IAAM,CAAC,aAAc,EAAE,KA
AM,SAAU,EAAE,OAAO,UAFlC,MAKpB,YACS,MAAA,CACW,aAAA,KAAK,aACT,SAAA,KAAK,SACF,YA
AA,KAAK,aAKjB,kBACH,EAAiC,GAC5B,OAAA,IAAI,EACP,EAAM,aAAkB,EAAM,SAAc,EAAM,cAG1D,Q
AAA,kBAAA,EA9FS,EAAA,UAAY,YA8FrB,EAAc,EAAA,eAAA;;ACkFd,aAAA,OAAA,eAAA,QAAA,aAAA,C
AAA,OAAA,IAAA,QAAA,sBAAA,EAhMA,IAAA,EAAA,QAAA,aACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,cACA,EAAA,QAAA,eACA,EAAA,QAAA,iBACA,EAAA,QAAA,cACA
,EAAA,QAAA,qBACA,EAAA,QAAA,oBAGA,EAAA,QAAA,eAGM,MAAO,UAAA,yB,EAAA,SAAA,MAAA,KAAA,KAAA,K

EAAiC,GAC5B,OAAA,IAAI,EACP,EAAM,aAAkB,EAAM,MAAW,EAAM,SAC/C,EAAM,QAAa,EAAM,WAGj
C,QAAA,iBAAA,EA/KS,EAAA,UAAY,WA+KrB,EAAc,EAAA,eAAA;;ACxLoB,aAAA,OAAA,eAAA,QAAA,a
AAA,CAAA,OAAA,IAAA,QAAA,2BAAA,EARlC,IAAA,EAAA,QAAA,wBACA,EAAA,QAAA,uBACA,EAAA,
QAAA,oBACA,EAAA,QAAA,sBACA,EAAA,QAAA,wBACA,EAAA,QAAA,uBACA,EAAA,QAAA,mBAEM,
MAAO,EAsCJ,WAAI,GACF,OAAA,IAAI,EAAJ,aAAiB,GAkBnB,gBAAS,EAAsB,EAAkB,GAAc,GAE7D,OAA
A,IAAI,EAAJ,kBAAsB,EAAc,EAAU,GAuBhD,eACH,EAAsB,EAAQ,GAAI,EAAW,EAAK,EAAkB,KACpE,GA
AW,GACN,OAAA,IAAI,EAAJ,iBACH,EAAc,EAAO,EAAU,EAAS,GAevC,YACH,EAAe,KAAO,EAAQ,GAAK,
EAAQ,KAC3C,EAAkB,MACb,OAAA,IAAI,EAAJ,cAAkB,EAAc,EAAO,EAAO,GAehD,gBAAS,EAAe,KAAM,E
AAM,IAAK,EAAkB,MAEzD,OAAA,IAAI,EAAJ,kBAAsB,EAAc,EAAK,GAgB3C,cACH,EAAe,KAAO,EAAQ,G
AAK,EAAQ,KAAO,EAAkB,KACpE,EAAQ,GACH,OAAA,IAAI,EAAJ,gBAAoB,EAAc,EAAO,EAAO,EAAS,G
AmB3D,eAAQ,EAAsB,EAA0B,IAEtD,OAAA,IAAI,EAAJ,iBAAqB,EAAc,IAjKZ,QAAA,sBAAA;;ACM3B,aAA
A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EAbP,IAAA,EAAA,QAAA,mCACA,EAAA
,QAAA,kCACA,EAAA,QAAA,+BACA,EAAA,QAAA,iCACA,EAAA,QAAA,mCACA,EAAA,QAAA,uCACA,E
AAA,QAAA,kCACA,EAAA,QAAA,8BAGC,EAAD,kBAAoB,EAApB,aAAkC,EAAlC,kBAAqD,EAArD,iBACC,
EADD,iBACmB,EADnB,gBACoC,EADpC,cAGO,MAAM,EAAQ,CACnB,IAAK,EAAsB,IAC3B,SAAU,
EAAsB,sBAAA,SAChC,SAAU,EAAsB,sBAAA,SAChC,QAAS,EAAsB,sBAAA,QAC/B,SAAU,EAAsB,sBAAA,
QAC/B,OAAQ,EAAsB,sBAAA,OAC9B,KAAM,EAAsB,sBAAA,MAPvB,QAAA,MAAA;;ACON,aAAA,OAAA,
eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EArBD,MAAM,EAA0B,KACO,oBA1B1B,sBACF,oBACA,
oBACA,oBACA,oBACA,

AK,GAGnC,IAAA,IAAI,EAAI,EAAG,EAAI,EAAW,SAAU,EACnC,GAAK,EAAW,OACd,EACF,EAAiB,KAAK,EAAW,EAAI,GAAK,EAAW,IAErD,EAAiB,KAAK,EAAW,GAAK,EAAW,EAAI,IAGvD,EAAiB,KAAK,EAAW,IAI9B,OAAA,EAOH,SAAU,EACZ,EAAmB,GACf,MAAA,EAAmB,CAAC,GACrB,IAAA,IAAI,EAAI,EAAG,EAAI,IAE1B,OAAA,EAAc,EAChC,EAAiB,KAAK,EAAW,EAAM,GAAG,IAAE1B,OAAA,EAAc,EAAA,EAAA,EAAA

EAAM,GAGhC,OAAA,EAGH,SAAU,EACZ,EAAkB,EAAc,GAC5B,MAAA,EAAW,GACX,EAAO,EAAO,OACf
,IAAA,IAAI,EAAM,EAAG,EAAM,EAAM,IACxB,IAAQ,EACV,EAAS,KAAK,EAAO,IAErB,EAAS,KAAK,GA
GX,OAAA,EAWH,SAAU,EACZ,EAAe,EAAqB,EACpC,GACI,MAAA,EAAc,EAAQ,MAAM,OAC5B,EAAQ,EA
AE,MAAM,OAElB,GAAc,IAAd,IACE,GAAa,GAAe,EAAY,GACpC,MAAA,IAAI,4CAA4C,MAClD,eAAyB,KA
Q7B,GAJA,EAAY,IACd,GAAa,GAGX,EAAY,EACR,MAAA,IAAI,oBAAoB,uCAC5B,OAGA,GAAA,EAAO,EA
CH,MAAA,IAAI,oBACN,0CAAkD,OAGnD,IAAA,IAAI,EAAI,EAAG,EAAI,IAAa,EAC3B,GAAA,EAAE,MAA
M,KAAO,EAAQ,MAAM,GACzB,MAAA,IAAI,iBACK,OAAO,EAAE,MAAM,uCACtB,OAAO,EAAQ,MAAM,
OAG3B,MAAA,EAAU,EAAE,MAAM,GAElB,EAAwB,GAC1B,IAAA,EAAY,EACZ,EAAY,EAAY,EAAY,EAE
X,IAAA,IAAI,EAAI,EAAG,EAAI,IAAa,EAC/B,EAAY,KAAK,EAAE,MAAM,IAC5B,GAAa,EAAE,MAAM,GA
GlB,IAAA,IAAI,EAAI,EAAW,EAAI,EAAM,IAChC,EAAY,KAAK,EAAE,MAAM,IAC5B,GAAa,EAAE,MAAM,
GAGlB,IAAA,IAAI,EAAI,EAAW,EAAI,EAAa,IACvC,EAAY,KAAK,EAAQ,MAAM,IAG5B,IAAA,IAAI,EAAI,
EAAO,EAAG,EAAI,EAAO,IAChC,EAAY,KAAK,EAAE,MAAM,IAC5B,GAAa,EAAE,MAAM,GAGhB,MAAA,
CAAC,UAAA,EAAW,UAAA,EAAW,UAAA,EAAW,QAAA,EAAS,YAA;;AC1EnD,aAAA,OAAA,eAAA,QAA
A,aAAA,CAAA,OAAA,IAAA,IAAA,EAAA,CAAA,wBAAA,EAAA,wBAAA,EAAA,YAAA,EAAA,YAAA,EAAA
A,cAAA,GAAA,QAAA,uBAAA,EAAA,QAAA,uBAAA,EAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAA
A,IAAA,WAAA,OAAA,EAAA,cAAA,QAAA,aAAA,QAAA,gBAAA,EA1CD,IAAA,EAAA,QAAA,WAGA,EAA
A,QAAA,oBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAA
A,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,
IAAA,EAAA,QAAA,yBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,
UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,E
AAA,SACA,IAAA,EAAA,QAAA,sBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IA
AA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,oBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAA
A,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,I
AAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,qBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,Y
AAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,EAAA,SAZA,IAAA,EAAA,QAAA,sBAAA,OAAA,KAAA,GAAA,QAAA,SAAA
,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,C
AAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAEA,IAAA,EAAA,EAAA,QAAA,sBA+BC,QAAA,WAAA,E
A5BD,IAAA,EAAA,QAAA,YAEA,EAAA,QAAA,sBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,
GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EA
AA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,yBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GA
AA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA
,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,yBAAA,OAAA,KAAA,GAAA,QAAA,
SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EA
AA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,0BAAA,OAAA,KAAA,GA
AA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAA
,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,oBAAA,OAAA,
KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,O
AAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SAEA,IAAA,EAAA,QAAA,mB
AAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EA
AA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA
,QAAA,UAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,
KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IA
AA,EAAA,QAAA,4BAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UA
AA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAA
A,SACA,IAAA,EAAA,QAAA,qBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAA
,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,O

AAA,EAAA,SAEA,IAAA,EAAA,EAAA,QAAA,wBAeC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,I
AAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,E
AAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAA
A,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAA
A,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAA
A,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,
EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAZK,SAAU,EAAAuB,GACjC,I
AEK,OAAA,EAAK,IAAI,IAAO,EAAa,EAAA,cAAA,IACpC,MAAO,GACD,MAAA,IAAI,kEACsD,MAI9D,SAA
U,EAAAuB,GAC9B,OAAA,EAAQ,IAAI,IAAK,EAAa,EAAA,cAAA,IACtC,QAAA,aAAA;;ACzCD,aAAA,OAAA,
eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,OAAA,eAAA,QAAA,0BAAA,CAAA,YAAA,EAAA,IAAA,WAAA,O
AAA,EAAA,2BAAA,OAAA,eAAA,QAAA,0BAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,2BAAA
,OAAA,eAAA,QAAA,0BAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,2BAAA,OAAA,eAAA,QAA
A,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aADA,IAAA,EAAA,QAAA,8BACA,EAAA,QAA
A;;ACgFA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,IAAA,EAAA,CAAA,IAAA,EAAA,MAAA,
EAAA,SAAA,EAAA,aAAA,EAAA,cAAA,EAAA,YAAA,EAAA,eAAA,EAAA,aAAA,EAAA,WAAA,EAAA,MA
AA,EAAA,cAAA,EAAA,mBAAA,EAAA,kBAAA,EAAA,eAAA,EAAA,iBAAA,EAAA,mBAAA,EAAA,WAAA,
EAAA,kBAAA,EAAA,cAAA,EAAA,QAAA,EAAA,cAAA,EAAA,UAAA,EAAA,MAAA,EAAA,YAAA,EAAA,
YAAA,EAAA,WAAA,EAAA,YAAA,EAAA,MAAA,EAAA,OAAA,EAAA,cAAA,EAAA,eAAA,EAAA,eAAA,E
AAA,aAAA,EAAA,KAAA,EAAA,KAAA,EAAA,WAAA,EAAA,cAAA,EAAA,aAAA,EAAA,cAAA,EAAA,eAA
A,EAAA,aAAA,GAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WAAA
,OAAA,eAAA,QAAA,oBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,qBAAA,OAAA,eAAA,QAA
A,mBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,oBAAA,OAAA,eAAA,QAAA,gBAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAAA,kBAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,EAAA,mBAAA,OAAA,eAAA,QAAA,oBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,
qBAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,OAAA,eAAA,
QAAA,mBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,oBAAA,OAAA,eAAA,QAAA,eAAA,CAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gBAAA,OAAA,eAAA,QAAA,SAAA,CAAA,YAAA,EAAA,IAA
A,WAAA,OAAA,EAAA,UAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAA
A,gBAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAA
A,QAAA,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,W
AAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aA
AA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAA
A,OAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QAAA,OAAA,eAAA,QAAA,QAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,EAAA,SAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,
OAAA,EAAA,gBAAA,OAAA,eAAA,QAAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAA
A,OAAA,eAAA,QAAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAA
A,cAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAA
,EAAA,IAAA,WAAA,OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,MAAA,CAAA,YAAA,EAAA,IAAA,WAAA,
OAAA,EAAA,OAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,O
AAA,eAAA,QAAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAAA,c
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,QAAA,aAAA,QAAA,YAAA,QAAA,aAAA,QA
AA,KAAA,QAAA,UAAA,QAAA,YAAA,QAAA,cAAA,QAAA,WAAA,QAAA,aAAA,QAAA,YAAA,QAAA,QA
AA,QAAA,KAAA,QAAA,QAAA,EAnEA,IAAA,EAAA,EAAA,QAAA,YAmEA,QAAA,GAAA,EAlEA,IAAA,E
AAA,EAAA,QAAA,WAkEA,QAAA,KAAA,EAjEA,IAAA,EAAA,EAAA,QAAA,kBAiEA,QAAA,QAAA,EAhE
A,IAAA,EAAA,EAAA,QAAA,yBAgEA,QAAA,YAAA,EA/DA,IAAA,EAAA,EAAA,QAAA,0BA+DA,QAAA,a
AAA,EA9DA,IAAA,EAAA,EAAA,QAAA,qBA8DA,QAAA,WAA,EA7DA,IAAA,EAAA,EAAA,QAAA,oBA6D
A,QAAA,cAAA,EA5DA,IAAA,EAAA,EAAA,QAAA,kBA4DA,QAAA,YAAA,EA3DA,IAAA,EAAA,EAAA,Q

AAA,gBA2DA,QAAA,UAAA,EA1DA,IAAA,EAAA,EAAA,QAAA,WA0DA,QAAA,KAAA,EAzDA,IAAA,EAAA,QAAA,aAIA,EAAA,QAAA,mCACA,EAAA,QAAA,kCACA,EAAA,QAAA,+BACA,EAAA,QAAA,iCACA,EAAA,QAAA,mCACA,EAAA,QAAA,0BACA,EAAA,QAAA,kCACA,EAAA,QAAA,8BACA,EAAA,QAAA,YAEA,EAAA,QAAA,WAEA,EAAA,QAAA,aAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,wBAEA,EAAA,QAAA,WAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,aAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,qBAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SACA,IAAA,EAAA,QAAA,eAAG,EAAA,QAAA,iBAMA,EAAA,QAAA,kBAGA,EAAA,EAAA,QAAA,4BAuBA,QAAA,aAAA,EAAtBA,IAAA,EAAA,EAAA,QAAA,kBAsBA,QAAA,YAAA,EANA,IAAA,EAAA,EAAA,QAAA,4BAMA,QAAA,aAAA,EAHA, IAAA,EAAA,QAAA,sBAGA,EAAA,QAAA,kBAAA,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA ,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA, WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,OAAA,KAAA,GAAA,QAAA, SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA;;AC9EA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAFA,QAAA,uBAEA,IAAA,EAAA,EAAA,QAAA,UAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA;;ACyEC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,uBAAA,IAAA,EAAA,EAAA,QAAA,UAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA;;ACyEA

Z,EAAc,GACT,MAAA,CACL,KAAK,IAAI,EAAG,KAAK,KAAK,EAAU,IAAK,KAAK,IAAI,EAAG,KAAK,KA
AK,EAAO,KAIhE,SAAU,EACZ,EAAc,GACV,MAAC,EAAG,GAAK,EAAuC,EAAM,GACrD,OAAA,EAAI,EA
AI,EAoBX,SAAU,EAEZ,EAA2B,GAEvB,MAAA,EAAQ,EAEV,IAAA,EACA,EACA,EACA,EACA,EAEA,EAC
A,EAEA,EACA,EACA,EA2BG,OAzBkC,KAArC,EAAM,EAAA,OAAA,UAAU,kBAClB,EAAsB,EAAM,KAC5B
,EA0B,EAAM,KAChC,EAAgC,EAAM,QACtC,EA4B,EAAM,QAClC,EAAqB,EAAM,IAC3B,EA4B,EAC5
B,EAAqB,EACrB,EAAuB,EAAM,WAC7B,EAAmB,EAAM,QAEzB,EAAsB,EAAG,KACzB,EA0B,EAAG,KA
C7B,EAAgC,EAAG,KACnC,EA4B,EAAM,KAClC,EAAqB,EAAG,KACxB,EA4B,EAC5B,EAAqB,EACrB,E
AAoD,MAA7B,EACnB,EA0B,eAC1B,KACJ,EAAmB,EAAG,OAIjB,CACL,oBAAA,EACA,wBAAA,EACA,8B
AAA,EACA,0BAAA,EACA,mBAAA,EACA,sBARF,EAAwB,EAAG,KASzB,0BAAA,EACA,mBAAA,EACA,qB
AAA,EACA,iBAAA,GAEH,QAAA,cAAA,EAvND,SAAY,GAgBV,EAAA,EAAA,MAAA,GAAA,QAkBA,EAAA
,EAAA,aAAA,GAAA,eAlCF,CAAY,IAAA,QAAA,cAAA,EAAa,KAuNxB,QAAA,aAAA,EAlLD,SAAY,GACV,E
AAA,EAAA,OAAA,GAAA,SACA,EAAA,EAAA,OAAA,GAAA,SACA,EAAA,EAAA,OAAA,GAAA,SACA,EAAA,EA
AA,SAAA,GAAA,WAJF,CAAY,IAAA,QAAA,aAAA,EAAY,KAkLvB,QAAA,oBAAA,EA3KD,SAAY,GACV,EA
ACV,EAAA,EAAA,iBAAA,GAAA,mBACA,EAAA,EAAA,iBAAA,GAAA,mBACA,EAAA,EAAA,yBAAA,GA
AA,2BACA,EAAA,EAAA,mBAAA,GAAA,qBACA,EAAA,EAAA,mBAAA,GAAA,qBALF,CAAY,IAAA,QAAA
A,oBAAA,EAAA,mB;;ACknB9B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EAAA,Q
AAA,iBAAA,EAAA,QAAA,qBAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,qBAAA,EA
AA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,wBAAA,
EAAA,QAAA,eAAA,EAAA,QAAA,cAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,mCAA
A,EAAA,QAAA,gBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,iCAAA,EAAA,QAAA,0BAAA,EAAA,QAAA,m
CAAA,EAAA,QAAA,wBAAA,EAAA,QAAA,8BAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,QA
AA,2BAAA,EAAA,QAAA,YAAA,EAAA,QAAA,YAAA,EAAA,QAAA,aAAA,EAAA,QAAA,gCAAA,EAAA,Q
AAA,cAAA,EAAA,QAAA,uBAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,uBAAA,EAA
A,QAAA,kCAAA,EAAA,QAAA,aAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,mCAAA,EAAA,QAAA,8BAAA,E
AAA,QAAA,oBAAA,GAAA,QAAA,iBAAA,GAAA,hBD,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,iBACA,EAAA
A,QAAA,cAEM,SAAU,EAAgB,EAA2B,GAAC,nD,MAAA,EAAA,EAAc,IAAb,OAAH,H,EAAA,EAAA,
hB,EAAgB,GAEX,EAAG,T,SAAS,EAAgB,GAAC,jB,MAAA,EAAA,EAAQ,EAAG,WAAC,b,GAAA,EA
AA,IAAA,U,EAAA,G,SAAA,C,WAAA,E,MAAA,EAAA,EAAA,MAAA,GAAA,gBAAA,EAAA,QAAA,EAAA,
AA,IAAI,MAAM,gBAAkB,EAAA,qB,EAAA,IAAA,K/D,MAAA,EAAA,QAAA,EAAA,c,QAAA,Cd,MAEd
AA,EAAA,EAAA,OAAA,EAAA,QAAA,iCAAA,EAAA,QAAA,EAAA,I,EAAA,IAAA,EAAA,QAAA,EAAA,KAAA
h,D,SAAA,U,EAAA,EAAA,CAAA,EAAA,2B,EAAA,GAAA,EAAA,ChD,MAAA,EAAA,QAAA,EAAA,c,QA
AA,Cd,MAAA,EAAA,QAAA,EAAA,OAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,Q
AAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAA
A,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,
EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KA
AA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA
,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,E
AAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QAAA,EAAA,KAAA,EAAA,QA
A

AoB,EAAS,EAAG,aAE/B,MADN,QAAQ,IAAI,EAAG,kBAAkB,IAC3B,IAAI,MAAM,+CAId,SAAU,EACZ,EAA
2B,GAEzB,GADJ,EAAa,EAAI,IAAM,EAAG,gBAAgB,KACkB,IAAAxD,EAAG,oBAAoB,EAAS,EAAG,iBAE/B,
MADN,QAAQ,IAAI,EAAG,kBAAkB,IAC3B,IAAI,MAAM,qCAId,SAAU,EACZ,EAA2B,GACvB,MAAA,EAAs
B,EACxB,EAAI,IAAM,EAAG,eAAgB,gCAG1B,OAFP,EAAa,EAAI,IAAM,EAAG,WAAW,EAAG,aAAc,IACtD,
EAAa,EAAI,IAAM,EAAG,WAAW,EAAG,aAAc,EAAM,EAAG,cACxD,EAGH,SAAU,EACZ,EAA2B,GACvB,M
AAA,EAAsB,EACxB,EAAI,IAAM,EAAG,eAAgB,gCAI1B,OAHP,EAAa,EAAI,IAAM,EAAG,WAAW,EAAG,qB
AAsB,IAC9D,EACI,EAAI,IAAM,EAAG,WAAW,EAAG,qBAAsB,EAAM,EAAG,cACvD,EAGH,SAAU,IACV,O
AAqC,KAArC,EAAM,EAAA,OAAA,UAAU,iBACX,EAEF,EAGH,SAAU,EAAc,GACrB,OAAA,EACH,IA
AM,EAAG,gBAAiB,kCAG9B,SAAU,EAAoB,EAAe,GAC3C,MAAA,GAAiB,EAAM,EAAA,OAAA,UAAU,0BA
ClC,GAAA,GAAS,GAAO,GAAU,EAAI,CAE3B,MAAA,IAAI,MAAM,8BADM,KAAS,KACyB,gBAErD,GAAA,A
EAAQ,GAAoB,EAAS,EAAiB,CAGnD,MAAA,IAAI,MAAM,8BAHkB,KAAS,KAI3B,yDAHY,KAAkB,KAG+B,
MAI/D,SAAU,EAAkB,GACzB,OAAA,EAAa,EAAI,IAAM,EAAG,oBAAqB,sCAGlC,SAAU,EACZ,EAA2B,EA
AuB,EAClD,EAAqB,EAA6B,EAClD,GACI,MAAA,EAAM,EAAG,kBAAkB,EAAS,GACtC,OAAS,IAAT,IAKJ,E
AAa,EAAI,IAAM,EAAG,WAAW,EAAG,aAAc,IACtD,EACI,EACA,IAAM,EAAG,oBACL,EAAK,EAAqB,EAA
G,OAAO,EAAO,EAC3C,IACR,EAAa,EAAI,IAAM,EAAG,wBAAwB,KAC3C,GAGH,SAAU,EACZ,EAA2B,EA
AuB,GACpD,EAAoB,EAAI,GACxB,EAAa,EAAI,IAAM,EAAG,cAAc,EAAa,EAAI,IAAM,EAAG,SAAW,IACtD,
EAAa,EAAI,IAAM,EAAG,YAAY,EAAG,WAAY,IAGjD,SAAU,EACZ,EAA2B,EAAC,EAAI,GAAO,EAAU,EAAI,
EAAa,EAAI,IAAM,EAAG,cAAc,EAAa,EAAI,IAAM,EAAG,SAAW,IACtD,
EAAa,EAAI,IAAM,EAAG,YAAY,EAAG,WAAY,IAGjD,SAAU,EACZ,EAA2B,EA
A2B,EAC3B,GACK,OAAA,EAAa,EAAI,IAAM,EAAG,mBAAoB,EAAS,GAAO,EAAG,YAAa,EAAM,6BAG5E,SAAU
,EACZ,EAA2B,EAAC,EAAI,GAAO,EAAU,EAAI,mBAAoB,EAAS,GAAO,EAAG,SAAU,EAAM,EACZ,EAC3B,EAA8C,
GAChD,EAAa,EAAI,IAAM,EAAG,gBAAiB,EAAS,EAAI,EAAS,IAAO,EAAa,EAAI,IAAM,EAAG,UAAW,EAAM,wBAAyB,IAAO,SA
AU,EAAM,wBAAyB,GAAO,EAAG,EAAa,EAAI,IAAM,EAAG,gBAAiB,EAAS,GAAO,EAAG,YAAa,EAAM,EAAG,SA
AS,EAAG,EAAG,EAAG,OAAO,MAAO,EAAG,OAAO,SAAO,EAAa,EAAI,IAAM,EAAG,QAAQ,EAAG,EAAG
,EAAG,OAAO,MAAO,EAAG,OAAO,SAAS,EAAG,EAAG,EAAG

AAM,EACtC,MAAA,CAAC,EAAS,GAAI,EAAS,GAAK,EAAS,GAAK,EAAS,IAEtD,GAAA,EAAU,CAON,MA
AA,EAAW,EAAY,GACzB,IAAA,EAAO,EAAG,EAAO,EAKd,OAJH,EAAS,UACV,EAAM,GAAQ,EAAY,IAE7
B,EAAO,GAAY,EAAO,IAAM,EAAO,GAChC,EAAK,KAAA,oBAAoB,GAAM,IAAI,GAAS,EAAJ,GAE1C,OAA
A,EAAK,KAAA,oBAAoB,GAIpC,SAAS,EAAO,GACP,OAAA,EAAI,GAAM,EAAO,Ob,SAAU,EAAc,EAAkB,GAI1
C,GAHJ,EAAS,EAAO,OAAO,GACvB,EAAS,EAAO,OAAO,GAEnB,EAAK,KAAA,YAAY,EAAQ,GACpB,OAA
A,EAGL,IAAC,EAAO,SAAW,EAAO,OACrB,OAAA,EAGL,GAAc,IAAd,EAAO,IAA0B,IAAd,EAAO,IA0B,IA
Ad,EAAO,IAC/B,IAAd,EAAO,GACF,OAAA,EAGL,GAAA,EAAO,SAAW,EAAO,OAAQ,CAC7B,MAAA,EAAa
,EAAO,OAAO,GAAG,GAC9B,EAAa,EAAO,OAAO,GAAG,GAChC,GAAA,EAAI,IAAe,EACV,OAAA,EAGL,GAAA,
EAAO,IAAe,EAAO,KCd,IAAd,EAAO,IA0B,IAAd,EAAO,IACtB,OAAA,EAAO,KAAO,EAAO,
IAAM,EAAO,EAAO,KAAO,EAAO,EAAO,IAMvE,IAAI,EACA,EAAA,SAAU,EAAA,EAAA,EAAA

,aACA,gDACA,IAAM,EAAI,UAAU,gDAAkD,IACjE,EAAY,YAAA,YAKrB,EAAI,aACA,+BACA,KAAM,EAA
mC,EAAA,oCAAA,EAAI,UAAU,mBAM3D,EAAI,aAAa,+BAAgC,KACxC,EAAI,QAAQ,6BAEf,EAAI,QAAQ,i
CAOlB,EAAI,aACA,+BACA,KAAM,EAA8B,EAAA,+BAAA,EAAI,UAAU,mBAGtD,EAAI,aACA,0BACA,KA
AM,EAAoB,EAAA,qBAAA,EAAI,UAAU,mBAK5C,EAAI,aAAa,4BAA6B,KAMrC,OADa,EAAI,QAAQ,gCACX
,EAAI,IAU3B,EAAI,aACA,iCACA,KACU,EAEV,IACM,GAAA,EAAY,IAAoB,IAAf,EACb,MAAA,IAAI,MAC
N,iGACkC;;ACtD7C,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mBAAA,EApHD,IAAA,E
AAA,QAAA,yBAeM,SAAU,IACV,IAAA,EACA,EACA,EACA,EACA,EACA,EACA,EACA,EACA,EA+E
G,OA7EkC,KAArC,EAAM,EAAA,OAAA,UAAU,kBAClB,EAAU,kBACV,EAAY,KACZ,EAAY,MACZ,EAAY,
KACZ,EAAY,UACZ,EAAS,cACT,EAAe,wBAMf,EAAmB,gVAcnB,EAAmB,GACnB,EAAc,4OAWd,EAAU,GA
CV,EAAY,YACZ,EAAY,UACZ,EAAY,UACZ,EAAY,UACZ,EAAY,YACZ,EAAS,eACT,EAAe,GAEf,EAAmB,0SASnB,EAA
mB,iNAUnB,EAAc,yLAWT,CACL,QAAA,EACA,UAAA,EACA,UAAA,EACA,UAAA,EACA,UAAA,EACA,UAAA,EACA,O
AAA,EACA,aAAA,EACA,iBAAA,EACA,iBAAA,EACA,YAAA;;ACtCG,aAAA,OAAA,eAAA,QAAA,aAAA,C
AAA,OAAA,IAAA,QAAA,mCAAA,EAAA,QAAA,OAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,0BAAA,EA3
EP,IAAA,EAAA,QAAA,yBAOM,SAAU,EACZ,EAAkB,EAAiB,EAAQ,SACvC,MAAA,EAAU,EAAK,KAAA,eA
Ae,GAC7B,OAAA,EACF,IAAI,CAAC,EAAQ,KAKL,gBAJc,EAAO,QAAQ,OAAW,QACjC,IAAM,EAAQ,SAAS
,SAC1B,EAAO,EAAI,QAAQ,OAAW,EAAO,QAAQ,gBAAC,xC,EAAO,QAAQ,SAGhC,KAAK,IAGZ,SAAS,EAAS
,GACZ,OAAa,IAAb,EAAE,UACM,EAAE,WAAW,EAAE,KAAK,EAAE,WAAW,EAAE,KAAK,EAAE,O
AAa,EAAE,KAAK,EAAE,aAAa,EAAE,iBAAiB,EAAE,iBAAiB,EAAE,YAAY,EAAE,UAAU,EAAE,MAAM,E
AAmB,GACnB,EAAc,KAAK,MAAM,EAAE,OAAS,GACpC,EAAuB,EAAE,OAAS,EAEnC,IAAA,IAAI,EAAI,I
AAG,EAAI,EAAa,IAAK,CAC9B,IAAA,EAAA,EAAA,E

A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,wBAAA,EAL/B,IAAA,EAAA,QAAA,kBAEA,EAAA,QAAA,0BACA,EAAA,QAAA,cAEM,MAAO,EAMX,YAAY,GALZ,KAAA,cAAgB,CAAC,KAGjB,KAAA,YAAc,EAAa,aAAA,SAGnB,MAAA,GAAO,EAAb,EAAA,sBACK,KAAA,YAAc,EACd,KAAA,oBACD,EAAoB,8FAIlB,EAAK,4CAdgB,QAAA,mBAAA;;ACAM,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,8BAAA,EALrC,IAAA,EAAA,QAAA,kBAEA,EAAA,QAAA,0BACA,EAAA,QAAA,cAEM,MAAO,EAAQX,YAAY,GAAPZ,KAAA,cAAgB,CAAC,KAAGjB,KAAA,YAAc,EAAAc,cAAa,aAAA,SAAGnB,MAAA,GAAO,EAAAb,EAAA,sBAAKK,KAAA,YAAc,EAACd,KAAA,oBAAmB,EAAoB,+KAAKlB,EAAK,4CAAjBsB,QAAA,yBAAA;;ACDL,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,yBAAA,EAAJC,IAAC,EAAA,IAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,2BAAA,EAAA,IAAA,EAAA,QAAA,8BAAA,EAAA,IAAA,EAAA,QAAA,kBAAA,EAAA,IAAA,EAAA,QAAA,wBAAA,EAAA,IAAA,EAAA,QAAA,kBAAA,EAAA,IAAA,EAAA,QAAA,kBAAA,EAAA,IAAA,EAAA,QAAA,k

EAAG,IACvD,OAAA,EAAW,wBAAwB,EAAI,GAGhD,SAAS,EACL,EAA2B,EAAe,EAC1C,EAAwB,EACxB,GACF,EAAW,oBAAoB,EAAO,GAChC,MAAA,EAAU,EAAW,cAAc,GAEnC,EAAQ,EAAG,WAgBV,OAfP,EAAAW,aAAa,EAAI,IAAM,EAAG,YAAY,EAAO,IACxD,EAAW,aACP,EAAI,IAAM,EAAG,cAAc,EAAO,EAAG,eAAAgB,EAAG,gBAC5D,EAAW,aACP,EAAI,IAAM,EAAG,cAAc,EAAO,EAAG,eAAAgB,EAAG,gBAC5D,EAAW,aACP,EAAI,IAAM,EAAG,cAAc,EAAO,EAAG,mBAAoB,EAAG,UAChE,EAAW,aACP,EAAI,IAAM,EAAG,cAAc,EAAO,EAAG,mBAAoB,EAAG,UAChE,EAAW,aACP,EACA,IAAM,EAAG,WACL,EAAO,EAAG,EAAAgB,EAAO,EAAQ,EAAG,EAAC5C,EAAAa,OACrB,EAAAW,aAAa,EAAI,IAAM,EAAG,YAAY,EAAG,WAAY,OACzD,EAAAW,SAAU,EAAC,EAAG,GACK,EAAAW,oBAAG,SAAU,EAAC,EAAG,oBAAG,EAAAW,EAAA,EAAA,EAAA

AAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EA
AA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAA
A,EAAA,IAAA,EAAA,GAAA,EAxlBK,MAAO,EAiBX,YAAY,GANZ,KAAA,cAAmC,KACnC,KAAA,QAA6B,
KACrB,KAAA,UAAW,EAqOX,KAAA,qBAAsB,EAsPtB,KAAA,YAA0B,GAtd1B,MAAA,GAAY,EAAM,EAAA
,OAAA,UAAU,iBACxB,MAAN,GACG,KAAA,GAAK,GACM,EAAA,EAAA,iBAAA,EAAW,IAEtB,KAAA,IAA
K,EAAgB,EAAA,iBAAA,GAGxB,IAAA,EAAqB,2BAErB,GAAqC,KAArC,EAAM,EAAA,OAAA,UAAU,iBAA
wB,CACpC,MAAA,EAAgB,oBAChB,EAAqB,yBAIvB,GAFC,KAAA,sBACD,EAAW,oBAAoB,KAAK,GAAI,G
ACxC,EAAW,aAAa,KAAK,GAAI,GAC9B,KAAA,0BACD,EAAW,oBAAoB,KAAK,GAAI,QACvC,IAAI,EAAM
,EAAA,OAAA,IAAI,4BACb,MAAA,IAAI,MACN,sHAKF,GADC,KAAA,0BAA4B,KAAK,GAAG,aAAa,GAClD
,EAAW,aAAa,KAAK,GAjBH,+BAkBvB,8BACD,EAAW,oBAAoB,KAAK,GAnBZ,oCAoBvB,IAAI,EAA
M,EAAA,OAAA,IAAI,4BACb,MAAA,IAAI,MACN,oIAKF,GADJ,EAAqB,yBACjB,EAAW,aAAa,KAAK,GAAI,
GAC9B,KAAA,0BACD,KAAK,GAAG,aAAa,OACpB,CAAA,IAAI,EAAW,aAAa,KAAK,GA9BV,+BAgCvB,MA
AA,IAAI,MAAM,uDAHX,KAAA,8BACD,KAAK,GAAG,aAhCgB,+BAsC3B,KAAA,aAAe,EAAW,mBAAmB,K
AAK,IAClD,KAAA,YAAc,EAAW,kBAAkB,KAAK,IAChD,KAAA,YAAc,EAAW,kBAAkB,KAAK,IAEhD,KAA
A,cACD,EAAS,iBAAiB,KAAK,GAAI,KAAK,2BAGlC,YACH,OAAA,EAAM,EAAA,OAAA,QAAQ,SAGhB,UA
CD,GAAA,KAAK,SACP,OAEkB,MAAhB,KAAK,SACP,QAAQ,KACJ,wKAIoB,MAAtB,KAAK,eACP,QAAQ,K
ACJ,sMAKA,MAAA,EAAK,KAAK,GAChB,EAAW,aAAa,EAAI,IAAM,EAAG,UACrC,EAAW,aAAa,EAAI,IAA
M,EAAG,gBAAgB,EAAG,YAAa,OACrE,EAAW,aAAa,EAAI,IAAM,EAAG,kBAAkB,KAAK,cAC5D,EAAW,aA
Aa,EAAI,IAAM,EAAG,WAAW,EAAG,aAAc,OACjE,EAAW,aACP,EAAI,IAAM,EAAG,WAAW,EAAG,qBAAs
B,OACrD,EAAW,aAAa,EAAI,IAAM,EAAG,aAAa,KAAK,cAClD,KAAA,UAAW,EAGX,2BAA2C,GAAvC,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,eAAe,KAAK,GAAI,KAAK,
C,OADF,KAAA,kBACE,EAAW,2BACd,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,2BAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
ADF,KAAA,kBACE,EAAW,2BACd,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,iCAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
KAAA,kBACE,EAAW,iCACd,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,yBAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
L,EAAW,yBAAyB,KAAK,GAAI,EAAS,GAAG,2BAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
,2BACP,KAAK,GAAI,EAAS,EAAO,EAAQ,EAAM,KAAK,eAAG5B,iCAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
E,EAAW,iCACd,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,0BAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
AW,0BACd,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,oBAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
zB,EAAW,kCAAkC,KAAK,GAAI,KAAK,aAAa,KAAK,cAAgB,MAAvB,EAAW,aAAa,KAAK,GAAI,IAAM,K
AAK,GAAG,cAAc,IAAG,KAAK,2BAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,eAAG5B,qBAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
,KAAK,GAAI,EAAM,EAAS,KAAK,eAAG5B,gBAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,eAAG5B,eAAA,EAAM,EAAA,OAAA,QAAQ,SAAS,KAAK,GAAI,KAAK,
AW,+BAAg

EAAS,GAEf,EAAW,0BACd,KAAK,GAAI,EAAS,GAInB,qBAAqB,EAAuB,GAG1C,OADF,KAAA,kBACE,EAAW,aACd,KAAK,GAAI,IAAM,KAAK,GAAG,kBAAkB,EAAS,IAGjD,0BAA0B,EAAuB,GAG/C,OADF,KAAA,kBACE,KAAK,GAAG,mBAAmB,EAAS,GAGtC,sBACH,EAAkC,EAAClC,GACG,KAAA,kBACA,KAAA,mBACL,EAAW,mCACP,KAAK,GAAI,EAAAoB,EAAAiB,GAG7C,uBACH,EAAmC,EAAAc,GAC9C,6BAA6B,EAAuB,GAG/C,OADF,KAAA,kBACE,KAAK,GAAG,mBAAmB,EAAS,GAG3D,6BACH,EAAyC,EAAAc,GACpD,KAAA,kBACA,KAAA,uCAAuC,EAAA,mBACrC,GACrD,KAAA,6BAA6B,EAAA,2BAA2B,EAAA,OAAO,GAAG/D,2BACH,EAAA,iCAAiC,EAAA,aAAa,EAAA,iBAAiB,EAAA,mCAAmC,EAAA,GAAG,EAAA,iBAAiB

OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAr1CD,MAAM,iBAAC,GAAoB,EAA3B,aAi
BM,SAAU,EACZ,EAAyB,EAAwB,EACjD,GACI,MAAA,EAA2B,GACjC,EAAW,QAAQ,IACX,MAAA,EAAO,
EAAK,KAAA,cAAc,EAAE,UAAU,cAGxC,EAAE,UAAU,UACd,EAAe,sBACM,EAAE,OAAO,EAAO,MAAQ,K
AAU,QAEvD,EAAe,0BAA0B,EAAE,SAC3C,EAAe,0BAA0B,EAAE,YAGzC,MAAA,EAAqB,EAAe,KAAK,MA
EzC,EACF,EACK,IAAI,GAAK,EAAwB,EAAG,EAAa,IACjD,KAAK,MACR,EAAc,EAAY,SAC1B,GAAO,EAA
b,EAAA,sBACM,EAA4B,EAA6B,GAC3D,IAAA,EACA,EACA,EAAe,EAAgB,GAoB5B,OAlBH,EAAY,UACd,E
ACI,EAA+B,EAAY,aAAc,GAC7D,EAA+B,EAA8B,KAE7D,EACI,EAAyB,EAAY,aAAc,GACvD,EAA+B,EAA2
B,IAGxD,IACF,GAAgB,GAGH,CACb,EAAc,EAA2B,EACzC,EAAoB,EAAuB,EAAsB,GACjE,KAAK,MAIT,SA
AS,EAAqB,GACtB,MAAA,EAAQ,EAAO,UAAU,aACvB,OAAA,EAAM,QACP,KAAA,EACI,OAAA,EAAiB,G
ACrB,KAAA,EACI,OAAA,EAAa,GACjB,KAAA,EACI,OAAA,EAAa,GACjB,KAAA,EACI,OAAA,EAAa,GACjB,KAAA,EACI,OAAA,EAAa,GACj
B,KAAA,EACI,OAAA,EAAa,GACjB,KAAA,EACI,OAAA,EAAa,GACjB,KAAA,EACI,OAAA,EAAa,GACtB,Q
ACQ,MAAA,IAAI,SACH,EAAM,0BACT,0BAIV,SAAS,EAA2B,GAE1B,OADM,EAAO,UAAU,aACjB,QACP,K
AAA,EACI,OAAA,EAAuB,GAC3B,KAAA,EACI,OAAA,EAAmB,GACvB,KAAA,EACI,OAAA,EAAmB,GACvB
B,KAAA,EACI,OAAA,EAAmB,GAC5B,QACS,OAAA,EAAmB,IAIhC,SAAS,EACL,EAAmB,EACnB,GAAqB,
GACnB,IAAA,EAAM,GAER,GADE,EACK,EAA2B,GAE3B,EAAqB,GAGxB,MAAA,EAAQ,EAAO,UAAU,aAC3B,EAAW,EAAA
AQ,IAAI,SAAS,EAAM,kBAAkB,GAAK,EAAM,EAAO,EAAM,EAAO,EAAM,EAAO

M,2HAI0B,EAAS,OAAO,EAAS,2CAC5B,EAAS,mEAKzB,IAAb,EAAM,2HAI0B,EAAS,OAAO,EAAS,2CAC5B
,EAAS,qLAQR,EAAS,OAAO,EAAS,yCAC5B,EAAS,2CAClB,EAAM,kCACF,EAAM,4CAMlC,SAAS,EAAyB,G
ACzB,eAAS,IAGlB,SAAS,EAAuB,GACxB,MAAA,EAAU,EAAU,KAGnB,oBAFU,MAAQ,EAAQ,OAAO,GAA
G,cAAgB,EAAQ,MAAM,yBAC5D,EAAb,EAAA,sBAGkB,aAAa,yBAKjC,SAAS,EAAiB,GAClB,MAAA,EAAU,
EAAU,KACpB,EAAW,MAAQ,EAAQ,OAAO,GAAG,cAAgB,EAAQ,MAAM,GACrE,GAAA,EAAU,UAAU,UA
Cf,eAAS,eAAsB,MAElC,MAAC,EAAS,GAAW,EAAU,UAAU,SAC3C,GAAY,IAAZ,GAA6B,IAAZ,EAAC,uBA
CG,uCACiB,6BAKvB,MAAC,EAAO,GAAS,EAAU,UAAU,SAEpC,qBACG,qCACiB,MAAU,MAHtB,EAAyB,oB
CAIb,qBAK7B,SAAS,EAAmB,GACpB,MAAA,EAAU,EAAU,KACpB,EAAW,MAAQ,EAAQ,OAAO,GAAG,cA
AgB,EAAQ,MAAM,GACnE,EAAW,EAAU,UAAU,SAC/B,EACF,CAAC,KAAK,KAAK,EAAS,GAAK,GAAI,K
AAK,KAAK,EAAS,GAAK,IACnD,GAAO,EAAb,EAAA,sBAEO,aAAa,oBACE,4DAED,EAAe,OAAO,EAAe,6BAChC,
EAAK,aAAa,qBAKjC,SAAS,EAAa,GACd,MAAA,EAAU,EAAU,KACpB,EAAW,MAAQ,EAAQ,OAAO,GAAG,
cAAgB,EAAQ,MAAM,GAAE,rE,GAAA,EAAU,UAAU,UAEf,uBACG,2BACJ,EAAK,kB,oBAKpB,MAAA,EAAW,EAAU,
EAAU,SAC/B,EAAA,EAAS,EAAQ,EAAQ,GAAA,jB,EAAA,EAAS,GAAA,nB,GAAA,EAAU,IAAV,GAAA,yB,IAAA,EAAV,EACV,uBACG,g
DACiB,6BAIvB,MAAA,EAAS,EAAA,yB,GACpC,OAAU,IAAV,mBAEQ,8DAC+B,eAAA,oB,uCAAA,sB,yBAAA,f,IAAA,
mBAEQ,yDAC0B,eAAA,oB,4CAAA,8B,wCAAA,nB,8CAAA,iB,MAAA,cAAA,kB,qBAAA,K,EAAA,S,EAAA,S,EAAA,S

AO,EAAI,QACM,EAGnC,oBACE,KAAY,2BACH,gCACO,uCACO,0DACmB,MAAY,sBANlD,EAAb,EAAA,sBAOkB,aAAa,qBAKjC,SAAS,EAAa,GACd,MAAA,EAAQ,EAAU,UAAU,aAC5B,EAAU,EAAU,KACpB,EAAW,MAAQ,EAAQ,OAAO,GAAG,cAAgB,EAAQ,MAAM,GACnE,EAAU,EAAM,GAChB,EAAU,EAAM,GAAK,EACrB,EAAU,EAAM,GAAK,GAErB,SAAC,EAAD,SAAW,GAAY,EAAK,KAAA,,aAAa,GAAC3C,GAAA,A,EAAS,OAAS,EAAM,OAAQ,CAC5E,B,MAAC,EAAA,EAAA,QAAA,EAAA,OAAA,EAAA,UAAA,EAAA,UAAA,EAAA,U

ADa,IAAX,EACc,GACP,EAAU,GAAK,EAAc,QAAU,EAChC,cAGZ,EAAc,IAAI,aAAe,EAAO,EAAI,WACvC,KAAK,0BAeA,KAXd,EADE,EAAU,GAAK,EAAS,EACF,SAEA,EAAU,UAAU,aACf,IAAI,CAAC,EAAG,cAAgB,EAAO,EAAI,MACnC,KAAK,qBAYhC,SAAU,EAAkB,GAC5B,GAAA,EACA,GAAQ,EACA,MAAA,MACF,GAAA,IAAA,EACF,MAAA,QACF,GAAA,IAAA,EACF,MAAA,QACF,GAAA,IAAA,EACF,MAAA,QACF,GAAA,IAAA,EACF,MAAA,QACF,GAAA,IAAA,EACF,MAAA,QAED,MAAA,sBAAA,sB,0BAKhC,SAAS,EACL,EAAmB,GAAE,EAAf,EAAA,MAAA,EAAA,KAAA,EAAA,MAAA,EAAA,KAAA,EAAA,MAAA,EAAA,KAAA

AA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,EAAA,QAAA,UAAA,QAAA,SAAA,EA1B
P,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,eAEM,SAAU,EAAc,GACtB,MAAA,EAAe,IAAI,aAAa,EAAK,Q
ACtC,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,SAAU,EACjC,EAAa,GAAK,KAAK,IAAI,EAAK,IAE3B,OAAA,E
AGF,MAAM,EAAO,IACZ,MAAA,EAAC,GAAK,EAAK,OACX,EAAa,EAAK,SAEP,EAAA,EAAA,kBAAA,EA
AG,OAEhB,IAAA,EAAe,IAAI,aAAa,EAAK,KAAA,cAAc,EAAE,QAIlD,OAFP,EAAe,EADA,EAAW,KAAK,IA
AI,EAAE,QAAQ,QAGtC,EAAW,WAAW,EAAc,EAAE,MAAO,YAG/C,QAAA,IAAA,EAAA,MAAM,EA0B,C
ACrC,WAAY,EADyB,IAErC,YAAa,MACb,WAAY,GAHP,QAAA,UAA;;ACyBN,aAAA,OAAA,eAAA,QAAA,
aAAA,CAAA,OAAA,IAAA,QAAA,6BAAA,EAnDD,IAAA,EAAA,QAAA,yBAOM,SAAU,EAA6B,GAEpC,MA
AA,CAAC,EAAkB,EAAkB,EACpC,EAAmB,KACnB,MAAA,EAAW,EAAa,2BAA2B,EAAQ,GAE3D,EA
Aa,EAAS,OACtB,EAAgB,EAAK,KAAA,eAAe,GACpC,EAAa,EAAK,KAAA,cAAc,GAEhC,EACF,EAAK,KAA
A,uBAAuB,EAA0B,GAEpD,EAAQ,EAAO,OACf,EAAQ,EAAO,OAEf,EAAW,EAAK,KAAA,eAAe,GAC/B,EAA
W,EAAK,KAAA,eAAe,GAE/B,EAAiB,EAAa,aAAA,iBAAiB,EAAQ,GACvD,EAAiB,EAAa,aAAA,iBAAiB,EAA
Q,GAEzD,GAAA,EAAe,OAAS,EAAe,SAAW,EAC/C,IAAA,IAAI,EAAI,EAAG,EAAI,EAAO,SAAU,EACnC,EAAO
,GAAK,EAAG,EAAM,EAAI,EAAM,QAAS,EAAM,EAAI,EAAM,cAGrD,IAAA,IAAI,EAAI,EAAG,EAAI,E
AAO,SAAU,EAAG,CAChC,MAAA,EAAM,EAAK,KAAA,WAAW,EAAG,EAAY,GAErC,EAAO,EAAI,OAAO,
GACxB,EAAe,QAAQ,GAAK,EAAK,GAAK,GAChC,MAAA,EAAS,EAAK,KAAA,WAAW,EAAM,EAAO,GAEt
C,EAAO,EAAI,OAAO,GACxB,EAAe,QAAQ,GAAK,EAAK,GAAK,GAChC,MAAA,EAAS,EAAK,KAAA,WAAW,EAAM,EAAO,GAE5C,EAAO,EAAI,OAAO,GAAK,EAAK,GAAK,GAAK

C/B,MAAA,CAAC,OAAQ,EAAO,OAAQ,MAAO,EAAO,MAAO,MAAA,GAGlD,GAAU,UAAV,EAAmB,CACf,MAAA,EAAS,EAAQ,KAAK,IAAI,EAAE,QAAQ,OACpC,EAAe,WAAW,KAAK,GAC9B,OAAA,EAAQ,eAAe,EAAE,MAAO,QAAS,GAG9C,GAAU,SAAV,EAAkB,CAAd,MAAA,EAAS,EAAQ,KAAK,IAAI,EAAE,QAAQ,OACnC,EAAO,EAAK,KAAK,aAAa,CAAC,GAAI,IAAO,EAAE,QAAE/B,UAAA,EAAA,EAAA,E

AAM,GAE1C,IAAA,IAAI,EAAI,EAAG,EAAI,EAAM,OAAQ,IAAK,CAC/B,MAAA,EAAQ,EAAM,GAChB,GAAA,EAAQ,EACJ,MAAA,IAAI,MAAM,iCAGd,GAAS,IAKX,EAAQ,IADN,EAAc,EACE,EAAY,GAEZ,GAIf,OAAA,EAGH,SAAU,EACZ,EAAuB,EAA6B,EACpD,GAAAe,GACX,MAAA,EAAU,EAAK,MAAM,GACrB,B,EAAU,EAAK,MAAM,GAErB,B,GAAS,EAAO,EAAA,QAAA,CAAA,C,IAAA,E,EAAA,I,EAAA,E,EAAA,I,EAAA,O,EAAA,E7C,IAAA,A,IAAA,I,EAAA,E,EAAA,I,EAAA,S,EAAA,I,CtB,IAAA,A,IAAA,I,EAAA,E,EAAA,I,EAAA,S,EAAA,I,EAAA,K,CAC1B,C1B,MAAA,A,EAAA,Q,EAAA,I,EAAA,K,EAAA,I,EAAA,S,EAAA,I,EAAA,K,EAAA,I,EAAA,S,EAAA,I,EAAA,K,EAAA,I,EAAA,S

AG,CAC9B,MAEA,EAFS,EAAO,WAAW,GAEI,QAC/B,EAAW,EAAY,GACvB,EAAa,EAAY,GACzB,EAAe,EAAW,WAAW,CAAC,EAAU,IACtD,EAAY,GAAK,EAAW,OAAO,GAE7B,MAAA,EAAgB,EAAK,WAAW,GACtC,EAAO,OAAO,GAAK,EAAK,OAAO,GAG1B,OAAA;;ACTF,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,QAAA,QAAA,QAAA,iBAAA,EAAA,VP,IAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,wBAAA,CAAA,EAAA,QAAA,yBAAA,EAAA,O,MAAA,M,GAAA,T,EAAA,6B,EAAA,E,8BAAA,A,CAAA,C,EAAA,W,IAAA,e,EAAA,I,EAAA,K,EAAA,I,GAAA,l,EAAA,E,QAAA,A,YAAA,A,EAAA,H,MAAA,M,GAAA,T,EAAA,iB,EAAA,E,kBAAA,A,EAAA,jB,QAAA,0B,EAAA,a,KAAA,wB,QAAA,E5D,QAAA,A,QAAA,A,EAAA,E,MAAA,M,EAAA,8B,CAAA,C,zC,WAAA,Y,EAAA,6B,QAAA,Ez,C,YAAA,a,MAAA,C,Wb,AAAA,Y,GAAA,Q,EAAA,C;;AC,AA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,QAAA,QAAA,QAAA,WAAA,QAAA,KAAA,QAAA,cAAA,QAAA,aAAA,EAAA,VP,IAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,wBAAA,CAAA,EAAA,QAAA,yBAAA,EAAA,O,MAAA,M,GAAA,T,EAAA,6B,EAAA,E,8,BAAA,A,CAAA,C,EAAA,W,IAAA,e,EAAA,I,EAAA,K,EAAA,I,GAAA,l,EAAA,E,QAAA,A,YAAA,A,EAAA,H,MAAA,M,GAAA,T,EAAA,iB,EAAA,E,kBAAA,A,EAAA,jB,QAAA,0B,EAAA,a,KAAA,wB,QAAA,E,uB,QAAA,E

BAAA,EAAjB,SAA2B,EAAc,KAAsB,QAE5D,QAAA,SAAA,EAAA,MAAM,EAA+B,CAC1C,WAAY,EAD8B,SAE1C,YAAa,MACb,WAAY,GAHP,QAAA,eAAA;;ACiBN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,EA1BD,IAAA,EAAA,QAAA,yBAAEM,SAAAU,EACZ,EAAAmB,EAAAkB,EAAAiB,EACtD,GACI,MAAA,EAAAQ,EAAAO,EACf,OACf,EAAAQ,EAAAK,KAAAA,cAAc,GAC3B,EAAAW,EAAAK,KAAAA,eAAAe,GAC/B,EAAAa,EAAAK,KAAAA,eAAAe,GAEjC,EAAAS,EAAAK,KAAAA,uBAAChB,EAA0B,EAAAK,KAAAA,cAAAc,IAE5C,IAAA,IAAAI,EAAAI,EAAAG,EAAAS,IAAAA,EAAAC,EAAAK,EAAAC,EAAAK,EAAAC,EAAAK

M,EAAM,IACzD,EAAO,IAAI,EAAM,OAAO,MAAW,GAGjC,MAAU,WAAV,EACK,EAAa,aAAA,uBAAuB,EA
AO,QAE7C,EAAO,OAGV,SAAU,EACZ,GAEI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EA
AC,GAAK,GACN,MAAC,EAAD,KAAQ,GAAQ,GAEL,EAAA,EAAA,kBAAA,EAAG,SAEd,MAAC,EAAQ,GA
AS,EAAW,WAAA,iBAAiB,EAAG,EAAO,GACnD,EAAA,WAAA,kBAAkB,EAAG,EAAQ,GAElC,MACA,EAA
U,EADH,EAAQ,KAAK,IAAI,EAAE,QAAQ,OACR,EAAQ,EAAO,EAAE,MAAO,EAAE,OACnD,OAAA,EAAQ,
eAAe,EAAO,EAAE,MAAO,GAGzC,MAAM,EA4B,CACvC,WAAY,EAD2B,MAEvC,YAAA,;;AC7CA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,wBAAA,QAAA,kBAAA,QAAA,2BAAA,QAAA,kBAAA,QAAA,kBAAA,QAAA,kB

AAA,EAAiB,EAAS,QAChC,EAAe,GAAK,OAAO,KAAK,GAAgB,OAC1C,MAAA,EAAe,IAAI,EAAJ,aAAiB,E
AAgB,GACtD,EAAc,QAAQ,CAAC,EAAoB,KACpC,IAAA,IAAI,EAAI,EAAG,EAAI,EAAS,GAAI,IAC1B,IAAA
,IAAI,EAAI,EAAG,EAAI,EAAS,GAAI,IAC/B,EAAa,IAAI,EAAY,IAAI,EAAG,EAAoB,GAAI,EAAG,EAAG,KA
OlE,MAAA,EAAc,EAAM,QAGnB,OAFP,EAAY,GAAS,EAAe,GAE7B,CACL,aAAc,EAAa,OAC3B,YAAA,EAC
A,QAAA;;AC1GJ,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,OAAA,eAAA,QAAA,gBAAA,CAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA
,WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,
gBAAA,OAAA,eAAA,QAAA,qBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,sBAAA,OAAA,eAA
A,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,aAAA,CAA
A,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,
WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,
aAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,OAAA,eAAA,Q
AAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gBAAA,OAAA,eAAA,QAAA,cAAA,CAAA,Y
AAA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WA
AA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gBA
AA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QA
AA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,cAAA,CAAA,YAAA,EAAA,IAAA,WAA
A,OAAA,EAAA,eAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gBAA
A,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WAAA,OAAA,eAAA,QAA
A,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gBAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAA
A,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA
,OAAA,EAAA,aAAA,OAAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,O
AAA,eAAA,QAAA,YAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,aAAA,OAAA,eAAA,QAAA,wB
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,yBAAA,OAAA,eAAA,QAAA,mBAAA,CAAA,YAAA,
EAAA,IAAA,WAAA,OAAA,EAAA,oBAAA,OAAA,eAAA,QAAA,UAAA,CAAA,YAAA,EAAA,IAAA,WAAA,
OAAA,EAAA,WAAA,OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,
OAAA,eAAA,QAAA,WAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,YAAA,OAAA,eAAA,QAAA,g
BAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,iBAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,E
AAA,IAAA,WAAA,OAAA,EAAA,cA7BA,IAAA,EAAA,QAAA,iBACA,EAAA,QAAA,iBACA,EAAA,QAAA,2
BACA,EAAA,QAAA,kBACA,EAAA,QAAA,yBACA,EAAA,QAAA,iBACA,EAAA,QAAA,mBACA,EAAA,QA
AA,mBACA,EAAA,QAAA,2BACA,EAAA,QAAA,qBACA,EAAA,QAAA,kBACA,EAAA,QAAA,2BACA,EAA
A,QAAA,iBACA,EAAA,QAAA,sBACA,EAAA,QAAA,qBACA,EAAA,QAAA,qBACA,EAAA,QAAA,sBACA,E
AAA,QAAA,iBACA,EAAA,QAAA,sBACA,EAAA,QAAA,kBACA,EAAA,QAAA,wBACA,EAAA,QAAA,mBA
CA,EAAA,QAAA,mBACA,EAAA,QAAA,+BACA,EAAA,QAAA,+BACA,EAAA,QAAA,iBACA,EAAA,QAAA,
uBACA,EAAA,QAAA,uBACA,EAAA,QAAA,4BACA,EAAA,QAAA;;ACIBA,aAAA,OAAA,eAAA,QAAA,aA
A,CAAA,OAAA,IAAA,QAAA,cAAA,QAAA,iBAAA,QAAA,YAAA,QAAA,YAAA,QAAA,aAAA,QAAA,aAAA
,QAAA,WAAA,QAAA,oBAAA,QAAA,aAAA,QAAA,iBAAA,QAAA,YAAA,QAAA,WAAA,QAAA,gBAAA,Q
AAA,eAAA,QAAA,eAAA,QAAA,WAAA,QAAA,WAAA,QAAA,gBAAA,QAAA,YAAA,QAAA,eAAA,QAAA,
gBAAA,QAAA,aAAA,QAAA,aAAA,QAAA,WAAA,QAAA,cAAA,QAAA,YAAA,QAAA,sBAAA,QAAA,gBAA
A,QAAA,gBAAA,EARA,IAAA,EAAA,EAAA,QAAA,6CAQA,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KA
AA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAA
A,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,
GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,
IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yB
AAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GA
AA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,MACE,QAAS,EACT
,aAAc,EACd,mBAAoB,EACpB,SAAU,EACV,WAAY,EACZ,QAAS,EACT,UAAW,EACX,UAAW,EACX,aAAc,

EACd,YAAa,EACb,SAAU,EACV,aAAc,EACd,QAAS,EACT,QAAS,EACT,YAAa,EACb,YAAa,EACb,aAAc,EACd,QAAS,EACT,SAAU,EACV,UAAW,EACX,UAAW,EACX,cAAe,EACf,UAAW,EACX,iBAAkB,EAClB,QAAS,EACT,SAAU,EACV,SAAU,EACV,cAAe,EACf,WAAY,GACV,EA9BJ,QAAA,cAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,YAAA,EAAA,QAAA,YAAA,EAAA,QAAA,WAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,aAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,aAAA,EAAA,QAAA,aAAA,EAAA,QAAA,YAAA,EAAA,QAAA,WAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,eAAA,EAAA,QAAA,WAAA,EAAA,QAAA,WAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,YAAA,EAAA,QAAA,eAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,aAAA,EAAA,QAAA,aAAA,EAAA,QAAA,cAAA,EAAA,QAAA,YAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,WAAA;;ACYC,aAxBK,SAAU,EAAAe,EAAAc,GACpC,MAAA,CAAAC,EAAAC,EAAAC,E

MACC,MAAA,EAAa,KAAK,aAAa,GAAU,QAExC,OADF,KAAA,aAAa,GAAU,KAAK,GAC1B,EAGL,IAAA,EAuBG,OAtBH,IAAoB,EAAoB,oBAAA,mBAC1C,EAAa,KAAK,MAAM,0BAA0B,EAAQ,GAAI,EAAQ,IAC7D,IAAoB,EAAoB,oBAAA,mBACjD,EACI,KAAK,MAAM,iCAAiC,EAAQ,GAAI,EAAQ,IAC3D,IAAoB,EAAoB,oBAAA,iBACjD,EACI,KAAK,MAAM,2BAA2B,EAAQ,GAAI,EAAQ,IACrD,IAAoB,EAAoB,oBAAA,iBACjD,EACI,KAAK,MAAM,2BAA2B,EAAQ,GAAI,EAAQ,IAE5D,IAAoB,EAAoB,oBAAA,2BAC1C,EACI,KAAK,MAAM,iCAAiC,EAAQ,GAAI,EAAQ,IAAK,EAAQ,IAAK,EAAQ,IAAK

QAAA,qBAEM,MAAO,EAOX,YAAY,GANZ,KAAA,cAAgB,CAAC,KACjB,KAAA,cAAe,EACf,KAAA,cAAe,EAKR,KAAA,YAAc,EACb,MAAA,EAAO,EAAY,OAEnB,GAAW,EAAY,EAAA,aAAA,KAAM,GAC7B,GAAQ,EAAkB,EAAA,mBAAA,GAC1B,GAAe,EAAA,gBAAgB,EAAA,iBAAA,EAAM,GACrC,EAAY,EAAS,OAAO,GAC5B,EAAA,EAAS,GAAQ,EAAI,aAAe,EAAU,KAAK,QAEpD,KAAA,2CAEC,8DACwB,oDAEU,uBAtBlB,QAAA,cAAA;;AC8jCzB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAAA,QAAA,iBAAA,QAAA,gBAAA,QAAA,qBAAA,EAAjkCD,QAAA,iBAAGA,GAAH,IAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,iBAAA,QAAA,yBAAA,EAAA,QAAA,iBAAA,QAAA,uBAAA,EAAA,QAAA,8BAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,6BAAA,EAAA,QAAA,uBAAA,EAAA,QAAA,8BAAA,EAAA,QAAA,mBAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,yBAAA,EAAA,QAAA,cAAA,EAAA,QAAA,wBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,qBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,wBAAA,EAAA,QAAA,gBAAA,EAAA,QAAA,iBAAwiCC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,QAAA,IAAA,EAAA,QAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,EAAA,IAAA,EAAA,KAAA,EAAA,IAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,GAAA,EAAA,iBAAA,CD,MAAAM,EAAAY,EAAAa,aAAA,UAAAE,lB,EAAAkB,KAAAoiC9B,QAAAA,gBAAAA,EAAAgniCM,MAAAM,EAAAkB,KAAAmiC9B,QAAAA,gBAAAA,EAAAgniCM,MAAAM,EAAAuE,GAAAvE,SAAAU,EAAAe,GAAAzB,OAAAA,KAAAgB,EAAAa,IAAAtB,EAAAa,GAAAgB,GAACtB,EAAAa,IAAAtB,MAAAM,EAAA6B,IAAK7B,EAAAyB,IAAC/B,SAAAS,IAACH,OAAAuB,OAAAvB,EAAAM,EAAAA,OAAAA,OAAAO,OAACR,MAAAD,EAAAM,EAAAA,OAAAA,OAAAO,OAAAO,MAACjD,OAAAO,iBAACX,EAAAyB,KAAAO,KAAAC,GAAhC,MAAAC,EAAAC,OAAAC,UAAAC,eAAAC,KAAAL,EAAAC,GAAAD,EAAAC,GAAAK,EAAAN,OAAAO,yBAAAR,EAAAC,GAAAM,IAAAA,EAAAE,IAAAF,EAAAG,IAAAT,OAAAU,eAAAX,EAAAI,EAAAM,GAAAV,EAAAI,GAAAD,EAAAC,GAAAJ,EAAAa,WAAAV,EAAAW,cAAAd,EAAAe,UAAAZ,EAAAa,SAAAhB,EAAAiB,MAAAC,EAAAC,EAAAC,E

AClC,OAAA,IAAI,QAAoB,GAAW,EAAY,KAAK,IAEvD,MAAA,EAAU,KAAK,QAAQ,IAAI,IAC3B,OAAC,EAAD,MAAS,EAAT,MAAgB,EAAhB,MAAuB,EAAvB,mBAA8B,EAA9B,SAAkD,GAAY,EAAKhE,GAAS,MAAT,EAAAe,CAAb,IAAAA,EAAAA,EAAAA,E

AY,EAAmB,KAAK,OAAQ,GAC5C,KAAA,YAAY,EAAmB,KAAK,OAAQ,IAG9C,KAAA,QAAQ,OAAO,IAEb,
EAGD,eAAe,GACf,MAAA,QAAC,EAAD,MAAU,EAAV,SAAiB,EAAjB,MA2B,EAA3B,SAAkC,EAAlC,MA
4C,GAC9C,KAAK,QAAQ,IAAI,GACf,EAAM,GAAS,EAAM,YAAc,EACnC,EAAW,KAAK,aAAa,IAAI,GAEnC,
EAAW,EACR,KAAA,aAAa,IAAI,EAAK,EAAW,IAEjC,KAAA,aAAa,OAAO,GACV,MAAX,IACG,KAAA,eAAi
B,KAAK,aAAa,EAAU,GAC7C,KAAA,eAAe,eAAe,EAAS,EAAU,EAAO,KAI3D,MAAA,EAAU,KAAK,QAAQ,I
AAI,GACjC,EAAQ,QAAU,KAClB,EAAQ,SAAW,KAC nB,EAAQ,UAAW,EAC nB,EAAQ,MAAQ,KAGlB,WAA
W,GAEF,OADF,KAAA,YAAY,GACV,KAAK,QAAQ,IAAI,GAAQ,QAOlC,YAAY,GACH,OAAA,KAAK,QA
Q,IAAI,GAGlB,gBACF,OAAC,EAAM,EAAA,OAAA,QAAQ,sBAII,MAAnB,KAAK,aCF,KAAA,YAAa,EAAS,
EAAA,UAAA,YAAY,QAGlC,KAAK,YAPH,KAiBX,mBACI,EACA,EAAgB,GACZ,MAAA,EAAA,KAAK,gBAY,
jB,OAXF,EAAM,EAAA,OAAA,QAAQ,YAAe,KAAK,uBACrB,MAAd,IACF,QAAC,KAAK,6NAKC,KAAA,uBA
AwB,GAGV,MAAd,GACH,EAAO,MACH,GAAmD,MAA1C,KAAK,QAAQ,IAAI,EAAM,QAAQ,SACpC,EAAK
,KAAA,cAAc,EAAM,OAAS,GAGhD,SAAS,OAAA,KAAK,MAGd,gBAAgB,kBACZ,OAAA,KAAK,MAAG,d,MACA,
,MAAA,EAAW,EAAA,WACpB,OAAA,KAAK,EAAU,EAAA,EAAU,EAAA,MAAO,GAAG5B,cAAe,EAAA,aAAA,KACT,yEAEE
,MAAA,EAAW,EAAA,UACpB,OAAA,KAAK,EAAU,EAAA,EAAU,EAAA,MAAO,GAAG5B,cAAe,EAAA,aAAA,KACT,EA
AU,IAAI,EAAJ,qBAAyB,EAAE,MAAO,GAC5C,EAAU,KAAK,cAAc,EAAS,CAAC,GAAI,IAC1C,OAAA,EAAA,
S,EAAA,UAAA,qBACZ,EAAQ,OAAQ,EAAQ,MAAO,EAAQ,OAAM7C,IAAA,sBAAhB,GAAE,KAAK,mBAAm
B,CAAC,KAAmB,cAAZ,EAAE,MAAuB,CACrD,MAAA,GACF,EAAA,kBAAA,KAAK,QAAQ,IAAI,EAAA,QAAQ,IAAI,
EAAE,QAAQ,QACzC,OAAA,KAAK,WAAW,EAAE,MAAO,EAAE,MAAO,GAAGvC,IAAA,EAAM,EAAA,OAAA,
QAAQ,+BACT,OAAA,KAAK,cAAc,EAAG,EAAS,IAAK,EAAE,OAAGzC,IAAA,MAAA,EAAA,OAAA,IAAA,EAAJ,eAAmB,E
AAE,MAAO,EAAS,KAAC/C,IAAA,EAAA,OAAA,IAAA,EAAA,KAAA,cAAc,EAAS,CAAC,IAAK,EAAE,OAAA,KAAK,EAAA,
AQ,OAAQ,EAAQ,MAAO,EAAQ,OAAGpD,IAAA,EAAA,OAAA,IAAA,EAAA,KAAA,cAAc,EAAS,CAAC,IAAK,EAAE,OAAA,KAAK,EAAA,
AAV,GAAAqD,IAAA,EAAA,OAAA,IAAA,EAAA,KAAA,cAAc,EAAS,CAAC,IAAK,EAAE,OAAA,KAAK,EAAA,
AAV,GAAAC

AS,WAAW,KAG7C,KAAA,YAAY,EAAO,QAClB,MAAA,EACW,CAAC,MAAO,EAAO,MAAO,QAAS,EAAS,
WAAW,GAC9D,EAAM,EAAW,cAAc,EAAS,EAAY,GACpD,EAAS,KAAK,iBAAiB,EAAK,IACjC,EAAW,eACd
,KAAK,MAAO,EAAS,EAAY,IAEjC,EAAyC,MAArB,KAAK,aAC3B,IAAA,EAgBA,GAfA,IACF,EAAQ,KAAK,
cAGf,EAAW,WACP,KAAK,MAAO,EAAQ,EAAY,EAAY,GAEhD,EAAc,QAAQ,GAAQ,KAAK,8BAA8B,IAE7
D,IACF,EAAQ,KAAK,SAAS,GACjB,KAAA,aAAa,KACd,CAAC,KAAM,EAAQ,YAAY,KAAM,MAAO,KAAK,
aAAa,QAG3D,EAAM,EAAA,OAAA,QAAQ,wBAA0B,EAAQ,WACf,IAAlC,EAAyC,CACrC,MAAA,EAAW,KA
AK,aAAa,GAE5B,OADF,KAAA,8BAA8B,GAC5B,EAGT,cACI,EAAQ,EAEF,OAAA,EAGT,cAC5B,EAAQ,EACA,CAC
AA,OAAA,EAAA,GAAT,EAAA,EAAA,EAAA

AA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eA
AA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KA
AA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAA
A,GAAA,EAAA,IAAA,EAAA,GAAA,EAFK,SAAU,KACR,EAAA,EAAA,OAAA,IAAI,4BAA4B;;ArEHjC,aAA
A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,IAAA,EAAA,CAAA,OAAA,EAAA,eAAA,GAAA,OAAA,e
AAA,QAAA,gBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WAAA,QAAA,WAAA,EAbP,IAAA,E
AAA,QAAA,yBACA,EAAA,QAAA,mBACA,EAAA,QAAA,aAOA,EAAA,QAAA,WAAA,OAAA,KAAA,GAAA
,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,IAAA,OAAA,UAAA,eAAA,KAAA,EAAA,IAAA,OAAA,eAAA,Q
AAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,SALI,EAAY,YAAA,cACE,EAAA,EAAA,iBAA
A,QAAS,IAAM,IAAI,EAAJ,iBAAwB,GAQlD,MAAM,EAAQ,CAAC,eAAA,EAAA,gBAAf,QAAA,MAAA;;AsE
LqB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,QAAA,mBAAA,QAAA,uBAAA,
EAV5B,IAAA,EAAA,QAAA,yBAIO,MAAM,EAAoB,2DAML,QAAA,kBAAA,EADrB,MAAM,EAAqB,4BACN,
QAAA,mBAAA,EAAtB,MAAO,EAKX,YAAY,EAAY,EAAkB,GAJ1C,KAAA,cAAgB,CAAC,IAAK,KAKf,KAAA
A,YAAc,EAAa,aAAA,2BAA2B,EAAQ,GAC9D,KAAA,uEAEC,2KATkB,QAAA,gBAAA;;ACYM,aAAA,OAAA
,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,sBAAA,QAAA,UAAA,QAAA,QAAA,QAAA,uBAAA,EAtBl
C,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,kBACA,EAAA,QAAA,qBAEO,MAAM,EAAoB,yLAgBC,QAAA,
kBAAA,EAAT3B,MAAM,EAAU,0IASW,QAAA,QAAA,EAJ3B,MAAM,EAAY,qCAIS,QAAA,UAAA,EAA5B,M
AAO,EAQX,YACI,EAAY,EAAkB,EAC9B,GAAmB,GATvB,KAAA,cAAgB,CAAC,IAAK,KAGtB,sBAA
uB,EACvB,KAAA,cAAe,EACf,KAAA,cAAe,EAKR,KAAA,YAAc,EAAa,aAAA,2BAA2B,EAAQ,GAC7D,MAA
A,EAAO,KAAK,YAAY,OAC1B,IAAA,EAAyB,GACzB,GAAA,EACE,GAAS,IAAT,GAAuD,IAAzC,EAAK,KA
AA,cAAc,KAAK,aACxC,EAAyB,+FAKpB,CAKD,GAHJ,kBAAD,IAAA,EACF,+CAC+B,GAAS,IAAT,8FAAS,IAAT,GAAS,SAAU,GACvC,QAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,uBAAA,EAAA,EAAA,EAAA,EAAA,EAAA,E

,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,
6BAAA,EAAA,QAAA,gCAAA,QAAA,yBAAA,QAAA,6BAAA,EA3MD,IAAA,EAAA,QAAA,yBAGA,EAAA,Q
AAA,mBACA,EAAA,QAAA,0BACA,EAAA,QAAA,sBACA,EAAA,QAAA,wBACA,EAAA,QAAA,oBACA,EA
AA,EAAA,QAAA,mBAEA,EAAA,EAAA,QAAA,0BAiMC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA
,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,E
AAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAA
A,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAA
A,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAA
A,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,
EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5LM,MAAM,EAA0B,0BA4L
tC,QAAA,wBAAA,EA1LM,MAAM,EA2B,2DA0LvC,QAAA,yBAAA,EArLM,MAAM,EAAkC,yLAsBzC,SAA
U,GACZ,UAAC,EAAD,gBAAY,EAAZ,cAA6B,EAA7B,MAA4C,IAEvC,MAAA,EAAE,OAAA,EAAQ,QAAA,M
ACT,MAAA,EAAC,GAAK,EACN,EAAe,EAEf,EAAS,GAAS,EAAE,MACtB,GAAA,EAAa,mBAAmB,CAAC,K
AAwB,MAAjB,EAAuB,CAC3D,MAAA,EAAQ,EAAa,QAAQ,IAAI,EAAE,QACnC,EAAY,EAAc,EAAM,OAAs
B,GACrD,OAAA,EAAa,eAAe,EAAE,MAAO,EAAQ,GAAlD,IAAA,EAAO,GAAE,OALL,GAHE,EAAM,EAAA,OAAA,
QAAQ,gCAAqD,MAAnB,EAAxC,IAAI,EAAJ,qBAAyB,EAAE,MAAO,GAAlC,IAAI,EAAJ,eAAmB,EAAE,MA
AO,GAGjC,EAAa,gBAAgB,EAAS,CAAC,GAAI,IAAuB,hD,SAAU,GAAiB,UAC/B,B,EAAE,B,EAAF+B,iBAG
/B,GAAmB,EAHY,gBAAI/B,GAAkB,EAAJa,cAAK/B,EAAL+B,MAAK/B,IAEO,MAAA,EAAE,OAAA,EAAQ,QAAA,M
ACT,MAAA,EAAC,EAAD,EAAI,GAAK,EAAC,GAAK,EAAE,EAAjB,gBAAyB,GAAA,GAA+B,cAAZ,EAAE,MAAuB,CAAxC,M
AAA,EAAQ,EAAa,QAAQ,IAAI,EAAE,QAAnC,EAAQ,EAAa,QAAQ,IAAI,EAAE,SAAlC,EAAM,EAAA,GAAQ,CAAC,n
B,CAAC,EAAM,mBAAmB,KAAM,EAAM,mBAAmB,MAAzC,D,CAAC,EAAM,mBAAmB,KAAM,EAAM,mBAA
mB,OAAzC,D,IAAI,IAAC,E,MAAC,EAAO,GAAS,EAAjB,gBAAyB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAC
b,MAAO,EAAE,OAAL,EAAU,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
IAAI,EAAJ,gBAAoB,EAAA,W,EAAE,MAAO,EAAE,OAAnD,EAAA,EAAa,gBAAE,EAAA,CAAC,EAAA,S,IAAU,
EAAW,EAAA,YAAA,EAAM,MAAO,EAAM,UAAG3D,GAACF,EAAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,KAAA
,EAAM,KAAA,EAAO,GAAA,QAAS,IAAA,EAAA,8BAA8B,GAAC3C,EAAAa,8BAA8B,GAAIpC,EAAA,EAAH,MAAA,EA
AS,IAAS,EAAW,EAAA,YAAA,EAAE,MAAO,EAAE,OAAC1C,GAAA,EAAA,YAAA,EAAA,mBAAA,CAAC,EAAA,G,KAAAwB,
MAAjB,EAAuB,CAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,S
AClC,EAAW,GAAY,EAAC1B,GAAA,EAAA,YAAA,EAAA,mBAAA,CAAC,EAAA,OAAA,EAAA,QAAA,EAAA,OAAA,EAAA,QAAA,EAAA,
Aa,eAAe,EAAU,GAAG3C,OAAFS,EAAEa,aAAa,QAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,
AJE,EAAM,EAAA,OAAA,QAAA,iCACK,MAAnB,EAAyB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
AAO,GAE7B,IAAI,EAAJ,gBAAoB,EAAA,W,EAAE,MAAO,EAAE,OAAC,EAAA,OAAA,EAAA,QAAA,EAAA,OAAA,EAAA,QAAA,EAAA,OAAA,EAAA,QAAA,EAAA,
GAAI,IAAInD,SAAU,EAAE,CAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,
ACX,GAAmB,SAAf,EAAE,CAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,QAAA,IAAI,EAAE,QAAC,EAAA,OAAQ,EAAA,
AAgB,IAAlB,EAAwB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
AAgB,IAAlB,EAAwB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
EACL,OAAA,EAAa,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
AAgB,IAAlB,EAAwB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
EACL,OAAA,EAAa,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
EACL,OAAA,EAAa,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
AAgB,IAAlB,EAAwB,EAAA,GAAQ,CAAC,EAAM,OAAd,EAAM,MAAO,EAAM,MAAb,EAAE,OAAL,EAAU,EAAA,
EACL,OAAA,EAAa

BAAA,EAZnC,IAAA,EAAA,QAAA,yBAOO,MAAM,EAAmB,CAC9B,KAAM,wCACN,KAAM,yCAG2B,QAAA,iBAAA,EAA7B,MAAO,EAKX,YAAY,EAAY,EAAkB,GAJ1C,KAAA,cAAgB,CAAC,QAAS,QAAS,QAAS,SAKrC,YAAc,EAAA,aAAA,2BAA2B,EAAQ,GAAE9D,KAAA,qHAAGC,6SAAXyB,QAAA,uBAAA;;AhC2E5B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAA,QAAA,oBAAA,IAAA,EAAA,yBAAA,E

KAAA,yHAIC,sNAQwB,sEAIJ,8QASlB,kDAGqB,mBACS,IAA5B,2FAGF,yBACqC,IAA5B,6IAKT,yBACqC,IAA5B,iLAMT,6DA1EY,QAAA,YAAA;;ACAE,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mBAAA,EAApB,MAAO,EAKX,YACI,EACA,GANJ,KAAA,cAAgB,CAAC,KAAO,T,MAAA,WAAC,EAAD,UAAa,EAAb,OAAwB,EAAxB,QAAgC,GAAA,W,EAAC,C5C,KAAA,YAAc,CAAC,EAAA,WAAC,GAAE,3B,IAAA,EAAA,SAAsB,MAAC,tB,EAAA,YAAA,GAAA,SAAA,EAAA,MAAA,E,CAAA,EAAA,OAAA,Y,E

EAAO,EACL,MAAA,EAAe,EAAa,aAAA,mBAAmB,EAAM,GACrD,EAAuC,MAAhB,EAEzB,IAAA,EAAW,EACX,IACF,GAAW,EAAc,EAAA,eAAA,EAAG,EAAc,GAE1C,EAAO,EAAa,aAAA,iBAAiB,EAAK,OAAQ,IAGvC,EAAA,aAAA,2BAA2B,MAAO,EAAM,GAC/C,MAAC,EAAa,GAChB,EAAa,aAAA,0BAA0B,EAAS,MAAO,GAEvD,IAAA,EAAW,EACX,IAEF,EAAW,EAAa,aAAA,qBAAqB,EAAa,IAGtD,MAAA,EAAS,EAAK,cAAc,GAE5B,EADQ,EAAK,KAAA,cAAc,GAAA,EAAE,OACT,EACpB,GAAA,gB,EAAc,EAAA,SAAA,A,CAAC,OAAQ,Q,CAAC,EAAG,GAAW,EAAA,EAAA,EAAA,SAAA,CAAC,OAAQ

C,OAAQ,CAAC,EAAG,EAAQ,EAAG,GAAS,QAAA,IAC1D,GAAM,EAAI,EAAA,KAAA,CAAC,OAAQ,CAAC,
EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,KAAA,EAAM,UAAU,KAClE,EAAc,KAAK,OACd,CACC,MAAA,
GAAQ,EAAW,EAAA,YAAA,EAAE,MAAO,EAAE,OAE9B,EAAU,IAAI,EAAJ,oBACZ,EAAU,EAAU,CAAC,E
AAU,EAAa,GAAc,EAC1D,EAAY,EAAS,EAAiB,EACtC,GAEE,EAAuB,CAAC,EAAK,GAO/B,GANQ,MAAR,G
ACF,EAAO,KAAK,GAEV,GACF,EAAO,KAAK,GAEV,EAAmB,CACf,MAAA,EAAkB,EAAQ,eAC5B,GAAI,U
ACJ,EAAK,KAAA,,kBAAkB,EAAmC,YAC9D,EAAO,KAAK,GACZ,EAAc,KAAK,GAGrB,EAAM,EAAQ,gBA
AgB,EAAS,EAAQ,GAG3C,MAAA,GACF,EAAQ,EAAA,SAAA,,CAAC,OAAQ,CAAC,EAAG,GAAM,QAAA,,E
AAS,MAAO,CAAC,MAAO,KACvD,EAAc,KAAK,GACd,IAAA,MAAM,KAAK,EACd,8BAA8B,GAEjC,
OAAA,EACR,QAAA,4BAAA;;ACvJM,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,
EAAA,QAAA,wBAAA,EA3BP,IAAA,EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,sBAEM,SAAU,EAAA,a,GAKrB,MA
AA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EAAC,EAAD,EAAI,EAAJ,KAAO,EAAP,uBAAa,a,GAA
0B,GACvC,WAAC,EAAD,WAAa,EAAb,WAAyB,EAAzB,eAAqC,GAAkB,EAAtD,OAAA,EAAgB,EAAA,iBAA
A,CACrB,EAAA,EACA,EAAA,EACA,WAAA,EACA,QAAA,EACA,KAAA,EACA,uBAAA,EAC
A,eAAA,EACA,WAAA,IAIG,MAAM,EAAmC,CAC9C,WAAY,EADkC,aAE9C,YAAa,QACb,WAAY,GAHP,QA
AA,mBAAA;;ApEIA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,EAAA,QAAA,wBAAA,
EA3BP,IAAA,EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,sBAEM,SAAU,EAAA,a,GAKrB,MAAA,EA/BP,IAAA,
EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,sBAEM,SAAU,EAAA,a,GAKrB,MAAA,EAAA,QAAA,yBAGA,GAAA,
EAAA,QAAA,sBAEM,SAAU,EAAA,a,GAKrB,MAAA,EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,sBAEM,SAAU,
EAAA,a,GAKrB,MAAA,EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,sBAEM,SAAU,EAAA,a,GAKrB,MAAA,EA
A

OAAO,CAAC,EAAI,KAAO,EAAW,EAAA,YAAA,EAAI,IAC1D,EAAS,EAAQ,IAAI,GAAK,EAAE,OAG5B,GA
Dc,EAAM,EAAA,OAAA,QAAQ,cAE9B,IAAI,EAAJ,kBAAsB,EAAQ,GAAG,MAAO,GACxC,IAAI,EAAJ,YAAg
B,EAAQ,GAAG,MAAO,GAC/B,OAAA,EAAQ,gBAAgB,EAAS,EAAS,GAG5C,MAAM,EAA2B,CACtC,WAAY,
EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;ACkBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,OAAA,IAAA,QAAA,IAAA,EAAA,QAAA,eAAA,EArDP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BAEA,
EAAA,QAAA,aACA,EAAA,QAAA,eAEM,SAAU,EACZ,GAEI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,G
AAS,GAC3B,EAAC,GAAK,GACN,KAAC,EAAD,SAAO,GAAY,EAEnB,Q,EAAS,EAAE,MAAM,OAEhB,W,
EAAK,KAAA,eAAe,EAAM,EAAE,OACzC,IAAA,EAAO,EACL,MAAA,EAAe,EAAa,aAAA,mBAAmB,EAAM,
GACvD,IAAA,EAAY,EACI,MAAhB,IACF,GAAY,EAAU,EAAA,WAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,Q
AAA,EAAS,MAAO,CAAC,EAAM,KAAC,EAAK,EAAC,MAAO,CAAC,EAAA,aAAA,2
BAA2B,MAAO,EAAM,GAC/C,MAAC,EAAU,GACb,EAAa,aAAA,0BAA0B,EAAU,MAAO,GACtD,EAAS,EAA
K,KAAA,cAAc,GAE5B,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,EAAS,MAAO,
CAAC,MAAO,EAAA,EAAG,MAC5C,GAAU,EAAO,EAAA,QAAA,EAAK,MAAO,EAAA,GAAI,GAAA,EAAA,MAAO,
,EACA,GAAA,EAAU,CACN,MAAA,EAAW,EAAa,aAAA,qBAAqB,EAAU,GAC7D,EAAM,EAAQ,EAAA,
A,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,UAE7D,EAAM,EAAA,EAAA,MAAO,,EAAA,
AA,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,KAAUxD,OAAPP,EAAQ,8BAA8B,
GACtC,EAAQ,8BAA8B,GAAlB,EAAA,GAAA,EAAA,MAAA,EAAA,0B,CAAA,EAAA,WAAA,
Y,EADyB,IAAE,C,YAAa,QAAb,WAAY,GAAP,QAAA,UAAA;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,OAAA,IAAA,QAAA,IAAA,EAAA,QAAA,eAAA,EApDP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BAEA,
EAAA,QAAA,aACA,EAAA,QAAA,eAEM,SAAU,EACZ,GAEI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,G
AAS,GAC3B,EAAC,GAAK,GACN,KAAC,EAAD,SAAO,GAAY,EAEnB,Q,EAAS,EAAE,MAAM,OAEhB,W,
EAAK,KAAA,eAAe,EAAM,EAAE,OACzC,IAAA,EAAO,EACL,MAAA,EAAe,EAAa,aAAA,mBAAmB,EAAM,
GACvD,IAAA,EAAY,EACI,MAAhB,IACF,GAAY,EAAU,EAAA,WAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,Q
AAA,EAAS,MAAO,CAAC,EAAM,KAAC,EAAK,EAAC,MAAO,CAAC,EAAA,aAAA,2
BAA2B,MAAO,EAAM,GAC/C,MAAC,EAAU,GACb,EAAa,aAAA,0BAA0B,EAAU,MAAO,GACtD,EAAS,EAA
K,KAAA,cAAc,GAE5B,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,EAAS,MAAO,
CAAC,MAAO,EAAA,EAAG,MAC5C,GAAU,EAAO,EAAA,QAAA,EAAK,MAAO,EAAA,GAAI,GAAA,EAAA,MAAO,
,EACA,GAAA,EAAU,CACN,MAAA,EAAW,EAAa,aAAA,qBAAqB,EAAU,GAC7D,EAAM,EAAQ,EAAA,
A,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,UAE7D,EAAM,EAAA,EAAA,MAAO,,EAAA,
AA,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,KAAUxD,OAAPP,EAAQ,8BAA8B,
GACtC,EAAQ,8BAA8B,GAAlB,EAAA,GAAA,EAAA,MAAA,EAAA,0B,CAAA,EAAA,WAAA,
Y,EADyB,IAAE,C,YAAa,QAAb,WAAY,GAAP,QAAA,UAAA;;ACjBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,OAAA,IAAA,QAAA,IAAA,EAAA,QAAA,eAAA,EAAA,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BAEA,
EAAA,QAAA,aACA,EAAA,QAAA,eAEM,SAAU,EACZ,GAEI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,G
AAS,GAC3B,EAAC,GAAK,GACN,KAAC,EAAD,SAAO,GAAY,EAEnB,Q,EAAS,EAAE,MAAM,OAEhB,W,
EAAK,KAAA,eAAe,EAAM,EAAE,OACzC,IAAA,EAAO,EACL,MAAA,EAAe,EAAa,aAAA,mBAAmB,EAAM,
GACvD,IAAA,EAAY,EACI,MAAhB,IACF,GAAY,EAAU,EAAA,WAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,Q
AAA,EAAS,MAAO,CAAC,EAAM,KAAC,EAAK,EAAC,MAAO,CAAC,EAAA,aAAA,2
BAA2B,MAAO,EAAM,GAC/C,MAAC,EAAU,GACb,EAAa,aAAA,0BAA0B,EAAU,MAAO,GACtD,EAAS,EAA
K,KAAA,cAAc,GAE5B,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,EAAS,MAAO,
CAAC,MAAO,EAAA,EAAG,MAC5C,GAAU,EAAO,EAAA,QAAA,EAAK,MAAO,EAAA,GAAI,GAAA,EAAA,MAAO,
,EACA,GAAA,EAAU,CACN,MAAA,EAAW,EAAa,aAAA,qBAAqB,EAAU,GAC7D,EAAM,EAAQ,EAAA,
A,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,UAE7D,EAAM,EAAA,EAAA,MAAO,,EAAA,
AA,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,KAAUxD,OAAPP,EAAQ,8BAA8B,
GACtC,EAAQ,8BAA8B,GAAlB,EAAA,GAAA,EAAA,MAAA,EAAA,0B,CAAA,EAAA,WAAA,
Y,EADyB,IAAE,C,YAAa,QAAb,WAAY,GAAP,QAAA,UAAA;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,OAAA,IAAA,QAAA,IAAA,EAAA,QAAA,eAAA,EAAA

IAAI,GAAK,OAAS,GACzC,GACF,EAAY,EAAA,aAAA,aAAc,EAAa,GAAG,OAAO,WAC/C,GACF,EAAY,EAAA,aAAA,aAAc,EAAa,GAAG,OAAO,WAC/C,GACF,EAAY,EAAA,aAAA,aAAc,EAAa,GAAG,OAAO,WAE/C,EAAiB,QAAP,EAAgB,cAAgB,WAC1C,EAAoB,EAAY,4DACY,EAAW,iEACX,EAAW,iEACX,EAAW,iEACX,EAAW,aAEvD,oCACgB,EAAW,kDACE,EAAW,uDACX,EAAW,qEACG,EAAW,gBAEtD,EAAgC,EAAY,2CACjB,EAAY,wDACL,EAAS,4DACJ,EAAS,OAAO,GAAG,qBAG3D,KAAA,sCACiB,EAAY,6CACL,EAAS,iDACJ,EAAS,OAAO,GAAG,6BAEjD,mCAEE,4DACkB,EAAO,EAAO,QAAQ,EAAS,EAAO,GAAA,iCAC3C,EAAO,EAAO,QAAQ,EAAS,EAAO,GAAA,eAC7D,6CACC+B,gBAAA,2BAAA,2CAAA,gBAAA,wBAAA,qCAAA,sCAAA,gBAAA,mDAAA,mBAAA,4D

AAO,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAEzC,QAAA,KAAA,EAAA,MAAM,EAA2B,CACtC,WAAY,EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;ACLA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EATP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,qCAErB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAE1C,QAAA,MAAA,EAAA,MAAM,EAA4B,CACvC,WAAY,EAD2B,MAEvC,EAAA,YAAa,QACb,WAAY,GAHP,QAAA,YAAA;;ACEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACSA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACqBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACyCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACqDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACgEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACyEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACgFA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACqGA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACwHA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACyIA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACzJ,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC0JA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC1K,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC2LA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC3M,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC4MA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC5N,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC6NA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC7O,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC8OA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC9P,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC+PA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACgQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACiQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACkQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACmQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACoQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACqQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACsQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACuQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACwQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACyQA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC0QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC2QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC4QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC6QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC8QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;AC+QA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACgRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACiRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACkRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACmRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACoRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAACb,WAAAY,GAAHP,QAAAA,WAAA;;ACqRA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EXP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,QAAA,kBAEA,MAAM,EAAQ,EAAoB,kBAAA,wBAIrB,GAAQ,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAAA,QAAA,KAAA,EAAA,MAAM,EAA2B,CAACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QA

YAAY,EAAS,QAAS,EAAS,UACvC,OAAA,EAAS,EAAA,UAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,IA
E1B,MAAA,EAAiB,IAAI,EAAJ,cAAkB,EAAU,OAAO,GACnD,OAAA,EAAQ,gBAAgB,EAAgB,CAAC,GAAI,
WAG/C,MAAM,EAA8B,CACzC,WAAY,EAD6B,QAAEzC,YAAa,QACb,WAAY,GAHP,QAAA,cAAA;;ACZA,aA
AA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAAA,QAAA,qBAAA,EAAtBP,IAAA,EAA
A,QAAA,yBAGA,GAAA,EAAA,QAAA,eAEM,SAAU,EAAU,GAAlB,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GA
AS,GAC3B,EAAC,GAAK,GACN,WAAC,EAAD,QAAa,EAAb,IAAsB,EAAtB,gBAA2B,EAA3B,WA4C,GAAc,
EAG1D,EAAW,EAAa,aAAA,kBAC1C,EAAE,MAAmD,EAAY,EAHzB,CAAC,EAAG,EAAG,GAIpC,EAAK,EA
AiB,GAC/B,EAAiB,IAAI,EAAJ,cAAkB,EAAU,OAAO,GACnD,OAAA,EAAQ,gBAAgB,EAAgB,CAAC,GAAI,
WAG/C,MAAM,EAAgC,CAC3C,WAAY,EAD+B,UAE3C,YAAa,QACb,WAAY,GAHP,QAAA,gBAAA;;ACiD8
B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,yBAAA,QAAA,8BAAA,EAAnE/B,MAAO,EA
KX,YAAY,GAJZ,KAAA,cAAgB,CAAC,MAAK,KAAA,YAAc,EAAS,QAAC,tB,MAAA,EAAA,eAAA,EAAS,aACxB,EAA
c,EAAS,YAAC,vB,EAAA,eAAA,EAAS,aAAC,xB,EAAA,cAAA,EAAS,YAAC,vB,EAAA,iBAAA,EAAS,eAC1B,EAAgB,
B,EAAS,sBAAC,jC,EAAA,uB,EAAS,qBAAE,hC,EAAS,EAAA,wB,EAAA,IAAA,EAAS,QAAA,Q,IAAC,tD,EAAU,EAAA,uB,EAAA,IAAA,EA
AS,QAAA,Q,KAAE,tD,EAAgB,GAAK,EAAA,eAAE,GAAE,rC,KAAA,A,6CAAC,wB,MAAA,W,gDAAC,F,kBAAK,V,yBAAC,Z,uDAAC,4B,6C
AEZ,EAAS,6IAAK,X,wBAAC,f,yDAAC,+B,+CAAE,Z,EAAS,+SAAiB,V,QAAA,A,yBAAA,e,EAAA,S/B,MAAO,EAAK,X,YAAA,Y,GA
JZ,KAAA,cAAgB,CAAC,MAAK,KAAA,YAAc,EAAS,QAAC,tB,MAAA,EAAA,eAAA,EAAS,aAAC,xB,EAAA,cAAA,EAAS,YAAC,vB,EAAA,iBAAA,EAAS,eAC1B,EAAgB,
B,EAAS,sBAAC,jC,EAAA,uB,EAAS,qBAAE,hC,EAAS,EAAA,wB,EAAA,IAAA,EAAS,QAAA,Q,IAAC,tD,EAAU,EAAA,uB,EAAA,IAAA,EA
AS,QAAA,Q,KAAE,tD,EAAgB,GAAK,EAAA,eAAE,GAAE,rC,KAAA,A,6CAAC,wB,MAAA,W,gDAAC,F,kBAAK,V,yBAAC,Z,uDAAC,4B,wi
BAiBV,yBACZ,uDAC4B,6CAEZ,EAAS,4IAKX,2BACZ,yDAC4B,+CAAE,Z,EAAS,sKAMX,6BACZ,2DAC4B,iD
AEZ,EAAS,qVApEZ,QAAA,yBAAA;;AChD9B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,yBAAA,QAAA,8BAAA,EAAnE,MAAO,EA
,cAAA,EAAA,QAAA,yBAAA,EAAvBP,IAAA,EAAA,QAAA,yBAAE,EAAA,QAAA,4BAAA,GAAM,EAAA,SAAA,EAAA,GAAC,tB,EAAA,SAAA,EAAA,GAAC,tB,EAAA,SAAA,EAAA,GAAC,tB

AA,2BAA2B,EAAQ,GAC3C,KAAA,cAAc,KAAK,UACxB,EAAgB,0BAGd,IAAA,EAAe,YACD,MAAd,IACW,EAAA,aAAA,2BAA2B,EAAAQ,GAC3C,KAAA,cAAc,KAAK,SACxB,EAAe,yBAGZ,KAAA,YAAc,EACd,KAAA,yDAEe,4BACD,qMAMkC,wEAvCtB,QAAA,uBAAA;;ACwD5B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,QAAA,eAAA,EA1DP,IAAA,EAAA,QAAA,yBAGA,EAAA,oBACA,QAAA,EAAA,2BAEO,MAAM,EAIM,EAAE,OAAA,EAAQ,QAAA,EAAS,MAAA,MAC9B,MAAA,EAAC,EAAD,KAAI,EAAA,AJ,SAAU,EAAA,OAAA,oB,EAAA,pB,MAA4B,4B,GAAA,S,EAAA,U,EAAA,K,OAAA,C,EAAA,E,MAAA,M,OAAA,S,EAAA,M,EAAA,O,EAAA,S,EAAA,M,EAAA,O,EAAA,S,EAAA,M,EAAA,O,E

AQ,mBAAmB,CAAC,KAAmB,WAAZ,EAAE,MAAoB,CACrD,MAAA,EAAW,EAAQ,QAAQ,IAAI,EAAE,QAC
jC,GAAY,EACd,EAAA,cAAA,EAAS,OAAsB,EAAQ,EAAO,EAAE,MAAO,EAAE,OACtD,OAAA,EAAQ,eAAe,
EAAO,EAAE,MAAO,GAG1C,MAAA,SAAC,GAAY,EAAQ,QAAQ,IAAI,EAAE,QACnC,EAAc,EAAW,WAAA,i
BAAiB,EAAE,MAAO,EAAQ,GAC7D,GAAA,IAAa,EAAa,CACtB,MAAA,GAAU,EAAM,EAAA,OAAA,QAAQ,
+BAC1B,IAAI,EAAJ,mBAAuB,GACvB,IAAI,EAAJ,aAAiB,GACf,EAAc,EAAQ,mBAAmB,GACxC,OAAA,EA
AQ,gBAAgB,EAAS,CAAC,GAAI,EAAE,MAAO,GAGjD,OADP,EAAQ,YAAY,EAAE,QACf,EAAa,EAAG,EAA
Q,EAAO,GAGjC,MAAM,EAA4B,CACvC,WAAY,EAD2B,MAEvC,YAAa,QAAb,WAAY,GAHP,QAAA,YAAA;
;AiElBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,qBAAA,QAAA,oBAAA,EA1DP,IAAA
A,EAAA,QAAA,yBAIA,EAAA,QAAA,aACA,EAAA,QAAA,WACA,EAAA,QAAA,eAEO,MAAM,EAAkB,IAK
vB,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EAAC,GAAK,GACN,WAAC,EAAD,MAAa,G
AAS,EAEvB,EAAA,KAAA,OACD,EAAE,MAAM,QAAU,EAClB,IAAM,wEAEJ,MAAA,EAAO,EAAW,OAAO,
CAAC,EAAG,IAAM,EAAI,GAEvC,WAAA,EAAa,aAAA,YAAY,EAAE,MAAO,EAAY,GACzD,EAAW,EAAa,a
AAA,YAAY,EAAS,OAAQ,EAAW,QAChE,EACF,EAAa,aAAA,oBAAoB,EAAE,MAAO,EAAY,GACpD,EACF,
EAAa,aAAA,oBAAoB,EAAO,EAAW,QACjD,EACF,EAAa,aAAA,aAAa,EAAkB,EAAO,EAAW,QAE5D,EAAY,
GAEZ,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,SAAA,GAAI,QAAA,EAAS,MAAO,CAAC,K
AC5C,GAAyB,EAC3B,EAAA,WAAA,CAAC,OAAQ,CAAC,EAAA,SAAA,GAAI,QAAA,EAAS,MAAO,CAAC,KAA
M,KACzD,GAAA,wB,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,SAAA,GAAI,QAAA,EAAS,MAAO,CAAC,M
AAO,KAEX,GAAS,EAAM,EAAA,OAAA,CAAC,OAAQ,CAAC,EAAA,SAAA,GAAI,QAAA,EAAS,MAAO,CAAC,M
AAO,EAAkB,KAAM,KASlC,OANP,EAAU,KAAK,GACf,EAAU,KAAK,GACf,EAAU,KAAK,GAEf,EAAU,QA
AQ,GAAK,EAAQ,8BAA8B,IAEtD,GAGF,QAAA,eAAA,EAAA,MAAM,EAAqC,CAChD,WAAY,EADoC,eAEh
D,YAAa,QAAb,WAAY,GAHP,QAAA,qBAAA;;ACnCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA
A,QAAA,SAAA,EAAA,QAAA,oBAAA,EAvBP,IAAA,EAAA,QAAA,yBAAA,QAAA,SAAA,EAAA,QAAA,oBAAA,EAAS,GAKj

,MAAM,EAAE,OACzB,EAAS,EAAK,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,EAAS,MAAO,CAAC,MAAO,
aAEpD,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,KAAM,EAAQ,KAAM,GAAc,QAAA,IAAKjD,OAHP,E
AAY,UACZ,EAAQ,8BAA8B,GAE/B,EAIL,GAAY,cAAZ,EAAE,MAAuB,CACrB,MAAA,GAAW,EAAK,EAAA,
MAAA,CAAC,OAAQ,CAAC,MAAO,GAAI,QAAA,IACrC,EAAS,EAAK,CAAC,OAAQ,CAAC,EAAG,GAAW,
QAAA,EAAS,MAAO,CAAC,MAAA,KAEtD,OADP,EAAQ,8BAA8B,GAC/B,EAGL,IAAC,EAAK,KAAA,gBAA
gB,EAAE,MAAO,GAAQ,CAGnC,MAAA,GAAS,EAAS,EAAA,UAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QAAA,
A,IAC/B,MAAA,CAAC,OAAQ,EAAO,OAAQ,MAAO,EAAO,MAAO,MAAA,GAGlD,GAAU,UAAV,EACK,CAK
AA,EAAI,EAAA,KAAA,EAAG,GAGZ,GAAU,SAAV,EAAK,EAAQ,EAAA,kBAAA,CAAC,Cd,MAAA,EAAK,EAAQ,kBAAA,EAAQ,eAC5B,GAAI,OAAI
AQ,EAAK,KAAA,uBAAA,uB,OAAQ,IAE9C,EAA6B,CAAC,EAAG,EAAG,EAAG,GAEvC,EAAvC,GAAI,OA
AAA,CAAC,OAAQ,EAAc,QAAA,IAAAExC,OAAP,EAAQ,8BAA8B,GAC/B,EAAG,MAAA,IAAI,uCAAAuC,EAAE,
YAAY,KAG1D,MAAM,EAA2B,CAAC,WAAY,EAAD0B,KAAEtC,YAAAa,QAAAb,WAAY,GAAP,QAAA,WAAA;;A
M7DA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,QAAA,UAAA,EATP,IAAA,EA
AA,QAAA,yBACA,EAAA,QAAA,sCACA,EAAA,QAAA,0BAEA,MAAM,EAAO,kBAEA,GAAO,EAChB,EAA
A,iBAAA,CAAC,UAAW,EAAM,gBAAA,iB,EAAM,cAAAe,EAAA,cAAAE,rD,QAAA,KAAA,EAAA,MAAM,EAA2B,C
ACtC,WAAY,EAAD0B,KAAEtC,YAAAa,QAAAb,WAAY,GAAP,QAAA,WAAA;;AyFNiB,aAAA,OAAA,eAAA,QAAA
A,aAAA,CAAA,OAAA,IAAA,QAAA,iBAAA,QAAA,EAAA,lB,MAAO,EASX,YAAY,GARZ,cAAA,EAAA,KAAA,
V,KAAA,YAAc,EACd,KAAA,EAAA,SAAW,yRAAgBlB,mBAAAmB,EAAAa,GACvB,MAAA,CAAC,EAAAqB,KAAA,
,KAAK,SACF,KAAA,EAAA,OAAS,EAAM,0BAA0B,EAAc,UACvD,KAAA,EAAA,OAAS,EAAM,0BAA0B,EAAc,WE9D,E
AAM,GAAG,UAAU,KAAK,OAAQ,GAChC,EAAM,GAAG,UAAU,KAAK,OAAQ,KAlCd,QAAA,YAAA;;ACA
M,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,uBAAA,EAAAxB,xB,MAAO,EAAA,EAAW,GAAA,
VZ,KAAA,cAAgB,EAAA,CAAC,KAAA,EAAA,KAAA,cAAA,EAAA,KAAA,EAAA,SAAA,KAAA,YAAA,EAAA,KAAA,SAAW,2
SAiBlB,mBAAAmB,EAAAa,GACvB,MAAA,CAAC,EAAAqB,KAAA,EAAA,KAAA,SAAA,KAAA,OAAA,EAAA,0B
AA0B,EAAc,UACvD,KAAA,EAAA,OAAS,EAAM,0BAA0B,EAAc,WE9D,EAAM,GAAG,UAAU,KAAK,OAAQ,GA
ChC,EAAM,GAAG,UAAU,KAAK,OAAQ,KArCR,QAAA,kBAAA;;ACsBvB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,uBAAA,EAAAxB,xB,MAAO,EAAA,EAAW,GAAA
,CAAA,OAAA,IAAA,QAAA,YAAA,EAAA,QAAA,uBAAA,EAAAxB,xBP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,sBACA,EAAA,QAAA,eAAA,QAAA,EAAA,QAAA,EAAA,QAAA,qBAEM,MAAA,EAAA,QAAA,EAAA,QAAA,sBAAA,EAAA,QAAA,EAAA,QAAA,e

,aAAA,gBAAgB,EAAQ,GAClD,MAAA,EAAQ,KAAK,YACb,EAAO,EAAM,OACb,GAAQ,EAAkB,EAAA,mBA
AA,GAC1B,GAAS,EAAY,EAAA,aAAA,SAAU,GAC/B,EAAW,CAAC,IAAK,IAAK,IAAK,IAAK,IAAK,KAAK,
MAAM,EAAG,GACpD,KAAA,cAAgB,EAAO,IAAI,CAAC,EAAG,QAAU,KAExC,MAAA,EAAoB,IAAI,MAA
M,EAAO,OAAS,GACpD,EAAQ,GAAK,EAAO,GAAG,GAClB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAQ,OAAQ,I
AClC,EAAQ,GAAK,EAAQ,EAAI,GAAK,EAAO,GAAG,GAGpC,MAAA,EAAU,EAAS,GACnB,EAAe,EAAS,O
AAO,GAC/B,EAAc,EAAS,OAEzB,IAAA,SAAyB,OAAa,EAAQ,wDAElC,YAAsB,EAAa,uBAE9C,IAAA,IAAI,E
AAI,EAAG,EAAI,EAAQ,OAAQ,IAAK,CACjC,MAAA,EAAQ,EAAQ,EAAI,GAK1B,oBACQ,OAAa,EAAQ,UA
AU,QAAc,EAAQ,EAAI,wDAErD,KAAK,EAAgB,EAAU,EAAS,0BACvC,EAAgB,EAAc,EAAS,mBAGhD,MAA
A,EAAY,EAAQ,OACpB,EAAQ,EAAQ,EAAQ,OAAS,GACvC,kDAEY,KAAa,EAAgB,EAAU,EAAS,wBAC/C,C,E
AAgB,EAAc,EAAS,QAE/C,KAAA,mCAAc,EAAS,IAAI,GAAK,OAAS,kBACvC,8CAIA,sEAC4B,+BAE5B,EAAA
O,EAAO,QAAQ,EAAO,EAAO,wBAChC,C,EAAO,EAAO,QAAQ,EAAM,EAAO,wCACjB,6BAGtB,EAAO,EAAO,
QAAQ,EAAO,EAAO,wBAChC,C,EAAO,EAAO,QAAQ,EAAM,EAAO,wCACjB,6BAGtB,EAAO,EAAO,QAAQ,E
AAO,EAAO,wBAChC,C,EAAO,EAAO,QAAQ,EAAM,EAAO,sBACnC,C,EAAO,EAAO,QAAQ,EAAM,EAAO,wCA
CjB,6DAmBhC,SAAS,EAAgB,EAAoB,EAAiB,GACtD,MAAA,EAAa,EAAS,QAAQ,GAAQ7B,OAPK,EAAS,IAAI
,CAAC,EAAG,IACvB,IAAQ,KACA,OAAO,IAEV,GAGA,OACZ,QAAA,oBAAA;;AC7FM,aAAA,OAAA,eAAA,
QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,KAAA,EAAA,QAAA,gBAAA,EAAA,IAAA,QAAA,KAAA,EAAA,QAAA,yBAGA,G,E
AAA,QAAA,cAEM,SAAU,EAAK,GAEb,MAAA,OAAC,EAAD,QAAS,EAAT,QAAkB,EAAlB,QAAA,wBAAA,QAAA,
QAAA,cAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,0BAAA,EAAA,QAAA,aAAA,EAAA,QAAA,UAAA,EAAA,QAAA,aAAA,
QAAA,aAAA,EAAA,QAAA,aAAA,EAAA,QAAA,aAAA,EAAA,QAAA,aAAA,EAAA,QAAA,a

O,IAIrD,MAAA,EAAU,EAAO,OAAO,GAAK,EAAK,KAAA,cAAc,EAAE,OAAS,GAC7D,GAAmB,IAAnB,EAAA
Q,OACH,OAAA,EAAS,EAAA,UAAA,CAAC,OAAQ,CAAC,EAAG,EAAQ,IAAK,QAAA,IAGtC,MAAA,EAAS,
EAAQ,IAAI,GAAK,EAAE,OAG3B,OAFM,EAAA,aAAA,uBAAuB,EAAQ,IAErC,EAAW,EAAA,YAAA,EAAS,
EAAO,GAG7B,MAAM,EAA6B,CACxC,WAAY,EAD4B,OAAExC,YAAa,QACb,WAAY,GAHP,QAAA,aAAA;;A
CiKmB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,QAAA,mBAAA,EA/LpB,MAA
O,EAKX,YACI,EAAmC,GAAU,EAC7C,EAAqB,KAAM,GA4B,EACvD,GAAoB,GAPxB,KAAA,cAAgB,CAA
C,IAAK,KAAf,KAAA,YAAc,EAAS,SACtB,MAAA,EAAS,EAAS,QAAQ,IAC1B,EAAU,EAAS,QAAQ,KAC3B,
EAAe,EAAS,aACxB,EAAc,EAAS,YACvB,EAAiB,EAAS,eAC1B,EAAgB,EAAS,cACzB,EAAe,EAAS,aACxB,E
AAc,EAAS,YAEvB,EAA8D,EAAtC,KAAK,MAAM,EAAS,WAAa,GACzD,EAA0B,EAAS,WAAa,EAChD,EAAyC,
C,iBAAxB,EAAS,WE1B,EAAS,EAAiB,EAAI,EAC9B,EAAS,EAAiB,EAAI,EAC9B,EAAS,EAAa,EAAiB,EAAI,EAEp
C,IAAA,EAAoB,GAAI,EAAyB,GACjD,IAAE,EADE,yGAGE,eAEK,iGAGL,uEAKE,2BAKR,EAAyB,gCAGrB,
MAAA,EAAiB,EAAU,kCAAoC,GACjE,EAAE,GACG,KAAA,cAAc,KAAK,QAGtB,0BAGG,KAAA,cAAc,KAAK,kBAGrB,KAAA,oBACD,0CAAE4B,MAAK,uCAAqBC,MAAK,WAAkBC,kBAAiB,8DAGpE,cAAc,
AAmB,oTAOd,kDAAK,uCAAE,EAAS,sFAAI,oDAAK,yCAAE,EAAS,2FAAI,mQAAQ,hB,mqBAAmB,0B,IAA5B,5B,6BA
EE,6EAEsB,0CAAC,P,gGAAG,D,kDAAK,C,sDAAG,kB,IAA5B,5B,0EAAM,yCAAC,A,qDAAG,X,qFAAE,oB,8CAAC,A,8KAAG,R,8CA
CA,oIAAK,qB,IAA5B,5B,0EAAM,yCAAC,A,6CAAG,A,qDAAG,X,qFAAE,oB,8CAAC,A,kDAAG,C,8KAAG,R,8CAAC,A,kDAAG,+LA
UtB,cACA,gDAAO,gB,QAAA,A,cAAA,A,EAAA,pB,MAAA,O,EAAA,K,YAAA,Y,GAAA,J,Z,AAAA,gB,CAAA,C,IAAA,K,AAAf,K
AAA,YAAc,EAAS,SACtB,MAAA,EAAS,EAAS,QAAQ,IAC1B,EAAU,EAAS,QAAQ,KAC3B,EAAe,EAAS,Q
AAQ,KAC3B,EAAc,EAAS,YACvB,EAAiB,EAAS,aACxB,EAAc,EAAS,YACvB,EAAgB,EAAS,cACzB,EAAe,EAAS,E
AAS,eAC1B,EAAgB,EAAS,cACzB,EAAc,EAAS,YACvB,EAAiB,EAAS,aACxB,EAAc,EAAS,YAEvB,EAA8D,E
AAtC,KAAK,MAAM,EAAS,WAAa,GACzD,EAA0B,EAAS,WAAa,EAAjD,KAAA,gBAAC2B,MAAK,uCAAqBC,MAAK,WAAkBC,kBAAiB,8DAGpE,cAAc,uC
ACyB,MAAa,MAAW,ijBAAgBzB,kDAAK,uCAAE,EAAS,qFAAI,oDAAK,yCAAE,EAAS,4FAAI,sDAAK,2CAAE,EAAS,
EAAS,iGAAI,0mBAAiBU,IAA5B,5B,+EAAM,yCAAC,A,qDAAG,X,qFAAE,oB,8CAAC,A,8KAAG,R,8CAAC,A,kDAAG,C,8KAAG,R,8CAAC,A,kDAAG,C,sDAAG,kB,IAA5B,5B,0EAAM,yCAAC,A,6CAAG,A,qDAAG,X,qFAAE,oB

,EAAO,GAAK,EAAO,IAAM,EAAO,GAAK,GACnC,EAAwB,CAC5B,OAAQ,EAAE,OACV,MAAO,CAAC,EAAG,EAAa,EAAS,YACjC,MAAO,EAAE,OAUL,EAAwB,EAAS,MACvC,EAAS,MAAQ,EAAS,MAAM,QAChC,EAAS,MAAM,EAAS,MAAM,OAAS,KAClC,EAAA,KAAA,OACD,EAAW,cAAc,EAAS,MAAO,EAAU,OACnD,sBAAwB,EAAS,YAC7B,EAAU,oBACZ,MAAA,GAAiB,EAAQ,EAAA,SAAA,CAC7B,OAAQ,CAAC,EAAG,GAAC,Z,QAAA,EAAA,MAAA,OAAA,CAAA,EAAA,MAAA,OAAA,CAAA,EAAA,EAAA,WAAA,EAAA,SAAA,gBAAA,EAAA,IAAA,KAAA,EAAA,IAAA,KAAA,QAAA,EAAA,MAAA,WAAA,EAAA,MAAA,WAAA,EAAA,MAAA,W

X,YAAY,GAJZ,KAAA,cAAgB,CAAC,IAAK,MAKf,KAAA,YAAc,EAAS,YAEtB,MAAA,EAAe,EAAS,aACxB,EAAc,EAAS,YACvB,EAAS,EAAS,QAAQ,IAC1B,EAAU,EAAS,QAAQ,KAC3B,EAAyC,iBAAxB,EAAS,WAE3B,KAAA,gZAYqB,EAAS,sDACL,EAAS,sDACV,OAAkB,yCAEjB,EAAS,4FAIP,EAAS,uDACV,OAAiB,2CAEhB,EAAS,+EAIzB,8bA8Jc,QAAA,uBAAA,EA3I5B,MAAO,EAAKX,YAAY,GAAJZ,GAAS,cAAgB,CAAC,KAAM,KAAKhB,KAAK,KAAA,YAAc,EAAS,QAAtBA,MAAA,EAAe,EAAS,aAAxBA,KAAA,EAAc,EAAS,YAAvBA,KAAA,EAAe,EAAS,aAAxBA,KAAA,EAAc,EAAS,YAAvBA,KAAA,EAAyC,iBAAxB,EAAS,WAE1B,KAAA,EAAS,QAAQ,IAC7C,EAAU,EAAS,QAAQ,KAC3B,EAAyC,iBAAxB,EAAS,WAE1B,KAAA,EAAS,QAAQ,K

AAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCAEA,MAAM,EAAM,EAA0B,wBAAA,uBAIzB,GAAM,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAExC,QAAA,IAAA,EAAA,MAAM,EAA0B,CACrC,WAAY,EADyB,IAErC,YAAa,QACb,WAAY,GAHP,QAAA,UAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,QAAA,UAAA,EAVP,IAAA,EAAA,QAAA,yBACA,EAAA,QAAA,sCAEA,MAAM,EAAO,gEAKA,GAAA O,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAEzC,QAAA,KAAA,EAAA,MAAM,EA2B,CACtC,WAAY,EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;ACR0B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,0BAAA,QAAA,EAAA,IAAA,EAAA,QAAA,0BACA,EAAA,QAAA,sCAEA,MAAM,EAAO,EAAK,EAAA,EAAA,EAAA

D,aAAO,GAAgB,EAEzB,GAAmB,IAAnB,EAAE,MAAM,OAAc,CAClB,MAAA,EAAQ,EAAQ,SAAS,EAAE,QAC3B,EAAc,EAAQ,SAAS,EAAQ,QAEvC,GACF,EAAgB,EAAA,iBAAA,EAAO,EAAAa,EAAQ,MAAO,EAAQ,MAAO,GAE/D,OAAA,EAAQ,eAAe,CAAC,GAAO,EAAQ,MAAO,GAChD,GAAAuB,IAAnB,EAAE,MAAM,OAAc,CACzB,MAAA,EAAO,EAAQ,WAAW,GAC1B,EAAAa,EAAQ,WAAW,GAEhC,GAAS,EAAAsB,EAAA,uBAAA,EAAA,MAAM,EAAAY,EAAA,MAAA,EAAA,GAAA,EAAA,MAAA,GAEtD,OAAA,EAAQ,eAAe,EAAO,MAAO,EAAQ,MAAO,EAAO,QAG9D,MAAA,IAAA,IAAA,MAAA,wBAAA,MAAA,IAAA,IAAA,MAAA,wBAAA,MAAA,IAAA,IAAA,MAAA,wBAAA

AAI,IACV,wFAEwB,wDACW,8GAG7B,KAAK,EAAI,mBAAmB,KAAK,EAAI,wCAI7C,2CACuB,kCACV,KAAK,oFAEL,KAAK,uEAGE,sDACe,kCACtB,KAAK,EAAI,0FAET,KAAK,EAAI,yDAGhB,KAAK,uCACE,KAAK,gBAAgB,KAAK,EAAI,yBAGvC,EAAI,EAAI,IACV,4BACM,KAAK,EAAI,yCACF,KAAK,gBAAgB,KAAK,EAAI,6BAK/C,GAAAY,KAIZ,EAAI,IACN,gCACgB,KAAK,YAAY,MAAM,6BACjC,KAAK,mBAAmB,KAAK,gBAAgB,KAAK,qBAGpD,EAAI,EAAI,IACV,kCACgB,KAAK,EAAI,YAAY,MAAM,EAAI,+BACzC,KAAK,EAAI,oCACG,KAAK,EAAI,gBAAgB,KAAK,EAAI,WAMvD,IAAAA,IAAI,EAAI,EAAG,EAAI,EAAAc,IAC3B,IAAAA,IAAI,EAAI,EAAG,EAAI,EAAAc,IAC/

AGF,MAAM,EAA2B,CACtC,WAAY,EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;ACxBuB,aA
AA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,uBAAA,EAAxB,MAAO,EAKX,YAAY,GAJZ,KA
AA,cAAgB,CAAC,IAAK,KAKf,KAAA,YAAc,EAAS,SAAEtB,MAAA,SACJ,EADI,QAEJ,EAFI,QAGJ,EAHI,aAIJ,
EAJI,YAKJ,EALI,aAMJ,EANI,YAOJ,EAPI,eAQJ,EARI,cASJ,GACE,GAEG,IAAK,EAAQ,KAAM,GAAW,EAEh
C,KAAAA,gDAC2B,MAAiB,uCACpB,MAAW,+YAad,6CACG,yCAEC,yCACA,iDACG,6CAEC,yXA5CR,QAAA,
kBAAA;;AC4BvB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,WAAA,EAAA,QAAA,sBA
AA,EA/BP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,mBACA,CAAA,EAAA,QAAA,aAEM,SAAU,EAAW,GAKnB,
MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EAAC,EAAD,OAAI,GAAU,GACd,QAAC,EAAD,IAAA,
IAAU,EAAV,UAAAe,GAAAa,EAAE5B,EAAW,EAAAa,aAAA,sBAC1B,EAAE,MACF,EAAO,MAAAmC,EAAS,EACnD,
OAAyB,GACzB,IAAA,EAAE,MAAA,EAAU,IAAI,EAAJ,kBAAsB,GACtC,EAAM,EAAQ,gBAAgB,EAAS,CAA
C,EAAG,GAAS,WE9C,MAAA,GACF,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAG,GAAM,QAAA,EAAS,
S,MAAO,CAAC,MAAO,EAAS,YAGzD,OAFP,EAAQ,8BAA8B,GAE/B,EAAF,MAAM,EAAAiC,CAC5C,WAAY,
EADgC,WAE5C,YAAa,QACb,WAAY,GAHP,QAAA,iBAAA;;ACbA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA
,OAAA,IAAA,QAAA,eAAA,EAAlBP,IAAA,EAAA,QAAA,yBAGA,CAAA,EAAA,QAAA,sCAEA,EAAA,MAAA,EAAA,
N,EAAa,+PAAb,GAAA,MAAA,EAAA,gBAAA,EAAA,iBAAA,CAAA,EAAA,UAAA,EAAA,KAAA,gBAAA,iBAAA,EAAjD,
EADyB,IAAE,rC,YAAa,QACb,WAAY,GAHP,QAAA,UAAA;;ACKA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,eAAA,cAAA,QAAA,eAAA,EAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,ZP,IAAA,EAAA,QAAA,
kBAAA,EAAA,QAAA,WAAA,EAAA,QAAA,SAAA,EAAA,IAAA,EAAA,QAAA,yBAAA,EAAA,MAAA,EAAA,QAAA,
g

AS2B,0LAhDlC,QAAA,WAAA;;ACkDtB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,QAAA,EApDD,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,cAEA,EAAA,QAAA,aACA,EAAA,QAAA,aAEM,SAAU,EACZ,EAAe,EAAkB,GAC7B,MAAA,EAAQ,EAAQ,QAAQ,IAAI,EAAE,QAE9B,EAAY,EAAK,KAAA,cAAc,EAAE,OAEjC,EAAA,qB,EAAE,EAAE,MAAM,EAAE,EAAM,OAAS,GAC9C,EAAQ,EAAY,EAEpB,GAAU,EAAC,Z,EAAA,SAAA,SAAA,CAAA,EAAA,CAAA,EAAA,CAAA,E

IAAI,EAEJ,SAAS,EAAW,GAKZ,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,EAC7B,IAAA,OAAC,GAAU,EACT,MAAA,YAAC,GAAe,EAEhB,EAAwC,oBAAtB,kBACpB,aAAkB,iBAChB,EAAwC,oBAAtB,kBACpB,aAAkB,iBAChB,EAAwC,oBAAjB,aACzB,aAAkB,aACf,EAAO,GAAU,EACpB,CACG,EAA4B,WAC5B,EAA4B,aAE/B,CAAC,EAAO,MAAO,EAAO,QAEpB,EAA6B,CAAC,EAAQ,GACtC,CAAC,EAAW,CAAC,EAAQ,EAAO,IAE7B,GAAW,GAAW,KACG,MAAvB,IACF,EAAsB,SAAS,cAAc,UAAU,WAAW,OAGpE,EAAE,EAAO,EAAO,EACpC,EAAE,EAAO,EAAO,OAAS,EACpC,EAAE,EAAO,EAAO,UAChB,EAAE,EAAO,EAAO,EACA,EAAO,GACjB,EAAS,EAAO,EAAO,QAAG,GAAG,EAAE,EAAO,EAAO,eAAe,EAAU,SAAE,EAAU,QAAQ,IAAI,EAAU,gBAAQ,QAAQ,MAAQ,EAAO,aAAa,AAAO,OAAC,CAAE,EAAO,EAAO,MAAM,yBAAC,EAAO,QAAQ,WAAW,EAAO,QAAQ,WAAW,EAAO

EAxCP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,oBACA,EAAA,QAAA,aAEM,SAAU,EACZ,GACI,MAAA,
OAAC,EAAD,QAAS,GAAW,GACpB,OAAC,EAAD,QAAS,GAAW,EAEpB,EAAe,EAAQ,MACvB,EAAY,EAAa
,EAAa,OAAS,IAE9C,EAAa,EAAW,EAAW,GACtC,EAAa,aAAA,mBAAmB,EAAQ,GAEtC,GAAiB,EACnB,EA
AA,SAAA,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,CAAC,EAAW,MCzD,G
AAW,EAAQ,EAAA,SAAA,CACvB,OAAQ,CAAC,EAAG,GACZ,QAAA,EACA,MAAO,CAAC,MAAO,CAAC,EAE,E
AAK,KAAA,cAAc,EAAO,OAAS,EAAY,MAG5D,EACF,IAAI,EAAJ,gBAAoB,EAAW,EAAS,CAAC,EAAW,IA
ClD,EAAM,EAAQ,gBAChB,EAAS,CAAC,EAAU,GAAiB,EAAS,OAE5C,GACF,EAAQ,EAAA,SAAA,CAAC,O
AAQ,CAAC,EAAG,GAAM,QAAA,EAAS,MAAO,CAAC,MAAO,KAMhD,8BAA8B,GACtC,8
Q,8BAA8B,GACtC,8Q,8BAA8B,GAE/B,EAGF,MAAM,EAA+B,CAC1C,WAAY,EAD8B,SAE1C,YAAa,
Cb,WAAY,GAHP,QAAA,eAA;;ACHN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mBA
AA,EApCD,IAAA,EAAA,QAAA,qBAEM,MAAO,EAMX,YAAY,GAAL,9B,KAAA,cAAgB,CAAC,IAAK,
WAMf,KAAA,YAAc,EACd,KAAA,KAAO,EAAY,OAClB,MAAA,GAAQ,EAAkB,EAAA,mBAAA,KAAK,MAC
/B,EAAe,EAAgB,EAAQ,GAExC,KAAA,2CAEC,wDACe,uBAOzB,SAAS,EAAgB,EAAkB,GACnC,MAAA,EAA
gB,CAAC,UAAW,UAAW,UAAW,WAElD,EAAe,GAChB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAO,OAAQ,OAAQ,IACvB
,IAAN,EACF,EAAa,KAAK,qCAElB,EAAa,QAAQ,EAAc,MAGhC,OAAA,EAAA,cAAA,rB,QAAA,cAAA;;ACmC
M,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAA,QAAA,oBAAA,EAAA,EAxEP,IAAA
,EAAA,QAAA,yBAGA,EAAA,QAAA,iBACA,CAAA,EAAA,QAAA,0BAEA,EAAA,QAAA,aAEM,SAAU,EAAS,GAAK,KAAA,cAAA,EAAA,KAAA,KAAA,GAAA,KAAA,KAAA,K

WAAY,GAHP,QAAA,YAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,
QAAA,WAAA,EAPP,IAAA,EAAA,QAAA,yBACA,EAAA,QAAA,sCAEA,MAAM,EAAS,0BAEF,GAAQ,EAAg
B,EAAA,iBAAA,CAAC,UAAW,EAAQ,MAAO,SAEzD,QAAA,MAAA,EAAA,MAAM,EAA4B,CACvC,WAAY,
EAD2B,MAEvC,YAAa,QACb,WAAY,GAHP,QAAA,YAAA;;AlJUA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,
OAAA,IAAA,QAAA,WAAA,QAAA,UAAA,EAjBP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCACA,EAAA,
QAAA,0BAEA,MAAM,EAAO,uBACP,EAAc,qCAIP,GAAO,EAAiB,EAAA,kBAAA,CACnC,UAAW,EACX,gB
AAiB,EACjB,cAAe,EAHoB,YAInC,MAAO,SAGF,QAAA,KAAA,EAAA,MAAM,EA2B,CACtC,WAAY,EAD0
B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;AmJLA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAA
A,IAAA,QAAA,gBAAA,QAAA,UAAA,QAAA,kBAAA,QAAA,gBAAA,EAZP,IAAA,EAAA,QAAA,yBAEA,EA
AA,QAAA,sCAEO,MAAM,EAAa,wBAQnB,QAAA,WAAA,EAPA,MAAM,EAAoB,0CAO1B,QAAA,kBAAA,E
AHA,MAAM,GAAY,EACrB,EAAA,kBAAA,CAAC,UAAW,EAAY,gBAAiB,EAAmB,MAAO,SAEhE,QAAA,U
AAA,EAAA,MAAM,EAAgC,CAC3C,WAAY,EAD+B,UAE3C,YAAa,QACb,WAAY,GAHP,QAAA,gBAAA;;AC
GA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAA,QAAA,oBAAA,EAAA,fP,IAAA,
EAAA,QAAA,yBAGA,EAAA,QAAA,0BAEM,MAAM,EAAO,CACnB,WAAY,EADO,UAEnB,YAAa,QACb,WAAY,
GAHO,QAAA,WAAA,EAAA,iBAAA,EAAO,EAAM,GACtC,OAAA,EAAQ,eAAe,CAAC,UAAW,EAAK,KAAM,
EAAA,QAAA,EAAA,eAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,
QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAA
A,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,E
AAA,QAAA,EAAA,Q

D,QAAA,IAAA,EAAA,MAAM,EAA0B,CACrC,WAAY,EADyB,IAErC,YAAa,QACb,WAAY,GAHP,QAAA,UA
AA;;AClBoB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,oBAAA,EAArB,MAAO,EAUX,Y
ACI,EAAsB,EAAqB,EAAc,EACzD,GAXJ,KAAA,cAAgB,CAAC,aAAc,cAAe,MAC9C,KAAA,YAAwB,GAWjB,
KAAA,YAAc,EACd,KAAA,MAAQ,EAAW,GACnB,KAAA,YAAc,EACd,KAAA,KAAO,EACP,KAAA,MAAQ,
EACR,KAAA,KAAO,EACP,KAAA,6NAQqB,KAAK,oEACiB,iDACX,KAAK,oCACpB,8FAGY,KAAK,4aAelB,
qBAAyB,oPAOT,+BACf,+KAIgB,gSA5Df,QAAA,eAAA;;ACiBpB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,cAAA,QAAA,aAAA,EAnBP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,mBAEO,MAAM,
EAAW,IAKhB,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EAAC,EAAD,EAAI,EAAJ,GAAO,
GAAM,GACb,YAAC,EAAD,KAAc,EAAd,MAAoB,EAApB,KAA2B,GAAQ,EAAnC,EAAU,IAAI,EAAJ,eAAmB
,EAAE,MAAO,EAAa,EAAM,EAAO,GAC/D,QAAA,EAAQ,gBAAgB,EAAS,CAAC,EAAG,EAAG,GAAK,EAAE
,QAIjD,QAAA,QAAA,EAAA,MAAM,EAA8B,CACzC,WAAY,EAD6B,QAEzC,YAAa,QACb,WAAY,GAHP,QAAA,
cAAA;;A1JIN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,QAAA,EAAvB,IAAA,EAAA,
A,QAAA,yBAGA,EAAA,QAAA,0BACA,EAAA,QAAA,sBAEM,SAAU,EAAC,ZAAe,EAAuB,EAAC,tC,GAC I,MA
AA,EAAS,EAAK,GAAO,EAAA,QAAA,0BAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,
EAAA,SAAA,CAAA,CAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,
,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA,QAAA,

eAEM,SAAU,EAAU,GAKlB,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,EAAC,GAAK,GACN
,WAAC,EAAD,QAAAa,EAAAb,IAAAsB,EAAAtB,WA2B,EAA3B,gBAAAuC,GAAAmB,EAG1D,EAAW,EAAAa,aAAA,k
BAC1B,EAAE,MAAmD,EAAY,EAHzB,CAAC,EAAG,EAAG,GAIpC,EAAK,EAAAiB,GAC/B,EAAiB,IAAI,EAA
J,cAAkB,EAAU,OAAO,GAAnD,OAAA,EAAQ,gBAAgB,EAAgB,CAAC,GAAI,EAAE,OAGjD,MAAM,EAAgC,
CAC3C,WAAY,EAD+B,UAE3C,YAAAa,QAAb,WAAY,GAHP,QAAA,gBAAA;;ACiD8B,aAAA,OAAA,eAAA,Q
AAA,aAAA,CAAA,OAAA,IAAA,QAAA,yBAAA,QAAA,8BAAA,EAAnE/B,MAAO,EAAK,GAAJ,YAAY,GAAJZ,KAAA,
cAAgB,CAAC,KAAM,UAAhB,hB,KAAA,YAAAc,EAAA,QAAA,CAAtB,MAAA,EAAA,eAAA,EAAA,aAAA,CAAxB,B,EAAA,
EAAiB,EAAA,eAAA,eAAC1B,EAAA,QAAA,CAAA,MAAA,EAAA,eAAA,EAAA,YAAA,CAAvB,B,EAAA,EAAA,eAAA,EAAA,
eAAC1B,EAAA,QAAA,CAAA,MAAA,EAAA,eAAA,EAAA,sBAAA,CAAA,jC,EAAA,uB,EAAA,eAAA,EAAA,qBAAA,EAAA,
EAAA,eAAA,EAAA,wB,EAAA,eAAA,EAAA,sBAAA,CAAA,jC,EAAA,uB,EAAA,eAAA,EAAA,qBAAA,EAAA,EAAA,eAAA,
EAAA,QAAA,Q,IAAA,C,tD,EAAA,U,EAAA,uB,EAAA,eAAA,EAAA,QAAA,Q,KAAA,E,tD,EAAA,Y,EAAA,wB,EAAA,
uB,EAAA,C5D,KAAA,A,6CAAA,wB,MAAA,W,kdAAc
Z,uBACd,uDAC8B,6CAAE,Z,EAAA,S,6IAAA,X,+DAAA,gB,+CAAE,Z,EAAA,S,uNAAA,O,2LAAA,I,kMAAA,Y,QAAA,A,
yBAAA,E,AAA/B,MAAO,EAAK,GAAJ,YAAY,GAAJZ,KAAA,cAAgB,CAAC,KAAM,UAAhB,hB,KAAA,YAAAc,EAAA,
QAAA,CAAtB,MAAA,EAAA,eAAA,EAAA,aAAA,CAAxB,B,EAAA,EAAiB,EAAA,eAAA,eAAC1B,EAAA,QAAA,CAAA,MAAA,
EAAA,eAAA,EAAA,YAAA,CAAvB,B,EAAA,EAAA,eAAA,EAAA,eAAC1B,EAAA,QAAA,CAAA,MAAA,EAAA,eAAA,EAAA,
aAAA,CAAA,jC,EAAA,uB,EAAA,eAAA,EAAA,qBAAA,EAAA,EAAA,eAAA,EAAA,wB,EAAA,eAAA,EAAA,sBAAA,CAAA,
jC,EAAA,uB,EAAA,eAAA,EAAA,qBAAA,EAAA,EAAA,eAAA,EAAA,QAAA,Q,MAAA,C,vD,EAAA,U,EAAA,uB,EAAA,
eAAA,EAAA,QAAA,Q,IAAA,C,tD,EAAA,Y,EAAA,wB,EAAA,

AAO,CAAC,MAAO,GAAW,QAAA,IAKtD,OAHP,EAAQ,8BAA8B,GACtC,EAAQ,8BAA8B,GAE/B;;ACfF,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,gBAAA,EAPP,IAAA,EAAA,QAAA,yBAIA,EAAA,QAAA,eACA,EAAA,QAAA,oBAEO,MAAM,EAA2B,CACtC,WAAY,EAD0B,KAEtC,YAAa,QACb,WAAY,EAAE,OAAA,EAAQ,MAAA,EAAO,QAAA,MACrB,BMAA,EAAC,GAAK,GAAC,N,AAAA,C,AAAA,EAAA,EAAA,E

CACR,MAAA,eACF,0FAEgC,wFAEI,kDAIxC,eACI,8BACA,0CAC4B,EAAO,YAAY,gBAC/C,EAAO,EAAO,wBACX,mBACD,4CAC4B,EAAO,YAAY,6BAGhD,CACC,MAAA,eACF,2BACA,UAAc,wCACd,WAAe,8CACf,0GAEmC,yDACK,wCAI5C,eACI,8BACA,0CAC4B,EAAO,YAAY,gBAC/C,EAAO,EAAO,wBACX,mBACD,4CAC4B,EAAO,YAAY,oDAGjD,EAAO,EAAO,wBACX,EAAO,EAAO,QAAQ,KAAK,YAAY,EAAO,oBAC/C,4CAC4B,EAAO,YAAY,kBAC/C,EAAO,EAAO,0BACX,qBACD,8CAC4B,EAAO,YAAY,sCAMpD,KAAA,0BACK,KAAA,oBAAA,WAAe,KAAA,uBAAA,8EAEA,gDAAvF,yB,QAAA,uBAAA;;ACpB5B,oBAAA,aAAA,OAAA,eAAA,QAAA,aAAA,OAAA,aAAA,QAAA,aAAA,OAAA,aAAA,QAAA,aAAA,OAAA,a

AA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,IAAA,EAAA,QAAA,eAAA,EAhCP,IAAA,EAAA,QAAA,yBAE
A,EAAA,QAAA,0BACA,EAAA,QAAA,kBACA,EAAA,QAAA,yBAEA,MAAM,EAAM,aAIN,SAAU,EAAI,GAE
Z,MAAA,OAAC,EAAD,QAAS,GAAW,GACpB,EAAC,GAAK,EAER,GAAA,EAAQ,mBAAmB,CAAC,IAAK,C
AC7B,MAAA,EAAQ,EAAQ,QAAQ,IAAI,EAAE,SAC7B,EAAW,IACd,EAAW,EAAA,YAAA,EAAM,OAAsB,E
AAE,MAAO,EAAE,OAC/C,OAAA,EAAQ,eAAe,EAAU,EAAE,MAAO,GAG/C,IAAA,EAOG,GADE,IA
AM,EAAA,OAAA,QAAQ,+BACN,IAAI,EAAJ,qBAAyB,EAAE,MAAO,GAElC,IAAI,EAAJ,eAAmB,EAAE,MA
AO,GAGjC,EAAQ,gBAAgB,EAAS,CAAC,GAAI,EAAE,OAG1C,MAAM,EAA0B,CACrC,WAAY,EADyB,IAEr
C,YAAa,QACb,WAAY,GAHP,QAAA,UAA;;A0KJ,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,
QAAA,oBAAA,EAAA,QAAA,+BAAA,EA5BP,IAAA,EAAA,QAAA,yBAEA,MAAM,EAA0B,EAAa,aAAA,wB
AGvC,SAAU,EAAoB,GAKrB,EAAA,aAAA,KACT,iGAGE,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS
,GAC3B,MAAC,EAAD,OAAQ,GAAU,GAClB,cAAC,EAAD,aAAgB,EAAhB,eA8B,GAAkB,EAEhD,EAAY,E
AAQ,SAAS,EAAM,QAAnC,EAAa,EAAQ,SAAS,EAAO,SAErC,gBAAC,GAAmB,EAAW,EAAY,EAAe,
EAAc,GAEjD,OAAA,EAAQ,eACX,CAAC,EAAgB,QAAS,QAAS,IAAI,WAAW,IAGjD,MAAM,EAA0C,CACrD,
WAAY,EADyC,oBAErD,YAAa,QACb,WAAY,GAHP,QAAA,0BAAA;;ACKA,aAAA,OAAA,eAAA,QAAA,aAA
A,CAAA,OAAA,IAAA,QAAA,oBAAA,EAAA,QAAA,+BAAA,EAjCP,IAAA,EAAA,QAAA,yBAEA,MAAM,EAA0B,EAAa,aAAA,wBAIvC,SAAU,EAAoB,GAAA,EAAA,aAAA,KACT,iGAGE,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,
EAAT,MAAkB,GAAS,GAC3B,MAAC,EAAD,OAAQ,GAAU,GAClB,cAAC,EAAD,aAAgB,EAAhB,eA8B,EA
A9B,mBAA8C,GAChD,EAEE,EAAY,EAAQ,SAAS,EAAM,QAAnC,EAAa,EAAQ,SAAS,EAAO,SAErC,gBAAC,
EAAD,aAAkB,GAAgB,EAAC,EAAW,EAAY,EAAe,EAAc,EAAC,GAEjG,MAAA,CACL,EAAC,EAAgB,QAAS,QAAS,IAAI,WAAW,IAGjD,MAAM,EAA0C,CACrD,
WAAY,EADyC,oBAErD,YAAa,QACb,WAAY,GAHP,QAAA,0BAAA;;ACKA,aAAA,OAAA,eAAA,QAAA,aAA
A,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,oBAAA,EAAA,QAAA,+BAAA,EAt

AAE,MACT,MAAmB,WAAZ,EAAE,MAAqB,GAAK,GAErC,QAAA,IAKC,MAAM,EAAgC,CAC3C,WAAY,EAD+B,UAE3C,YAAa,QACb,WAAY,GAHP,QAAA,gBAAA;;ACFA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAA,QAAA,oBAAA,EAAtCP,IAAA,EAAA,QAAA,yBAIA,EAAA,QAAA,aACA,CAAA,EAAA,QAAA,UACA,CAAA,EAAA,QAAA,UACA,CAAA,EAAA,QAAA,UACA,CAAA,EAAA,QAAA,eAEM,SAAU,EACZ,GACI,MAAA,OAAA,CAAA,EAAA,DQAS,GAAA,WAAA,GACpB,CAAA,EAAA,GAAA,KAAA,EAAA,GAAA,YAAA,WAAA,EAAA,AAAE,MACE,CAAA,MAAA,IAAA,IAAA,MAAA,gBAAA,CAAA,EAAA,CAAA,EAAA,QAAA,GAAA,W

EA,MAAM,EAAM,4LAWN,EAAa,uoBAef,EAfe,kBAeK,uBAIX,GACT,EAAiB,EAAA,kBAAA,CAAC,UAAW,
EAAK,gBAAiB,IAEhD,QAAA,IAAA,EAAA,MAAM,EAA0B,CACrC,WAAY,EADyB,IAErC,YAAa,QACb,WA
AY,GAHP,QAAA,UAAA;;AjLwBA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,KAAA,EA
AA,QAAA,gBAAA,EA9DP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BACA,EAAA,QAAA,0BAEA,EAAA,
QAAA,aACA,EAAA,QAAA,eAEM,SAAU,EACZ,GAEI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,G
AC3B,EAAC,GAAK,GACN,KAAC,EAAD,SAAO,GAAY,EAEnB,EAAQ,EAAE,MAAM,OAChB,EAAY,GAEZ,
EAAW,EAAK,KAAA,eAAe,EAAM,EAAE,OACzC,IAAA,EAAO,EACL,MAAA,EAAe,aAAA,mBAAmB,
EAAM,GACvD,IASA,EATA,EAAY,EAUZ,GATgB,MAAhB,IACF,GAAY,EAAU,EAAA,WAAA,CAAC,OAAQ,
CAAC,EAAA,GAAI,QAAA,EAAS,MAAO,CAAC,KAAM,KAC3D,3B,EAAO,EAAA,aAAA,iBAAiB,EAAK,OAAQ,
GAClD,EAAU,KAAK,IAGJ,EAAA,aAAA,2BAA2B,OAAQ,EAAM,GAGlD,EAAQ,mBAAmB,CAAC,IAAa,CAC
rC,MAAA,EAAQ,EAAQ,QAAQ,IAAI,EAAU,QAAQ,QAC9C,QAAC,EAAD,SAAU,EAAV,SAAoB,OAAC,IAAC,tB,EAAA
Y,EAAA,aAAA,EAAU,MAAO,EAAU,MAAO,EAAO,GACzD,EAAM,EAAQ,eAAe,EAAU,EAAU,OAC5C,CAC
C,MAAC,EAAU,GAAC,b,EAAA,aAAA,0BAA0B,EAAU,MAAO,GAAC,tD,EAAA,SAAK,EAAK,cAAc,GAC5B
M,EACR,EAAA,SAAA,CAAC,OAAQ,EAAG,GAAY,QAAA,EAAS,MAAO,CAAC,EAAU,EAAG
,MACpD,GAAc,EAAW,EAAA,YAAA,EAAE,OAC3B,GAAU,EAAO,EAAA,QAAA,EAAK,EAAK,OAAQ,GAAC
D,GAAM,EAAQ,EAAA,SAAA,CAAC,OAAQ,EAAG,GAAY,GAAU,QAAA,EAAS,MAAO,CAAC,KAE
7D,EAAU,KAAK,GACf,EAAU,KAAK,GAGb,GAAA,EAAU,CACZ,GAAW,EAAU,KAAK,GACT,MAAA,EAAW,EAAA
,aAAA,qBAAqB,EAAI,MAAO,GAC9D,GAAM,EAAQ,EAAA,SAAA,CAAC,OAAQ,EAAG,GAAY,GAAM,QAAA,
A,EAAS,MAAO,CAAC,MAAO,KAKpD,EAAA,QAAA,GAAK,EAAQ,8BAA8B,IAEtD,EAGF,MAAM,E
AA2B,CACtC,WAAY,EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;AkLjDA,aAAA,OAAA,eAAA,
QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,bP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BACA,
,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,YAAA,QAAA,WAAA,EAAA,bP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BACA,
EAAA,QAAA,e

CX,QAAgB,8CAChB,+aAcJ,oVAQH,EAAQ,4CACD,EAAW,qhEA5DV,QAAA,4BAAA;;ACyBjC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAAA,QAAA,0BAAA,EA3BP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,0BACA,EAAA,QAAA,iCAEM,SAAU,EAAAe,GAKvB,MAAA,OAAC,EAAD,QAAS,EAAAT ,MAAkB,GAAA,S,GAAC3B,OAAAC,GAAAU,aAAC,EAAAD,iBAAAe,EAAAf,KAAAiC,GAAAQ,EAAAxC,EAAAW,GAAA Y,EAAExB,GAAAU,EAAAM,EAAAA,OAAAA,QAAAQ,+BAC1B,IAAAI,EAAAJ,4BACI,EAAAO,MA2C,EAAAW,EAAC7D,E AAc,GAAClB,IAAAI,EAAAJ,sBACI,EAAAO,MA2C,EAAAW,EAAC7D,EAAAc,GACf,OAAAA,EAAAQ,gBAAAgB,EAAAS,C AAC,GAAAS,WAAG7C,MAAAM,EAAAqC,CAAChD,WAAAY,EADoC,eAEhDE,YAAAa,QAAAA,qBAAA;;ACzBmC,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,mCAAA,EAAAA,pC,MAAAO,EAAAK,KAAAA,EAAAA,GAAAA,EAAAA,EAAAA,GAAAA,EAAAA,EAAAA,GAAAA,E

IAArB,EAAK,QAAQ,IAA2B,IAAd,EAAO,MACzB,EAAO,eAAe,mBAEjB,KAEmB,CAAW,IAAI,KAAK,KACpD,GAAO,EAAkB,EAAA,mBAAA,GAE1B,KAAA,2CAEC,yDACe,uBAlCE,QAAA,eAAA;;ACCM,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,0BAAA,EAAHjC,IAAA,EAAA,QAAA,kBACA,EAAA,QAAA,qBAEM,MAAO,EAAOX,YAAY,EAAkB,GAAN9B,KAAA,cAAgB,GAAC,KAAGjB,KAAA,cAAe,EACf,KAAA,cAAe,EAGP,MAAA,EAAO,EAAO,OAChB,GAAA,EAAO,EACH,MAAA,IAAI,wCAAC4B,iCAAEnC,KAAA,YAAc,EACb,MAAA,GAAW,EAAA,EAAA,aAAA,KAAM,GAAC7B,IAAA,KAAA,EAAA,KAAA,YAAA,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA,YAAA,EAAA,KAAA,EAAA,KAAA,EAAA,KAAA,YAAA,EAAA,KAAA,EAAA,mBAAA,GAAA,uDAAA,SAAA,EAAA,EAAA,AAAW,EAAA,EAAA,GAAA,EAAA,EAAA,E

A,UAAA,EAAA,QAAA,qBAAA,EA/CP,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,kBACA,EAAA,QAAA,aAEM,SAAU,EAAU,GAKlB,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,QAAC,EAAD,QAAU,GAAAW,GACrB,MAAC,GAAS,GAEV,UAAC,EAAD,WAAY,EAAZ,UAAwB,EAAxB,QAAmC,EAAnC,WA4C,GAC9C,EAAa,aAAA,gBAAgB,EAAS,EAAS,GAE7C,EAAA,CAAC,EAAA,a,EAAA,EAAW,GAAE,C,EAAA,EAAA,IAAA,EAAC,KAAO,OAAA,EAAA,EAAA,EAAA,QAAA,eAAA,EAAA,EAAA,QAAA,EAAA,EAAA,QAAA,OAAA,G

EAAE,MAAM,SAAU,EACxD,EAAiB,KAAK,CAAC,EAAG,IAGtB,MAAA,EAAY,GAEZ,GAAU,EAAM,EAAA
,OAAA,CACpB,OAAQ,CAAC,EAAA,GACT,QAAA,EACA,MAAO,CAAC,SAAU,EAAkB,cAAe,KAG/C,EACF,
EAAa,aAAA,YAAY,EAAQ,MAAO,EAAY,GAAM,GAExD,EAAoC,EAAa,aAAA,YACnD,EAAoB,OAAQ,EAA
W,QAAQ,GAE7C,EACF,EAAa,aAAA,oBAAoB,EAAQ,MAAO,EAAY,GAAM,GAEhE,GAAkB,EACpB,EAAA,
SAAA,CAAC,OAAQ,CAAC,EAAG,GAAU,QAAA,EAAS,MAAO,CAAC,MAAO,KAE7C,GAAW,EAAU,EAAA
,WAAA,CACzB,OAAQ,CAAC,EAAG,GACZ,QAAA,EACA,MAAO,CAAC,KAAM,KAGV,GACF,EAAQ,EAAA
,SAAA,CAAC,OAAQ,CAAC,EAAG,GAAW,QAAA,EAAS,MAAO,CAAC,KAQrD,OANP,EAAU,KAAK
,GACf,EAAU,KAAK,GACf,EAAU,KAAK,GAEf,EAAU,QAAQ,GAAK,EAAQ,8BAA8B,IAEtD,GAGF,QAAA,e
AAA,EAAA,MAAM,EAAqC,CAAhD,WAAY,EAAoC,CAAC,eAAhD,YAAa,QAAC,b,WAAY,GAAhP,QAAA,qBAAA;;AC
nCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,cAAA,EAAA,QAAA,yBAAA,EAAjCP,IAAA
A,EAAA,QAAA,yBAGA,GAAA,EAAA,QAAA,kBAAA,CAAA,EAAA,QAAA,aAAA,EAAA,MAAA,SAAA,U,EAAA,GAKtB,WAAA,
AD,QAAS,EAAT,MAAkB,CAAlB,GAAqB,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA,EAAA,GAAA,EAAA,EAAA,EAAA,GAAA

,EAHI,UAIJ,EAJI,QAKJ,EALI,aAMJ,EANI,YAOJ,EAPI,eAQJ,GACE,GAEE,WAAC,EAAD,OAAa,EAAb,SAAq
B,EAArB,KAA+B,EAA/B,SAAqC,EAArC,SA+C,GACjD,EAAW,WAAA,UACP,EAAE,MAAO,EAAO,EAAK,
EAAS,EAAW,EAAS,EAClD,EAAa,GAEf,GAAK,EAAQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAA,GAAI,QA
AA,EAAS,MAAO,CAAC,MAAO,KAErD,IAAA,EACA,GAAA,EAAY,CACR,MAAA,GACF,EAAM,EAAA,OA
AA,CAAC,OAAQ,CAAC,EAAG,GAAK,QAAA,EAAS,MAAO,CAAC,MAAO,EAAQ,KAAA,KAC5D,GAAS,EA
AQ,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAG,GAAS,QAAA,EAAS,MAAO,CAAC,MAAO,KAE/D,8BA
A8B,QACjC,GAAI,EAAS,KAAK,GAAiB,IAAA,GAC/B,EAAS,EAAQ,eAAe,EAAU,EAAE,MAAO,QAC9C,CAE
D,GADuB,EAAQ,mBAAmB,CAAC,IAC/B,CAChB,MACA,EADW,EAAQ,QAAQ,IAAI,EAAG,QAChB,OAClB,
GAAO,EAAO,EAAA,QAAA,EAAG,MAAO,EAAG,MAAO,GAClC,GACF,EAAoB,EAAA,qBAAA,EAAU,EAA
M,EAAU,GAClD,EAAS,EAAQ,eAAe,EAAU,EAAG,MAAO,EAAa,YAC5D,CACC,MAAA,EAAU,IAAI,EAAJ,o
BAAwB,EAAQ,EAAU,GAC1D,EAAS,EAAQ,gBAAgB,EAAS,CAAC,GAAK,EAAG,QAIjD,MAAA,GACF,EAAM,EAA
Q,EAAA,SAAA,CAAC,OAAQ,CAAC,EAAG,GAAS,QAAA,EAAS,MAAO,CAAC,MAAO,KAAnD,OAHP,EAAA
Q,8BAA8B,GACtC,EAAQ,8BAA8B,GAE/B,EAGF,MAAM,EAAmC,CAC9C,WAAY,EADkC,aAE9C,YAAa,QAAA
Cb,WAAY,GAHP,QAAA,mBAAA;;AC3DA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,A
AAA,QAAA,SAAA,EARP,IAAA,EAAA,QAAA,yBAEA,EAAA,QAAA,sCAEA,EAAM,EAAM,iBAEC,GAAM,
EAAgB,EAAA,iBAAA,CAAC,UAAW,IAExC,EAAA,QAAA,IAAA,EAAA,QAAA,MAAM,EAA0B,CAAC,CAAC,W,EADyB,IA
ErC,YAAa,QACb,WAAY,GAHP,QAAA,UAAA;;ACEA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,A
A,QAAA,WAAA,QAAA,UAAA,EAVP,IAAA,EAAA,QAAA,yBACA,CAAC,EAAA,QAAA,sCAEA,EAAM,EAAO,uF
AKA,GAAO,EAAgB,EAAA,iBAAA,CAAC,UAAW,IAEzC,EAAA,QAAA,IAAA,EAAA,QAAA,MAAM,EAA2B,CAAC,CAAC,WA
Y,EAD0B,KAEtC,YAAa,QACb,WAAY,GAHP,QAAA,WAAA;;ACkCN,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,A
AA,QAAA,OAAA,IAAA,QAAA,iBAAA,QAAA,IAAA,EAAA,QAAA,qBAEM,EAAO,EAAM,YAAY,EAAkB,GAL9B,
KAAA,cAAgB,EAAA,QAAA,IAAA,EAAA,QAAA,MAAM,EAAA,QAAA,KAAA,EAAA,QAAA,KAAA,EAAA,QAAA,KAAA

,kBAAA,EAnDP,IAAA,EAAA,QAAA,yBAIA,EAAA,QAAA,aACA,EAAA,QAAA,WAEM,SAAU,EACZ,GAGI,MAAA,OAAC,EAAD,QAAS,EAAT,MAAkB,GAAS,GAC3B,MAAC,GAAS,EACZ,IAAA,KAAC,GAAQ,EAET,EAAO,IACT,GAAQ,EAAM,MAAM,QAGhB,MAAA,EAAI,EACJ,EAAQ,EAAE,MAAM,OAEhB,EAAM,EAAM ,MAAM,GAClB,EAAqB,IAAI,MAAM,EAAQ,GACzC,IAAA,EAAW,EACV,IAAA,EAAI,EAAI,EAAG,EAAI,EA AO,IACrB,IAAM,IACR,EAAS,KAAc,EAAE,MAAM,IAI7B,MAAA,EAAY,GAEZ,EAAQ,IAAI,MAAA,EAAA,GAAO, KAAK,GAC9B,EAAO,EAAE,MAAM,QACrB,EAAK,EAAQ,IACb,EAAM,EAAQ,IAAI,MAAM,EAAE,EAAQ,IAAI,MAAM,EAAE,EAAQ,IAAI,MAAM,EAAE

,QAAA,mCACA,EAAA,QAAA,iDACA,EAAA,QAAA,gDACA,EAAA,QAAA,kBACA,EAAA,QAAA,wBACA,EAAA,QAAA,iBACA,EAAA,QAAA,qBACA,EAAA,QAAA,mBACA,EAAA,QAAA,iBACA,EAAA,QAAA,iBACA,EAAA,QAAA,wBACA,EAAA,QAAA,mBACA,GAAA,QAAA,iBACA,GAAA,QAAA,kBACA,GAAA,QAAA,2BACA,GAAA,QAAA,mBACA,GAAA,QAAA,sBACA,GAAA,QAAA,wBACA,GAAA,QAAA,yBACA,GAAA,QAAA,kCACA,GAAA,QAAA,sBACA,GAAA,QAAA,sBACA,GAAA,QAAA,qBACA,GAAA,QAAA,0BACA,GAAA,QAAA,sBACA,GAAA,QAAA,kBACA,GAAA,QAAA,kBACA,GAAA,QAAA,sBACA,GAAA,QAAA,mBACA,GAAA,QAAA,mBACA,GAAA,QAAA,uBACA,GAAA,QAAA,kBACA,GAAA,QAAA,uBACA,GAAA,QAAA,sBACA,GAAA,QAAA,iBACA,GAAA,QAAA,mBACA,GAAA,QAAA,wBACA,GAAA,QAAA,wBACA,GAAA,QAAA,uBACA,GAAA,QAAA,iBACA,GAAA,QAAA,qBACA,GAAA,QAAA,iBACA,GAAA,QAAA,qBACA,GAAA,QAAA,uBACA,GAAA,QAAA,2BACA,GAAA,QAAA,yBACA,GAAA,QAAA,+BACA,GAAA,QAAA,kBACA,GAAA,QAAA,iBACA,GAAA,QAAA,qBACA,GAAA,QAAA,uBACA,GAAA,QAAA,iBACA,GAAA,QAAA,yBACA,GAAA,QAAA,sBACA,GAAA,QAAA,iBACA,GAAA,QAAA,iCACA,GAAA,QAAA,iCACA,GAAA,QAAA,iCACA,GAAA,QAAA,sBACA,GAAA,QAAA,oBACA,GAAA,QAAA,sBACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,iBACA,GAAA,QAAA,mBACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,kBACA,GAAA,QAAA,qBACA,GAAA,QAAA,wBACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,qBACA,GAAA,QAAA,4BACA,GAAA,QAAA,gCACA,GAAA,QAAA,mCACA,GAAA,QAAA,uCACA,GAAA,QAAA,qBACA,GAAA,QAAA,8BACA,GAAA,QAAA,mBACA,GAAA,QAAA,mBACA,GAAA,QAAA,uBACA,GAAA,QAAA,oBACA,GAAA,QAAA,kBACA,GAAA,QAAA,qBACA,GAAA,QAAA,kBACA,GAAA,QAAA,iBACA,GAAA,QAAA,kBACA,GAAA,QAAA,mBACA,GAAA,QAAA,qBACA,GAAA,QAAA,sBACA,GAAA,QAAA,4BACA,GAAA,QAAA,2BACA,GAAA,QAAA,oBACA,GAAA,QAAA,+BACA,GAAA,QAAA,kBACA,GAAA,QAAA,0BACA,GAAA,QAAA,iBACA,GAAA,QAAA,iBACA,GAAA,QAAA,iBACA,GAAA,QAAA,kBACA,GAAA,QAAA,kBACA,GAAA,QAAA,uBACA,GAAA,QAAA,oBACA,GAAA,QAAA,oBACA,GAAA,QAAA,gCACA,GAAA,QAAA,uBAGA,MAAM,GAAgC,CAACpC,GADoC,UAAEpC,GAAFoC,cAAcpC,EAAHoC,mBAAIpC,EAAJoC,UAAKpC,EAALoC,WAAMpC,EAANoC,YAAOpC,EAAPoC,UAAQpC,EAARoC,WAASpC,EAAToC,UAAUpC,EAAVoC,UAAWpC,EAAXoC,YAAapC,EAAboC,WAAcpC,EAAdoC,YAAepC,EAAfoC,YAAgBpC,EAAhBoC,WAAiBpC,EAAjBoC,YAAkBpC,EAAlBoC,YAAmBpC,EAAnBoC,WAAoBpC,EAApBoC,YAAqBpC,EAArBoC,YAAsBpC,EAAtBoC,WAAuBpC,EAAvBoC,YAAwBpC,EAAxBoC,YAAyBpC,EAAzBoC,WAA0BpC,EAA1BoC,YAA2BpC,EAA3BoC,YAA4BpC,EAA5BoC,WAA6BpC,EAA7BoC,YAA8BpC,EAA9BoC,YAA+BpC,EAA/BoC,WAAgCpC,EAAhCoC,YAAiCpC,EAAjCoC,YAAkCpC,EAAlCoC,WAAmCpC,EAAnCoC,YAAoCpC,EAApCoC,YAAqCpC,EAArCoC,WAAsCpC,EAAtCoC,YAAuCpC,EAAvCoC,YAAwCpC,EAAxCoC,WAAyCpC,EAAzCoC,YAA0CpC,EAA1CoC,YAA2CpC,EAA3CoC,WAA4CpC,EAA5CoC,YAA6CpC,EAA7CoC,YAA8CpC,EAA9CoC,WAA+CpC,EAA/CoC,YAAgDpC,EAAhDoC,YAAiDpC,EAAjDoC,WAAkDpC,EAAlDoC,YAAmDpC,EAAnDoC,YAAoDpC,EAApDoC,WAAqDpC,EAArDoC,YAAsDpC,EAAtDoC,YAAuDpC,EAAvDoC,WAAwDpC,EAAxDoC,YAAyDpC,EAAzDoC,YAA0DpC,EAA1DoC,WAA2DpC,EAA3DoC,YAA4DpC,EAA5DoC,YAA6DpC,EAA7DoC,WAA8DpC,EAA9DoC,YAA+DpC,EAA/DoC,YAAgEpC,EAAhEoC,WAAiEpC,EAAjEoC,YAAkEpC,EAAlEoC,YAAmEpC,EAAnEoC,WAAoEpC,EAApEoC,YAAqEpC,EAArEoC,YAAsEpC,EAAtEoC,WAAuEpC,EAAvEoC,YAAwEpC,EAAxEoC,YAAyEpC,EAAzEoC,WAA0EpC,EAA1EoC,YAA2EpC,EAA3EoC,YAA4EpC,EAA5EoC,WAA6EpC,EAA7EoC,YAA8EpC,EAA9EoC,YAA+EpC,EAA/EoC,WAAgFpC,EAAhFoC,YAAiFpC,EAAjFoC,YAAkFpC,EAAlFoC,WAAmFpC,EAAnFoC,YAAoFpC,EAApFoC,YAAqFpC,EAArFoC,WAAsFpC,EAAtFoC,YAAuFpC,EAAvFoC,YAAwFpC,EAAxFoC,WAAyFpC,EAAzFoC,YAA0FpC,EAA1FoC,YAA2FpC,EAA3FoC,WAA4FpC,EAA5FoC,YAA6FpC,EAA7FoC,YAA8FpC,EAA9FoC,WAA+FpC,EAA/FoC,YAAgGpC,EAAhGoC,YAAiGpC,EAAjGoC,WAAkGpC,EAAlGoC,YAAmGpC,EAAnGoC,YAAoGpC,EAApGoC,WAAqGpC,EAArGoC,YAAsGpC,EAAtGoC,YAAuGpC,EAAvGoC,WAAwGpC,EAAxGoC,YAAyGpC,EAAzGoC,YAA0GpC,EAA1GoC,WAA2GpC,EAA3GoC,YAA4GpC,EAA5GoC,YAA6GpC,EAA7GoC,WAA8GpC,EAA9GoC,YAA+GpC,EAA/GoC,YAAgHpC,EAAhHoC,WAAiHpC,EAAjHoC,YAAkHpC,EAAlHoC,YAAmHpC,EAAnHoC,WAAoHpC,EAApHoC,YAAqHpC,EAArHoC,YAAsHpC,EAAtHoC,WAAuHpC,EAAvHoC,YAAwHpC,EAAxHoC,YAAyHpC,EAAzHoC,WAA0HpC,EAA1HoC,YAA2HpC,EAA3HoC,YAA4HpC,EAA5HoC,WAA6HpC,EAA7HoC,YAA8HpC,EAA9HoC,YAA+HpC,EAA/HoC,WAAgIpC,EAAhIoC,YAAiIpC,EAAjIoC,YAAkIpC,EAAlIoC,WAAmIpC,EAAnIoC,YAAoIpC,EAApIoC,YAAqIpC,EAArIoC,WAAsIpC,EAAtIoC,YAAuIpC,EAAvIoC,YAAwIpC,EAAxIoC,WAAyIpC,EAAzIoC,YAA0IpC,EAA1IoC,YAA2IpC,EAA3IoC,WAA4IpC,EAA5IoC,YAA6IpC,EAA7IoC,YAA8IpC,EAA9IoC,WAA+IpC,EAA/IoC,YAAgJpC,EAAhJoC,YAAiJpC,EAAjJoC,WAAkJpC,EAAlJoC,YAAmJpC,EAAnJoC,YAAoJpC,EAApJoC,WAAqJpC,EAArJoC,YAAsJpC,EAAtJoC,YAAuJpC,EAAvJoC,WAAwJpC,EAAxJoC,YAAyJpC,EAAzJoC,YAA0JpC,EAA1JoC,WAA2JpC,EAA3JoC,YAA4JpC,EAA5JoC,YAA6JpC,EAA7JoC,WAA8JpC,EAA9JoC,YAA+JpC,EAA/JoC,YAAgKpC,EAAhKoC,WAAiKpC,EAAjKoC,YAAkKpC,EAAlKoC,YAAmKpC,EAAnKoC,WAAoKpC,EAApKoC,YAAqKpC,EAArKoC,YAAsKpC,EAAtKoC,WAAuKpC,EAAvKoC,YAAwKpC,EAAxKoC,YAAyKpC,EAAzKoC,WAA0KpC,EAA1KoC,YAA2KpC,EAA3KoC,YAA4KpC,EAA5KoC,WAA6KpC,EAA7KoC,YAA8KpC,EAA9KoC,YAA+KpC,EAA/KoC,WAAgLpC,EAAhLoC,YAAiLpC,EAAjLoC,YAAkLpC,EAAlLoC,WAAmLpC,EAAnLoC,YAAoLpC,EAApLoC,YAAqLpC,EAArLoC,WAAsLpC,EAAtLoC,YAAuLpC,EAAvLoC,YAAwLpC,EAAxLoC,WAAyLpC,EAAzLoC,YAA0LpC,EAA1LoC,YAA2LpC,EAA3LoC,WAA4LpC,EAA5LoC,YAA6LpC,EAA7LoC,YAA8LpC,EAA9LoC,WAA+LpC,EAA/LoC,YAAgMpC,EAAhMoC,YAAiMpC,EAAjMoC,WAAkMpC,EAAlMoC,YAAmMpC,EAAnMoC,YAAoMpC,EAApMoC,WAAqMpC,EAArMoC,YAAsMpC,EAAtMoC,YAAuMpC,EAAvMoC,WAAwMpC,EAAxMoC,YAAyMpC,EAAzMoC,YAA0MpC,EAA1MoC,WAA2MpC,EAA3MoC,YAA4MpC,EAA5MoC,YAA6MpC,EAA7MoC,WAA8MpC,EAA9MoC,YAA+MpC,EAA/MoC,YAAgNpC,EAAhNoC,WAAiNpC,EAAjNoC,YAAkNpC,EAAlNoC,YAAmNpC,EAAnNoC,WAAoNpC,EAApNoC,YAAqNpC,EAArNoC,YAAsNpC,EAAtNoC,WAAuNpC,EAAvNoC,YAAwNpC,EAAxNoC,YAAyNpC,EAAzNoC,WAA0NpC,EAA1NoC,YAA2NpC,EAA3NoC,YAA4NpC,EAA5NoC,WAA6NpC,EAA7NoC,YAA8NpC,EAA9NoC,YAA+NpC,EAA/NoC,WAAgOpC,EAAhOoC,YAAiOpC,EAAjOoC,YAAkOpC,EAAlOoC,WAAmOpC,EAAnOoC,YAAoOpC,EAApOoC,YAAqOpC,EAArOoC,WAAsOpC,EAAtOoC,YAAuOpC,EAAvOoC,YAAwOpC,EAAxOoC,WAAyOpC,EAAzOoC,YAA0OpC,EAA1OoC,YAA2OpC,EAA3OoC,WAA4OpC,EAA5OoC,YAA6OpC,EAA7OoC,YAA8OpC,EAA9OoC,WAA+OpC,EAA/OoC,YAAgPpC,EAAhPoC,YAAiPpC,EAAjPoC,WAAkPpC,EAAlPoC,YAAmPpC,EAAnPoC,YAAoPpC,EAApPoC,WAAqPpC,EAArPoC,YAAsPpC,EAAtPoC,YAAuPpC,EAAvPoC,WAAwPpC,EAAxPoC,YAAyPpC,EAAzPoC,YAA0PpC,EAA1PoC,WAA2PpC,EAA3PoC,YAA4PpC,EAA5PoC,YAA6PpC,EAA7PoC,WAA8PpC,EAA9PoC,YAA+PpC,EAA/PoC,YAAgQpC,EAAhQoC,WAAiQpC,EAAjQoC,YAAkQpC,EAAlQoC,YAAmQpC,EAAnQoC,WAAoQpC,EAApQoC,YAAqQpC,EAArQoC,YAAsQpC,EAAtQoC,WAAuQpC,EAAvQoC,YAAwQpC,EAAxQoC,YAAyQpC,EAAzQoC,WAA0QpC,EAA1QoC,YAA2QpC,EAA3QoC,YAA4QpC,EAA5QoC,WAA6QpC,EAA7QoC,YAA8QpC,EAA9QoC,YAA+QpC,EAA/QoC,WAAgRpC,EAAhRoC,YAAiRpC,EAAjRoC,YAAkRpC,EAAlRoC,WAAmRpC,EAAnRoC,YAAoRpC,EAApRoC,YAAqRpC,EAArRoC,WAAsRpC,EAAtRoC,YAAuRpC,EAAvRoC,YAAwRpC,EAAxRoC,WAAyRpC,EAAzRoC,YAA0RpC,EAA1RoC,YAA2RpC,EAA3RoC,WAA4RpC,EAA5RoC,YAA6RpC,EAA7RoC,YAA8RpC,EAA9RoC,WAA+RpC,EAA/RoC,YAAgSpC,EAAhSoC,YAAiSpC,EAAjSoC,WAAkSpC,EAAlSoC,YAAmSpC,EAAnSoC,YAAoSpC,EAApSoC,WAAqSpC,EAArSoC,YAAsSpC,EAAtSoC,YAAuSpC,EAAvSoC,WAAwSpC,EAAxSoC,YAAySpC,EAAzSoC,YAA0SpC,EAA1SoC,WAA2SpC,EAA3SoC,YAA4SpC,EAA5SoC,YAA6SpC,EAA7SoC,WAA8SpC,EAA9SoC,YAA+SpC,EAA/SoC,YAAgTpC,EAAhToC,WAAiTpC,EAAjToC,YAAkTpC,EAAlToC,YAAmTpC,EAAnToC,WAAoTpC,EAApToC,YAAqTpC,EAArToC,YAAsTpC,EAAtToC,WAAuTpC,EAAvToC,YAAwTpC,EAAxToC,YAAyTpC,EAAzToC,WAA0TpC,EAA1ToC,YAA2TpC,EAA3ToC,YAA4TpC,EAA5ToC,WAA6TpC,EAA7ToC,YAA8TpC,EAA9ToC,YAA+TpC,EAA/ToC,WAAgUpC,EAAhUoC,YAAiUpC,EAAjUoC,YAAkUpC,EAAlUoC,WAAmUpC,EAAnUoC,YAAoUpC,EAApUoC,YAAqUpC,EAArUoC,WAAsUpC,EAAtUoC,YAAuUpC,EAAvUoC,YAAwUpC,EAAxUoC,WAAyUpC,EAAzUoC,YAA0UpC,EAA1UoC,YAA2UpC,EAA3UoC,WAA4UpC,EAA5UoC,YAA6UpC,EAA7UoC,YAA8UpC,EAA9UoC,WAA+UpC,EAA/UoC,YAAgVpC,EAAhVoC,YAAiVpC,EAAjVoC,WAAkVpC,EAAlVoC,YAAmVpC,EAAnVoC,YAAoVpC,EAApVoC,WAAqVpC,EAArVoC,YAAsVpC,EAAtVoC,YAAuVpC,EAAvVoC,WAAwVpC,EAAxVoC,YAAyVpC,EAAzVoC,YAA0VpC,EAA1VoC,WAA2VpC,EAA3VoC,YAA4VpC,EAA5VoC,YAA6VpC,EAA7VoC,WAA8VpC,EAA9VoC,YAA+VpC,EAA/VoC,YAAgWpC,EAAhWoC,WAAiWpC,EAAjWoC,YAAkWpC,EAAlWoC,YAAmWpC,EAAnWoC,WAAoWpC,EAApWoC,YAAqWpC,EAArWoC,YAAsWpC,EAAtWoC,WAAuWpC,EAAvWoC,YAAwWpC,EAAxWoC,YAAyWpC,EAAzWoC,WAA0WpC,EAA1WoC,YAA2WpC,EAA3WoC,YAA4WpC,EAA5WoC,WAA6WpC,EAA7WoC,YAA8WpC,EAA9WoC,YAA+WpC,EAA/WoC,WAAgXpC,EAAhXoC,YAAiXpC,EAAjXoC,YAAkXpC,EAAlXoC,WAAmXpC,EAAnXoC,YAAoXpC,EAApXoC,YAAqXpC,EAArXoC,WAAsXpC,EAAtXoC,YAAuXpC,EAAvXoC,YAAwXpC,EAAxXoC,WAAyXpC,EAAzXoC,YAA0XpC,EAA1XoC,YAA2XpC,EAA3XoC,WAA4XpC,EAA5XoC,YAA6XpC,EAA7XoC,YAA8XpC,EAA9XoC,WAA+XpC,EAA/XoC,YAAgYpC,EAAhYoC,YAAiYpC,EAAjYoC,WAAkYpC,EAAlYoC,YAAmYpC,EAAnYoC,YAAoYpC,EAApYoC,WAAqYpC,EAArYoC,YAAsYpC,EAAtYoC,YAAuYpC,EAAvYoC,WAAwYpC,EAAxYoC,YAAyYpC,EAAzYoC,YAA0YpC,EAA1YoC,WAA2YpC,EAA3YoC,YAA4YpC,EAA5YoC,YAA6YpC,EAA7YoC,WAA8YpC,EAA9YoC,YAA+YpC,EAA/YoC,YAAgZpC,EAAhZoC,WAAiZpC,EAAjZoC,YAAkZpC,EAAlZoC,YAAmZpC,EAAnZoC,WAAoZpC,EAApZoC,YAAqZpC,EAArZoC,YAAsZpC,EAAtZoC,WAAuZpC,EAAvZoC,YAAwZpC,EAAxZoC,YAAyZpC,EAAzZoC,WAA0ZpC,EAA1ZoC,YAA2ZpC,EAA3ZoC,YAA4ZpC,EAA5ZoC,WAA6ZpC,EAA7ZoC,YAA8ZpC,EAA9ZoC,YAA+ZpC,EAA/ZoC,WAAgapC,EAAhaoC,YAAiapC,EAAjaoC,YAAkapC,EAAlaoC,WAAmapC,EAAnaoC,YAAoapC,EAApaoC,YAAqapC,EAAraoC,WAAsapC,EAAtaoC,YAAuapC,EAAvaoC,YAAwapC,EAAxaoC,WAAyapC,EAAzaoC,YAA0apC,EAA1aoC,YAA2apC,EAA3aoC,WAA4apC,EAA5aoC,YAA6apC,EAA7aoC,YAA8apC,EAA9aoC,WAA+apC,EAA/aoC,YAAgbpC,EAAhboC,YAAibpC,EAAjboC,WAAkbpC,EAAlboC,YAAmbpC,EAAnboC,YAAobpC,EAApboC,WAAqbpC,EAArboC,YAAsbpC,EAAtboC,YAAubpC,EAAvboC,WAAwbpC,EAAxboC,YAAybpC,EAAzboC,YAA0bpC,EAA1boC,WAA2bpC,EAA3boC,YAA4bpC,EAA5boC,YAA6bpC,EAA7boC,WAA8bpC,EAA9boC,YAA+bpC,EAA/boC,YAAgcpC,EAAhcoC,WAAicpC,EAAjcoC,YAAkcpC,EAAlcoC,YAAmcpC,EAAncoC,WAAocpC,EAApcoC,YAAqcpC,EAArcoC,YAAscpC,EAAtcoC,WAAucpC,EAAvcoC,YAAwcpC,EAAxcoC,YAAycpC,EAAzcoC,WAA0cpC,EAA1coC,YAA2cpC,EAA3coC,YAA4cpC,EAA5coC,WAA6cpC,EAA7coC,YAA8cpC,EAA9coC,YAA+cpC,EAA/coC,WAAgdpC,EAAhdoC,YAAidpC,EAAjdoC,YAAkdpC,EAAldoC,WAAmdpC,EAAndoC,YAAodpC,EAApdoC,YAAqdpC,EAArdoC,WAAsdpC,EAAtdoC,YAAudpC,EAAvdoC,YAAwdpC,EAAxdoC,WAAydpC,EAAzdoC,YAA0dpC,EAA1doC,YAA2dpC,EAA3doC,WAA4dpC,EAA5doC,YAA6dpC,EAA7doC,YAA8dpC,EAA9doC,WAA+dpC,EAA/doC,YAAgepC,EAAhepC,YAAifpC,EAAjfoC,YAAkfpC,EAAlfoC,WAAmfpC,EAAnfoC,YAAofpC,EAApfoC,YAAqfpC,EAArfoC,WAAsfpC,EAAtfoC,YAAufpC,EAAvfoC,YAAwfpC,EAAxfoC,WAAyfpC,EAAzfoC,YAA0fpC,EAA1foC,YAA2fpC,EAA3foC,WAA4fpC,EAA5foC,YAA6fpC,EAA7foC,YAA8fpC,EAA9foC,WAA+fpC,EAA/foC,YAAggpC,EAAhgpC,YAAihpC,EAAjhpC,YAAkipC,EAAlipC,YAAmjpC,EAAnjpC,YAAokpC,EAApkpC,YAAqlpC,EAArlpC,YAAsmpC,EAAtmpC,YAAunpC,EAAvnpC,YAAwopC,EAAxopC,YAAypC,EAAzpC,YAA0qpC,EAA1qpC,YAA2rpC,EAA3rpC,YAA4spC,EAA5spC,YAA6tpC,EAA7tpC,YAA8upC,EAA9upC,YAA+vpC,EAA/vpC,YAAgxpC,EAAhxpC,YAAiypC,EAAjypC,YAAkzpC,EAAlzpC,YAAm0pC,EAAn0pC,YAAo1pC,EAAp1pC,YAAq2pC,EAAr2pC,YAAs3pC,EAAt3pC,YAAu4pC,EAAv4pC,YAAw5pC,EAAx5pC,YAAy6pC,EAAz6pC,YAA07pC,EAA17pC,YAA28pC,EAA38pC,YAA49pC,EAA59pC,YAA6+pC,EAA7+pC,YAA8/pC,EAA9/pC,YAA+gqC,EAA/gqC,YAAgiqC,EAAhiqC,YAAijqC,EAAjjqC,YAAkkqC,EAAlkqC,YAAmlqC,EAAnlqC,YAAomqC,EAApmqC,YAAqnqC,EAArnqC,YAAsoqC,EAAtoqC,YAAupqC,EAAvpqC,YAAwqqC,EAAxqqC,YAAyrqC,EAAzrqC,YAA0sqC,EAA1sqC,YAA2tqC,EAA3tqC,YAA4uqC,EAA5uqC,YAA6vqC,EAA7vqC,YAA8wqC,EAA9wqC,YAA+xqC,EAA/xqC,YAAgzqC,EAAhzqC,YAAi0qC,EAAj0qC,YAAk1qC,EAAl1qC,YAAm2qC,EAAn2qC,YAAo3qC,EAAp3qC,YAAq4qC,EAAr4qC,YAAs5qC,EAAt5qC,YAAu6qC,EAAv6qC,YAAw7qC,EAAx7qC,YAAy8qC,EAAz8qC,YAA09qC,EAA19qC,YAA2+qC,EAA3+qC,YAA4/qC,EAA5/qC,YAA6grC,EAA7grC,YAA8hrC,EAA9hrC,YAA+irC,EAA/irC,YAAgkrC,EAAhkrC,YAAillC,EAAjllC,YAAkmrC,EAAlmrC,YAAmnrC,EAAnnrC,YAAoorC,EAAporC,YAAqprC,EAArprC,YAAsqrC,EAAtqrC,YAAurrC,EAAvrrC,YAAwsrC,EAAxsrC,YAAytrC,EAAztrC,YAA0urC,EAA1urC,YAA2vrC,EAA3vrC,YAA4wrC,EAA5wrC,YAA6xrC,EAA7xrC,YAA8yrC,EAA9yrC,YAA+zrC,EAA/zrC,YAAg1rC,EAAh1rC,YAAi2rC,EAAj2rC,YAAk3rC,EAAl3rC,YAAm4rC,EAAn4rC,YAAo5rC,EAAp5rC,YAAq6rC,EAAr6rC,YAAs7rC,EAAt7rC,YAAu8rC,EAAv8rC,YAAw9rC,EAAx9rC,YAAy+rC,EAAz+rC,YAA0/rC,EAA1/rC,YAA2gsC,EAA3gsC,YAA4hsC,EAA5hsC,YAA6isC,EAA7isC,YAA8jsC,EAA9jsC,YAA+ksC,EAA/ksC,YAAgmsC,EAAhmsC,YAAinsC,EAAjnsC,YAAkosC,EAAlosC,YAAmpsC,EAAnpsC,YAAoqsC,EAApqsC,YAAqrsC,EAArrsC,YAAssC,EAAtssC,YAAutsC,EAAvtsC,YAAwusC,EAAxusC,YAAyvsC,EAAzvsC,YAA0wsC,EAA1wsC,YAA2xsC,EAA3xsC,YAA4ysC,EAA5ysC,YAA6zsC,EAA7zsC,YAA80sC,EAA90sC,YAA+1sC,EAA/1sC,YAAg3sC,EAAh3sC,YAAi4sC,EAAj4sC,YAAk5sC,EAAl5sC,YAAm6sC,EAAn6sC,YAAo7sC,EAAp7sC,YAAq8sC,EAAr8sC,YAAs9sC,EAAt9sC,YAAu+sC,EAAv+sC,YAAw/sC,EAAx/sC,YAAyhtC,EAAzhtC,YAA0itC,EAA1itC,YAA2jtC,EAA3jtC,YAA4ktC,EAA5ktC,YAA6ltC,EAA7ltC,YAA8mtC,EAA9mtC,YAA+ntC,EAA/ntC,YAAgptC,EAAhptC,YAAiqtC,EAAjqtC,YAAkrtC,EAAlrtC,YAAmstC,EAAnstC,YAAottC,EAAptC,YAAqutC,EAArutC,YAAsvtC,EAAtvtC,YAAuwtC,EAAvwtC,YAAwxtC,EAAxxtC,YAAyytC,EAAzytC,YAA0ztC,EAA1ztC,YAA20tC,EAA30tC,YAA41tC,EAA51tC,YAA62tC,EAA72tC,YAA83tC,EAA93tC,YAA+4tC,EAA/4tC,YAAg6tC,EAAh6tC,YAAi7tC,EAAj7tC,YAAk8tC,EAAl8tC,YAAm9tC,EAAn9tC,YAAo+tC,EAAp+tC,YAAq/tC,EAAr/tC,YAAshuC,EAAthuC,YAAuiuC,EAAviuC,YAAwjuC,EAAxjuC,YAAykuC,EAAzkuC,YAA0luC,EAA1luC,YAA2muC,EAA3muC,YAA4nuC,EAA5nuC,YAA6ouC,EAA7ouC,YAA8puC,EAA9puC,YAA+quC,EAA/quC,YAAgsuC,EAAhsuC,YAAituC,EAAjtuC,YAAkuuC,EAAluuC,YAAmvuC,EAAnvuC,YAAowuC,EAApwuC,YAAqxuC,EAArxuC,YAAsyuC,EAAtyuC,YAAuzuC,EAAvzuC,YAAw0uC,EAAx0uC,YAAy1uC,EAAz1uC,YAA02uC,EAA12uC,YAA23uC,EAA33uC,YAA44uC,EAA54uC,YAA65uC,EAA75uC,YAA86uC,EAA96uC,YAA+7uC,EAA/7uC,YAAg9uC,EAAh9uC,YAAi+uC,EAAj+uC,YAAk/uC,EAAl/uC,YAAmgvC,EAAngvC,YAAohvC,EAAphvC,YAAqivC,EAAzjvC,YAA0kvC,EAA1kvC,YAA2lvC,EAA3lvC,YAA4mvC,EAA5mvC,YAA6nvC,EAA7nvC,YAA8ovC,EAA9ovC,YAA+pvC,EAA/pvC,YAAgrvC,EAAhrvC,YAAisvC,EAAjsvC,YAAktvC,EAAltvC,YAAmuvC,EAAnuvC,YAAovvC,EAApvvC,YAAqwvC,EAArwvC,YAAsxvC,EAAtxvC,YAAuyvC,EAAvyvC,YAAwzvC,EAAxzvC,YAAy0vC,EAAz0vC,YAA01vC,EAA11vC,YAA22vC,EAA32vC,YAA43vC,EAA53vC,YAA64vC,EAA74vC,YAA85vC,EAA95vC,YAA+7vC,EAA/7vC,YAAg9vC,EAAh9vC,YAAi+vC,EAAj+vC,YAAk/vC,EAAl/vC,YAAmgwC,EAAngwC,YAAohwC,EAAphwC,YAAqiwC,EAAriwC,YAAsjwC,EAAtjwC,YAAukwC,EAAvkwC,YAAwlwC,EAAxlwC,YAAymwC,EAAzmwC,YAA0nwC,EAA1nwC,YAA2owC,EAA3owC,YAA4pwC,EAA5pwC,YAA6qwC,EAA7qwC,YAA8rwC,EAA9rwC,YAA+swC,EAA/swC,YAAguwC,EAAhuwC,YAAivwC,EAAjvwC,YAAkwwC,EAAlwwC,YAAmxwC,EAAnxwC,YAAoywC,EAApywC,YAAqzwC,EAArzwC,YAAs0wC,EAAt0wC,YAAu1wC,EAAv1wC,YAAw2wC,EAAx2wC,YAAy3wC,EAAz3wC,YAA04wC,EAA14wC,YAA25wC,EAA35wC,YAA46wC,EAA56wC,YAA67wC,EAA77wC,YAA88wC,EAA98wC,YAA+9wC,EAA/9wC,YAAg+wC,EAAh+wC,YAAi/wC,EAAj/wC,YAAkgxC,EAAlgxC,YAAmhxC,EAAnhxC,YAAoixC,EAApixC,YAAqjxC,EAArjxC,YAAskxC,EAAtkxC,YAAulxC,EAAvlxC,YAAwmxC,EAAxmxC,YAAynxC,EAAznxC,YAA0oxC,EAA1oxC,YAA2pxC,EAA3pxC,YAA4qxC,EAA5qxC,YAA6rxC,EAA7rxC,YAA8sxC,EAA9sxC,YAA+txC,EAA/txC,YAAgvxC,EAAhvxC,YAAiwxC,EAAjwxC,YAAkxxC,EAAlxxC,YAAmyxC,EAAnyxC,YAAozxC,EAApzxC,YAAq0xC,EAAr0xC,YAAs1xC,EAAt1xC,YAAu2xC,EAAv2xC,YAAw3xC,EAAx3xC,YAAy4xC,EAAz4xC,YAA05xC,EAA15xC,YAA26xC,EAA36xC,YAA47xC,EAA57xC,YAA68xC,EAA78xC,YAA89xC,EAA99xC,YAA++xC,EAA/+xC,YAAggyC,EAAhgyC,YAAihyC,EAAjhyC,YAAkiyC,EAAliyC,YAAmjyC,EAAnjyC,YAAokyC,EAApkyC,YAAqlyC,EAArlyC,YAAsmyC,EAAtmyC,YAAunyC,EAAvnyC,YAAwoyC,EAAxoyC,YAAypyC,EAAzpyC,YAA0qyC,EAA1qyC,YAA2ryC,EAA3ryC,YAA4syC,EAA5syC,YAA6tyC,EAA7tyC,YAA8uyC,EAA9uyC,YAA+vyC,EAA/vyC,YAAgxyC,EAAhxyC,YAAiyyC,EAAjyyC,YAAkzyC,EAAlzyC,YAAm0yC,EAAn0yC,YAAo1yC,EAAp1yC,YAAq2yC,EAAr2yC,YAAs3yC,EAAt3yC,YAAu4yC,EAAv4yC,YAAw5yC,EAAx5yC,YAAy6yC,EAAz6yC,YAA07yC,EAA17yC,YAA28yC,EAA38yC,YAA49yC,EAA59yC,YAA6+yC,EAA7+yC,YAA8/yC,EAA9/yC,YAA+gzC,EAA/gzC,YAAgizC,EAAhizC,YAAijzC,EAAjjzC,YAAkkzC,EAAlkzC,YAAmlzC,EAAnlzC,YAAomzC,EAApmzC,YAAqnzC,EAArnzC,YAAsozC,EAAtozC,YAAupzC,EAAvpzC,YAAwqzC,EAAxqzC,YAAyrzC,EAAzrzC,YAA0szC,EAA1szC,YAA2tzC,EAA3tzC,YAA4uzC,EAA5uzC,YAA6vzC,EAA7vzC,YAA8wzC,EAA9wzC,YAA+xzC,EAA/xzC,YAAgzzC,EAAhzzC,YAAi0zC,EAAj0zC,YAAk1zC,EAAl1zC,YAAm2zC,EAAn2zC,YAAo3zC,EAAp3zC,YAAq4zC,EAAr4zC,YAAs5zC,EAAt5zC,YAAu6zC,EAAv6zC,YAAw7zC,EAAx7zC,YAAy8zC,EAAz8zC,YAA09zC,EAA19zC,YAA2+zC,EAA3+zC,YAA4/zC,EAA5/zC,YAA6g0C,EAA7g0C,YAA8h0C,EAA9h0C,YAA+i0C,EAA/i0C,YAAgk0C,EAAhk0C,YAAil0C,EAAjl0C,YAAkm0C,EAAlm0C,YAAmn0C,EAAnn0C,YAAoo0C,EAApo0C,YAAqp0C,EAArp0C,YAAsq0C,EAAtq0C,YAAur0C,EAAvr0C,YAAws0C,EAAxs0C,YAAyt0C,EAAzt0C,YAA0u0C,EAA1u0C,YAA2v0C,EAA3v0C,YAA4w0C,EAA5w0C,YAA6x0C,EAA7x0C,YAA8y0C,EAA9y0C,YAA+z0C,EAA/z0C,YAAg10C,EAAh10C,YAAi20C,EAAj20C,YAAk30C,EAAl30C,YAAm40C,EAAn40C,YAAo50C,EAAp50C,YAAq60C,EAAr60C,YAAs70C,EAAt70C,YAAu80C,EAAv80C,YAAw90C,EAAx90C,YAAy+0C,EAAz+0C,YAA0/0C,EAA1/0C,YAA2g1C,EAA3g1C,YAA4h1C,EAA5h1C,YAA6i1C,EAA7i1C,YAA8j1C,EAA9j1C,YAA+k1C,EAA/k1C,YAAgl1C,EAAhl1C,YAAim1C,EAAjm1C,YAAkn1C,EAAln1C,YAAmo1C,EAAno1C,YAAop1C,EAAp1C,YAAq21C,EAAr21C,YAAs31C,EAAt31C,YAAu41C,EAAv41C,YAAw51C,EAAx51C,YAAy61C,EAAz61C,YAA071C,EAA171C,YAA281C,EAA381C,YAA491C,EAA591C,YAA691C,EAA791C,YAA891C,EAA991C,YAA+92C,EAA/92C,YAAg+2C,EAAh+2C,YAAi/2C,EAAj/2C,YAAkg3C,EAAlg3C,YAAmh3C,EAAnh3C,YAAoi3C,EAApi3C,YAAqj3C,EAArj3C,YAAsk3C,EAAtk3C,YAAul3C,EAAvl3C,YAAwm3C,EAAxm3C,YAAyn3C,EAAzn3C,YAA0o3C,EAA1o3C,YAA2p3C,EAA3p3C,YAA4q3C,EAA5q3C,YAA6r3C,EAA7r3C,YAA8s3C,EAA9s3C,YAA+t3C,EAA/t3C,YAAgv3C,EAAhv3C,YAAiw3C,EAAjw3C,YAAkx3C,EAAlx3C,YAAmy3C,EAAny3C,YAAoz3C,EAApz3C,YAAq03C,EAAr03C,YAAs13C,EAAt13C,YAAu23C,EAAv23C,YAAw33C,EAAx33C,YAAy43C,EAAz43C,YAA053C,EAA153C,YAA263C,EAA363C,YAA463C,EAA563C,YAA663C,EAA763C,YAA863C,EAA963C,YAA+94C,EAA/94C,YAAg+4C,EAAh+4C,YAAi/4C,EAAj/4C,YAAkg5C,EAAlg5C,YAAmh5C,EAAnh5C,YAAoi5C,EAApi5C,YAAqj5C,EAArj5C,YAAsk5C,EAAtk5C,YAAul5C,EAAvl5C,YAAwm5C,EAAxm5C,YAAyn5C,EAAzn5C,YAA0o5C,EAA1o5C,YAA2p5C,EAA3p5C,YAA4q5C,EAA5q5C,YAA6r5C,EAA7r5C,YAA8s5C,EAA9s5C,YAA+t5C,EAA/t5C,YAAgv5C,EAAhv5C,YAAiw5C,EAAjw5C,YAAkx5C,EAAlx5C,YAAmy5C,EAAny5C,YAAoz5C,EAApz5C,YAAq06C,EAAr06C,YAAs16C,EAA

pC,GAjJoC,WAkJpC,GAlJoC,WAmJpC,GAnJoC,WAoJpC,GApJoC,gBAqJpC,GArJoC,aAsJpC,GAtJoC,aAuJpC,GAvJoC,yBAwJpC,GAxJoC,iBA2JtC,IAAK,MAAM,MAAgB,IACV,EAAA,EAAA,gBAAA;;AhRrTjB,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IADA,IAAA,EAAA,QAAA,UAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,GAAA,OAAA,eAAA,QAAA,EAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,QACA,QAAA;;AiRoSA,aAAzRA,IAAAY,EAAyRK,EAAAjB,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAAzRA,SAAAY,GACV,EAAA,EAAA,WAAA,GAAA,aACA,EAAA,EAAA,SAAA,GAAA,WACA,EAAA,EAAA,UAAA,GAAA,YACA,EAAA,EAAA,SAAA,GAAA,WACA,EAAA,EAAA,SAAA,GAAA,WACA,EAAA,EAAA,SAAA,GAAA,WACA,EAAA,EAAA,QAAA,GAAA,UACA,EAAA,EAAA,UAAA,GAAA,YACA,EAAA,EAAA,aAAA,GAAA,eACA,EAAA,EAAA,SAAA,GAAA,WACA,EAAA,EAAA,QAAA,IAAA,UACA,EAAA,EAAA,SAAA,IAAA,WACA,EAAA,EAAA,UAAA,IAAA,YACA,EAAA,EAAA,UAAA,IAAA,YACA,EAAA,EAAA,YAAA,IAAA,cACA,EAAA,EAAA,aAAA,KAAA,eACA,EAAA,EAAA,cAAA,KAAA,gBACA,EAAA,EAAA,aAAA,KAAA,eACA,EAAA,EAAA,aAAA,KAAA,eACA,EAAA,EAAA,aAAA,KAAA,eACA,EAAA,EAAA,YAAA,KAAA,cACA,EAAA,EAAA,cAAA,KAAA,gBACA,EAAA,EAAA,aAAA,iBAAA,KAAA,mBACA,EAAA,EAAA,aAAA,KAAA,eACA,EAAA,EAAA,YAAA,KAAA,cACA,EAAA,EAAA,cAAA,KAAA,gBACA,EAAA,EAAA,cAAA,KAAA,gBACA,EAAA,EAAA,cAAA,KAAA,gBACA,EAAA,EAAA,aAAA,kBA7BF,CAAY,IAAA,QAAA,SAAA,EAAAQ,KAAyRpB,QAAA,SAAA,EAAA,SAAAiB,GAEH,IAAA,GAAAZ,SAAAY,EAAA,EAAA,OAAA,GAAA,SAAAc,EAAA,EAAA,GAAA,GAAA,KAAAU,EAAA,EAAA,GAAA,KAAA,EAAA,EAAA,GAAA,KAAA,EAAA,EAAA,GAAA,KAAA

AU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAAiB,KAAA,QAAAyB,cAAA,KAGtE,CACc,SAAA,OACA,SAAA,aACF,OAAA,CAAC,CAAU,MAAA,EAAU,IAAA,EAAW,KAAA,UAAAmB,KAAA,aAE/D,CACc,SAAA,UACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAAiB,KAAA,QAAAyB,cAAA,KAGtE

AAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,MACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,MACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,MACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,QACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,M

U,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QA
AyB,cAAA,KAGtE,CACc,SAAA,QACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAA
A,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGtE,CACc,SAAA,QA
CA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OA
AA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGtE,CACc,SAAA,MACA,SAAA,aACF,OAAA,CACR,CAA
U,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QA
AyB,cAAA,KGtE,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAU,MAAA,EAAW,KAAA,IAAa,KAA
A,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CACP,CAAW,OAAA,YACF,KAAA,W
ACA,KAAA,OACQ,cAAA,GAElB,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGtE,CACc,S
AAA,YACA,SAAA,aACF,OAAA,CACR,CAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,C
ACY,OAAA,QACF,KAAA,QACA,KAAA,SACQ,aAAA,IAElB,CACY,OAAA,IACF,KAAA,QACA,KAAA,QAC
Q,cAAA,MAlcjB,QAAA,KAAA;;ACDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAA
A,EAAA,MAAM,EAAmB,CAC9B,CACc,SAAA,kBACA,SAAA,UACF,OAAA,CACR,CAU,MAAA,EAAW,K
AAA,eAAwB,KAAA,SAC7C,CAAU,MAAA,EAAW,KAAA,iBAA0B,KAAA,WG7C,MAAA,CAAC,CAAW,O
AAA,gBAAyB,KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,WACA,SAAA,UACF,OAAA,CAAC,CAU,MAA
A,EAAW,KAAA,OAAgB,KAAA,YAElD,CACc,SAAA,SACA,SAAA,UACF,OAAA,CACR,CAU,MAAA,EAAW,KAAA,IAA
W,KAAA,OAAgB,KAAA,UACrC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,YGzC,CACc,SAAA,QACA,S
AAA,UACF,OAAA,CAAC,CAU,MAAA,EAAU,IAAA,EAAW,KAAA,UAAmB,KAAA,aAE/D,CACc,SAAA,QA
CA,SAAA,UACF,OAAA,CACR,CAU,MAAA,EAAW,KAAA,SAAkB,KAAA,WAEhC,MAAA,CACP,CAAW,OAAA,
,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGClE,CAAW,OAAA,aAAsB,KAAA,YAAqB,KAAA,UAC
tD,CAAW,OAAA,cAAuB,KAAA,aAAsB,KAAA,UAG5D,CACc,SAAA,OACA,SAAA,UACF,OAAA,CACR,CAU,MAA
AU,MAAA,EAAW,KAAA,SAAkB,KAAA,WAEhC,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,
QAAyB,cAAA,KGtE,CACc,SAAA,gBACA,SAAA,UACF,OAAA,CACR,CAU,MAAA,EAAW,KAAA,SAAkB,KAAA,WAEhC,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,

A,gBAAyB,KAAA,YAE3D,CACc,SAAA,cACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,OA
AgB,KAAA,UACrC,CAAU,MAAA,EAAU,IAAA,EAAW,KAAA,OAAgB,KAAA,YAExC,MAAA,CACP,CAAW
,OAAA,cAAuB,KAAA,aAAsB,KAAA,QACxD,CAAW,OAAA,cAAuB,KAAA,aAAsB,KAAA,UAG5D,CACc,SA
AA,KACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,UACrC,CAAU,MAAA,E
AAU,IAAA,EAAW,KAAA,OAAgB,KAAA,YAExC,MAAA,CACP,CAAW,OAAA,cAAuB,KAAA,aAAsB,KAA
A,QACxD,CAAW,OAAA,cAAuB,KAAA,aAAsB,KAAA,UAG5D,CACc,SAAA,iBACA,SAAA,UACF,OAAA,C
ACR,CAAU,MAAA,EAAU,IAAA,EAAW,KAAA,OAAgB,KAAA,YAExC,MAAA,CACP,CAAW,OAAA,OAAg
B,KAAA,OAAgB,KAAA,QAC3C,CAAW,OAAA,OAAgB,KAAA,OAAgB,KAAA,UAG/C,CACc,SAAA,QACA,
SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAU,IAAA,EAAW,KAAA,OAAgB,KAAA,YAExC,MAAA,CACP
,CAAW,OAAA,OAAgB,KAAA,OAAgB,KAAA,QAC3C,CAAW,OAAA,OAAgB,KAAA,OAAgB,KAAA,UAG/C
,CACc,SAAA,oBACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,SAAkB,KAAA,UACvC,CAAU
U,MAAA,EAAW,KAAA,UAAmB,KAAA,YACxC,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAG3C,MAA
A,CAAC,CAAW,OAAA,gBAAyB,KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,sBACA,SAAA,UACF,OAAA,C
ACR,CAAU,MAAA,EAAW,KAAA,SAAkB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,UAAmB,KAAA,YA
CxC,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,SAC7C,CAAU,MAAA,EAAW,KAAA,cAAuB,KAAA,WAG
1C,MAAA,CAAC,CAAW,OAAA,gBAAyB,KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,mBACA,SAAA,UAC
F,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,UAAmB,
KAAA,YACxC,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAG3C,MAAA,CAAC,CAAW,OAAA,gBAAyB,
KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,oBACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA
eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,UAAmB,KAAA,QAAiB,cAAA,CAAW,MAAA,EAAW,
eAAwB,KAAA,UAG3C,MAAA,CAAC,CAAW,OAAA,gBAAyB,KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,o
BACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,
KAAA,QAAiB,cAAA,CAAW,MAAA,EAAW,KAAA,SAAkB,KAAA,UAC5D,CAAU,MAAA,EAAW,KAAA,cAAuB
,KAAA,WAGrC,MAAA,CAAC,CAAW,OAAA,gBAAyB,KAAA,eAAwB,KAAA,WAEnE,CACc,SAAA,oBACA,SAA
A,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,UAAm
B,

AA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,oBACA,SAAA,cACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,UAAmB,KAAA,UAAmB,KAAA,YACjD,CAAW,OAAA,UAAmB,KAAA,MAAe,KAAA,UAC7C,CAAW,OAAA,QAAiB,KAAA,aAAsB,KAAA,YAAa,CACnD,OAAA,yBACF,KAAA,sBACA,KAAA,QAEV,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,YACA,SAAA,cACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,UAAmB,KAAA,UAAmB,KAAA,YACjD,CAAW,OAAA,UAAmB,KAAA,MAAe,KAAA,UAC7C,CAAW,OAAA,QAAiB,KAAA,aAAsB,KAAA,YAAa,CACnD,OAAA,UACF,KAAA,W

,aAAA,QAElB,CACY,OAAA,YACF,KAAA,YACA,KAAA,WACQ,aAAA,CAAC,EAAG,EAAG,EAAG,IAE5B,CACY,OAAA,YACF,KAAA,WACA,KAAA,WACQ,aAAA,IAElB,CACY,OAAA,oBACF,KAAA,mBACA,KAAA,WACQ,aAAA,MAItB,CACc,SAAA,SACA,SAAA,cACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,SAAkB,KAAA,WAEhC,MAAA,CACP,CAAW,OAAA,UAAmB,KAAA,UAAmB,KAAA,YAAjD,CAAW,OAAA,QAAiB,KAAA,YAAqB,KAAA,YAAjD,CAAW,OAAA,UAAmB,KAAA,MAAe,KAAA,aAAxV5C,QAAA,KAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAAA,MAAA,EAAA,mB,EAAA,CAAC9B,CAAc,SAAA,OACA,SAAA,WACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAAlC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,W

,MAAA,EAAW,KAAA,SAAkB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,gBAAyB,KAAA,UAC9C,CAAU,
MAAA,EAAW,KAAA,eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,iBAA0B,KAAA,WAExC,MAAA,
CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,GAAO,CAC7D,OAAA,cACF,KAAA,YACA,
KAAA,QACQ,cAAA,GAAlB,CACY,OAAA,yBACF,KAAA,qBACA,KAAA,UAId,CACc,SAAA,sBACA,SAAA,
UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,UACtC,CAAU,MAAA,EAAW,KAAA,SAA
kB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,gBAAyB,KAAA,UAC9C,CAAU,MAAA,EAAW,KAAA,eAA
wB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,iBAA0B,KAAA,UAC/C,CAAU,MAAA,EAAW,KAAA,eAAw
B,KAAA,YAGjD,CACc,SAAA,QACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,YAAqB,KA
AA,WAEnC,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,GAAO,CAC7E,KAAA,WACA,
ACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,K
AAA,IAAa,KAAA,WAE3B,MAAA,CAAc,CACd,OAAA,IACF,KAAA,QACA,KAAA,QACQ,cAAA,MAAf,QA
AA,KAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAAA,MAAM,EA
AmB,CAC9B,CACc,SAAA,SACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAC
lC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CAAc,CAAA,OAAA,SAAkB,KAAA,SAAkB,K
AAA,UAE3D,CACc,SAAA,SACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,YA
GtC,CACc,SAAA,WACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAA
U,MAAA,EAAW,KAAA,OAAgB,KAAA,aAAsB,QAAA,KAAA,;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,C
AAA,OAAA,IAAA,QAAA,UAAA,EAAA,MAAM,EAAmB,CAC9B,CACc,SAAA,yBACA,SAAA,QACF,OAAA,
CACR,CAAU,MAAA,EAAW,KAAA,UAAmB,KAAA,WAEjC,MAAA,CAAc,CAAA,OAAA,QAAiB,KAAA,QAAiB,KAAA,QAAiB,KAAA,WAGjD,CAAA,OAAA,QAAiB,KAAA,QAAiB,KAAA,SAAkB,C
AAW,OAAA,QAAiB,KAAA,QAAiB,KAAA,WAGjD,CACc,SAAA,cACA,SAAA,QACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,QAAiB,KAAA,QAAiB,KAAA,SAAkB,C
AAW,OAAA,QAAiB,KAAA,QAAiB,KAAA,WAGjD,CACc,SAAA,SACA,SAAA,QACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,QAAiB,KAAA,QAAiB,KAAA,WAGjD,CAAA,O

CR,CAAU,MAAA,EAAW,KAAA,cAAuB,KAAA,UAC5C,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,UACr
C,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,WAEtC,MAAA,CACP,CAAW,OAAA,MAAe,KAAA,MAAe,K
AAA,QAAyB,cAAA,GAAO,CAC7D,OAAA,OACF,KAAA,OACA,KAAA,QACQ,cAAA,KAItB,CACc,SAAA,oB
ACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,cAAuB,KAAA,UAC5C,CAAU,MAAA,EAAW,
KAAA,OAAgB,KAAA,UACrC,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,WAEtC,MAAA,CACP,CAAW,O
AAA,MAAe,KAAA,MAAe,KAAA,QAAyB,cAAA,GAAO,CAC7D,OAAA,OACF,KAAA,OACA,KAAA,QACQ,c
AAA,MA/FjB,QAAA,KAAA;;ACCA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,E
AAA,MAAM,EAAmB,CAC9B,CACc,SAAA,iBACA,SAAA,QACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA
,SAAkB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CACP,CAAW,OAAA,g
BAAyB,KAAA,eAAwB,KAAA,QAAS,CACzD,OAAA,qBACF,KAAA,mBACA,KAAA,QAEV,CAAW,OAAA,I
AAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,wBACA,SAAA,QACF,OAAA,CACR,CAAU,
MAAA,EAAW,KAAA,SAAkB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,C
ACP,CAAW,OAAA,gBAAyB,KAAA,eAAwB,KAAA,QAAS,CACzD,OAAA,qBACF,KAAA,mBACA,KAAA,Q
AEV,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,gBACA,SAAA,QACF,O
AAA,CACR,CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,UACtC,CAAU,MAAA,EAAW,KAAA,UACtC,CAAU,MAAA,
EAAW,KAAA,SAAkB,KAAA,UACvC,CAAU,MAAA,EAAW,KAAA,WAAoB,KAAA
,aAElC,MAAA,CACP,CAAW,OAAA,SAAkB,KAAA,SAAkB,KAAA,UAAW,CAC9C,OAAA,sBACF,KAAA,qB
ACA,KAAA,aA9CT,QAAA,KAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UA
AA,EAAA,MAAM,EAAmB,CAC9B,CACc,SAAA,QACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,K
AAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,I
AAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,WACA,SAAA,UACF,OAAA,CACR,CAAU,M
AAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,O
AAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,UACA,SAAA,UACF,OAAA,C
ACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,
MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,eACA,SAAA,U
ACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA
AA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,O
ACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,K
AAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,
CACc,SAAA,YACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,M
AAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,aACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,OACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,SACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,aACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,OACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,aACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,OACA,SAAA,UACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WAE3B,MAAA,CACP,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,
cAAA,KAGtE,CACc,SAAA,S

CF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KAGtE,CACc,SAAA,SACA,SAAA,WACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WE3B,MAAA,CACP,CACY,OAAA,cACF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CACY,OAAA,cACF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGtE,CACc,SAAA,cACA,SAAA,WACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WE3B,MAAA,CACP,CACY,OAAA,QACF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CACY,OAAA,QACF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CAAW,OAAA,IAAa,KAAA,QAAiB,KAAA,QAAyB,cAAA,KGtE,CACc,SAAA,YACA,SAAA,WACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAAU,MAAA,EAAW,KAAA,IAAa,KAAA,WE3B,MAAA,CACP,CACY,OAAA,UACF,KAAA,aACA,KAAA,OACQ,cAAA,GAElB,CACY,OAAA,U

A,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CAAC,CAAW,OAAA,YA
AqB,KAAA,WAAoB,KAAA,UAEhE,CACc,SAAA,MACA,SAAA,YACF,OAAA,CACR,CAAU,MAAA,EAAW,
KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CAAC,CAAW,OAA
A,YAAqB,KAAA,WAAoB,KAAA,UAEhE,CACc,SAAA,MACA,SAAA,YACF,OAAA,CACR,CAAU,MAAA,EA
AW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CAAC,CAAW,
OAAA,YAAqB,KAAA,WAAoB,KAAA,UAEhE,CACc,SAAA,SACA,SAAA,YACF,OAAA,CACR,CAAU,MAAA
A,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,YAGzC,CACc,SAAA,SA
CA,SAAA,YACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KA
AA,OAAgB,KAAA,YAGzC,CACc,SAAA,OACA,SAAA,YACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IA
Aa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,aAE9B,MAAA,CAAC,CAAW,OAAA,YAAqB
,KAAA,WAAoB,KAAA,UAEhE,CACc,SAAA,SACA,SAAA,YACF,OAAA,CACR,CAAU,MAAA,EAAW,KAA
A,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,WAE9B,MAAA,CAAC,CAAW,OAAA,Y
AAqB,KAAA,YAAqB,KAAA,QACrD,CAAW,OAAA,UAAmB,KAAA,UAAmB,KAAA,WA7GhD,QAAA,KAA
A;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAAA,MAAM,EAAmB,CAC
9B,CACc,SAAA,WACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAU,KAAC,EAAW,KAAA,UAAmB,KA
AA,WACnD,CAAU,OAAC,EAAW,KAAA,OAAgB,KAAA,WAGpC,MAAA,CAAC,CAAW,OAAA,IAAa,KAAA
,IAAa,KAAA,SA0B,aAAA,KAAE,tE,CACc,SAAA,SACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAU,IA
AA,EAAW,KAAA,UAAmB,KAAA,WAClD,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,WAE9B,MAAA,CA
AC,CAAW,OAAA,IAAa,KAAA,IAAa,KAAA,SA0B,aAAA,KAAG3E,CACc,SAAA,WACA,SAAA,aACF
,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,UAAmB,KAAA,WAC
xC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,SA0B,aAAA,KAAE,IAExD,MAAA,CAAC,CACE,OAAA,aACF,KA
AA,YACA,KAAA,SACQ,aAAA,KAAGpB,CACc,SAAA,SACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAA
W,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,UAAmB,KAAA,WAEjC,MAAA,CAAC,CAAW,O
AAA,mBACF,KAAA,kBACA,KAAA,OACQ,cAAA,KAAGpB,CACc,SAAA,UACA,SAAA,aACF,OAAA,CACR,CAAU,C
AAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,OAAgB,KAAA,YAGzC,CACc,
SAAA,YACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,E
AAW,KAAA,OAAgB,KAAA,cAGzC,CACc,SAAA,QACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IA
AA,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,YAGzC,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,
CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,YAGzC,CACc,SAAA,
OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,
QAAiB,KAAA,YAGzC,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAClC,
CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,YAGzC,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,
IAAa,KAAA,UAClC,CAAU,MAAA,EAAW,KAAA,QAAiB,KAAA,YAGzC,CACc,SAAA,OACA,SAAA,aACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,

U,MAAA,EAAW,KAAA,cAAuB,KAAA,YAC5C,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,UAC7C,CAAU,MAAA,EAAW,KAAA,eAAwB,KAAA,WAEtC,MAAA,CAAC,CACE,OAAA,mBACF,KAAA,kBACA,KAAA,OACQ,cAAA,EACA,cAAA,MA7Mf,QAAA,KAAA;;ACAA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,UAAA,EAAA,MAAM,EAAmB,CAC9B,CACc,SAAA,MACA,SAAA,WACF,OAAA,CAAC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,YAE/C,C,CACc,SAAA,OACA,SAAA,WACF,OAAA,CAAC,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,YAE/C,C,CACc,SAAA,OACA,SAAA,WACF,OAAA,CACR,CAAU,MAAA,EAAW,KAAA,IAAa,KAAA,UAAW,CAAC,MAAA,EACD,CAAC,KAAA,IAAB,CAAC,CAAA,SAAA,QAAA,CAAA,SAAA,WAAA,OAAA,CAAA

AW,EAAU,EAAgB,GAEU,IAAI,GAAM,EAAG,OAEzD,KAAA,UAAY,EAAY,OACzB,CAAC,EAAK,KACJ,EA
AI,EAAO,UAAY,EAChB,GAET,IAKN,eACI,EACA,EAAsC,IAClC,MAAA,EAAU,EAAM,KAChB,EAAuB,GA
CvB,EAAkB,GAClB,EAAoB,GACpB,EAAQ,EAAQ,OAA8B,CAAC,EAAK,KACxD,EAAI,EAAK,MAAQ,KAA
K,QAAQ,GAC1B,EAAK,GAAG,WAAW,eACrB,EAAa,KAAK,EAAI,EAAK,OACN,UAAZ,EAAK,GACd,EAAQ
,KAAK,EAAI,EAAK,OACC,MAAd,EAAK,OAAuC,IAAtB,EAAK,MAAM,QAC1C,EAAU,KAAK,EAAI,EAAK,
OAEnB,GACN,IAEC,IAAA,EAAiB,GACf,MAAA,EAAkB,GACpB,IAAA,EAA8C,GAC9C,EAA+C,GAClC,MA
Ab,IACF,EAAqB,KAAK,oBAAoB,EAAU,QACxD,EAAsB,KAAK,oBAAoB,EAAU,UAErD,MAAA,EAAW,OA
AO,KAAK,GAC7B,EAAS,QAAQ,IACT,MAAA,EAAO,EAAM,GACnB,EAAK,WAAW,QAAQ,IAChB,MAAC,I
AAc,EAAoB,EAAA,qBAAA,GACzC,EAAK,OAAO,KAAK,EAAM,IACvB,EAAM,GAAU,SAAS,KAAK,OAMc,
IAA5C,OAAO,KAAK,GAAqB,OACnC,EAAS,QAAQ,IACT,MAAA,EAAO,EAAM,GACnB,EAAK,WAAW,QAAQ,IAAS,
QAChB,EAAQ,KAAK,IAAjB,OAAO,KAAK,GAAqB,QAAQ,IACzC,MAAC,IAAc,EAAoB,EAAA,qBAAA,GAC
nC,EAAO,EAAM,GACP,MAAR,IACF,EAAK,aAAe,EAAoB,GACxC,EAAQ,KAAK,MAAf,OAAO,KAAK,GAAqB,QAAQ,IAAS,GAA
oB,OAAS,EAC3C,OAAO,KAAK,GAAqB,QAAQ,IAChC,MAAC,IAAc,EAAoB,EAAA,qBAAA,GACnC,EAAO,
EAAM,GACf,IAAF,EAAK,aAAe,EAAmB,GACvC,EAAO,EAAM,MAAb,IAAA,EAAA,GAAA,OAAA,EAAA,GAAA,EAAA,
EAAM,GACf,IAAF,EAAK,aAAe,EAAmB,GACvC,EAAO,EAAM,MAAb,IAAA,EAAA,GAAA,OAAA,EAAA,GAAA,EAAA,
OAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,
EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,GAAA,EAAA,G

Y,CAAC,MAAO,CAAC,MAAO,EAAgB,EAAI,MAAO,KAAM,UAC7D,SAAU,IAEZ,EAAK,aAAe,EAAI,KACx
B,EAAO,KAAK,GACZ,EAAM,GAAY,IAGH,OAAO,KAAK,GACpB,QAAQ,IACT,MAAA,EAAO,EAAM,GACn
B,EAAK,WAAW,QAAQ,IAChB,MAAC,IAAc,EAAoB,EAAA,qBAAA,A,GACzC,EAAK,OAAO,KAAK,EAAM,IA
CvB,EAAM,GAAU,SAAS,KAAK,OAI5B,MAAA,EAAgB,EAAY,IAElC,EAAY,UAAU,UAAU,QAAQ,IAChC,M
AAC,EAAU,IAAS,EAAoB,EAAA,qBAAA,EAAc,EAAO,OAC7D,EAAO,EAAM,GACP,MAAR,IACF,EAAK,cA
AgB,EACrB,EAAQ,KAAK,MAIX,MAAA,EAAY,KAAK,mBAAmB,GACnC,MAAA,CAAC,MAAA,A,EAAO,EAAO,OA
AA,EAAQ,QAAA,A,EAAS,QAAA,A,EAAS,aAtDZ,GAAsD0B,UAAA,A,GAAgB,GAAjD,mBAAmB,GAElB,MAAA,CACL,WAA
Y,EAAY,UAAU,KAClC,OAAQ,EAAY,UAAU,SAAS,OACnC,CAAC,EAAK,KACJ,EAAI,EAAI,MAAQ,KAAK,
mBAAmB,GACjC,GAET,IACJ,QAAS,EAAY,UAAU,UAAU,OACrC,CAAC,EAAK,KACJ,EAAI,EAAI,MAAQ,
KAAK,mBAAmB,EAAK,EAAY,KAClD,D,GAET,IAAS,EAAK,KAIA,mBACJ,GAAA,CACL,EAAG,EAAA,IAAA,EAAA,EAAA,MAAA,EAAA,
EAAA,EAAA,IAAA,EAAA,EAAA,MAAA,

AAM,KAAK,GAA6B,MAAhB,EAAM,KAAK,EAC9B,OAAA,EACH,EAAA,sBAAA,KAAK,KAAK,SAAU,EAA
M,GAE5B,GAAgB,MAAhB,EAAM,KAAK,EACN,OAAA,EACH,EAAA,qBAAA,KAAK,KAAK,SAAU,EAAM,
GAE5B,GAAoB,MApB,EAAM,KAAK,MACN,OAAA,EACH,EAAA,0BAAA,KAAK,KAAK,SAAU,EAAM,G
AE5B,GAAgB,MAAhB,EAAM,KAAK,EACN,OAAA,EACH,EAAA,mBAAA,KAAK,KAAK,SAAU,EAAM,GA
E5B,GAAmB,MAAnB,EAAM,KAAK,KACN,OAAA,EACH,EAAA,oBAAA,KAAK,KAAK,SAAU,EAAM,GAI3
B,OAAA,GAxEe,QAAA,cAA;;ACN1B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,IAAA,EAAA,
QAAA,SAAA,OAAA,KAAA,GAAA,QAAA,SAAA,GAAA,YAAA,GAAA,eAAA,GAAA,OAAA,eAAA,QAAA,E
AAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA;;AC2EO,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,O
AAA,IAAA,QAAA,SAAA,QAAA,eAAA,EA9EP,IAAA,EAAA,EAAA,QAAA,qDAMA,EAAA,QAAA,WAwEO,
SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,
GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,G
AAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAA
A,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAA
A,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAA
A,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,
IAAA,EAAA,GAAA,EAtEA,MAAM,EACT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IACN,IAAA,UACA,IAAA
A,QACA,IAAA,MACI,MAAA,CAAC,EAAM,KACT,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACrC,EAAc,E
AAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OACI,MAAA,CAAC,EAAM,MCV,EAAc,EAAA,eAAA,UAA
W,EAAM,EAAW,KE3C,IAAA,WACA,IAAA,MACI,MAAA,CAAC,EAAM,KCV,EAAc,EAAA,eAAA,IAAK,
EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,K
ACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAA
A,UACA,IAAA,MACI,MAAA,CAAC,EAAM,KCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,E
AAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,WACI,MAAA,CAAC,EAAM,UCV,EAAc,EAAA,eAAA,IAA
K,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,WACI,MAAA,CAAC,EAAM
,UCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IA
AA,MACI,MAAA,CAAC,EAAM,KCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,
IAAK,EAAM,EAAW,KACrC,IAAA,UACI,MAAA,CAAC,EAAM,SCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAA
W,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,UACI,MAAA,CAAC,EAAM,SCV,EAAc
,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,WACI,M
AAA,CAAC,EAAM,KCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM
,EAAW,KACrC,IAAA,oBACI,MAAA,CAAC,EAAM,mBCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IAC
pC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAE1C,QACQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,UAAA,E
AAA,MAAM,EAAW,aAAjB,QAAA,SAAA;;ACkFA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,IAAA,Q
AAA,SAAA,QAAA,eAAA,EAhKP,IAAA,EAAA,EAAA,QAAA,qDAMA,EAAA,QAAA,WA0JO,SAAA,IAAA,G
AAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,S
AAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IA
AA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAA
A,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAA
A,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAA
,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,G
AAA,EAxJA,MAAM,EACT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IACN,IAAA,MACA,IAAA,aCI,MAA
A,CAAC,EAAM,KCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,
MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,QACI,MAAA,CAAC,EAAM,OCV,EAAc,EAAA,eAAA,
IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,OACI,MAAA,CAAC,EAAM,
MCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,
QCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,
O

ACrC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,UA
CI,MAAA,CAAC,EAAM,SACV,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,IACvC,EAAc,EAAA,eAAA,OAAQ
,EAAM,EAAW,KACxC,IAAA,MACI,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,
KACrC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,M
ACI,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAA
C,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,KACV,
EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eA
AA,IAAK,EAAM,EAAW,KAErC,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM
,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,I
AAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OACI,MAA
A,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,
KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,aACI,MAAA,CAAC,EAAM,YACV,EAAc,EAA
AA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,
EAAW,KACrC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,K
ACrC,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OAC
I,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,UACI,MAAA,CAAC,
EAAM,SACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,KACV,E
AAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAA
A,IAAK,EAAM,EAAW,KAErC,IAAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,
EAAW,KAErC,IAAA,WACI,MAAA,CAAC,EAAM,UACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,I
AAA,OACI,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,SACI,MAA
A,CAAC,EAAM,QACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OACI,MAAA,CAAC,EAAM,
MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,MACI,MAAA,CAAC,EAAM,KACV,EAAc,EAA
AA,eAAA,IAAK,EAAM,EAAW,KACrC,IAAA,cACI,MAAA,CAAC,EAAM,aACV,EAAc,EAAA,eAAA,IAAK,EAAM,E
AAM,EAAW,IACpC,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,IAC/C,C,EAAc,EAAA,eAAA,eAAgB,EAAM,EA
AW,KAEhD,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KACrC,IAA
A,QACI,MAAA,CAAC,EAAM,OACV,EAAU,EAAA,WAAA,EAAK,WAAW,GAAI,EAAW,KAC1C,IAAA,OAC
I,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,OAAQ,E
AAM,EAAW,KACxC,IAAA,YACI,MAAA,CAAC,EAAM,WACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IA
CpC,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,KACzC,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAA
A,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,KAC9C,QACQ,MAAA,uBAA
uB,EAAK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,aAAjB,QAAA,SAAA;;ACnEN,aAAA,OAAA,eAAA,Q
AAA,aAAA,CAAA,OAAA,IAAA,QAAA,oCAAA,EAAA,QAAA,iBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,
kBAAA,EAAzFD,IAAA,EAAA,QAAA,yBASM,SAAU,EACZ,EAAyB,EACzB,qB,EAAA,iBAEnB,GAAkB,iBAAX,EAAsB,C
AAyC,iBAAX,EAArC,CAAgC,EAAA,KAAA,OACD,EAAO,SAAW,EAAO,OACzB,IAAM,aAAgC,SAAc,gBAC
nD,IAAA,IAAI,EAAI,EAAG,EAAI,EAAO,OAAQ,IAAK,CAAhC,MAAA,EAAA,OAAA,EAAA,GAAA,EAAA,EAAO,
Cf,EAAA,KAAA,OACD,EAAO,GAAK,EAAO,GAAK,IAAS,EAAjC,IAAA,SAAA,EAAA,GAAA,EAAA,EAAA,EAAA,
,GAC3B,MAAwB,iBAAjB,IAA6B,EAAA,KAAK,GAAO,EAAM,GAAY,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
AAA,EAAe,EAAkB,EAAkB,GAAjD,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
AAA,IAAI,MAAN,wFAAyC,KAAO,3C,GAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
EAAiB,GAAd,MAAA,IAAA,IAAA,yCAAA,KAAA,E9C,OAAA,A,EAAA,G,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAA
CF,OAAA,A,EAAA,E,EAAA,G,EAAA,E,EAAA,I,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,
A0C,SAChD,KAAA,G,MAAA,A,EAAA,E,EAAA,I,EAAA,E,EAAA,I,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,
AA,EAAO,EAAA,c,GAAA,rB,EAAA,O,EAAA,c,GAAA,vB,GAAA,A,EAAA,G,EAAA,K,EAAA,G,EAAA,K,EAAA,I
I,0CAA0C,SAChD,KAAA,E,EAAA,O,EAAA,K,EAAA,G,EAAA,K,EAAA,E,EAAA,O,EAAA,E,EAAA,E,EAAA,E,
AA,EAAA,eAAA,IAAK,EAAM,EAAW,KAAtC,IAAA,SAAA,EAAA,GAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
AA,IAAA,EAAA,A,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA,E,EAAA

AAA,EANpC,KAAA,QAA6B,GAC7B,KAAA,SAAU,EAMX,KAAA,UAAW,EAAO,EAAA,QAAA,IAClB,EAAA,EAAA,MAAA,KAAK,UAGR,SACK,OAAA,KAAK,SAAS,GAGnB,aACK,OAAA,KAAK,QAMd,cAAc,GACP,KAAA,QAAQ,QAAQ,IACJ,MAAX,GAAoB,EAAQ,IAAI,EAAO,OAAO,KAChD,EAAO,OAAO,YAGb,KAAA,QAAU,GACV,KAAA,SAAU,EACV,KAAA,SAAS,UAGhB,OACS,OAAA,KAAK,QAAQ,OAOtB,KAAK,GACC,KAAK,QACD,MAAA,IAAI,qBAAqB,KAAK,iCAGlC,GAAA,EAAQ,GAAK,KAAK,OACvB,MAAA,IAAI,kCAAkC,yBAAyB,KAAK,UAGpE,MAAA,EAAA,KAAK,QAAQ,GAAK,GAAA,EAAA,gBAAgB,QAAQ,ZAAA,MAAA,IAAI,qBAAqB,KAAK,8BAA8B,wBAAwB,KAAK,oCAAoC,KAAK,QAAQ,OAAO,KAAK,QAAQ,OAAO,KAAK,QAAQ,OAAO

N,wBAAmC,KAAK,gBAE1C,IAAiB,IAAjB,GAAsB,KAAK,QAAQ,SAAW,EAC1C,MAAA,IAAI,wCACN,kCA
CA,KAAK,QAAQ,qBAGf,EAAA,EAAA,qCAAA,EAAc,KAAK,aAAc,+BAC/B,MAAA,GACF,EAAkB,EAAA,m
BAAA,KAAK,aAAc,KAAK,QAAS,GAChD,OAAA,EAAK,EAAA,MAAA,KACJ,MAAA,EACF,KAAK,QAAQ,I
AAI,IAAU,EAAQ,EAAA,SAAA,EAAQ,IACxC,OAAA,EAAM,EAAA,OAAA,EAAiB,KASlC,QAAQ,EAAwB,G
AC1B,GAAA,IAAiB,KAAK,aAClB,MAAA,IAAI,yCACN,wBAAmC,KAAK,gBAG1C,GAAgB,IAAhB,KAAK,O
ACD,MAAA,IAAI,MAAM,qCAEZ,MAAA,GACF,EAAkB,EAAA,mBAAA,KAAK,aAAc,KAAK,QAAS,GACjD,
EAAS,KAAK,QAAQ,MAKrB,OAFH,EAAA,EAAA,qCAAA,EAAO,MAAO,EAAc,gCAEzB,EAAQ,EAAA,SAA
A,EAAQ,GAOzB,SAAS,GACH,GAAA,EAAO,QAAU,KAAK,aAClB,MAAA,IAAI,yCACN,EAAO,4BAA4B,KA
AK,gBAM1C,IAFA,EAAA,EAAA,qCAAA,EAAO,MAAO,KAAK,aAAc,+BAEjC,KAAK,iBAAmB,KAAK,OAC
zB,MAAA,IAAI,MAAM,6CAEb,EAAA,EAAA,MAAA,GACA,KAAA,QAAQ,KAAK,GAOpB,OAAO,GACD,GAAA
AA,EAAO,EACH,MAAA,IAAI,gEACoD,KAG5D,IAAyB,IAAzB,KAAK,gBAAyB,EAAO,KAAK,eACtC,MAA
A,IAAI,qCACN,8BAAiC,KAAK,mBAEvC,KAAA,QAAQ,OAAS,EASxB,QAAQ,EAAsB,EAAwB,GAEhD,A,IAAiB,KAAK,aAClB,MAAA,IAAI,yCACN,wBAAmC,KAAK,gBAE1C,GAAA,EAAA,EAAe,GAAK,KAAK,eAAe,KAAK,QAAQ,OAC5C,5C,MAAA,IAAI,kCACN,oBA+B,KAAK,GAAA,8B,GAAA,EAAA,KAAK,QAAQ,KAAK,GAAA,8BAAA,KAAK,QAAQ,KAAK,QAAQ,GAAA,E

Y,EACZ,KACM,OAAA,EAAK,IACN,IAAA,KACA,IAAA,cAAe,CACZ,MAAA,GACF,EAAc,EAAA,eAAA,aAA
c,EAAM,EAAW,GAC3C,GACF,EAAc,EAAA,eAAA,aAAc,EAAM,EAAW,GAC3C,GAAO,EAAc,EAAA,eAA,
OAAQ,EAAM,EAAW,GAC9C,GAAO,EAAc,EAAA,eAA,OAAQ,EAAM,EAAW,GAEhD,aADoB,EAAK,QACf
,GACL,EAAQ,YAAY,GAAU,qBACjC,EAAM,EAAQ,eAAgB,EAAQ,eAEnC,EAAQ,YAAY,GAAU,qBACjC,EA
AM,EAAQ,eAAgB,EAAQ,eAGzC,IAAA,QACA,IAAA,iBAAkB,CACf,MAAA,GACF,EAAc,EAAA,eAA,OAA
Q,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAA,OAAQ,EAAM,EAAW,GACrC,GAAO,EAAc,EAAA,eAA
,OAAQ,EAAM,EAAW,GAG9C,QACK,EAAQ,YAAY,GAAU,qBACjC,EAAM,EAAQ,eAAgB,EAAQ,eACxC,EA
AS,EAAK,IAAI,GAAU,EAAO,IACrC,IAAA,QAAkB,EAAW,GAAG,OAEpC,EAAW,QAAQ,IACZ,EAAO,OAA
uC,IAA/B,EAAO,QAAQ,EAAO,KACxC,EAAO,YAIP,IAAA,EAAmB,EAEhB,KAAA,EAAU,IAAI,CAEb,MAA
A,EAAa,EAIb,GAFN,QAAe,EAAQ,YAAY,GAAU,qBACzC,EAAQ,EAAQ,eAAgB,EAAQ,gBACnB,IAAI,GAAU
,EAAO,IAI9C,EAAW,QAAQ,IACZ,EAAO,OAAuC,IAA/B,EAAO,QAAQ,EAAO,MACJ,IAAlC,EAAU,QAAQ,E
AAO,KAC3B,EAAO,YAKL,MAAA,QACK,EAAQ,YAAY,GAAU,qBACjC,EAAQ,EAAQ,eAAgB,EAAQ,eACh
D,QAAkB,EAAW,GAAG,OAEhC,EAAW,QAAQ,IACZ,EAAO,OAAuC,IAA/B,EAAO,QAAQ,EAAO,MACJ,IA
AlC,EAAU,QAAQ,EAAO,KAC3B,EAAO,YAIN,OAAA,EAEJ,IAAA,WAAY,CACT,MAAA,GAAO,EAAc,EAAA,
A,eAAA,OAAQ,EAAM,EAAW,GAC7C,MAAA,EAAC,EAAY,EAAA,aAAA,IAEjB,IAAA,SAAU,CACP,MAAA,GAAO,EAAc,EAAA
,GAAO,EAAc,EAAA,eAA,OAAQ,EAAM,EAAW,GAChD,IAAA,GAAO,EAAc,EAAA,eAA,OAAQ,EAAM,E
AAW,GAK3C,OAJF,EAAK,OACR,GAAO,EAAQ,EAAA,aAAA,WAGP,EAAK,QAAQ,GAAK,MAAC,EAAW,G
AAQ,CAAC,OAAM,GAExD,IAAA,QAAS,CACN,MAAA,EAAY,EAAK,WAAW,KAC9C,9B,QAAgB,D,KAAK,C,EAAA
U,EAAA,WAAA,EAAM,EAAW,IACnC,GAAA,EAAW,CACR,MAAA,GAAO,EAAc,EAAA,eAA,OAAQ,EAAM,EAAW,GAC7C,MAAA,EAAC,EAAY,EAAA,aAAA,IAEf,OAEJ,IAAA,QAAS,CACN,MAAA,EAAY,EAAK,WAAW,KAC9C,9B,QAAgB,D,KAAK,C,EAAA
AW,EAAM,EAAW,GACtC

AA,eAAA,eAAgB,EAAM,EAAW,GAC7C,GAAQ,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GAChD,GACF,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACvC,EAAa,EAAQ,cAAc,EAAS,IAE3C,OADP,EAAW,QAAQ,EAAAO,GACnB,CAAC,EAAW,UAEhB,IAAA,oBAAqB,CAClB,MAAA,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAC7C,GACF,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAE5C,MAAA,CADY,EAAQ,cAAc,EAAS,IAC/C/B,QAAQ,EAAW,EAAc,eAAgB,EAAM,EAAW,GAE7C,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAE5C,MAAA,CADY,EAAQ,cAAc,EAAS,IAE/C,EAAW,QAAQ,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAE5C,MAAA,CADY,EAAQ,cAAc,EAAS,IAC/C,EAAW,UAAW,EAAM,EAAW,GAC7C,GACF

W,IAchD,MAAM,EACT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IACN,IAAA,SAAU,CACP,MAAA,GACF,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACvC,GAAM,EAAc,EAAA,eAAA,MAAO,EAAM,EAAW,GAC5C,GACD,EAAc,EAAA,eAAA,aAAc,EAAM,EAAW,GACzC,cACH,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,QACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACzC,EAAQ,EAAA,yB,EACjC,EAAc,EAAA,eAAA,SAAU,CACP,MAAA,GACF,EAAc,EAAA,eAAA,UAAW,EAAM,EAAW,GACxC,GAAM,EAAW,EAAA,YAAA,EAAM,EAAW,GAClC,GACD,EAAc,EAAA,eAAA,aAAc,EAAM,EAAW,GACzC,cACH,GACF,EAAc,EAAA,eAAA,YAAa,EAAM,EAAW,GACzC,CAAC,EAAM,QACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACzC,CAAC,EAAO,GAAI,EAAO,IAAK,EAAC,xB,EAAE,EAA+B,EAAA,EAAC,EAAA,EAAU,GAAI,EAAO,IAAK,EAAC,EAAA,EAAA,EAAA

AAI,EAAW,GAAI,EAAW,IAC1C,CAAC,EAAO,GAAI,EAAO,GAAI,EAAO,IAAK,IAGpC,IAAA,aAAc,CACX,
MAAA,GACF,EAAc,EAAA,eAAA,UAAW,EAAM,EAAW,GACxC,GAAM,EAAc,EAAA,eAAA,MAAO,EAAM,
EAAW,GAC5C,GACF,EAAc,EAAA,eAAA,YAAa,EAAM,EAAW,GAG1C,EAAe,EAAQ,GACvB,EAAc,EAAQ,
GAGtB,EAAiB,EAAU,GAC3B,EAAgB,EAAU,GAEzB,MAAA,CAAC,EAAM,YCV,EAAc,EAAA,eAAA,IAA
K,EAAM,EAAW,IAEpC,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACzC,CAAC,EAAc,GAAc,EAC7B,CAA
C,EAAgB,GAAgB,SAGvC,QACQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,cAAj
B,QAAA,SAAA;;AC5LA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,QAAA,eAAA,EAAA,
EA3GP,IAAA,EAAA,EAAA,QAAA,qDAMA,EAAA,QAAA,WAAqGO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,
AA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA
A,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,
IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,
IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OA
AA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EA
AA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EAnGA,MAAM,EA
CT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IACN,IAAA,OAAQ,CACL,MAAA,GACF,EAAc,EAAA,eAAA,QA
AS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eA
AA,QAAS,EAAM,EAAW,GACrC,MAAA,CAAC,EAAM,KAAK,EAAO,EAAO,IAE9B,IAAA,WAAY,CACT,M
AAA,GACF,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAA
W,GACrC,GAAM,EAAc,EAAA,eAAA,MAAO,EAAM,EAAW,GAC3C,MAAA,CAAC,EAAM,SAAS,EAAO,EA
AM,IAEjC,IAAA,cAAe,CACZ,MAAA,GACF,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACvC,GACF,EAAc,EAAA,
EAAA,eAAA,aAAc,EAAM,EAAW,GAC3C,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACpC,MAAA,
CAAC,EAAM,YAAY,EAAQ,EAAY,IAE3C,IAAA,SAAU,CACP,MAAA,GACF,EAAc,EAAA,eAAA,UAAW,EA
AM,EAAW,GACxC,GACF,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eAAA,UAA
W,EAAM,EAAW,GACxC,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GAC1C,MAAA,CAAC,EAAM,O
AAO,EAAS,EAAO,EAAS,IAE3C,IAAA,OACI,MAAA,CAAC,EAAM,MCV,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,
EAAA,eAAA,IAAK,EAAM,EAAW,GACxC,GACF,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,GACtC,MAAA,
CAAC,EAAM,UCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAC1C,MAAA,CAAC,EAAM,gBACI,IAAA,EAA
AA,QAAS,EAAM,EAAW,GACtC,GACF,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACvC,GACF,EAAc,EAAA,
EAAA,eAAA,QAAS,EAAM,EAAW,GACt

gB,EAAM,EAAW,GAWjD,gBATE,EAAc,EAAA,eAAA,iBAAkB,EAAM,EAAW,GAUnD,cARE,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,IAY9C,MAAM,EAAqC,MAC9C,EAAY,EACZ,KACM,OAAA,EAAK,IACN,IAAA,sBAAuB,CACpB,MAAA,MACJ,EADI,OAEJ,EAFI,cAGJ,EAHI,aAIJ,EAJI,eAKJ,EALI,aAMJ,GACE,EAAU,EAAM,EAAW,GAEzB,QAAe,EAAM,MAAM,gCAC7B,EAAmB,EAAoB,EAAe,EACtD,EAAgB,GAEb,MAAA,CAAA,EAAA,CAAA,EAAA,CAAA,E

,GAC5C,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,UAAW,EAAM,
EAAW,GACxC,GACF,EAAc,EAAA,eAAA,YAAa,EAAM,EAAW,GAChD,QAAQ,KACJ,kGAEJ,QAAQ,IAAI,G
ACP,IAAA,IAAI,EAAI,EAAG,EAAI,EAAK,OAAQ,IAC/B,QAAQ,IAAI,MAAM,UAAU,MAAM,KAAK,EAAK,
GAAG,YAC9B,MAAM,EAAG,IAErB,MAAA,CAAC,GAEV,QACQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,U
AAA,EAAA,MAAM,EAAW,QAAjB,QAAA,SAAiB;;ACxEF,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,
IAAA,QAAA,eAAA,EALtB,IAAA,EAAA,QAAA,yBAKM,MAAO,EAgBX,YAAqB,EA6B,GAA7B,KAAA,SA
AA,EA6B,KAAA,WAAA,EAC3C,KAAA,QAAS,EAAO,EAAA,QAAA,GAEhB,KAAA,UAAY,IAAI,KAEhB,E
AAA,EAAA,MAAA,KAAK,QAfR,SACK,OAAA,KAAK,OAAO,GAoBrB,gBACO,KAAA,UAAU,QAAQ,GAAS,
EAAM,WACjC,KAAA,UAAU,QACV,KAAA,OAAO,UAMd,OACS,OAAA,KAAK,UAAU,KAQlB,aAAO,EAAc,
GACpB,KAAA,uBAAuB,EAAM,GAI5B,5B,MAAA,QAAA,EAAc,EAAK,OAMlB,OAHF,KAAA,UAAU,QAAQ,GAAS,
EAAM,WACjC,KAAA,UAAU,SAER,EAAG,3B,uBAAuB,EAAM,GAAE,EAAA,QAAA,GAAA,KAAA,UAAA,QAAA,
Aa,EAAM,OACnB,EAAe,EAAQ,OAExB,EAAA,KAAA,OACD,IAAA,eACC,EAAf,IAAM,qDACC,8BAAuC,KAC1C,1C,a
AEH,IAAA,IAAI,EAAI,EAAG,EAAI,EAAY,IAAK,CAC7B,B,MAAA,EAAM,EAAM,GACZ,EAAQ,IAEjB,B,
EAAA,EAAA,MAAA,GACA,KAAA,UAAU,IAAI,EAAK,GAGnB,OAAA,KAAK,SAAmB,WAAK,EAAc,Ac,GAAA,l
B,KAAA,uBAAuB,EAAM,GAAE,EAAA,QAAA,GAAA,KAAA,UAAA,QAAA,GAAA,KAAA,UAAA,QAAA,GAAA,KAAA,
AAmB,GAEpB,IAAA,IAAI,EAAI,EAAG,EAAI,EAAM,OAAQ,IAAK,CAAC,B,MAAA,EAAM,EAAM,GAAE,EA
AQ,KAAK,gBAAgB,EAAK,GACxC,EAAO,KAAK,GAGP,OAAA,EAAM,EAAA,OAAA,KAAK,T,gBAAgB,EAAA,
U,GAC1B,MAAA,EAAS,KAAK,UAAU,IAAI,GAE3B,B,MAAA,EAAM,MAAA,KAAA,OAAA,EAAA,QAAA,GAAA,KAAA,
ACtC,GAAA,EAAI,QAAU,KAAK,SAAf,MAAA,IAAI,0BACc,KAAK,wBAAtB,EAAI,SAAT,GAAA,EAAM,QAAA,
AU,KAAK,WACjB,MAAA,IAAI,4BAAgB,KAAK,0BAAtB,EAAM,UAAA,IAAA;;ACmDf,aAAA,OAAA,eAAA,QAAA,
A,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,eAAA,EAnDP,IAAA,EAAA,
EAAA,QAAA,WAEO,MAAM,EAAA,qC,MAAC,EAAA,EAAA,4B,EAAA,CAAA,KAAA,MAAA,EAAA,KAAA,MAAA,EAAA,
EACA,IAAA,cAAe,CAAC,Z,MAAA,EAAA,GAAA,EAAA,QAAA,WAAA,EAAA,QAAA,WAAA,GAAA,CAAA,KAAA,MAAA,
eAAA,aAAc,EAAA,EAAA,QAAA,WAAA,EAAA,QAAA,WAAA,GAAA,CAAA,KAAA,MAAA,EAAA,KAAA,MAAA,EAAA,
aAAc,EAAA,EAAA,QAAA,WAAA,EAAA,QAAA,WAAA,GAAA,CAAA,KAAA,MAAA,EAAA,KAAA,MAAA,EAAA,

AW,GACzC,GACF,EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,GACvC,GACF,EAAc,EAAA,eAAA,qBAAsB,EA
AM,EAAW,GAElD,MAAA,CAAC,EAAM,MAAM,cAChB,EAAmB,EAAmB,EACtC,EAA8B,EAC9B,IAEN,QA
CQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,QAAjB,QAAA,SAAiB;;ACEjB,aAA
A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,QAAA,eAAA,EApEP,IAAA,EAAA,EAAA,
QAAA,qDAMA,EAAA,QAAA,WA8DO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAA
A,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OA
AA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,
GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,
GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,
KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OA
AA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5DA,MAAM,EACT,CAAC,EAAY,EACZ,KA
CS,OAAA,EAAK,IACN,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,I
ACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,WCI,MAAA,CAAC,EAAM,UCV,EAAc,EA
AA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,UCI,MAAA,
CAC,EAAM,SCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAA
W,KAErC,IAAA,eCI,MAAA,CAC,EAAM,cCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,E
AA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,OCI,MAAA,CAC,EAAM,MCV,EAAc,EAAA,eAAA,IAAK,EAAM,IAA
K,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,YCI,MAAA,CAC,EAAM,
WCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IA
AA,aCI,MAAA,CAC,EAAM,YCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,I
AK,EAAM,EAAW,KAErC,IAAA,aCI,MAAA,CAC,EAAM,YCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IA
W,KAErC,IAAA,YCI,MAAA,CAC,EAAM,WCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,
EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,SCA,IAAA,WCI,MAAA,CAC,EAAM,OCV,EAAc,EAAA,
eAAA,YAAa,EAAM,EAAW,IAC5C,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,cCI,MAAA,CAC,
EAAM,QCV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAE
1C,QACQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,UAAjB,QAAA,SAAiB;;ACGA,aAA
A,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,QAAA,eAAA,EAvEP,IAAA,EAAA,EAAA,
QAAA,qDAMA,EAAA,QAAA,WAiEO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAA
A,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OA
AA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,
GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,
GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,
KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OA
AA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5DA,MAAM,EACT,CAAC,EAAY,EACZ,KA
CS,OAAA,EAAK,IACN,IAAA,QACI,MAAA,CAAC,EAAM,OACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,I
ACpC,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,WCI,MAAA,C

A,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,
IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OA
AA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CA
AA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAA
A,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,
GAAA,EAvDA,MAAM,EACT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IACN,IAAA,iBACA,IAAA,mBASA,I
AAA,mBACI,MAAA,CAAC,EAAM,WACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IACpC,EAAc,EAAA,eA
AA,OAAQ,EAAM,EAAW,IACvC,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,IAC3C,EAAc,EAAA,eAAA,SAA
U,EAAM,EAAW,IACzC,EAAc,EAAA,eAAA,QAAS,EAAM,EAAW,IACxC,EAAc,EAAA,eAAA,UAAW,EAAM
,EAAW,KAE3C,IAAA,MACI,MAAA,CAAC,EAAM,4BACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IAEpC,
EAAc,EAAA,eAAA,SAAU,EAAM,EAAW,IACzC,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,IACvC,EAAc,EAAA,eA
AA,QAAS,EAAM,EAAW,IACxC,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,KAExC,IAAA,UACI,MAAA
A,CAAC,EAAM,SACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,aACI,MAAA,CAAC,EAAM,Y
ACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,KAErC,IAAA,gBACI,MAAA,CAAC,EAAM,eACV,EAAc,EAAA,eA
AA,gBAAiB,EAAM,EAAW,IAEhD,IAAA,cAAA,EAAc,EAAA,eAAA,cAAe,EAAM,EAAW,IAC9C,EAAc,EAAA,eAAA,
eAAgB,EAAM,EAAW,IAE/C,IAE/C,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,KAGrD,QACQ,MAAA,uBAAuB,EA
AK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,gBAAjB,QAAA,SAAA;;AC+DA,aAAA,OAAA,eAAA,QAAA
A,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,QAAA,eAAA,EA9HP,IAAA,EAAA,EAAA,QAAA,qDAMA,EAAA
,QAAA,WAwHO,SAAA,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAA
A,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAA
A,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,
EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,
eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,K
AAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EA
AA,GAAA,EAAA,IAAA,EAAA,GAAA,EAtHA,MAAM,EACT,CAAC,EAAY,EACZ,KACS,OAAA,EAAK,IAC
N,IAAA,MAAO,CACJ,MAAA,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,
WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,IAEpC,EAAM,
GAAoB,EACxD,IAED,IAAA,OAAQ,CACL,MAAA,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,
GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,MACV,EAAc,EAAA,eAAA,IAAK,
EAAM,EAAW,GAAoB,EACxD,IAED,IAAA,MAAO,CACJ,MAAA,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,KAC
AM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,KACV,E
AAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAAoB,EACxD,IAED,IAAA,MAAO,CACJ,MAAA,GACF,EAAc,EAAA,eAAA,
OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,CA
AC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAAoB,EACxD,IAED,IAAA,MAAO,CACJ,MAA
A,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW
,GACxC,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAAoB,EACxD,IAED,IAAA,
MAAO,CACJ,MAAA,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,W
AAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,KACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAAoB,
EACxD,IAED,IAAA,SAAU,CACP,MAAA,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GACrC,GACF,EAAc,EAAA,eAAA,WAAY,EAAM,EAAW,GACxC,MAAA,CAAC,EAAM,QACV,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAAoB,

AEpC,MAAA,CAAC,EAAM,SAAS,EAAG,EAAS,IAChC,IAAA,gBAAiB,CACd,MAAA,GAAI,EAAc,EAAA,eAAA,IAAK,EAAM,EAAW,GAExC,GACF,EAAc,EAAA,eAAA,UAAW,EAAM,EAAW,GAExC,GACF,EAAc,EAAA,eAAA,OAAQ,EAAM,EAAW,GAEr C,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAG5C,MAAA,CAAC,EAAM,cAAc,EAAG,EAAS,EAAM,IAEhD,QACQ,MAAA,uBAAA,uB,EAAA,K,2BAAA,I,QAAA,QAAA,EAAA,A,MAAA,MAAA,EAAA,WAAA,YAAA,jB,QAAA,QAAA,SAAA,;;ACgDA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,aAAA,QAAA,eAAA,QAAA,aAAA,QAAA,eAAA,QAAA,aAAA,QAAA,e

Cd,MAAA,GACF,EAAc,EAAA,eAAA,gBAAiB,EAAM,EAAW,GAE9C,GACF,EAAc,EAAA,eAAA,cAAe,EAAM,EAAW,GAE5C,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAC7C,GACF,EAAc,EAAA,eAAA,eAAgB,EAAM,EAAW,GAC5C,MAAA,CAAC,EAAM,cACV,EAAS,EAAc,EACvB,EAAa,QAAU,EAAa,MAChC,EAAC,AAAE,EAAM,KAAK,EAAc,EAAa,SAEhD,QACQ,MAAA,uBAAuB,EAAK,2BAIrC,QAAA,UAAA,EAAA,MAAM,EAAW,aAAjB,QAAA,SAAA;;AC7IA,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,QAAA,eAAA,QAAA,EAAA,c

A,EAAA,QAAA,kCACA,EAAA,EAAA,QAAA,uCACA,EAAA,EAAA,QAAA,mCACA,EAAA,EAAA,QAAA,oC
ACA,EAAA,EAAA,QAAA,kCACA,EAAA,EAAA,QAAA,wCA8EC,SAAA,IAAA,GAAA,mBAAA,QAAA,OAA
A,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA
,GAAA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,I
AAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,I
AAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OA
AA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EA
AA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EApEK,SAAU,EAC
Z,EAAY,EA4B,EACxC,GACI,MAAA,EACF,EAAE,EAAY,EA4B,KAChC,OAAA,EAAK,UACN,IAAA,aACI
,OAAA,EAAI,KACP,IAAM,EAAW,UAAU,EAAM,EAAW,IC7C,IAAA,aCI,OAAA,EAAI,KCP,IAAM,EAA
U,UAAU,EAAM,EAAW,IC5C,IAAA,UCI,OAAA,EAAQ,UAAU,EAAM,EAAW,GACvC,IAAA,cCI,OAAA,
EAAI,KCP,IAAM,EAAY,UAAU,EAAM,EAAW,IC9C,IAAA,WCI,OAAA,EAAI,KAK,IAAM,EAAS,UA
U,EAAM,EAAW,IACvD,IAAA,UCI,OAAA,EAAQ,UAAU,EAAM,EAAW,GACvC,IAAA,aCI,OAAA,EAAI,
KCP,IAAM,EAAW,UAAU,EAAM,EAAW,IC7C,IAAA,QCI,OAAA,EAAI,KAK,IAAM,EAAM,UAAU,EA
AM,EAAW,IACpD,IAAA,QCI,OAAA,EAAI,KAK,IAAM,EAAM,UAAU,EAAM,EAAW,IACpD,IAAA,UCI
,OAAA,EAAI,KAK,IAAM,EAAQ,UAAU,EAAM,EAAW,IACtD,IAAA,WCI,OAAA,EAAI,KAK,IAAM,EAAS
,UAAU,EAAM,EAAW,IACvD,IAAA,gBCI,OAAA,EAAI,KCP,IAAM,EAAc,UAAU,EAAM,EAAW,IACh
D,IAAA,YCI,OAAA,EAAI,KCP,IAAM,EAAU,UAAU,EAAM,EAAW,IC5C,IAAA,aCI,OAAA,EAAI,KA
CP,IAAM,EAAU,UAAU,EAAM,EAAW,IC5C,IAAA,WCI,OAAA,EAAI,KAK,IAAM,EAAS,UAAU,EAAM
,EAAW,IACvD,IAAA,iBCI,OAAA,EAAI,KCP,IAAM,EAAe,UAAU,EAAM,EAAW,ICjD,IAAA,aCI,OAA
A,EAAU,UCb,EAAM,EAAW,EAAS,GAC3B,IAAA,SCG,MAAA,GAAW,EAAgB,EAAA,iBAAA,EAAK,IAAC
lC,GAAA,GAAY,EAAS,eAChB,OAAA,EAAS,eACZ,IAAI,EAAJ,cAAkB,EAAM,EAAW,IAEjC,MAAA,uBAAAu
B,EAAK,yBAEtC,QACQ,MAAA,yBCa,EAAK,yBCpB,qHAxDV,CA2DG,GAAA,EAAM,EAAW,GACpB,OAAA,EA
AI,KAAK,UAAU,GCb,EAA8B,KAAM,GAAS,GAAG,OAAO,IAE1D,GAAC,OAAO;;AC9EU,aAAA,OAAA,e
AAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,sBAAA,EAAA,EA

EAAc,EAAA,eAAA,GAAM,IAEpD,IAAA,EAA0B,GACb,MAAb,IACF,EAAgB,EAAU,IAAI,IAAQ,EAAc,EAAA,eAAA,EAAK,MAAM,KAG3D,MAAA,EAAW,IAAI,GACd,KAAA,EAAS,OAAS,GAAG,CACpB,MAAA,EAAO,EAAS,OAClB,EAAc,IAAS,EAAe,IAAS,EAAY,KAC1C,MAAf,IAEF,GADA,EAAc,GACW,SAAS,IAAI,GAAS,EAAM,MAAC,nC,OAAO,GAAQ,EAAU,EAAA,MAAK,IAAI,EAAA,GAAK,EAAA,MAAK,IAAI,EAAA,GAAK,EAAA,MAAK,IAAI,EAAA,GAAK

GAE9B,OAAA,EAAK,EAAA,MAAA,KACJ,MAAA,EAAU,IAAI,EAAJ,iBACZ,KAAK,UAAW,EAAgB,EAChC,KAAK,qBACH,EAAU,OAAA,OAAA,GAAwB,KAAK,WAE7C,OAAO,KAAK,GAAQ,QAAQ,IACpB,MAAC,EAAU,IAAS,EAAc,EAAA,eAAA,GAClC,EAAoB,GAC1B,EAAQ,GAAS,EAAQ,GAAC,xB,EAAW,GAAY,IAAG,nB,MAAA,EAAA,gB,KAAA,EAAA,mB,MAAA,C,AAAA,E,EAAA,E,EAAA,E,E

AAC,IAAc,EAAoB,EAAA,qBAAA,EAAU,KAAM,IACrD,EAAM,IAAc,EAAU,IAAI,EAAU,QAI3B,UAAjB,EA
AU,GACR,EAAU,WAAW,KAAK,MACf,EAAU,EAAA,WAAA,EAAM,EAAW,MAExC,EAAM,IAAY,EAClB,E
AAM,KAAK,CAAC,SAAU,EAAQ,eAAgB,KAAM,KAGhD,EAAU,WAAW,MAAM,MAChB,EAAU,EAAA,WA
AA,EAAM,EAAW,MAE5C,EAAM,IAAY,EAClB,EAAM,KAAK,CAAC,SAAU,EAAQ,eAAgB,KAAM,QAQ1D,
UACE,OAAO,KAAK,KAAK,WCZ,QACG,GAAO,KAAK,UAAU,GAAK,QAAQ,GAAU,EAAO,YAGtD,uBAA
uB,GAC7B,OAAO,KAAK,GAAQ,QAAQ,IACpB,MAAA,EAAQ,EAAO,IACd,IAAc,EAAc,EAAA,eAAA,GAC7
B,EAAO,KAAK,MAAM,MAAM,GAC1B,GAAA,EAAK,WAAL,OAA4B,EAAK,WAAL,MAAyB,MAAO,CACxD
D,MAAA,EAAQ,EAAK,WAAL,MAAyB,MCjC,EAAQ,EAAM,SAAW,EAAM,MAAM,QCvC,EAAM,MAA
M,MACR,CAAC,EAAK,KA4B,IAAlB,EAAM,IAAiB,EAAM,KAAW,GAC3D,EAAA,KAAA,OACD,EAAC,0B
AA4B,EAAK,sDACG,mBAC5B,EAAM,UAEhB,EAAK,WAAL,OA4B,EAAK,WAAL,MAAyB,MAAO,OAClD,EAAA,
KAAA,OACD,EAAM,QAAU,EAAK,WAAL,MAAyB,MCzC,0BAA4B,EAAK,sBAC7C,kBACA,EAAM,
,MAAyB,kBAAkB,EAAM,WAK1D,UAAU,GACV,MAAA,EAAY,GAC1B,IAAA,MAAM,GAAK,EAAA,EAAA,EAAA,EAAA,
mB,MAAnB,KAAK,YAAgD,MAAO,QAAQ,CAAE,QAAQ,GAAK,MAAO,QAAQ,CAAE,QAAQ,GAAK,MAAO,
EADe,KAAK,WAAW,OAAO,GCxBtC,QAAQ,IAAI,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,
Y,GACZ,MAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
B,MA9B,KAAK,MAAM,MAAM,KAAK,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,
WAAW,GACV,OAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
MAAjC,KAAK,WAAW,QAAQ,GAAK,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,
,aAAa,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,
GACd,MAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA
,IAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA
pB,KAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA
,yBAAyB,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,
pC,iBAAiB,GACR,OAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,EAAA,
,MAAM,KAAK,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,
,aAAa,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,
,sBAAsB,GAAK,EAAK,GAAK,EAAK,GAAK,EAAK,IAAM,EAAK,GAAK,EAAK,GAAK,EAAK,GAAK,
,aAAa

d,EAAe,EAAS,GAEtB,GAAqB,MAArB,EAAa,KACT,MAAA,IAAI,MACN,+GAIC,OAAA,EAAa,KAAK,KAAK
,WAyChC,QAAQ,EAAwC,GAEvC,OAAA,KAAK,QAAQ,EAAQ,KAAK,aAG3B,gBAAgB,GAElB,KAAE,aAAk
B,EApB,QAAgC,MAAM,QAAQ,IAEzC,OAAA,EAGL,IADJ,EAAS,MAAM,QAAQ,GAAU,EAAS,CAAC,IACh
C,SAAW,KAAK,WAAW,OAC9B,MAAA,IAAI,MACN,sDACuB,KAAK,WAAW,2CACpB,EAAO,yBAEzB,OA
AA,KAAK,WAAW,OAAO,CAAC,EAAK,EAAW,KC7C,EAAI,GAAc,EAAoB,GAC/B,GACN,IAGG,iBAAiB,G
AEhB,OADP,EAAU,GAAW,KAAK,YAClB,MAAM,QAAQ,GAAuB,EAAZ,CAAC,GAmBpC,QAAQ,EAAwC,G
AE9C,EAAS,KAAK,gBAAgB,GAC9B,EAAU,KAAK,iBAAiB,GAC1B,MAAA,EAAS,KAAK,SAAS,QAAQ,EA
AQ,GACtC,OAAA,EAAO,OAAS,EAAI,EAAS,EAAO,GAkBvC,mBACF,EACA,GACF,EAAS,KAAK,gBAAgB,
GAC9B,EAAU,KAAK,iBAAiB,GAC1B,MAAA,QAAe,KAAK,SAAS,aAAa,EAAQ,GACjD,OAAA,EAAO,OAAS
,EAAI,EAAS,EAAO,GAGrC,6BAA6B,OAAA,OAAO,KAAK,GAAK,UAAU,KAAK,aCF,EAAO,OAAO,KAAK,SAAS,
WAAA;;AlUtaD,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,OAAA,eAAA,QAAA,aAAA,CAAA,YA
AA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QAAA,iBAAA,CAAA,YAAA,EAAA,IAAA,WAA
AA,OAAA,EAAA,kBAAA,OAAA,eAAA,QAAA,eAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,gB
AAA,OAAA,eAAA,QAAA,aAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,cAAA,OAAA,eAAA,QA
AA,oBAAA,CAAA,YAAA,EAAA,IAAA,WAAA,OAAA,EAAA,WHA,IAAA,EAAA,QAAA,0BACA,EAAA,Q
AAA,mCAEA,EAAA,QAAA;;oEmUFA,IAAA,EAAA,QAAA,yBAQA,SAAS,EAAAyB,GAChC,IAAM,MAAM,GACnC,mB,EAAA,GAAA,C,EAAA,GAAA,C,EAAA,GAAA,C

C,UAAW,gBAAiB,CAAC,YAAa,gBAC3C,CAAC,YAAa,aAAc,CAAC,UAAW,YACxC,CAAC,WAAY,aAAc,CAAC,WAAY,iBACxC,CAAC,aAAc,iBAAkB,CAAC,aAAc,cAChD,CAAC,WAAY,aAAc,CAAC,YAAa,cACzC,CAAC,eAAgB,iBAAkB,CAAC,UAAW,aASpC,QAAA,WA4B,CACvC,CAAC,OAAQ,WAAY,CAAC,UAAW,WAAY,CAAC,OAAQ,YACtD,CAAC,WAAY,YAAa,CAAC,OAAQ,gBACnC,CAAC,eAAgB,aAAc,CAAC,YAAa,aAC7C,CAAC,eAAgB,WAAY,CAAC,UAAW,YACzC,CAAC,WAAY,aAAc,CAAC,OAAQ,iBACpC,CAAC,gBAAiB,cAAe,CAAC,eAAgB,YAAa,CAAC,gBAAiB,cAAe,CAAC,YAAa,eAGH,QAAA,uBAAA,yBAAA,EAAA,qBAAA,IAAA,CAAA,eAAA,CAAA,aAAA,CAAA,aAAA,OAAA,EAAA,EAAA,QAAA,EAAA,EAAA,GAAA,EAAA,EAAA,GAAA,EAAA,EAAA,G

Q,EAEtB,GAAa,IADA,EAAa,GACV,CACd,IAAM,EAAO,EACT,CAAC,EAAG,EAAG,EAAG,GAAI,EAAa,EA
AiB,EAC5C,CAAC,EAAM,GAAO,CAAC,EAAQ,GAAS,EAAmB,CAAC,EAAQ,GAC5D,EAAQ,GACR,GAAQ,I
ACV,EAAW,GAAM,GAAK,IAM9B,OAAO,EAGT,SAAgB,EACZ,EAA0B,EAC1B,EAA6B,EAAyB,EACtD,EA
Ae,EAAgB,EAC/B,EAAkB,EAClB,OAFgC,EAAA,EAAA,GAAU,EAAA,EAAA,QAE1C,IAAA,IAAA,EAAA,G
AWF,IAVA,IAAM,EACF,EAAgB,IAAI,SAAA,GAAK,OAAA,IAAI,WAAW,EAAS,GAAO,MAAM,KAE3D,EA
AA,EAAA,IAAW,EAAA,EAAA,KAEZ,EAAA,EAAA,SAAA,CAAA,EAAA,GAAA,CAAA,EAAA,GAAA,GAA
C,EAAA,EAAA,GAAQ,EAAA,EAAA,GAER,EAAA,EAAA,CAAA,EAAA,GAAA,GAAA,GAGE,EAAI,EAAG,
EAAI,EAAQ,GAAK,EAC/B,IAAK,IAAI,EAAI,EAAG,EAAI,EAAO,GAAK,EAAC,IAAM,EAAI,EAAI,E
AAQ,EAEtB,GAAa,IADA,EAAa,GACV,CACd,IAAM,EAAO,EACT,CAAC,EAAG,EAAG,EAAG,GAAI,EAAa,
EAAiB,EAC5C,CAAC,EAAM,GAAO,CAAC,EAAQ,GAAS,EAAmB,CAAC,EAAQ,GAC5D,EAAQ,GAAK
Q,IACV,EAAW,GAAM,GAAK,EAAgB,KAAM9C,OAAO,EAAjET,QAAAA,uBAAAA,,EAAiCA,QAAAA,2BAAAA;;oECtI
A,IAAA,EAAA,QAAA,yBAGA,EAAA,QAAA,gBAEA,EAAA,QAAA,UAEA,SAAgB,EACZ,EAA2B,EAC3B,EAA6B,EAAyB,EACtD,EA
AyB,EAAgB,EAAe,EACxD,EAAuC,EAAvC,EAAqB,EAArB,EAAuB,GAAaF,QAAfG,EAAA,EAAA,GAAU,EAAA,EAAA,
GAIP,EAAA,EAAA,MAAC,EAAA,EAAA,GAAY,EAAA,EAAA,GAEb,EAAA,EAAA,MAAA,MAAA,EAAA,G
AAC,EAAA,EAAA,GAAW,EAAA,EAAA,GAEZ,EACF,EAAG,QAAQ,EAAa,CAAC,EAAW,EAAU,EAAG,EA
AA,gBAK/C,EAAW,IAAI,aAAa,EAAe,cAAgB,GAAG,KAAK,GAChE,EAAA,EAAA,GAAG,EAAA,EAAA,GAAI,OAA
Q,IAG1C,IAFA,IAAM,EAAa,EAAI,EAAA,cAAgB,EAAjC,EAAA,EAAA,GAAgB,EAAA,EAAA,GAAI,EAAA,EAAA,
cAAe,IAAM,CAACzC,IAAM,EAAW,EAAK,UAAU,GAC1B,EAAA,EAAA,GAAK,EAAA,EAAA,GAAK,EAAA,EAAA,
MAC5B,EAAA,EAAA,GAAK,EAAA,EAAA,SAAA

AA,EAAE,yBAEP,MAAA,CAAA,EAAM,EAAa,eACrB,OADlB,EAAoB,EAAA,OACF,CAAA,EAAM,EAAY,eACd,OADtB,EAAkB,EAAA,OACI,CAAA,EAAM,EAAiB,eAA7C,EAAsB,EAAA,OAE5B,EAAgC,EAAA,2BAC5BB,EAAmB,EAAiB,EACpC,EAAiB,EAAQ,EAAO,EAAQ,CAAC,EAAU,GAAU,EAC7D,oBAGN,MAAA,CAAA,EAAA,EAAO,EAAA,8BAAP,IAAAC,CAAA,EAAA,EAAA,E

mB,GACtC,EAAmB,EAAmB,GACxC,EAAkB,KACjB,EAAkB,KACrB,EAAkB,GAAoB,EAClC,EAAM,EAAkB,GAAmB,EAAkB,EAC7D,EAAS,EAAc,IAM/B,IAAS,EAAO,EAAG,EAAO,IAAY,EAAM,CACpC,EAAmB,EAAmB,GACxC,EAAkB,KACjB,EAAkB,KACrB,EAAkB,GAAoB,EAClC,EAAM,EAAkB,GAAmB,EAAkB,EAC7D,EAAS,EAAc,IAI/B,OAAO,EA5CT,QAAA,WAAA;;oECrFA,IAAA,EAAA,QAAA,EAAA,QAAA,iCACA,EAAA,QAAA,EAAA,QAAA,iBACA,EAAA,QAAA,EAAA,QAAA,UAEA,EAAS,QAAA,EAAA,QAAA,EAAA,QAAA,EAAA

AAG,KAAK,WAE/B,IAAI,EAUJ,OARE,EADE,EACQ,EAAG,MAAM,eACf,EAAG,QAAQ,EAAa,GAAI,CAAC,EAAS,IAEhC,EAAG,MAAM,eAAe,EAAa,CAAC,EAAS,IAG5C,EAAG,MAAM,EAAS,CAAC,CAAC,EAAM,GAAO,CAAC,EAAM,GAAO,CAAC,EAAG,OAK1C,SAAU,CAAC,CAAC,EAAM,GAAO,CAAC,EAAM,KAG5D,SAAgB,EACZ,EACA,EACA,EACA,EACA,OAHC,EAAA,EAAA,GAAA,EAAA,EAAA,GAAA,EAAA,EAAA,GAAA

AO,WAAa,GAElB,EAAiB,EAAO,cAAc,QAAQ,EAAO,YAAc,EACrE,MAAM,IAAI,MACN,sBAAsB,EAAO,WAAU,sBACnB,EAAiB,EAAO,cAAa,qBACrC,EAAO,aAAY,KAM7C,GAHyB,MAArB,EAAO,aACT,EAAO,WAAa,GAElB,EAAkB,QAAQ,EAAO,YAAc,EACjD,MAAM,IAAI,MACN,sBAAsB,EAAO,WAAU,sBACnB,EAAiB,qBACjC,EAAO,aAAY,KAG7C,OAAO,EAAuG,SAAS,EAA8B,GAAC9B,IAAA,EAAA,EAAA,sBAAA,EAAA,EAAA,cAAA,EAAA,EAAA,eAAA,EAAA,EAAA,eAAA,EAAA,EAAA,UAAA,EAAA,EAAA,iBAAA,EAAA,EAAA,YAAA,GAAA,IAAA,EAAA,wBAAA,GAAA,EAAA,wBAAA,EACzD,MAAM,IAAI,MACN,yBAAyB,EAAO,qBAAqB,mCAAmC,GAAI,IAAI,EAAiB,MAAM,IAAI,MAAM,yBAAyB,EAAO,aAAa,mBAAmB,5C,GAAI,IAAI,EAAiB,GAAI,EAAiB,EAAC3C,MAAM,IAAI,MAAM,0BAA0B,EAAO,cAAc,mCAAmC,9C,GAAI,IAAI,EAAO,aAAa,EAAC,f,MAAM,IAAI,MAAM,qBAAqB,EAAO,SAAS,KAAK,lD,SAAS,EAAC,KAAM,EAAA,EAAA,EAAA,sBAAA,EAAA,EAAA,eAAA,EAAA,EAAA,eAAA,EAAA,EAAA,e

DkC,EAC/C,EAAa,GAEb,EAAQ,EAAA,oBACR,EAAW,EAAY,EAAqB,EAC5C,KAAK,UAAU,aAAc,EAAO,cA
CpC,EAAO,eAAgB,EAAO,WAElC,EAAQ,EAAA,kBACJ,EAAO,CAAC,EAAQ,GAAQ,EAAkC,EAC1D,GAEkB
,CAAA,EAAM,EAAA,0BACxB,EAAc,EAAa,EAAO,EAAQ,EAC1C,KAAK,UAAU,aAAc,EAAkC,EAC/D,EAA
O,eAAgB,EAAO,YAAa,EAAO,iBAClD,EAAO,uBAUX,OAdM,EAAgB,EAAA,OAMtB,EAAQ,UACR,EAAa,UA
Cb,EAAY,UACZ,EAAiB,UACjB,EAAW,UACX,EAAmB,UACnB,EAAmB,UAEnB,CAAA,EAAO,SAuCT,EAA
A,UAAA,6BAAA,SACI,EAAqB,EACrB,GAFJ,IAAA,EAAA,UEI,IAAA,IAAA,EAAA,IASI,IAAA,EAAA,EAA
A,aAAA,GAAC,EAAA,EAAA,GAAQ,EAAA,EAAA,GACT,EAAmC,EAAA,gCACrC,EAAoB,KAAK,UAU,aA
Ac,CAAC,EAAQ,IACxD,EAAA,EAAA,eAAA,EAAA,GACJ,EAAA,EAAA,QACA,EAAA,EAAA,QAGI,EAAA,
EAAA,KAAA,wgBACJ,EAAA,EAAA,iBACA,EAAA,EAAA,cACA,EAAA,EAAA,QACA,EAAA,EAAA,gBACA
,EAAA,EAAA,gBAkCF,OADA,EAAQ,UACD,CACL,iBAAgB,EAChB,cAAa,EACb,QAAO,EACP,gBAAe,EACf,
gBAAe,EACf,QAAO,EACP,iCAAgC,IA8B9B,EAAA,UAAA,mBAAN,SACI,EACA,eAAA,IAAA,IAAA,EAAgC,
QAAA,kJAkBrB,OAdb,EAFA,EAAM,EAAA,GAAO,QAAA,wBAA4B,IAGnC,6BACD,EAAO,EA
AO,mBAAoB,EAAO,uBAT/C,C,EAAgB,EAAA,iBAChB,EAAA,EAAA,cACA,EAAA,EAAA,QACP,EAAA,EAAA,gB
ACf,EAAA,EAAA,gBACA,EAAA,EAAA,QACA,EAAA,EAAA,QACA,EAAA,EAAA,iCAK5B,EAAA,EAAA,kBACA,EAAA,EAAA,
AAE,EAAK,EAAA,GACP,CAAA,EAAM,EAAA,iBACN,eAGd,OAAA,EAAA,OACA,EAAA,EAAA,OACA,mBAAoB,EAAO,uBAEK,EAAA,
,EAAM,EAAA,kBACxB,CAAC,EAAA,eAAS,EAAA,iBAAY,YAkB9C,OAnBM,EAAA,gBAAY,EAAA,OAEf,EACH,EAAA,
DC,EACd,EAAA,GADa,EAC1B,EAAA,GADkC,EAAA,GAAA,EAAA,EAAA,E

R,EAAO,EAAO,EAAI,EAAI,EACnB,GAAK,EAAM,GAAK,EAAM,GAAK,EAClC,IAAK,IAAI,GAAK,EAAM,
GAAK,EAAM,GAAK,EAAM,CAGxC,GADI,EAAY,KAAK,MAAM,EAAI,EAAI,EAAI,GAAK,IAIhD,IAAS,GA
AK,EAAM,GAAK,EAAM,GAAK,EAClC,IAAS,GAAK,EAAM,GAAK,EAAM,GAAK,EAClC,EAAI,YAAc,EAC
d,KAAK,MAAM,EAAI,EAAI,EAAI,GAAK,IAAuB,EAAM,EAC7D,EAAI,UAAU,EAAO,EAAG,GAG5B,EAAI,
YAAc,yDAvBpB,QAAA,QAAA;;oECDA,IAAA,EAAA,QAAA,UAGA,EAAA,QAAA,UAEM,EAAyD,GAQ/D,S
AAS,IACP,MAAQ,iCAAiC,KAAK,UAAU,WAG1D,SAAS,EACL,EACA,EAAiD,EACjD,OAFC,EAAA,EAAA,
MAAe,EAAA,EAAA,OACf,EAAA,EAAA,MAAe,EAAA,EAAA,OAElB,GAAI,IAAW,GAAU,IAAY,EACnC,MA
AM,IAAI,MAAM,iCAAiC,EAAK,mBAClD,EAAM,IAAI,EAAO,KAAK,EAAK,mBAAmB,EAAM,IAAI,GAIhE,
SAAS,EAAqB,GAC5B,IAAM,EAAM,EAAO,WAAW,MAC9B,EAAI,OAAO,GAAG,EAAG,GAAG,EAAG,GAAG,EAAI,
O,MAAO,GAG/B,SAAS,EACL,EAA+B,EAC/B,GACF,EAAI,yBAA2B,EAC/B,EAAI,UAAU,EAAO,EAAG,GAG1B,SAAS,IAAI,EAAO,GAAG,EAAG,GAAG,EAAG,GAAG,EAAG

EACA,GAEF,QAFE,IAAA,IAAA,EAAA,GAEE,MAAM,QAAQ,IAAiD,IAA5B,EAAiB,OACtD,OAAO,KAYT,IATA,IAAI,EAME,GAFJ,EAHG,MAAM,QAAQ,GAGa,EAFA,CAAC,IAI3B,GAAC,EAAA,EAAA,MAAO,EAAA,EAAA,OACR,EAAA,OACR,EAAQ,IAAI,kBAAkB,EAAQ,EAAS,GAE5C,EAAI,EAAG,EAAI,EAAS,IAAS,EAAG,CAEvC,IAAM,EAAQ,EAAJ,EACV,EAAM,EAAI,GAAK,IACf,EAAM,EAAI,GAAK,IACf,EAAM,EAAI,GAAK,IACf,EAAM,EAAI,GAAK,IACf,IAAK,IAAI,EAAI,EAAG,EAAI,EAAG,IAAK,CAC1B,EAAM,EAAI,GAAK,IAAM,EAAI,EAAI,GAAK,EAAI,EAAI,GAAK,EAAI,EAAI,GAAK

A,YACA;;oE7lBvCF,IAAM,EAAU,QACR,QAAA,QAAA;;oEyQaR,IAAA,EAAA,QAAA,oBAAQ,QAAA,QAAA,EAAA,QAAS,QAAA,KAAA,EAAA,KACjB,IAAA,EAAA,QAAA,2BAAQ,QAAA,aAAA,EAAA,aAAc,QAAA,gBAAA,EAAA,gBAAiB,QAAA,SAAA,EAAA,SAAU,QAAA,kBAAA,EAAA,kBAAmB,QAAA,kBAAA,EAAA,kBAAmB,QAAA,OAAA,EAAA,OACvF,IAAA,EAAA,QAAA,mBAAQ,QAAA,cAAA,EAAA,cAAA,IAAA,EAAA,QAAA,UAAQ,QAAA,mBAAA,EAAA,mBAAoB,QAAA,eAAA,EAAA,eAAgB,QAAA,+BAAA,EAAA,+BAC5C,IAAA,EAAA,QAAA,aAAQ,QAAA,QAAA,EAAA;;AqVgCR,aAAA,SAAA,EAAA,GAAA,GAAA,GAAA,oBAAA,OAAA,CAAA,IAAA,EAAA,CAAA,IAAA,EAAA,EAAA,SAAA,EAAA,OAAA,EAAA,aAAA,OAAA,EAAA,UAAA,EAAA,SAAA,EAAA,KAAA,EAAA,SAAA,EAAA,cAAA,SAAA,EAAA,OAAA,EAAA,aAAA,OAAA,EAAA,YAAA,EAAA,UAAA,EAAA,SAAA,EAAA,KAAA,EAAA,YAAA,EAAA,GAAA,GCzCe,SAAA,EAEC,EAOC,GACvBC,BC,IAAAA,EAAA,EAAAC,EAAA,EAAAC,EAAA,EAAAC

WAAY,KAIxCA,MAAAA,GAGK,aAAA,CACN,KAAA,SAAS8C,GACPC,IAAAA,EAAOD,EAASE,MAAM,qB
ACxBD,OAAS,OAATA,GAIG,CACE,MAAA,MACFE,IAAAA,SAAS,KAAOF,EAAK,GAAG/C,WAAY,KAItC
A,MAAAA,GAGA,QAAA,CACD,KAAA,SAAS8C,GACPC,IAAAA,EAAOD,EAASE,MAAM,4CACxBD,OAAS
,OATA,GAIG,CACE,MAAA,MACJG,EAAAA,WAAWH,EAAK,IAChBG,EAAAA,WAAWH,EAAK,IAChBG,
EAAAA,WAAWH,EAAK,MAIhB/C,MAAAA,GAGC,SAAA,CACF,KAAA,SAAS8C,GACPC,IAAAA,EAAOD,EAASE,MAAM,wDACxBD,OAAS,OATA,GAIG,CACE,MAAA,MACJG,EAAAA,WAAWH,EAAK,IAChBG,
EAAAA,WAAWH,EAAK,IAChBG,EAAAA,WAAWH,EAAK,IAChBG,EAAAA,WAAWH,EAAK,MAIhB/C,MA
AAA,KAMb,CACU4C,OAAAAA,EAAOO,SAEF,YAAA,CAEN,IAAA,CACG,KAAA,SASL,GACN,MAAA,CA
CE,MAAA,MACFA,IAAAAA,EACW,eAAA,QAIb,MAAA,SASnD,GACPA,OAAAAA,EAAMiB,QASrB,CACUg
C,OAAAAA,EAAOH,QACF,YAAA,CACA,UAAA,CACH,KAAA,SASK,GACTA,OAAAoB,IAApBA,EAASzF,Q
AIN,CACE,MAAA,MACJyF,EAAAAA,EAAS,GACTA,EAAAAA,EAAS,GACTA,EAAAAA,EAAS,KAIT,MAAA,SA
ASnD,GACP,MAAA,CAACA,EAAMM,EAAGN,EAAMS,EAAGT,EAAMU,EAAGV,EAAMW,EAAGX,EAAMY,EAAG,KAIxB,SAA
SyC,GACTA,OAAoB,IAApBA,EAASzF,QACN,CACE,MAAA,MACJyF,EAAAAA,EAAS,GACTA,EAAAAA,EAAS,EAA
S,GACTA,EAAAAA,EAAS,GACTA,EAAAAA,EAAS,KAIT,MAAA,SASnD,GACP,MAAA,CAACA,EAAMM,EAAGN,EAAMS,EAAGT,EAAMU,EAAGV,EAAMW,EAAGX,EAAMY,EAAG,EA
AGN,EAAMS,EAAGT,EAAMU,EAAGV,EAAMW,EAAGX,EAAMY,EAAG,EAAMa,EAAGb,EAAMc,EAAGd,EAAMe,EAAGf,EAAMgB,EAAG,OAOjD,CACUsC,OAAAAA,EAAOH,QACF,YAAA,CACA,UAAA,CACH,KAAA,SASK,GACTA,OAAAoB,IAApBA,EAASzF,QACN,CACE,MAAA,MACJyF,EAAAAA,EAAS

AmB7D,EAAK,EAAGP,IAIpB,mBAAA,SAASO,EAAK8D,GACxB9D,OAAAA,GAAyB,EAAjB8D,EAAuB,KA
GrB,mBAAA,SAAS9D,EAAK8D,EAAgBC,GACzCA,OAAAA,IAAUf,EAAgC,EAAjBc,GAAuB9D,IAAQ,KAA
QgD,KJlC3E,EAAA,mBAAA,QAAA,iBAAA,OAAA,SAAA,SAAA,GAAA,cAAA,GAAA,SAAA,GAAA,OAAA,
GAAA,mBAAA,QAAA,EAAA,cAAA,QAAA,IAAA,OAAA,UAAA,gBAAA,GAAA,EAAA,SAAA,EAAA,GAA
A,KAAA,aAAA,GAAA,MAAA,IAAA,UAAA,sCAAA,EAAA,WAAA,SAAA,EAAA,EAAA,GAAA,IAAA,IAAA
,EAAA,EAAA,EAAA,EAAA,OAAA,IAAA,CAAA,IAAA,EAAA,EAAA,GAAA,EAAA,WAAA,EAAA,aAAA,E
AAA,EAAA,cAAA,EAAA,UAAA,IAAA,EAAA,UAAA,GAAA,OAAA,eAAA,EAAA,EAAA,IAAA,IAAA,OAA
A,SAAA,EAAA,EAAA,GAAA,OAAA,GAAA,EAAA,EAAA,UAAA,GAAA,GAAA,EAAA,EAAA,GAAA,GAA
A,GAAA,EAAA,SAAA,EAAA,EAAA,EAAA,GAAA,OAAA,IAAA,EAAA,SAAA,WAAA,IAAA,EAAA,OAAA,
yBAAA,EAAA,GAAA,QAAA,IAAA,EAAA,CAAA,IAAA,EAAA,OAAA,eAAA,GAAA,OAAA,OAAA,OAAA,E
AAA,EAAA,EAAA,EAAA,GAAA,GAAA,UAAA,EAAA,OAAA,EAAA,MAAA,IAAA,EAAA,EAAA,IAAA,YA
AA,IAAA,EAAA,EAAA,KAAA,QAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,mBAAA,GAAA,OAAA,EA
AA,MAAA,IAAA,UAAA,kEAAA,GAAA,EAAA,UAAA,OAAA,OAAA,GAAA,EAAA,UAAA,CAAA,YAAA,C
AAA,MAAA,EAAA,YAAA,EAAA,UAAA,EAAA,cAAA,KAAA,IAAA,OAAA,eAAA,OAAA,eAAA,EAAA,GA
AA,EAAA,UAAA,IAAA,EAAA,SAAA,EAAA,GAAA,IAAA,EAAA,MAAA,IAAA,eAAA,6DAAA,OAAA,GAA
A,iBAAA,GAAA,mBAAA,EAAA,EAAA,GKpCMgB,EAAAA,WACU,SAAA,IAGR,GLgCR,EAAA,KAAA,GKl
CS9E,KAAAA,QAAAUwD,EAAAUjF,MAAAM,KAAAMJ,YAAEhB,IAAAjB,KAAAK6B,QACD,MAAA,IAAAIxD,MAAAM,uC
AGbwD,KAAAA,QAAAQQ,EAAAI,KAAAKR,QAAAQQ,GAAAK,EL4BvC,OAAA,EAAA,EAAA,CAAA,CAAA,IAA
A,WKzBa,MAAA,WACFuE,OAAAAA,EAAc,QLwBzB,CAAA,IAAA,cKrBgB,MAAA,WACLA,OAAAAA,EAAc,
MAAM,KLoB/B,CAAA,IAAA,aKjBe,MAAA,WACJ,OAAA,KAAK/E,QAAAQ4D,WAAWoB,MAAAM,ULgBzC,E
KpCMF,GAwBN,SAASG,EAAmB7D,EAAAQ8D,EAAAWC,GACtCC,OAAAAA,eAAehE,EAAAQ8D,EAAAW,CAClC,I
AAA,WACC,MAAAuB,QAAAvB,KAAAKlF,QAAAqF,MACR,KAAAKrF,QAAAkF,IAGhBI,EAAAAA,eAAe,KAAAMJ,E
AAWC,GAE/B,KAAAKnF,QAAAkF,KAGjB,IAAA,SAAStE,GACe,QAAAvB,QAAAqF,QACTC,EAAAAA,
eAAe,KAAAMJ,EAAWC,GAAjCnF,QAAAqF,MAAAQ,OAAGlBrF,KAAAAA,QAAAkF,GAAAatE,KAAKhC,S
AAS2E,EAAmBnE,EAAAQ8D,GAC3BE,OAAAAA,eAAehE,EAAAQ8D,EAAAW,CAClC,IAAA,WACC,MAAAuB,QA
AvB,KAAAKlF,QAAAqF,MACR,KAAAKrF,QAAAkF,IAGhBM,EAAAAA,eAAe,MAEd,KAAAKxF,QAAAkF,KAGjB
,IAAA,SAAStE,GACe,QAAAvB,QAAAqF,QACTG,EAAAAA,eAAe,MAChBxF,KAAAAA,QAAAqF,MAA
Q,OAGlBrF,KAAAAA,QAAAkF,GAAAatE,KAAMhBxE,CkE,EAAmBQ,EAAAW,CAAAC,GAAAC,GAAAC,GAAAC,GF
AwB,QAAAxBA,EAAmBG,QAAAqF,MACVrF,KAAAAA,QAAAkF,GAAAatE,KAAOhC,mBAAmB7F,F,EAAmBG,QA
Ac,IAAKqE,OACjE,CAAA,GAA4B,QAAAxBtF,EAAmBG,QAAAqF,MAGjB,MAAA,IAAI7I,MAAM,yBAFTmJ,EA
AAA,OAAO9F,EAAmBG,QAASyF,EAAKG,WAAW/F,EAAmBG,QAAAQS,EAAGZ,EAAmBG,QAAQU,EAAGb,EA
AMG,QAAQY,MAMjGkE,EAAmBU,eAAiBC,GAAGC,EAAAC,EAAAC,EAAAC,EAAAC,EAAAC,EAAAC,EAAAC,EAAAC
,EAAGN,EAAMS,EAAGT,EAAMU,EAAGV,EAAMU,GAEhDoF,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAO5
C,EACP4C,EAAAA,EAAAA,EAAO1C,IAITkC,EAAAA,EAAOJ,MAAMY,EAAAA,EAAO7C,GAAEdqC,EAAAA,EAAOnB,YAAY9B,EAAAMG,QAAA
QS,KACpCT,EAAAA,EAAAA,QAAAQS,EAAAI,GAFZT,EAAAA,EAAAA,QAAAQS,EAAAI6C,EAAAA,EAAO7C,GAAM7BqE,EAAAMgB,WAAWhF,EAAAA,EAAAA,QAAAQS,EAAAI,
,CAAC,IAAK,IAAK,IAAK,IAAK,IAAK,IAAK,MAAO,KAEzDb,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,
EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,
xG,UAAW,KACpCiH,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,
D,eAAeN,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,
PZ,KAAAA,QAAAQQ,EAAAII,KAAIrBY,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,EAAAA,EAAAA,QAAAQS,EAAAI,GAAAA,EAAAA,EAAAA,
B,SAAAvB,KAAAK0F,QAAAqF,MAAAQ,OAAGlBrF,KAAAAA,QAAAkF,GAAAatE,KAAKhC,mBAAmB7F,F,EAAmBG,QA
Ac,IAAKqE,OACjE,CAAA,GAA4B,QAAAxBtF,EAAmBG,QAAAqF,MAGjB,MAAA,IAAI7I,MAAM,yBAFTmJ,EA
AAA,OAAO9F,EAAmBG,QASyF,

WAAWzJ,KAAK,KAAM2J,GAGxBC,KAAAA,gBACE,ONzCX,CAAA,IAAA,WMiDa,MAAA,WACF,OAAA,KAAKT,OAAO,KAAKC,YNlD5B,CAAA,IAAA,gBM0DkB,MAAA,WACP,OAAA,ON3DX,CAAA,IAAA,aMiEe,MAAA,WACJ,OAAA,KAAKC,eAAiB,KAAKQ,eNlEtC,EMnCMX,GCJAY,EAAAY,CACJ,WAAA,CAAAC,EAAAC,EAAAC,E

AA,CAAA,CAAA,IAAA,WQRWpF,MAAAA,SAAAA,GACD2C,IAAAA,EAAAA,EAAAA,EAAAA,UAAAA,W
AAAA,OAAAA,eAAAA,EAAAA,WAAAA,WAAAA,MAAAA,KAAAA,KAA0B3C,GAKzB2C,OAJH,KAAKiD,
kBACFA,KAAAAA,iBAAAiB1J,KAAAK,KAAAM,KAAK6J,YAEnCkF,KAAAAA,OAAAS,KAAAKlF,WACZpD,IREX,CA
AA,IAAAA,gBQCkB,MAAAA,WRDlB,OQE4B,IAApB,KAAKoD,YACFmF,KAAAAA,WAAWC,aAAAa,UAAW,WA
CnCD,KAAAAA,WAAWK,SAAAU,EACrBN,KAAAAA,QAAAS,IAETC,KAAAAA,WAAWK,SAAAU,EACrBN,KAAAAA
,QAAAS,GRRpB,EAAAA,EAAAA,UAAAA,WAAAA,OAAAA,eAAAA,EAAAA,WAAAA,gBAAAA,MAAAA,KAAAA,UAAAA,EQ9
BMF,GCIAS,EAAAAA,SAAAAA,GACQnG,SAAAAA,EAAAAA,EAAAQC,EAAAUmG,GTyBhC,EAAAA,KAAAA,GSxBUp
G,IAAAAA,EAAAAA,EAAAAA,MAAAAA,EAAAAA,WAAAAA,OAAAAA,eAAAAA,IAAAAA,KAAAAA,KAAAAA,EAAAQC,I
AEVoG,EAAAUD,EAERT,EAAAAA,EAQF9I,GAFCyJ,EAAAAA,SAAWlG,SAASC,cAAc,UAEnCxD,EAAOH,QAA
Q2J,GAAU,CACrBE,IAAAAA,EAAAM,GACLnL,EAAAAA,KAAKiL,EAAAS,SASG,GACxBA,EAAAAA,GAAWA,I
AEPD,EAAAAA,ETOhB,OSJWnL,EAAAAA,KAAKiL,EAAAS,SASzH,EAAOnD,GAC7BgL,IAAAAA,EAAAMrG,SA
ASC,cAAc,UAC/BqG,EAAAAA,UAAYjL,EACZqK,EAAAAA,aAAa,QAASlH,GACpB0H,EAAAAA,SAASL,YAAY
Q,KAIxBhG,EAAAAA,gBAED9E,EAAAAA,KAAK,EAAK2K,SAAU,SAAU,WC1BK,IAAAAA,EAAAe,KAAKN,QA
AQ,KAAKO,eAAAehI,MAChDoH,EAAAAA,SASW,KAGZxG,EAAAAA,WAAW8F,YAAAY,EAAAKK,UTXrC,EAAA
A,OAAA,EAAA,ES1B+BvG,GT0B/B,EAAA,EAAA,CAAA,CAAA,IAAA,WScWpF,MAAAA,SAAAA,GACD2C
,IAAAAA,EAAAAA,EAAAAA,EAAAAA,UAAAAA,WAAAAA,OAAAAA,eAAAAA,EAAAAA,WAAAAA,WAAAAA,MAAAAA,
KAAAAA,KAA0B3C,GAKzB2C,OAHH,KAAKiD,kBACFA,KAAAAA,iBAAAiB1J,KAAAK,KAAAM,KAAK6J,YAEjC
pD,ITpBX,CAAAA,IAAAA,gBSuBkB,MAAAA,WACV4D,OAAAAA,EAAAI2F,SAAAS,KAAAKP,UAAAkB,MAAnCA,KAAAA
AA,SAAS1H,MAAAQ,KAAK8B,WTzB/B,EAAAA,EAAAA,UAAAA,WAAAA,OAAAA,eAAAA,EAAAA,EAAAA,WAAAA,gBAAAA,M
AAA,KAAAA,WAAAA,ES1BMyF,GCJAW,EAAAAA,SAAAAA,GACQ9G,SAAAAA,EAAAAA,EAAAQC,EAAAQ9G,SAAAAA,EAAAAA,EAAAQC,EAAAGV6BtB,EAAAA
,KAAAA,GU5BUD,IAAAAA,EAAAAA,EAAAAA,MAAAAA,EAAAAA,WAAAAA,OAAAAA,eAAAAA,IAAAAA,KAAAAA,KA
AAA,EAAAQC,IAER0F,EAAAAA,EAEGI,SAAAAA,IACDC,EAAAAA,SASL,EAAMoB,QAAAnI,OVuBnC,OUdSm
I,EAAAAA,QAAAU3G,SAASC,cAAc,SACjCqC0G,EAAAAA,QAAAjB,aAAa,QAAAlH,OAAQ,QAE9BnK,EAAAAA,KAAK,EAA
KoL,QAAS,QAAAShB,GAC5BpK,EAAAAA,KAAK,EAAKoL,QAAS,SAAAUhB,GAAWpK,EAAAAA,KAAK,EAAK
oL,QAAS,OAXdC,WACHrB,EAAMpF,kBACFA,KAAAAA,iBAAAiB1J,KAAAK8O,EAAAOA,EAAAMjF,cAAUzC/E,EA
AAA,KAAAK,EAAAKoL,QAAS,UAAAW,SASnQ,GACvB,KAAAdA,E+M,SACCsD,KAAAAA,SAIJxG,EAAAAA,
gBAEAN,EAAAAA,WAAW8F,YAAAY,EAAAKc,KVArC,EAAAA,EAAAA,OAAAA,EU9BMyF,GCRN,SAASI,EAAAAA,
CAAAA,IAAAA,gBAAAA,MAAAA,WAAAA,OAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,
UAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,EAAAA,
E

AA,WAAAA,OAAAA,eAAAA,IAAAA,KAAAA,KAAAA,EAAQC,EAAUqC,IAEnBkG,EAAAA,uBAAwB,EAE
vB7C,IAAAA,EAAAA,EAMF8C,OAAAA,EASKC,SAAAA,IACH/C,EAAMpF,kBACFA,EAAAA,iBAAiB1J,KA
AK8O,EAAOA,EAAMjF,YAQpCiI,SAAAA,EAAY/R,GACbgS,IAAAAA,EAAOH,EAAQ7R,EAAEgM,QACjBoD,
EAAAA,SAASL,EAAMjF,WAAakI,EAAOjD,EAAM+B,eAEvC9Q,EAAAA,EAAEgM,QAGHiG,SAAAA,IACH
C,EAAAA,OAAO7F,OAAQ,YAAa0F,GAC5BG,EAAAA,OAAO7F,OAAQ,UAAW4F,GZtBpC,IAAA,OYgCS9B,
EAAAA,QAAU3G,SASC,cAAc,SACjC0G,EAAAA,QAAQjB,aAAa,OAAQ,QAI9BnK,EAAAA,KAAK,EAAKo
L,QAAS,SAzCdhB,WACDgD,IAAAAA,EAAY5L,WAAWwI,EAAMoB,QAAQnI,OACtC/B,EAAOJ,MAAMsM,IA
CV/C,EAAAA,SAAS+C,KAuCfpN,EAAAA,KAAK,EAAKoL,QAAS,OA7BdC,WZTb,MYuCQrL,EAAAA,KAA
K,EAAKoL,QAAS,YAbdiC,SAAYpS,GACf+C,EAAAA,KAAKsH,OAAQ,YAAa0F,GAC1BhN,EAAAA,KAAKsH
,OAAQ,UAAW4F,GACpBjS,EAAAA,EAAEgM,UAWRjH,EAAAA,KAAK,EAAKoL,QAAS,UAAW,SASnQ,
GAEvB,KAAdA,EAAAE+M,UACE6E,OAACCuB,EAAAA,OAACCuB,EAAAA,EZ7CtC,OYkDS/H,EAAAA,gBAEAN,EAAAA,WAW8F,YAAY,EAAKc,EAAAA,OAAAA,EAAAA,EYlBkCK,G
ZkBlC,EAAAA,EAAAA,CAAAA,CAAAA,IAAAA,gBYuDkB,MAAAA,WZvDlB,OYwDSL,KAAAAA,QAAQnI,MAAQ,KA
AK4J,sBAAwB,KAAK9H,WAAa0H,EAAAe,KAAK1H,WAAY,KAAKqH,aZxD7G,EAAAA,EAAAA,UAAAA,WAAA,
OAAA,eAAAA,EAAAA,WAAA,gBAAAA,MAAAA,KAAAA,UAAAA,EYlBMQ,GCpBN,SAAShC,EAAAI5L,EAAAA,IC,EAAAI
AIC,EAAAIC,EAAAIC,GACnBD,OAAAA,GAAAmBxO,EAAAIsO,IAAAOC,EAAAKD,IAA7BG,EAAAKD,IAAAGAmBdE,IAA
AA,EAAAAA,SAAAAA,GACQrJ,SAAAAA,EAAAAA,EAAAAA,EAAQC,EAAU3B,EAAAKC,EAAAKkJ,GbiB1C,EAAAA,KAAAA,Ga
hBUzH,IAAAAA,EAAAAA,EAAAAA,MAAAAA,EAAAAA,WAAAAA,OAAAAA,eAAAAA,IAAAAA,KAAAAA,KAAAAA,EA
AQC,EAAAU,CAAAE3B,IAAAKA,EAAAKC,IAAAKA,EAAAKkJ,KAAAMA,KAE9C9B,EAAAAA,EAAoBGgD,SAAAAA,EA
AY/R,GACjB0S,IAAAAA,EAAAAA,iBAAEIC,IAAAAA,EAAAS5D,EAAAM6D,aAAAwC,wBAM3B,OAJDzD,EAAAAA,SACJO,EA
AI3P,EAAAE8L,QAAAS6G,EAAAOxH,KAAAMwH,EAAAOvH,MAAAO2D,EAAAM2B,MAAAO3B,EAAAM4B,SAAGxD,EA
GAsB,SAAAAA,IACHC,EAAAAA,OAAO7F,OAAQ,YAAa0F,GAAAAA,OAAO7F,OAAQ,UAAW4F,GAAC
1BlD,EAAMpF,kBACFA,EAAAAA,iBAAiB1J,KAAK8O,EAAAOA,MAAAjF,YAAWpCgJ,SAAAAA,EAAAY9S,GACb8
L,IAAAAA,EAAU9L,EAAE+S,QAAAQ,GAAGjH,QACvB6G,EAAS5D,EAAM6D,aAAAwC,wBAE5BzD,EAAAAA,SA
CJO,EAAI7D,EAAS6G,EAAAOxH,KAAAMwH,EAAAOvH,MAAAO2D,EAAAM2B,MAAAO3B,EAAAM4B,SAAGxD,QAAAItDqC,SA
AAA,IACHd,EAAAAA,OAAO7F,OAAQ,YAAayG,GAC5BZ,EAAAAA,OAAO7F,OAAQ,WAAY2G,GAC3BjE,EA
AMpF,kBACFA,EAAAAA,iBAAiB1J,KAAK8O,EAAAOA,MAAAjF,YAAWYb9CjD,OaZS8I,EAAAAA,aAAAepJ,SAASC,cA
Ac,OACtCwJ,EAAAAA,aAAAezJ,SAASC,cAAc,OAEvC1E,EAAAAA,KAAK,EAAK6N,QAAS,YAAWC,SAAAAA,GACV
ACV2O,SAAAAA,cAAc0B,OAEnBtL,EAAAAA,KAAKsH,OAAQ,YAAa0F,GAC1BhN,EAAAAA,KAAKsH,OAAQ,UAAW4F,GAC
UAAW4F,GAEhBjS,EAAAAA,KAAXV+E,EAAAAA,KAAK,EAAK6N,QAAWaAc,aAkCnBM,SAAAalT,GAChBmT,SAAAC
IAArBA,EAAAAA,aAAavD,YAAAY,EAAK4D,QAAcAC9B1J,EAAAAA,KAAAAA,WAAAAA,WAAW8F,Y
AAY,EAAKuD,cbrDrC,EAAAA,OAAAA,EAAAA,EalBqCpC,GbkBrC,EAAAA,EAAAA,CAAAA,CAAAA,IAAAA,gBaqDkB,MAAAA,WACR4C,IAAAAA,GAAAO,KAAAtJ,KAAAuJ,KAAAC,KAAAC,KAAAC

C,cAAc,OACpCoK,EAAAA,WAAWlI,UAAY,WAEvBmI,EAAAA,mBAAqBtK,SAASC,cAAc,OAC5CqK,EAAAA,mBAAmBnI,UAAY,mBAE/BoI,EAAAA,aAAevK,SAASC,cAAc,OACtCsK,EAAAA,aAApI,UAAY,aACzBqI,EAAAA,oBAAsB,aAEtBC,EAAAA,WAAazK,SASC,cAAc,OACpCwK,EAAAA,WAAWtI,UAAY,WAEvBuI,EAAAA,YAAc1K,SASC,cAAc,OACrCyK,EAAAA,YAAYvI,UAAY,YAExBwE,EAAAA,QAAU3G,SASC,cAAc,SACjC0G,EAAAA,QAAQvB,KAAO,OACfuF,EAAAA,mBAAqB,aAEtBpP,EAAAA,KAAK,EAAKoL,QAAS,UAAW,SAASnQ,GACvB,KAAdA,EAAAE+M,SACG9M,EAAAA,KAAK,QAIZ8E,EAAAA,KAAK,EAAKoL,QAAS,OAAQC,GAE3BrL,EAAAA,KAAK,EAAK8O,WAAY,YAAa,WAElCV,EAAAA,SAAS,KAAM,QACfpO,KAAKsH,OAAQ,UAAW,WACnB+H,EAAAA,YAAYrF,EAAM8E,WAAY,YAIpC9O,EAAAA,KAAK,EAAK8O,WAAY,aAAc,WAEnCV,EAAAA,SAAS,KAAM,QACfpO,KAAKsH,OAAQ,UAAW,WACpB+H,EAAAA,YAAYrF,EAAM8E,WAAY,YAIlCQ,IAAAA,EAAAa7K,SASC,cAAc,OA8EjC6K,SAAAA,EAAAUtU,GACAsU,EAAAA,KAAAA,EAAAA,KAAAA,EAAAA,KAAAA

,YAErBvI,IAAM,IAANA,EAAa,CACXuT,IAAAA,GAAW,EAIRtQ,EAAAA,KAAKyD,EAAMgB,WAAY,SAAS
Z,GACjC,IAACpC,EAAOnB,YAAYvD,EAAE8G,MAAgBpC,EAAOnB,YAAY,KAAK4O,QAAQvQ,QAAQkF,K
AChF9G,EAAE8G,KAAe,KAAKqL,QAAQvQ,QAAQkF,GAE/B,OADI,GAAA,EACJ,IAER,MAICyM,GACKhM,
EAAAA,OAAO,KAAK4K,QAAQvQ,QAAS5B,GAIjCuH,EAAAA,OAAO,KAAK6K,OAAOxQ,QAAS,KAAKuQ
,QAAQvQ,SAE3CwQ,KAAAA,OAAOhQ,EAAI,EAEVoR,IAAAA,EAAQ,KAAKrB,QAAQ3P,EAAI,IAAO,KAA
K2P,QAAQ7P,EAAI,GAAO,IAAM,EAC9DmR,EAAQ,IAAMD,EAEbjM,EAAAA,OAAO,KAAKiL,aAAatJ,MA
AO,CACzB,WAAA,IAAM,KAAKiJ,QAAQ7P,EAAI,EAAI,KAC5B,UAAA,KAAO,EAAI,KAAK6P,QAAQ3P,G
AAK,EAAI,KAC3B,gBAAA,KAAK4P,OAAOsB,cACrB,OAAA,KAAKjB,oBAAsB,OASe,EAAO,IAAMA,EA
AO,IAAMA,EAAO,MG1Ed,KAAAA,WAAWxJ,MAAMyK,UAAyC,KA5B,EAAI,KAAKxB,QAAQ9P,EAAI,
KAAa,KAEhE+P,KAAAA,OAAO9P,EAAI,EACX8P,KAAAA,OAAO5P,EAAI,EAED,EAAA,KAAK+P,mBAAo
B,OAAQ,OAAQ,KAAKH,OAAOsB,eAE/D9E,KAAAA,QAAQnI,MAAQ,KAAK0L,QAAQrQ,WE3ByF,EAAA
A,OAAO,KAAKqH,QAAQ1F,MAAO,CACf,gBAAA,KAAKiJ,QAAQuB,cACvB,MAAA,OASF,EAAO,IAAMA
,EAAO,IAAMA,EAAO,IACrC,WAAA,KAAKZ,mBAAqB,QAAUa,EAAQ1F,Ee9BMvB,GA0SA0B,EAAU,CAAC,QAAS,MAAO,WAAY,OAAQ,IAAEtD,G,EAAAA,GAAW,EAAA,MAAM4K,WAAY,SAAUC,GAAK,IAAIC,EAAI,KAAMC,EAAI,KAAMC,EAAI,KAAM

AkB0N,IAG7ClS,EAAAA,KAAK,KAAKwE,WAAY,sBAAuB0N,GAC7ClS,EAAAA,KAAK,KAAKwE,WAAY,gBAAiB0N,GACvClS,EAAAA,KAAK,KAAKwE,WAAY,iBAAkB0N,GAEvCH,KAAAAA,kBAAkBrM,MAAM0M,QAAAU,EAElC5N,KAAAAA,WAAWkB,MAAM0M,QAAAU,EAC3B5N,KAAAAA,WAAWkB,MAAM2M,gBAAkBepBxC5C,CAAAA,IAAAA,SoB2CW,MAAAA,WACF7N,KAAAAA,WAAWkB,MAAAMU,KAAAOkB,OAAOkL,WAAa,EAAAIjN,EAAAIkN,SAAAS,KAAAKjO,YAAAc,EAAAI,KACpFA,KAAAAA,WAAWkB,MAAAMY,IAAAMgB,OAAAOoL,YAAAc,EAAAInN,EAAAIoN,UAAAU,KAAAKnO,YAAAc,EAAAI,SpB7C9F,EoBtCMsN,GpBsCN,EAAAA,EAAAA,srLqBzBApB,pB,EAAAIkC,OAAAOC,GAGX,IAAAMC,OAAAEAgB,KAAAEhBC,EAAAgB,KAAAGhBC,EAAAsB,KAAAEtBC,EAA8B,UAAE9BC,EAAA0B,WAAC1B,IACK,QAAAE5L,EAAAOAAO6L,aAAAChB,MAAAOlY,GACA,OAAAA,GAAAJqB,EAAAQAAE5L,EAAAOAAOyN,GAAAC,OAAAC,EAAAC,QAAAC,EAAAC,QAAAC,EAAAC,Q

,EAAOrD,EAAO0C,QAItBiN,KAAAA,gBAAkB,WACfC,EAAAA,qBAGJvW,EAAAA,KAAKsH,OAAQ,SAAU,KAAKgP,iBAC5BtW,EAAAA,KAAK,KAAKyT,KAAM,sBAAuB,KAAK6C,iBAC5CtW,EAAAA,KAAK,KAAKyT,KAAM,gBAAiB,KAAK6C,iBACtCtW,EAAAA,KAAK,KAAKyT,KAAM,iBAAkB,KAAK6C,iBACtCnB,KAAAA,WAEDxO,EAAO0N,WACO,GAAA,MAGG,EAAA,WACfnB,GAA0F,SAAhEC,aAAsB,QAAQC,GAAAoB1K,EAAO,aAC/DC/DuL,aAAAAA,QAAQb,GAAAoB1K,EAAO,OAAQ0L,KAAKc,UAAUxM,EAAAMyM,mBAAkC,KAAAA,6BAAAA,+BAAAA,6BAAAA,6BAAAA,6

ACfoH,EAAAA,SAASpH,MAM5B,SAASwU,GAAId,EAAKtS,EAAQC,EAAUqC,GAC9BtC,QAAqBxD,IAArB
wD,EAAOC,GACH,MAAA,IAAI1J,MAAJ,WAAqByJ,EAArB,sBAAiDC,EAAjD,KAGJ8S,IAAAAA,OAAAAA,EA
EAzQ,GAAAAA,EAAO1I,MACI,EAAAA,IAAIyQ,EAAgBrK,EAAQC,OACpC,CACCyU,IAAAAA,EAAc,CAAC1U,
EAAQC,GAAU1I,OAAO+K,EAAOoS,aCxC1H,EAAAAA,EAAkB1U,MAAMga,EAAKoC,GAGxCpS,EAAOqS,
kBAAkB5U,IACpB4U,EAAAAA,OASrS,EAAOqS,OAAO3B,MAGfV,GAAAAA,EAAKS,GAElBhJ,EAAAAA,SA
SgJ,EAAW5S,WAAY,KAE9B7G,IAAAAA,EAAO8G,SASC,cAAc,QAChC0J,EAAAAA,SASzQ,EAAM,iBACdo
N,EAAAAA,UAAYqM,EAAW9S,SAEtB2U,IAAAAA,EAAYxU,SASC,cAAc,OAC/B4F,EAAAAA,YAAY3M,GAC
Z2M,EAAAAA,YAAY8M,EAAW5S,YAE3BsS,IAAAAA,EAAKX,GAAOQ,EAAKsC,EAAWtS,EAAOqS,QAalC5B
,OAXHhJ,EAAAAA,SAAS0I,EAAItD,GAAI0F,sBACjB9B,aAAsB1I,EACpBN,EAAAAA,SAAS0I,EAAI,SAEb1I,E
AAAA,SAAS0I,EAAb,EAAwBM,EAAWrS,aGnB4R,GAAAAA,EAAKG,EAAIM,GAEvBzD,EAAAAA,cAAAclX,K
AAK2a,GAEhBA,EAGT,SAAS1C,GAAAoBiC,EAAK7W,GAEzB2E,IAAAAA,SAAS0U,EAAAAA,SAASrP,KAAO,IAAMhK
,EAGxC,SAASsZ,GAAAgBzC,EAAKhZ,EAAM0b,GAAKhC,vO,IAAAAA,EAAAMrG,EAAAA,SAASqG,EAAAA,SAAUC,
WAAajV,SAASC,cAAc,MAEhD0J,EAAAAA,SAASuI,EAAAInS,WAAY,YAEzBiP,EAAAAA,KAAKqC,e,aAA2D,EA
AK9C,EAAIlD,KAAKkG,YAEhCvL,EAAAAA,SAASqL,EAAK,YAEZG,IAAAAA,EAAAQnV,SASC,cAAc,QAC/B
qG,EAAAAA,UAAY,SACdqD,EAAAAA,SAASwL,EAAO,gBAGdC,IAAAAA,EAAAQnV,SASC,cAAc,QAC/BqG,EA
AAA,UAAY,OACfqD,EAAAAA,SASyL,EAAQ,UACjBzL,EAAAAA,SASyL,EAAQ,QAEfC,IAAAAA,EAAAUrV,S
AASC,cAAc,QAC/BqG,EAAAAA,UAAY,MAChBqD,EAAAAA,SAAS0L,EAAAAA,SAAS1L,EAAAAA,SAAS0I,EAAIiD,L1L,EAAAAA,SAAS0L,EAA
S,WAEhBC,IAAAAA,EAAAUtV,SASC,cAAc,QAC/BqG,EAAAAA,UAAY,SAChBqD,EAAAAA,SAAS2L,EAAAAA,SAAS3L,EAAAAA,SAAS0I,EAAIiD,UA
ClB3L,EAAAAA,SAAS2L,EAAAAA,SAAS3L,EAAAAA,SAAS0I,EAAIiD,UEhBC,IAAAAA,EAASrD,EAAAIO,EAAAAA,SAASsC,UAwBxDwO,GA
tBAyD,EAAI1C,MAAAQ0C,EAAI1C,KAAK4E,WAChBpZ,EAAAAA,KAAAkXkX,EAAI1C,KAAK4E,WAAY,SAAS
5V,EAAOnD,GAC/B6W,GAAAAA,EAAK7W,EAAAKA,IAAAQ6W,EAAAIzC,UAAGxByC,GAAAAA,EAAK1D,GAA6B
,GAGhDjT,EAAAAA,KAAKga,EAAAQ,SAAUWACpB,IAAAA,IAAI/Q,EAAAQ,EAAAGA,EAAAQ0N,EAAAIO,gBAAAgB
vb,OAAQsN,IAAClDiO,EAAAAA,gBAAAgBjO,GAAO8B,UAAY4L,EAAAIO,gBAAAgBjO,GAAOhG,MAGhEiR,EAAA
AA,OAAS,KAAKjR,QAGhBqQ,EAAAAA,KAAKyP,GACZ1P,EAAAAA,KAAKyP,EAAAAA,KAAKtP,EAAAAA,KAAKuP,GA
CZvP,EAAAAA,KAAKwP,EAAAAA,KAAKtP,EAAAAA,KAAKyP,EAAAAA,KAAKtP,EAAAAA,KAAKuP,GAEZ7G,EAAAwB,CACpBqG,IAAAAA,EAAAU9U,SAASwV,
V,eAAe,oBAAClCC,EAAAuBzV,SASwV,eAAe,oBACjCxV,SASwV,eAAe,mBAEhCvU,MAAMyM,QAAU,QAE
sC,SAA9DgB,aAAasB,QAAQC,GAAAoBiC,EAAK,aAC3BxM,EAAAAA,aAAa,UAAW,WAG/BwM,GAAAAA,EAAAA
K4C,GAGjBvZ,EAAAAA,KAAKka,EAAAsB,SAAU,WACnC3F,EAAAAA,iBAAAmBoC,EAAAIpC,gBACXoC,GAAAAA,EAAA
,EAAK4C,KAAInBY,IAAAAA,EAAAyB1V,SASwV,eAAe,sBAEnDja,EAAAAA,KAAKma,EAAAwB,UAAW,WAAS,SASlf,
IAC/CA,EAAAE8M,EAAAAA,SAAAwB,KAAAwZ,EAAAAA,KAAAtP,EAAAAA,KAAAyP,EAAAAA,KAAAtP,EAAAAA,KAAAuP

,SAASC,GAAiBzE,EAAK0E,GACvB1Z,IAAAA,EAAW,GAmBVA,OAhBAlC,EAAAA,KAAKkX,EAAI/C,oBA
AqB,SAASvO,EAAK4D,GAC3CqS,IAAAA,EAAc,GAGd1C,EACJjC,EAAI9C,uCAAuC5K,GAGtCxJ,EAAAA,K
AAKmZ,EAAe,SAASxB,EAAY9S,GAClCA,EAAAA,GAAY+W,EAAmBjE,EAAW7S,aAAe6S,EAAWrS,aAIzE
kE,EAAAA,GAASqS,IAGb3Z,EAGT,SAAS4Z,GAAqB5E,EACvB,IAAAI,EAAI1N,EAAQ,EAAGA,EAAQ0N,EA
AIO,gBAAgBvb,OAAQsN,IAClD0N,EAAIO,gBAAgBjO,GAAOhG,QAAU0T,EAAIzC,SACvCgD,EAAAA,gBA
AgBjM,cAAgBhC,GAK1C,SASuS,GAAeC,GACS,IAA3BA,EAAgB9f,QACIT,EAAAA,KAAKoM,WAAWmU,
ClBmU,GAAAA,KAIZhc,EAAAA,KAAKgc,EAAiB,SAAS/Y,GAClCoC,EAAAA,kBAn7BN0O,GAAIkI,WAAa,
WACR,IAACxJ,GACDzS,EAAAA,K8T,GAAc,SASoD,GAC7BnS,EAAAA,WAWkB,MAAMyM,QAAU
D,GAAO,OAAS,MAInDsB,GAAI6C,iBAAmB,IACvB7C,I4C,2BAA6B,KACjC5B,C5C,GAAIgC,WAAa,cAC
hC,GAAI0F,qBAAuB,KAC3B1F,GAAImI,eAAiB,qBACrBnI,GAAI0B,aAAe,SACnB1B,GAAIoC,mBAAqB,eAC
zBpC,GAAIqC,gBAAkB,YACtBrC,GAAIwC,mBAAqB,eACzBxC,GAAIuH,WAAa,OAEjBvH,GAAIO,cAAgB,I
ACpBP,GAAI8B,YAAc,iBAClB9B,GAAI6B,UAAY,gBAEhB7B,GAAIoI,gBAAkB,SAAS3gB,OAAQ,GACO,SAAS,mF,cAAc,qC,MAAM,sE,MAAM,qE,MAAM,qE,MAAM,q

,GAAiB,OAG7Ca,EAAAA,QAAU,GACZxc,EAAAA,KAAK,KAAKiU,UAAW,SAAS7I,EAAS/K,GACnCmc,EAAAA,QAAQnc,GAAO+K,EAAQ4L,kBAG3B9U,GAGH,KAAA,WACC,KAAKsS,KAAK4E,aACR5E,KAAAA,KAAK4E,WAAa,IAGpB5E,KAAAA,KAAK4E,WAAW,KAAK3E,QAAUkH,GAAAiB,MAClC,GAAAA,MAAM,GACpB1E,KAAAA,gCAGC,OAAA,SAAS8D,GACV,KAAKvG,KAAK4E,aAER5E,KAAAA,KAAK4E,WAAW,KAAK3E,QAAUkH,GAAAiB,MAAMC,GAAAnH,KAAAA,KAAK4E,WAAW,WAAa,GACl B5E,KAAAA,KAAK4E,WAAW5F,GAA+BmI,GAAAiB,MAAMC,GAAAnH,KAAAA,KAAK4E,WAAW2B,GAAAc Y,GAAAiB,MAC/C,GAAAnH,KAAAA,OAASsG,EACE,GAAA,KAAMA,GAAAC,KAAAA,KAAK4E,WAAWC,GAAAc,SAAS,GACRlH,KAAAA,KAAK4E,WAAWuC,GAAAnH,KAAAA,KAAK,KAAKkU,cAAe,SASyD,GAAAlC,KAAAA,KAAKrC,UAAUd,KAAAA,KAAK4E,WAAWC,GAAAc,SAAS,GAAAlH,KAAAA,KAAK4E,WAAWuC,GAAAnH

AAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAAA,OAAA,GAAA,EAAA,SAAA,EAAA,GAAA,GAAA,GA
AA,EAAA,WAAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,EAAA,IAAA,GAAA,OAAA,EAAA,IAAA
,GAAA,IAAA,EAAA,GAAA,GAAA,MAAA,EAAA,CAAA,IAAA,EAAA,OAAA,gBAAA,OAAA,yBAAA,IAAA
,IAAA,KAAA,EAAA,GAAA,OAAA,UAAA,eAAA,KAAA,EAAA,GAAA,CAAA,IAAA,EAAA,EAAA,OAAA,y
BAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAAA,eAAA,EAAA,EAAA,GAAA,EAAA,G
AAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,EAAA,GAAA,EA5nmB,IAAIC,EAAqB
,CAAC,EAAE,GAAG,IAAI,SAASC,EAAwB5hB,GAAQ6hB,EAAAA,KAAAA,OAAO,iBAAiB7hB,EAAE,WA
iB,MAAA,iCAAiC8hB,EAAKD,KAAAA,OAAOF,EAAqB/T,QAAQ5N,IAAI,EAAE,WAAiB,MAAA,mBAAmB
A,EAAE,gDAAgD,SAAS+hB,EAAsB/hB,EAAEwH,GAAQqa,EAAAA,KAAAA,OAAO,iBAAiB7hB,EAAE,WA
AiB,MAAA,+BAA+B8hB,EAAKD,KAAAA,QAAQ7hB,EAAE,GAAGwH,GAAG,EAAE,WAAiB,MAAA,iBAAi
BxH,EAAE,iCAAiCwH,EAAE,MAAM,SAASwa,EAAahiB,GAAU,OAAA,EAAK,EAAA,MAAA,WAAiB,MAA
A,UAAUA,EAAEiiB,QAAQjiB,EAAEA,EAAEkiB,WAAWliB,GAAE,EAAIA,EAAAA,KAAAA,EAAE,QAAO,E
AAIA,EAAAA,KAAAA,EAAE,KAAK,IAAImiB,EAAU,WAAoBniB,SAAAA,EAAEA,EAAEwH,GAAQ4a,KAA
AA,MAAMpiB,EAAMsD,IAAAA,EAAE,KAAK8e,MAAMC,OAAO,GAAGC,MAAWT,EAAAA,KAAAA,QAAQ
Q,IAAIve,EAAE,KAAK,IAAIA,EAAE,GAAG,WAAiB,MAAA,gBAAgBA,EAAE,GAAG,KAAKA,EAAE,GAA
G,sBAAsB,KAAKif,aAAa/a,EAASxH,OAAAA,EAAEyB,UAAU+gB,QAAQ,SASxiB,GAAOwH,IAAAA,EAA
E,KAAY,OAAA,EAAK,EAAA,MAAA,WAAelE,IAAAA,EAAE0e,EAAahiB,GAAGyiB,WAAW,GAAGC,EAAE
lb,EAAE4a,MAAMI,QAAQlf,GAAGqf,EAAED,EAAE,GAAGnhB,EAAEmhB,EAAE,GAAG7e,EAAE6e,EAAE,
GAAG/e,EAAE+e,EAAE,GAAS,MAAA,CAACE,cAAcrhB,EAAEshB,UAAUC,UAAUC,QAAQJ,EAAEE,UAAU
G,gBAAgBnf,EAAEgf,UAAUI,gBAAgBtf,EAAEkf,cAAc7iB,EAAEyB,UAAUyhB,QAAQ,WAAgBd,KAAAA,M
AAMc,WAAWljB,EAAlhB,GAAuhB,SASmjB,EAAKnjB,GAAUuD,OAAAA,KAAK6D,MAAMpH,EAAE,GA
A28jB,QAAA,UAAA,EAAx8jB,IAAIojB,EAAQ,WAAoBpjB,SAAAA,EAAEA,EAAEwH,GAAQ6b,KAAAA,cA
Ac,IAAIhiB,MAAMrB,GAAG,KAAKsjB,kBAAkB,EAAE,KAAKC,gBAAgB/b,EAAS,xH,OAAAA,EAAEyB,UA
AU+hB,QAAQ,SASxjB,GAAQqjB,KAAAA,gBAAgB,KAAKC,kBtjB,EAAE,KAAKyjB,KAAK,KAAKH
,mBAAmBtjB,EAAEyB,UAAUiB,QAAQ,WAAe1jB,IAAAA,EAAE,KAAKqjB,cAAc,GAAU,OAAA,KAAKM,S
AAS,EAAE,KAAKL,oBAAoB,KAAKM,KAAK,GAAG,KAAKP,cAAc,KAAKC,iBAAiB,GAAG,KAAKtjB,GAAA
GA,EAAEyB,UAAUoiB,MAAM,WAAiB,OAAC,IAAI,KAAKP,kBtjB,EAAEyB,UAAUqiB,KAAK,WAAk
B,OAAA,KAAKR,kBtjB,EAAEyB,UAAUsiB,IAAI,WAAkB,OAAA,KAAKV,cAAchf,MAAM,EAAA
E,KAAKif,iBAAiB,IAAItjB,EAAEyB,UAAUkG,IAAI,WAAkB,OAAA,KAAK0b,cAAc,IAAIrjB,EAAEyB,UAA
UgiB,KAAK,SASzjB,GAAQA,KAAAA,EAAE,GAAG,KAAKgkB,KAAKb,EAAKnjB,GAAUiB,SAAAA,EAAEA,EAAEwH,GAAQ
B,SAAS3jB,EAAEmjB,EAAKnjB,GAAUiB,SAAAA,EAAEmjB,EAAKnjB,GAAUiB,SAAAA,EAAEyB,UAAUmiB,KAAK,SAAS5jB,G
AAQ,KAAA,EAAEA,GAAG,KAAKsjB,kBAAkB,CAAK9b,IAAAA,EAAE,EAAEA,EAAExH,EAAEA,EAAEwH,GAAA,EAAE,
KAAK8b,kBAAkB,KAAKU,KAAKxc,EAAEA,EAAEIAIA,KAAK,KAAKwc,KAAKhkB,GAAUiB,SAAAA,EAAEwH,EAAEwc,M
AAWmc,KAAAA,SAAS3jB,EAAEwH,GAAGxH,EAAEwH,IAAIxH,EAAEyB,UAAUwiB,WAAW,SASjkB,GA
AU,OAAA,KAAKujB,gBAAgB,KAAKF,cAAcrjB,EAAEyB,UAAUuiB,KAAK,SAAShkB,GAAUiB,SAAAA,EAAEwH,EAAEwc,M
AAU,OAAA,KAAKyc,WAAWjkB,GAAG,KAAKikB,KAAKC,EAAEyB,UAAUkiB,KAAK,SAAS3jB,GAAUiB,SAAAA,EAAEwH,E
AAEwH,GAAOlE,IAAAA,EAAE,KAAK+f,cAAcrjB,EAAEyB,UAAUqiB,KAAK,SAAS9jB,GAAUiB,SAAAA,EAAEwH,EAAEwc,M
AAEphB,GAAO,IAAA,IAAIsC,EAAEtC,EAAE+gB,MAAM3e,EAAEA,EAAEA,GAAGsgB,EAAEtgB,EAAE,
EAAE,GAAGsB,GAAE,EAAEkC,E9D,KAAKoE,IAAIrE,EAAEqf,EAAE,GAAGlb,EAAEkb,EAAE,GAAGlb,EAAEkb,IAA
IpE,EAAEqf,EAAE,EAAEhf,GAAGygB,EAAE/c,EAAE+c,EAAE3c,IAAI2c,EAAE,CAAK,IAAA,IAAI9c,EAAE/
D,KAAKoE,IAAI+a,EAAEC,EAAE,GAAG/e,EAAEL,KAAKmE,IAAIgb,EAAEC,EAAE,EAAEwB,GAAGE,EA
AE/c,EAAE+c,EAAEzgB,GAAIygB,EAAE,GAAG9iB,EAAE,GAAG9iB,EAAE+iB,EAAEC,EAAErkB,GAAGwH,EAAE,CA
ACrC,GAAE,EAAG,MAAS,IAACA,EAAE,MAAaA,OAAAA,EAAE,SASof,EAAwBvkB,EAAEwH,EAAEwc,MAAM
AAO,IAAA,IAAIof,EAAEpf,EAAEgf,MAAMK,EAAED,EAAE,GAAGnhB,EAAEmhB,EAAE,GAAG7e,EAAE6e,EAAE6
e,EAAE,GAAG/e,EAAE+e,EAAE,IAAIyf,EAAQT,EAAEphB,EAAEsC,EAAE,SAAS7D,GAAUA,OAAAA,EAAEwkB,B
AQL,EAAE,EAAEA,EAAExB,IAAIwB,EAAE,IAAI,IAAIhf,EAAE,EAAEA,EAAE5D,4D,IAAI4D,EAAE,IAAI,IAA
IkC,EAAE,EAAEA,EAAExD,IAAIwD,EAAE,CAAKI,IAAAA,EAAE,EAAEnE,EAAEghB,IAAIH,EAAEhf,EAAEkC,G

AAGI,EAAEzH,GAAGkkB,EAA4B7c,EAAEI,EAAE0c,EAAEhf,EAAEqC,EAAElE,IAAIK,EAAE6f,QAAQ,CA
ACgB,MAAM/c,EAAEgd,KAAK,CAACC,SAASP,EAAEQ,SAASxf,EAAEyf,GAAGvd,KAAY1D,OAAAAA,EAAA
E,IAAIkhB,EAAU,CAAC,OAAO,UAAU,WAAW,UAAU,WAAW,eAAe,gBAAgB,YAAY,aAAa,YAAY,aAAa,U
AAU,WAAW,WAAW,YAAY,YAAY,cAAcC,EAAcD,EAAUnkB,OAAOqkB,EAAQF,EAAUG,OAAO,SAAShlB,
EAAEwH,EAAElE,GAAUtD,OAAAAA,EAAEwH,GAAGlE,EAAEtD,GAAG,IAAIilB,EAAmB,CAAC,CAAC,UA
AU,gBAAgB,CAAC,YAAY,gBAAgB,CAAC,YAAY,aAAa,CAAC,UAAU,YAAY,CAAC,WAAW,aAAa,CAAC,
WAAW,iBAAiB,CAAC,aAAa,iBAAiB,CAAC,aAAa,cAAc,CAAC,WAAW,aAAa,CAAC,YAAY,cAAc,CAAC,eA
Ae,iBAAiB,CAAC,UAAU,aAAaC,EAAU,CAAC,CAAC,OAAO,WAAW,CAAC,UAAU,WAAW,CAAC,OAAO,
YAAY,CAAC,WAAW,YAAY,CAAC,OAAO,gBAAgB,CAAC,eAAe,aAAa,CAAC,YAAY,aAAa,CAAC,eAAe,W
AAW,CAAC,UAAU,YAAY,CAAC,WAAW,aAAa,CAAC,OAAO,iBAAiB,CAAC,gBAAgB,cAAc,CAAC,aAAa,c
AAc,CAAC,gBAAgB,YAAY,CAAC,WAAW,aAAa,CAAC,YAAY,eAAeC,EAAqBF,EAAmBtV,IAAI,SAAS3P,G
AAOwH,IAAAAA,EAAExH,EAAE,GAAGsD,EAAEtD,EAAE,GAAS,MAAA,CAAC+kB,EAAQvd,GAAUd,EAA
QzhB,MAAM8hB,EAAa,CAAC,YAAY,aAAa,wBAAwB,uBAAuB,uBAAuB,uBAAuB,uBAAuB,sBAAsB,sBAAs
B,aAAa,wBAAwB,YAAY,cAAc,aAAa,wBAAwB,uBAAuB,uBAAuB,uBAAuB,uBAAuB,sBAAsB,sBAAsB,aAA
a,wBAAwB,aAAa,SAASC,EAAerlB,EAAEwH,EAAElE,EAAEof,GAAS,MAAA,CACzW,EAAEyW,EAAE4B,I
AAItkB,EAAEwH,EAAElE,GAAGyI,EAAE2W,EAAE4B,IAAItkB,EAAEwH,EAAElE,EAAEwhB,IAAgB,SAAS
Q,EAAetlB,EAAEwH,EAAElE,GAAOof,IAAAAA,EAAE2C,EAAerlB,EAAE0kB,SAAS1kB,EAAE2kB,SAAS3kB,
EAAE4kB,GAAGthB,GAAGqf,EAAED,EAAEzW,EAAE1K,EAAEmhB,EAAE3W,EAAQ,MAAA,CAAC+W,EAAA
E/L,EAAE2kB,SAASnd,EAAEjG,EAAE0K,EAAEjM,EAAE0kB,SAASld,EAAEmb,GAAG,SAAS4C,EAAMvlB,
EAAEwH,EAAElE,GAAUtD,OAAAAA,EAAEwH,EAAEA,EAAExH,EAAEsD,EAAEA,EAAEtD,EAAE,SAASwl
B,EAAgBxlB,EAAEwH,EAAElE,EAAEof,GAAOC,IAAAAA,EAAErf,EAAEuB,EAAEmhB,EAAEA,EAAElb,
ASmb,OAAAAA,EAAEA,EAAEphB,EAAEA,EAAE,SAASkkB,EAAWzlB,EAAEwH,EAAE,GAAS,MAAA,CAACuE,
AE/L,EAAE+L,EAAEvE,EAAEuE,EAAEE,EAAEjM,EAAEiM,EAAEzE,EAAEyE,GAAosc,QAAA,aAAA,EAAA
A,QAAA,UAAA,EAAA,QAAA,QAAA,EAAA,QAAA,UAAA,EAAjsc,IAAIyZ,EAAqBR,EAAUvV,IAAI,SAAS3
P,GAAOwH,IAAAAA,EAAExH,EAAE,GAAGsD,EAAEtD,EAAE,GAAS,MAAA,CAAC+kB,EAAQvd,GAAUd,,
EAAQzhB,MAAMqiB,EAAmBD,EAAqB/V,IAAI,SAAS3P,GAAUA,OAAAAA,EAAE,KAAK4lB,EAAmBF,EAA
qB/V,IAAI,SAAS3P,GAAUA,OAAAAA,EAAE,KAAK,SAAS6lB,EAAgB7lB,EAAEwH,EAAElE,GAAOof,IAAAA
A,EAAEpf,EAAEgf,EAAEI,EAAQ,MAAA,CAACrW,EAAE3I,EAAEghB,IAAI9c,EAAEyE,EAAEzE,EAAEzE,EA
AEuE,EAAE/L,GAAG+L,EAAEzI,EAAEghB,IAAI9c,EAAEyE,EAAEzE,EAAEuE,EAAE2W,EAAE1iB,IAAI,SA
AS8lB,EAAyB9lB,EAAEwH,EAAElE,EAAEof,GAAS,MAAA,CAACzW,EAAE3I,EAAEsD,EAAEsb,EAAMhiB,KAAKC,Mx
D,EAAEiM,EAAEzE,EAAGG,EAAEyE,EAAEiM,EAAEzE,EAAEyE,GAAGyI,EAAEwW,EAAMhiB,KAAKC,MxD,EAAE+L,EAAA
EvE,GAAG,EAAEkb,EAAE,IAAI,SAASqD,EAAyB/lB,EAAEwH,EAAElE,EAAEof,GAAS,MAAA,CAACzW,EAAE3I,EAAEsD,EAAEsb,EAAMC,
C,EAAEF,QAAQ,IAAIA,IAAE,EAAEGAO,IAAAA,IAAIwgB,EAAEzB,EAAEJ,MAAMnd,EAAEgf,EAAE,GA
AG9c,EAAE8c,EAAE,GAAG1c,EAAEoe,EAAgB7lB,EAAE8lB,EAAE0D,EAAEAE0D,SAAS3J,EAAE4D,EAAEkC
,GAAGxD,GAAGugB,EAAEqB,EAAWje,EAAE0D,SAASzD,GAAGH,EAAE,EAAEA,EAAE3D,IAAI,
CAAK1D,IAAAAA,EAAEkiB,EAAyB1B,EAAE7iB,EAAE4D,EAAEkC,GAAGgd,EAAEgB,EAAEzhB,EAAEzhB,B,EAAEqI,E
AAErI,EAAEmI,EAAEzI,EAAEqf,GAAGyB,EAAEqB,EAAW,CAAC1Z,EAAEnI,EAAEmI,EAAExK,EAAE0K,
EAAErI,EAAEqI,EAAE1K,EAAGG,EAAEyE,EAAEiM,EAAEzE,EAAEyE,GAAGyI,EAAEwW,EAAMhiB,KAAKC,MxD,EAAE+L,EAAA
EqD,EAAEkC,GAAG2e,EAAEtD,EAAE4B,IAAItkB,EAAEwH,EAAElE,EAAEof,GAAS,MAAA,CAACzW,EAAE3I,EAAEsD,EAAEsb,EAAMC,
AEsI,EAAEzI,GAAS,MAAA,CAAC4H,SAASkZ,EAAEK,EAAEtY,EAAEuY,EAAEC,EAAEC,EAAEC,EAAEC,EAAEC,
ASC,EAAWjmB,EAAEwH,EAAElE,EAAEof,EAAEC,EAAEphB,EAAEosC,IAAAAA,EAAE2D,EAAE8a,MAAM,
GAAG3e,EAAEgiB,EAAEnF,EAAEjB,EAAEykB,EAAEkB,EAAEkB,EAAEkB,EAAEkC,EAAEkC,EAAEkC

AyB3B,EAAED,EAAE7c,GAAG1D,EAAE4D,EAAElE,EAAEof,EAAEC,IAAWwB,OAAAAA,EAAE,SAAS+B,E
AAoClmB,EAAEwH,EAAElE,EAAEof,GAAOC,IAAAAA,EAAErf,EAAEyI,EAAExK,EAAE+B,EAAE2I,EAASj
M,OAAAAA,EAAEmmB,KAAAK,SAASnmB,GAAOsD,IAAAAA,EAAEtD,EAAEomB,UAAU1D,GAAGxX,SAAgB
sa,OAAAAA,EAAgBjkB,EAAEohB,EAAErf,EAAE2I,EAAE3I,EAAEyI,IAAIvE,IAAI,SAAS6e,EAAiBrmB,EAAE
wH,EAAElE,GAAUA,OAAAAA,EAAE0hB,OAAO,SAAS1hB,EAAEof,EAAEC,GAAOphB,IAAAAA,EAAEmhB,E
AAExX,SAASrH,EAAE6e,EAAE8B,MAAa0B,OAAAAA,EAAoClmB,EAAEwH,EAAEjG,EAAEohB,KAAKrf,GA
AGO,GAAGP,GAAG,GAAGA,EAAE5C,OAAO,IAAI4lB,EAAoB,EAAE,SAASC,EAAoBvmB,EAAEwH,EAAEl
E,EAAEof,EAAEC,EAAEphB,EAAEsC,EAAEF,QAAQ,IAAIE,IAAIA,EAAE,SAAI,IAASF,IAAIA,EAAE,IAAQ,
IAAA,IAAIwgB,EAAE,GAAGhf,EAAEof,EAAwB1gB,EAAEyiB,EAAoBtmB,GAAGqH,EAAE1D,EAAEA,EAA
EwgB,EAAEzjB,OAAOa,IAAI4D,EAAE0e,SAAS,CAAKpc,IAAAAA,EAAEtC,EAAEue,UAAa,IAACwC,EAAoC/
B,EAAE9c,EAAEie,EAAe7d,EAAEgd,KAAK9B,EAAEnb,GAAGC,EAAEgd,KAAKG,IAAI,CAAKR,IAAAAA,EA
AE6B,EAAWxe,EAAEzH,EAAEwH,EAAEmb,EAAErf,EAAEof,GAAGpb,EAAE+e,EAAiBlC,EAAE9c,EAAE+c,
,GAAGD,EAAE3iB,KAAK,CAAC4kB,UAAUhC,EAAEI,MAAMld,KAAY6c,OAAAAA,EAAE,IAAIqC,EAAS,W
AAiB,OAACA,EAAS7hB,OAAO8hB,QAAQ,SASzmB,GAAO,IAAA,IAAIwH,EAAElE,EAAE,EAAEof,EAAEof,EAAE
phB,UAAUZ,OAAO4C,EAAEof,EAAEpf,IAAI,IAAI,IAAIqf,KAAKnb,EAAElG,UAAUgC,GAAGqB,OAAOlD,
UAAUilB,eAAezmB,KAAKuH,EAAEmb,EAAK3iB,EAAE2iB,GAAGnb,EAAEmb,IAAW3iB,OAAAAA,IAAI0B,
MAAM,KAAKJ,YAAY,SASqlB,EAAU3mB,EAAEwH,EAAElE,EAAEof,GAAU,OAAA,IAAIpf,IAAIsjB,UAAU,SAASjE,E,EAAEphB,GAAYsC,SAAAAA,EAAE7D,GAAAM,IAACmkB,EAAEzB,EAAEmE,KAAK7mB,IAAI,MAAMA,GAAGuB,EAAEvB,IAAIA,EAAE3D,GAAAM,IAACmkB,EAAEzB,EAAEoE,MAAM9mB,IAAI,MAAMA,GAAGuB,EAAEvB,IAAIA,EAAEamkB,EAAEpkB,EAAEoE,EAAEhE,EAAEgE,EAAEpE,EAAEI,EAAEJ

B,SAASC,EAAehoB,GAAUA,OAAAA,EAAEglB,OAAO,SAAShlB,EAAEwH,GAAOlE,IAAAA,EAAEtD,EAAE
ioB,KAAKvF,EAAE1iB,EAAEkoB,KAAKvF,EAAE3iB,EAAEmoB,KAAK5mB,EAAEvB,EAAEooB,KAAKvkB
,EAAE2D,EAAE0D,SAASvH,EAAEE,EAAEkI,EAAEoY,EAAEtgB,EAAEoI,EAAAQ,MAAA,CAACgc,KAAK1k
B,KAAKoE,IAAIrE,EAAEK,GAAGukB,KAAK3kB,KAAKoE,IAAI+a,EAAEyB,GAAGgE,KAAK5kB,KAAKmE
,IAAIib,EAAEhf,GAAGykB,KAAK7kB,KAAKmE,IAAInG,EAAE4iB,KAAK,CAAC8D,KAAKJ,EAAAkBK,KAA
KL,EAAkBM,KAAKJ,EAAkBK,KAAKL,IAAoB,SAASM,EAAqBroB,GAAOwH,IAAAA,EAAEwgB,EAAEehoB,
GAAGsD,EAAEkE,EAAE2gB,KAAKzF,EAAElb,EAAE4gB,KAAKzF,EAAEnb,EAAEygB,KAAK1mB,EAAEiG
,EAAE0gB,KAAAW,MAAA,CAAC,CAACnc,EAAEzI,EAAE2I,EAAEyW,GAAG,EAAE4W,EAAE4W,EAAE1W,
EAAEyW,GAAG,CAAC3W,EAAE4W,EAAE1W,EAAE1K,GAAG,CAACwK,EAAEzI,EAAE2I,EAAE1K,IAAI,
SAAS+mB,EAAEetoB,EAAEwH,GAAU,YAAA,IAASA,IAAIA,EAAE,WAAWmf,EAAU,UAAK,OAAO,EAAO,
WAAerjB,IAAAA,EAAS2jB,OAAAA,EAAY,KAAK,SAASvE,GAAUA,OAAAA,EAAEwE,OAAY,KAAA,EAA
Q,MAAA,CAAC,EAAElnB,EAAEuoB,QAAa,KAAA,EAASjlB,OAAAA,EAAEof,EAAEyE,OAAO,CAAC,GAA
E,EAAOnnB,EAAAA,QAAAA,EAAEsiB,MAAM9a,EAAElE,SAAS,SASklB,EAAkBxoB,GAAU2mB,OAAAA,
EAAU,UAAK,OAAO,EAAO,WAAkBM,OAAAA,EAAY,KAAK,SASzf,GAAS,MAAA,CAAC,EAAEof,QAAQ
7C,IAAI/jB,EAAE2P,IAAI,SAAS3P,GAAUsoB,OAAAA,EAAetoB,EAAE,mBAAmB,SASyoB,EAAUzoB,EAA
EwH,EAAElE,EAAEof,EAAEC,GAAU,YAAA,IASD,IAAIA,EAAE,QAAG,IASC,IAAIA,EAAE,GAAG,CAA
C6B,MAAMxkB,EAAEwkB,MAAM4B,UAAUpmB,EAAEomB,UAAUzW,IAAI,SAAS3P,GAAOuB,IAAAA,EA
AEvB,EAAEwkB,MAAM3gB,EAAE7D,EAAEykB,KAAK9gB,EAAE3D,EAAEkL,SAAe,MAAA,CAACsZ,MAA
MjjB,EAAEkjB,KAAK5gB,EAAEqH,SAAS,CAACa,EAAEpI,EAAEoI,EAAEzI,EAAEqf,EAAE1W,EAAE1K,EAAE
sI,EAAEzE,EAAEkb,OAAO,SASgG,EAAW1oB,EAAEwH,EAAElE,EAAEof,EAAEC,GAAU,YAAA,IAAS
D,IAAIA,EAAE,QAAG,IASC,IAAIA,EAAE,GAAG,IAAIrf,GAAG,IAAIkE,GAAG,IAAIkb,GAAG,EA
AE3iB,EAAEA,EAAE2P,IAAI,SAAS3P,GAAUyoB,OAAAA,EAAUzoB,EAAEwH,EAAElE,EAAEof,EAAEC,EAAK
AAK,SASgG,EAAmB3oB,EAAEwH,EAAS,MAAA,CAACgd,MAAMxkB,EAAEwkB,MAAM4B,UAAUpmB,EAAE
EAAEomB,UAAUzW,IAAI,SAAS3P,GAAOsD,IAAAA,EAAEtD,EAAEwkB,MAAM9gB,EAAE1D,EAAEykB,KAAK
AAK9B,EAAE3iB,EAAEkL,SAAe,MAAA,CAACsZ,MAAMjjB,EAAEkjB,KAAK,B,EAAExX,SAAS,CAACa,
EAAEvE,EAAE,EAAEmb,EAAE5W,EAAE1K,EAAE0W,EAAE,EAAEE,EAAE,EAAEC,EAAE,EAAE,EAAE

AAGroB,EAAEiG,EAAEgX,KAAI,EAAOkE,EAAAA,QAAAA,EAAE,UAAUD,WAAW,GAAG5e,EAAE0lB,GA
AI/hB,EAAEkb,GAAGD,WAAW,GAAU,OAAA,EAAO,EAAA,QAAA,CAAClhB,EAAEsC,GAAG,KAAK,SAA
SgmB,GAAoB7pB,EAAEwH,GAAO,IAAA,IAAIlE,EAAEkE,EAAE8a,MAAM,GAAGI,EAAE,IAAIoH,aAAaxm
B,GAAGqf,EAAE,EAAEA,EAAErf,EAAEqf,IAAI,CAAKphB,IAAAA,EAAEiG,EAAE8c,IAAI3B,EAAE,GAAG
9e,EAAE2D,EAAE8c,IAAI3B,EAAE,GAAGD,EAAEC,GAAG3iB,EAAEskB,IAAI/iB,EAAEsC,EAAE8e,GAAU
D,OAAAA,EAAE,SAASqH,GAAiB/pB,EAAEwH,EAAElE,EAAEof,GAAS,MAAA,CAACzW,EAAEyW,EAAE4
B,IAAItkB,EAAEwH,EAAElE,GAAGyI,EAAE2W,EAAE4B,IAAItkB,EAAEwH,EAAElE,EAAEwhB,IAAgB,SA
ASkF,GAAiBhqB,EAAEwH,GAAO,IAAA,IAAIlE,EAAE,GAAGof,EAAE,EAAEA,EAAEoC,EAAEpC,IAAI,CA
AKC,IAAAA,EAAEoH,GAAiB/pB,EAAEskB,IAAI5B,EAAE,GAAGuH,UAAUjqB,EAAEskB,IAAI5B,EAAE,G
AAGuH,UAAUvH,EAAElb,GAAGjG,EAAEohB,EAAE5W,EAAElI,EAAE8e,EAAE1W,EAAE3I,EAAE9B,KAA
KqC,GAAGP,EAAE9B,KAAKD,GAAU,OAAA,EAAS+B,IAAAA,EAAEA,CAACwhB,EAAEc,IAAI,SAA
SoF,GAAgBlqB,EAAEwH,EAAElE,GAAU,OAAA,EAAK,EAAAA,MAAA,WAAeof,IAAAA,EAAEsH,GAAiBhq
B,EAAEsD,GAAUtD,OAAAA,EAAEmqB,WAAWV,KAAI,EAAOjiB,EAAAA,QAAAA,EAAE,UAAU0a,UAAU
1F,IAAIkG,KAAK,SAAS0H,GAAiBpqB,EAAEwH,EAAElE,GAAUqjB,OAAAA,EAAU,UAAK,OAAO,EAAO,
WAAejE,IAAAA,EAAEC,EAAEphB,EAAEsC,EAAEF,EAAEwgB,EAAEhf,EAAEkC,EAAEI,EAAE2c,EAAS6C
,OAAAA,EAAY,KAAK,SAAS3f,GAAUA,OAAAA,EAAE4f,OAAY,KAAA,EAASxE,OAAAA,EAAE,EAAEC,E
AAE+G,GAAS1pB,GAAG,CAAC,EAAE4mB,7C,IAAI,CAACuE,EAAEtoB,GAAGsoB,EAAE9gB,GAAG8gB,EAAE9
gB,EAAe3F,EAAE,YAAiB,KAAA,EASphB,OAAAA,EAAE+F,EAAE6f,OAAOtjB,EAAEtC,EAAE,GAAGoC,
EAAEpC,EAAE,GAAG4iB,EAAE5iB,EAAE,GAAG,CAAC,EAAE+mB,EAAEnjB,EAAE+kB,GAAgB/F,EAAE7
gB,EAAEK,KAAU,KAAA,EAS0D,OAAAA,EAAEC,EAAE6f,OAO1f,EAAEpG,MAAMgpB,KAAKR,GAAAo
BhmB,EAAEsgB,IAAIC,EAAE3c,EAAEkI,IAAI,SAAS3P,EAAEwH,GAAUkb,OAAAA,,GAAG1iB,EAAE,CAA
CkL,SAAS,CAACe,EAAE5E,EAAEid,IAAI9c,EAAE,GAAGuE,EAAE1E,EAAEid,IAAI9c,EAAE,IAAId,KAAKI
,EAAUrd,GAAGgd,MAAMxkB,KAAK2iB,EAAEO,UAAU/d,EAAE+d,UAAU,CAAC,EAAE,CAACkD,UAAUh
C,EAAEI,MAAM9B,EAAE0B,EAAE1jB,cAAc,IAAI4pB,GAAmB,2EAA2EC,GAAkB,0EAA0E,SASC,GAAm
BxqB,EAAEwH,GAAOlE,IAAAA,EAAE,eAAetD,EAAE,QAAAe,OAAAA,GAAGwH,EAAE+iB,GAAkB,SASjnB,
EAAEinB,GAAkB,QAAQ/iB,EAAE,IAAIlE,EAAE,SASmnB,GAAoBzqB,EAAEwH,EAAElE,GAAOof,Of,IAAAA
,EAAE,CAAG,EAAA,MAAU,IAAA,MAAS,GAAA,OAAOC,EAAE,eAAe3iB,EAAE,QAAAe,OAAA,GAAGsD,E
AAEgnB,GAAmB,SAAS5H,EAAElb,GAAG,IAAImb,EAAE2H,GAAmB,QAAQhnB,EAAE,IAAIof,EAAE,lb,GA
AG,IAAImb,EAAE,SAAS+H,GAAAe1qB,GAAU,OAAA,EAAK,EAAA,MAAA,WAAqBA,UAAAA,,EAAEiiB,QA
AQjiB,EAAEA,EAAEkiB,WAAe1a,IAAAA,,GAAE,EAAO,EAAA,QAAA,EAAE,QAAQ,OAAO,SAAgBxH,OAA
AA,EAAEwc,IAAIhV,KAAK,IAAImjB,GAAOWAoB3qB,GAAEwH,EAAEA,EAAEwH,IAAI,SAAQ4a,GAAAA,Q4a,KAAAA
,MAAMI,QAAQlf,GAAAqf,EAAEyD,GAAAA,EAAEA,ED,EAAE,GAAAnnB,EAAE,GAAAonB,EAAEmhB,GAAAA,EAAE7e,
MAAA,CAACE,EAAE,yBAAyB,WAAW,GAAAgC,GAAG,EAAAuE,UAAU,EAAAC,GAAG,QAAAC,EAAE,EAAAC,
UAAU,EAAAC,GAAG,QAAAC,EAAE,EAAAC,UAAU,EAAAC,GAAG,QAAAC,EAAE,EAAAC,UAAU,EAAAC,GAAG,
QAAAC,EAAE,EAAAC,UAAU,EAAAC,GAAG,QAAAC,EAAE,EAAAC

M7qB,EAAE8qB,aAAa9qB,EAAE8qB,WAAW,GAAGO,GAAiBrrB,EAAE6qB,cAAcjd,QAAQ5N,EAAE8qB,YA
AY,EAAE,MAAM,IAAInrB,MAAM,sBAAsBK,EAAE8qB,WAAW,sBAAsBO,GAAiBrrB,EAAE6qB,cAAc,qBA
AqB7qB,EAAE6qB,aAAa,KAAQ,GAAAA,MAAM7qB,EAAEwrB,aAAaxrB,EAAEwrB,WAAW,GAAGF,GAAkB
1d,QAAQ5N,EAAEwrB,YAAY,EAAE,MAAM,IAAI7rB,MAAM,sBAAsBK,EAAEwrB,WAAW,sBAAsBF,GAA
kB,qBAAqBtrB,EAAE6qB,aAAa,KAAY7qB,OAAAA,EAAg4H,QAAA,uBAAA,GA93H,IAAIyrB,GA+B,CA
ACC,gBAAe,GAAIC,GA8B,CAACD,gBAAe,EAAGE,cAAc,EAAEC,eAAe,GAAGC,UAAU,IAAI,SASC,GA
A+B/rB,GAAOwH,IAAAA,EAAExH,EAAE4rB,cAActoB,EAAEtD,EAAE6rB,eAAenJ,EAAE1iB,EAAE8rB,UA
AatkB,GAAAA,GAAG,EAAE,MAAM,IAAI7H,MAAM,yBAAyB6H,EAAE,mBAAsBlE,GAAAA,EAAE,GAAG
A,EAAE,EAAE,MAAM,IAAI3D,MAAM,0BAA0B2D,EAAE,mCAAsCof,GAAAA,GAAG,EAAE,MAAM,IAAI/i
B,MAAM,qBAAqB+iB,EAAE,KAAK,IAAIsJ,GAAQ,WAAoBhsB,SAAAA,EAAEA,EAAEwH,GAAQykB,KAA
AA,UAAUjsB,EAAE,KAAK+qB,gBAAgBvjB,EAAASxH,OAAAA,EAAEyB,UAAUyqB,sBAAsB,SASlsB,EAA
EwH,GAAU,YAAA,IAASA,IAAIA,EAAEmkB,IAA+BhF,EAAU,UAAK,OAAO,EAAO,WAAerjB,IAAAA,EAA
Eof,EAAEC,EAAEphB,EAAEsC,EAAEF,EAAEwgB,EAAEhf,EAAEkC,EAAEI,EAAE2c,EAAE9c,EAAE1D,EA
AEygB,EAAE5gB,EAAEuiB,EAAEmG,EAAEC,EAAEroB,EAAEsoB,EAAEpgB,EAASgb,OAAAA,EAAY,KAA
K,SASqF,GAAUA,OAAAA,EAAEpF,OAAY,KAAA,EAAS5jB,OAAAA,EAAEkjB,EAAS,GAAGmF,GAA8Bn
kB,GAAGukB,GAA+BvkB,GAAGkb,EAAE,KAAKuJ,UAAU1J,aAAaI,EAAE,KAAKoI,gBAAgBnJ,EAAwBc,G
AAGX,EAAsB,KAAKgJ,gBAAgBrI,GAAGnhB,EAAEsnB,EAAyB7oB,GAAG6D,EAAEtC,EAAE,GAAGoC,EA
AEpC,EAAE,GAAG4iB,EAAE+E,EAAelpB,EAAE,CAAC2iB,EAAEA,IAAIxd,EAAEgf,EAAEgF,QAAQ9hB,EA
AE8c,EAAEkF,QAAQ5hB,EAAEKwkB,UAAUzJ,QAAQrd,GAAGif,3c,EAAEmb,cAActb,EAAEG,E
AAEsb,QAAQnf,EAAE6D,EAAEub,gBAAgBqB,EAAE5c,EAAEwb,gBAAgB,CAAC,EAAEuF,EAAkB,CAACp
E,EAAE9c,EAAE1D,EAAEygB,KAAU,KAAA,EAAS5gB,OAAAA,EAAE6oB,EAAEnF,OAAOnB,EAAEviB,EA
AE,GAAG0oB,EAAE1oB,EAAE,GAAG2oB,EAAE3oB,EAAE,GAAGM,EAAEN,EAAE,GAAG,CAAC,EAAE8i
B,EAAoBP,EAAEmG,EAAEC,EAAEroB,EAAE2e,EAAEpf,EAAEsoB,cAActoB,EAAEuoB,eAAevoB,EAAEwo
B,YAAiB,KAAA,EAASO,OAAAA,EAAEC,EAAEnF,OAAOlb,EAAEqd,GAAkB+C,EAAE,CAACxoB,EAAEF,
GAAG,CAACgf,EAAEA,GAAGtb,EAAE/D,EAAEooB,gBAAgBtH,EAAElB,UAAU5b,EAAE4b,EAAEUtf,EAAEs
f,UAAUmB,EAAEnB,UAAU/d,EAAE+d,UAAU,CAAC,EAAEjX,SASjM,EAAEyB,UAAU8qB,mBAAmB,SAA
SvsB,EAAEwH,GAAU,YAAA,IAASA,IAAIA,EAAEikB,IAAgC9E,EAAU,UAAK,OAAO,EAAO,WAAerjB,IAA
AA,EAAEof,EAAEC,EAAEphB,EAAEsC,EAAEF,EAAEwgB,EAAEhf,EAAEkC,EAAEI,EAAE2c,EAAE9c,EAAE
E1D,EAAEygB,EAAE5gB,EAAEuiB,EAASiB,OAAAA,EAAEY,KAAK,SASkF,GAAUA,OAAAA,EAAEjF,OA
AY,KAAA,EAAS5jB,OAAAA,EAAEkjB,EAAS,GAAGiF,GAA+BjkB,GAAGkb,EAAE,KAAKuJ,UAAU1J,aAAa
I,EAAE,KAAKoI,gBAAgBnJ,EAAwBc,GAAGX,EAAsBY,EAAED,GAAGnhB,EAAEsnB,EAAyB7oB,GAAG6D
,EAAEtC,EAAE,GAAGoC,EAAEpC,EAAE,GAAG4iB,EAAE+E,EAAelpB,EAAE,CAAC2iB,EAAEA,IAAIxd,E
AAEgf,EAAEgF,QAAQ9hB,EAAE8c,EAAEkF,QAAQ5hB,EAAEKwkB,UAAUzJ,QAAQrd,GAAGif,EAA
E3c,EAAEmb,cAActb,EAAEG,EAAEsb,QAAQnf,EAAE6D,EAAEub,gBAAgBqB,EAAE5c,EAAEwb,gBAAgB,C
AAC,EAAEmH,GAAiBhG,EAAE9c,EAAEob,IAAS,KAAA,EAASjf,OAAAA,EAAE0oB,EAAEhF,OAAOnB,EA
AEsD,GAAkB,CAAC7lB,GAAG,CAACI,EAAEF,GAAG,CAACgf,EAAEA,GAAGtb,EAAE/D,EAAEooB,gBAAgBtH,
gBtH,EAAElB,UAAU5b,EAAE4b,EAAEUtf,EAAEsf,UAAUmB,EAAEnB,UAAU/d,EAAE+d,UAAU,CAAC,EAA
E8C,EAAE,UAAUhmB,EAAEyB,UAAU+qB,cAAcvsB,EAAEwH,GAAUmf,OAAAA,EAAU,UAAK,OAA
O,EAAO,WAAkBM,OAAAA,EAAEY,KAAK,SASS3jB,OAAAA,EAAE4jB,EAAEjF,OAAOnB,EAAEqG,EAAEjF,
A,iBAAiB1f,EAAElB,UAAeA,CAAC,EAAE,GAAG,CAAC,EAAE,KAAKF,mBvsB,EAAEwH,IAAS,KAA
A,EAAQ,MAAA,CAAC,EAAE,CAAClE,EAAE6jB,SAAAc,KAAA,EAAQ,MAAA,CAAC,EAAE,KAAK+E,sB
sBlsB,EAAEwH,UAAUxH,EAAEyB,UAAUyhB,QAAQ,WAAgB+I,KAAAA,UAAU/I,WAAWljB,EAApoE,GAA
yoE,SAAS0sB,GAAc1sB,GAAU2sB,OAAAA,EAAU,UAAK,OAAO,EAAO,WAAenf,IAAAA,EAAEElE,EAAEof
,EAAEC,EAAEphB,EAAEsC,EAASojB,OAAAA,EAAEY,KAAK,SAAStjB,OAAAA,EAAEujB,OAAOY,K
AAA,EAAK1f,GAAAA,EAAExH,EAAEuiB,EAAaajf,EAAEtD,EAAEwrB,WAAW9I,EAAE1iB,EAAE8qB,WAA
W,MAAM6B,EAAG,MAAM,IAAIhtB,MAAM,kJAAyJgjB,OAAAA,EAAE8H,GAAoBjjB,EAAEkb,EAAEpf,,GA
AG,CAAC,GAAE,EAAetD,EAAAA,gBAAAA,EAAE4sB,UjK,IAAS,KAAA,EASphB,OAAAA,EAAEoC,
EAAEwjB,OAAOjjB,EAAEujB,OAAOjjB,EAAEse,EAAEiB,EAAE5gB,EAAEuiB,EAAE,CAAC,EAAE,IAAIwd,E

AAE+qB,uBAAuB,SAAS8B,GAAW7sB,GAAU2mB,OAAAA,EAAU,UAAK,OAAO,EAAO,WAAenf,IAAAA,E
AAElE,EAAEof,EAAEC,EAAEphB,EAAS0lB,OAAAA,EAAY,KAAK,SAASpjB,GAAUA,OAAAA,EAAEqjB,O
AAY,KAAAA,EAAK1f,GAAAAA,EAAExH,EAAEuiB,aAAajf,EAAEtD,EAAEwrB,WAAW,MAAMmB,EAAG,MA
AM,IAAIhtB,MAAM,kJAAyJ+iB,OAAAA,EAAE8H,GAAAmBhjB,EAAElE,GAAG,CAAC,GAAE,EAAetD,,EAA
AA,gBAAAA,EAAE4sB,UAAUlK,IAAS,KAAAA,EAASC,OAAAAA,EAAE9e,EAAEsjB,OAAO5lB,EAAE,IAAIop
B,GAAOhI,EAAEnb,GAAG,CAAC,EAAE,IAAIwkB,GAAQzqB,EAAEvB,EAAE+qB,uBAAuB,SAAS/R,GAAKh
Z,GAAU,YAAA,IAASA,IAAIA,EAAE4qB,IAAqBjE,EAAU,UAAK,OAAO,EAAO,WAAkBM,OAAAAA,EAAY,
KAAK,SASzf,GAAS,MAAA,cAAcxH,EAAEurB,GAAAoBvrB,IAAI6qB,aAAa,CAAC,EAAEgC,GAAW7sB,IAA
I,gBAAgBA,EAAE6qB,aAAa,CAAC,EAAE6B,GAAc1sB,IAAI,CAAC,EAAE,UAAU,QAAA,QAAA;;ACsN10m
B,aAAA,OAAA,eAAA,QAAA,aAAA,CAAA,OAAA,IAAA,QAAA,SAAA,EAAA,QAAA,+BAAA,EAAA,QAAA
,gBAAA,EAAA,QAAA,UAAA,EAAA,QAAA,YAAA,EAAA,QAAA,aAAA,EAAA,QAAA,cAAA,EAAA,QAAA,
gBAAA,EAAA,QAAA,eAAA,EAAA,QAAA,oBAAA,EAAA,QAAA,kBAAA,EAAA,QAAA,kBAAA,EAAA,QA
AA,uBAAA,QAAA,4BAAA,EAtND,IAAA,EAAA,EAAA,QAAA,+BACA,EAAA,EAAA,QAAA,0BAqNC,SAAA
,IAAA,GAAA,mBAAA,QAAA,OAAA,KAAA,IAAA,EAAA,IAAA,QAAA,OAAA,EAAA,WAA,OAAA,GAAA
,EAAA,SAAA,EAAA,GAAA,GAAA,GAAA,EAAA,WAA,OAAA,EAAA,IAAA,EAAA,IAAA,GAAA,GAAA,E
AAA,IAAA,GAAA,OAAA,EAAA,IAAA,GAAA,IAAA,EAAA,GAAA,GAAA,MAA,EAAA,CAAA,IAAA,EAA
A,OAAA,gBAAA,OAAA,yBAAA,IAAA,IAAA,KAAA,EAAA,GAAA,OAAA,UAA,eAAA,KAAA,EAAA,GAA
A,CAAA,IAAA,EAAA,EAAA,OAAA,yBAAA,EAAA,GAAA,KAAA,IAAA,EAAA,KAAA,EAAA,KAAA,OAA
A,eAAA,EAAA,EAAA,GAAA,EAAA,GAAA,EAAA,IAAA,OAAA,EAAA,QAAA,EAAA,GAAA,EAAA,IAAA,
EAAA,GAAA,EAnND,MAAM8sB,EAAQ,OACRC,EAAqB,MCrBC,EAAa,EAENC,EAAyB,kBA+MrC,QAAA,
uBA/MqC,kBAC/B,MAAMC,EAAyB,qBA8MrC,QAAA,uBAAA,EA7MD,MAAM6B,EAAwB,wCAC7BC,
,sBAEzC,SASC,IACA,MAAA,WAWjnB,KAAKknB,UAAUC,WAGnC,SASC,IACA,MAAA,oBAAoBpnB,
KAAKknB,UAAUC,WAGrC,SAASE,IACPJ,OAAAA,KAAeG,IAGxB,SASE,EAAqBC,EAAcC,EAAaC,
B,IAElE,IADDC,IAAAAA,EAAQtkB,SASukB,uBAAuB,iBACnCxsB,EAAI,EAAGA,EAAIusB,EAAMptB,OAA
Qa,IAAK,EAC1BusB,EAAMvsB,GAAGysB,aAAeF,EAAMvsB,GAAG0sB,YAChCN,IACVG,EAAMvsB,GAAG
2sB,WAAWA,WAAWzjB,MAAQmjB,EACjB,KAAlBC,IACFC,EAAMvsB,GAAGkJ,MAAQojB,KAAMlB,SAAS
M,IACdT,EACIR,EAAwBE,EACxBD,GAMC,SASiB,EACZC,EAAeC,,EAAe,UAAWC,,EAAY,QCnDF,GACF
7kB,SAASwV,eAAesP,GAAc7jB,MAAMyM,QAAU,QCtD1N,SASwV,eAAeuP,GAAW9jB,MAAMyM,QAAU,
U,SAEnD1N,SASwV,eAAesP,GAAc7jB,MAAMyM,QAAU,OACtD1N,SASwV,eAAeuP,GAAW9jB,MAAMy
M,QAAU,SAIhD,SASsX,EAAUC,EAAKxiB,EAAGF,EAAGzI,EAAGoI,EAAGgjB,EAAGC,EAAGC,EAAGC,
B,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,EAAIC,

V,EAAK,GACpB6M,EAAOtiB,OAASyV,EAAK,GACT6M,EAAOC,WAAW,MAE1BC,UAAUH,EAAO,EAAG,GAQnB,SAASI,EAAkBC,EAAexO,EAAcoO,GAK7DK,EAJYL,EAAOC,WAAW,MAETG,EAActH,IAAIkD,EAAGsE,OAAO1O,EAAc,UADhD,EAGuBuK,GAOxC,SAASkE,EAAWvC,EAAQ,EAAQ,EAAQ

A,IAAIrxB,EAAI,EAAGA,EAAIoyB,EAAYjzB,OAAQa,IAAK,CACrCqyB,MAAAA,EAAaD,EAAYpyB,GAC3BqyB,GAAAAA,EAAW1M,QAAAUwM,EAChBE,OAAAAA,EAAWC,SAAIf,OAAAA,KAMT,SASC,EAAcJ,GACjB,OAACA,GAGDA,EAAYK,cAAAcC,SAAS,QAC9B,cAHA,OASX,eAAAeC,EAAAePEAGCxBG,IAAAAA,EACACAK,EAAOGOALHR,IACFG,QAAAiBJ,EAAAoBC,GAAErCQ,EAAAazG,IAAAaqG,EAAAcJ,GAAAAe,MAAElD,CAACG,SAAAAA,EAAWUK,EAAAAA,EAAWOpB,eAAAAC,EAAAYT,GACrBIAACpG,UAAAuF,eAAAiBvF,UAAAuF,aAAAauB,aAC/C,MAAAA,IAAAIz0B,MACN,iEAGA00B,MAAAAA,EAAAAe7qB,SAASwV,eAAAe,SAE7CoU,IAEMd,MAAAA,QAAAAyB2B,QAAAAyB,eAAAeP,EAAAAeExCtB,QAAAAe9E,UAAAUuF,aAAAauB,aACxC,CAAAU,OAAAA,EAAAgB9B,MAAAAA,IAAAGvB,QAAAFP+B,EAAAAahB,UAAAAyjB,EAAAElB,IAAAIxL,QAAAS0N,IAAAClBD,EAAAAaE,iBAAAAmB,MAAC9BF,EAAAAajmB,MAAAAB,QAAAAAS

AC5BotB,OAAAA,EAASC,WACV,IAAA,gBACHK,EAAoB0C,QACpBC,qBAAqBN,OACrB,MACG,IAAA,eAC
HM,qBAAqBD,QACrB1C,EAAoBqC,UAW1BE,EAA6B9oB,SAAS,SAASmpB,GAC1B,SAAfA,GACEH,GACF
A,EAAgB1b,SAEd0Z,GACFA,EAAe1Z,SAEjBybEACIrC,EAAarZ,IAAI4Y,EAASS,aAAc,UAAW,EAAK,GAC5
DK,EAAiBL,EAAarZ,IAAI4Y,EAASS,aAAc,kBACnCnuB,IAAI,GACJC,IAAI,IACJkJ,KAAK,GAC3BmlB,EACI
H,EAAarZ,IAAI4Y,EAASS,aAAc,mBACpB,UAAfyC,IACLJ,GACFA,EAAczb,SAEZyZ,GACFA,EAAAezZ,SAEb
uZ,GACFA,EAAAevZ,SAEjB0b,EAAkBtC,EACKrZ,IACG4Y,EAASS,aACT,wBAEHnuB,IAAI,GACJC,IAAI,IAC
JkJ,KAAK,GAC5BslB,EAAiBN,EAAarZ,IAAI4Y,EAASS,aAAc,kBACnCnuB,IAAI,GACJC,IAAI,IACJkJ,KAAK
,MAK/BonB,EAA6B7oB,SAASgmB,EAASS,aAAaE,QAExDK,IAAAAA,EAAU1a,EAAAIub,UAAU,YAC5Bb,EAA
Q5Z,IAAI4Y,EAASgB,QAAS,wBAAyB,EAAK,GAC5DA,EAAQ5Z,IACJ4Y,EAASgB,QAAS,SAAU,CAAC,UA
AW,aAAc,iBAC1DA,EAAQ5Z,IAAI4Y,EAASgB,QAAS,UAAW,EAAK,GAC9CA,EAAQ5Z,IAAI4Y,EAASgB,
QAAS,aAAczxB,OAAOC,KAAK2zB,IACnDppB,SAASknB,IACRmC,EAAwBnC,KAE9BmC,EAAwBpD,EAAS
gB,QAAQC,YACzCD,EAAQ5Z,IAAI4Y,EAASgB,QAAS,sBAAsB1uB,IAAI,GAAGC,IAAI,IAAIkJ,KAAK,GAC
xEulB,EAAQ5Z,IAAI4Y,EAASgB,QAAS,0BACzB1uB,IAAI,GACJC,IAAI,IACJkJ,KAAK,GACVulB,EAAQ2B,
OAERC,EAAmB7oB,SAAS,SAASspB,GACZ,iBAAnBA,GACF5C,EAAoBgC,QAAQ5B,EAAQgC,QAAS,SAA
SwV,eAAe,UAAUvU,MAAMyM,QAAU,SAElD2e,EAAauC,EAAQbhC,EAAQ2B,EAAQ2B,EAAQ,SAASwV,eAAe,UA
AUvU,MAAMyM,QAAU,kBAItDwE,EAAIc,IAAI4Y,EAAU,WAAWjmB,SAASqnB,IAChCA,EAACA,EACFhtB,SAASwN,
KAAK3H,YAAY2iB,EAAM1nB,KAEhCd,SAASwN,KAAK4J,YAAYoR,EAAM1nB,OAAKtC,SASkuB,EAA
wBnC,GACzBqC,MAAAAA,EAASlvB,SAASwV,eAAe,UACvC0Z,EAAO5oB,UAAY,GAEb6oB,GAEb6oB,MAAAAA,EAAAaJ,
EAAgBlC,GAC7BxR,EAAY+T,EAAQC,cAAErB,IAAAA,IAAIt3B,EAAI,EAAGA,EAAIo3B,EAAWj4B,OAAQa,IAAK,EAAWj4B,OAAQa,IAAK,EAAWj4B,OAAQa,IAAK

AAMkC,EAAOC,WAAW,MACxBwJ,EAAkB,CAAC92B,EAAG,IAAKG,EAAG,IAAKC,EAAG,IAAKC,EAAG,KAC9C02B,EAAkB,CAAC/2B,EAAG,EAAGG,EAAGG,EAAG,EAAGC,EAAG,EAAGC,EAAG,KACxC22B,EAAO1B,EAAO2B,EAAQ2B,EAAO1B,EAAQ4B,EAAO3B,EAAQ4B,EAAO3B,EAAQ4B,EAAO,KAAM,EAAO,KAAM,EAAO,KAAM

TensorStorage, Backend, BackendTimer {\n refCount(dataId: DataId): number {\n   return notYetImplemented('refCount');\n }\n incRef(dataId: DataId): void {\n   return notYetImplemented('incRef');\n }\n timerAvailable(): boolean {\n   return true;\n }\n time(f: () => void): Promise<BackendTimingInfo> {\n   return notYetImplemented('time');\n }\n read(dataId: object): Promise<BackendValues> {\n   return notYetImplemented('read');\n }\n readSync(dataId: object): BackendValues {\n   return notYetImplemented('readSync');\n }\n numDataIds(): number {\n   return notYetImplemented('numDataIds');\n }\n disposeData(dataId: object, force?: boolean): boolean {\n   return notYetImplemented('disposeData');\n }\n write(values: BackendValues, shape: number[], dtype: DataType): DataId {\n   return notYetImplemented('write');\n }\n move(\n   dataId: DataId, values: BackendValues, shape: number[], dtype: DataType,\n   refCount: number): void {\n   return notYetImplemented('move');\n }\n memory(): {unreliable: boolean; reasons?: string[]} {\n   return notYetImplemented('memory');\n }\n /** Returns the highest precision for floats in bits (e.g. 16 or 32) */\n floatPrecision(): 16|32 {\n   return notYetImplemented('floatPrecision');\n }\n /** Returns the smallest representable number. */\n epsilon(): number {\n   return this.floatPrecision() === 32 ? EPSILON_FLOAT32 : EPSILON_FLOAT16;\n }\n dispose(): void {\n   return notYetImplemented('dispose');\n }\n}\n\nfunction notYetImplemented(kernelName: string): never {\n throw new Error(\n   `'${kernelName}' not yet implemented or not found in the registry. ` +\n   `This kernel may not be supported by the tfjs backend you have chosen`);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\n\nimport {DataType, DataTypeMap, FlatVector, NumericDataType, RecursiveArray, TensorLike, TypedArray} from\n './types';\n\n/**\n * Shuffles the array in-place using Fisher-Yates algorithm.\n *\n * ```js\n * const a = [1, 2, 3, 4, 5];\n * tf.util.shuffle(a);\n * console.log(a);\n * ```\n *\n * @param array The array to shuffle in-place.\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\n// tslint:disable-next-line:no-any\nexport function shuffle(array: any[]|Uint32Array|Int32Array|\n   Float32Array): void {\n let counter = array.length;\n let temp = 0;\n let index = 0;\n // While there are elements in the array\n while (counter > 0) {\n   // Pick a random index\n   index = (Math.random() * counter) | 0;\n   // Decrease counter by 1\n   counter--;\n   // And swap the last element with it\n   temp = array[counter];\n   array[counter] = array[index];\n   array[index] = temp;\n }\n}\n\n/**\n * Shuffles two arrays in-place the same way using Fisher-Yates algorithm.\n *\n * ```js\n * const a = [1,2,3,4,5];\n * const b = [11,22,33,44,55];\n * tf.util.shuffleCombo(a,\n b);\n * console.log(a, b);\n * ```\n *\n * @param array The first array to shuffle in-place.\n * @param array2 The second array to shuffle in-place with the same permutation\n *   as the first array.\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\n// tslint:disable-next-line:no-any\nexport function shuffleCombo(array: any[]|Uint32Array|Int32Array|Float32Array,\n// tslint:disable-next-line:no-any\n   array2: any[]|Uint32Array|Int32Array|Float32Array): void {\n\n if (array.length !== array2.length) {\n   throw Error(\n `Array sizes must match to be shuffled together ` +\n   `First array length was ${array.length}` +\n   `Second array length was ${array2.length}`);\n }\n let counter = array.length;\n let temp, temp2;\n let index = 0;\n // While there are elements in the array\n while (counter > 0) {\n   // Pick a random index\n   index = (Math.random() * counter) | 0;\n   // Decrease counter by 1\n   counter--;\n   // And swap the\n last element of each array with it\n   temp = array[counter];\n   temp2 = array2[counter];\n   array[counter] = array[index];\n   array2[counter] = array2[index];\n   array[index] = temp;\n   array2[index] = temp2;\n }\n}\n\n/** Clamps a value to a specified range. */\nexport function clamp(min: number, x: number, max: number): number {\n return Math.max(min, Math.min(x, max));\n}\n\nexport function nearestLargerEven(val: number):

number {\n return val % 2 === 0 ? val : val + 1;\n}\n\nexport function sum(arr: number[]): number {\n let sum = 0;\n for (let i = 0; i < arr.length; i++) {\n   sum += arr[i];\n }\n return sum;\n}\n\n/**\n * Returns a sample from a uniform [a, b) distribution.\n *\n * @param a The minimum support (inclusive).\n * @param b The maximum support (exclusive).\n * @return A pseudorandom number on the half-open interval [a,b).\n */\nexport function randUniform(a: number, b: number) {\n const r = Math.random();\n return (b * r) + (1 - r) * a;\n}\n\n/**\n Returns the squared Euclidean distance between two vectors. */\nexport function distSquared(a: FlatVector, b: FlatVector): number {\n let result = 0;\n for (let i = 0; i < a.length; i++) {\n   const diff = Number(a[i]) - Number(b[i]);\n   result += diff * diff;\n }\n return result;\n}\n\n/**\n * Asserts that the expression is true. Otherwise throws an error with the\n * provided message.\n *\n * ```js\n * const x = 2;\n * tf.util.assert(x === 2, 'x is not 2');\n * ```\n *\n * @param expr The expression to assert (as a boolean).\n * @param msg A function that returns the message to report when throwing an\n *   error. We use a function for performance reasons.\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\nexport function assert(expr: boolean, msg: () => string) {\n if (!expr) {\n   throw new Error(typeof msg === 'string' ? msg : msg());\n }\n}\n\nexport function assertShapesMatch(\n   shapeA: number[], shapeB: number[], errorMessagePrefix = ''): void {\n assert(\n   arraysEqual(shapeA, shapeB),\n   () => errorMessagePrefix + ` Shapes ${shapeA} and ${shapeB} must match`);\n}\n\nexport function assertNonNull(a: TensorLike): void {\n assert(\n   a != null,\n   () => `The input to the tensor constructor must be a non-null value.`);\n}\n\n// NOTE: We explicitly type out what T extends instead of any so that\n// util.flatten on a nested array of number doesn't try to infer T as a\n// number[][], causing us to explicitly type util.flatten<number>().\n/**\n * Flattens an arbitrarily nested array.\n *\n * ```js\n * const a = [[1, 2], [3, 4], [5, [6, [7]]]];\n * const flat = tf.util.flatten(a);\n * console.log(flat);\n * ```\n *\n * @param arr The nested array to flatten.\n * @param result The destination array which holds the elements.\n * @param skipTypedArray If true, avoids flattening the typed arrays. Defaults\n *   to false.\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\nexport function\nflatten<T extends number|boolean|string|Promise<number>|TypedArray>(\n   arr: T|RecursiveArray<T>, result: T[] = [], skipTypedArray = false): T[] {\n if (result == null) {\n   result = [];\n }\n if (Array.isArray(arr) || isTypedArray(arr) && !skipTypedArray) {\n   for (let i = 0; i < arr.length; ++i) {\n   flatten(arr[i], result, skipTypedArray);\n   }\n } else {\n   result.push(arr as T);\n }\n return result;\n}\n\n/**\n * Returns the size (number of elements) of the tensor given its shape.\n *\n * ```js\n * const shape = [3, 4, 2];\n * const size = tf.util.sizeFromShape(shape);\n * console.log(size);\n * ```\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\nexport function sizeFromShape(shape: number[]): number {\n if (shape.length === 0) {\n   // Scalar.\n   return 1;\n }\n let size = shape[0];\n for (let i = 1; i < shape.length; i++) {\n   size *= shape[i];\n }\n return size;\n}\n\nexport function isScalarShape(shape: number[]): boolean {\n return shape.length === 0;\n}\n\nexport function\n arraysEqual(n1: FlatVector, n2: FlatVector) {\n if (n1 === n2) {\n   return true;\n }\n if (n1 == null || n2 == null) {\n   return false;\n }\n\n if (n1.length !== n2.length) {\n   return false;\n }\n for (let i = 0; i < n1.length; i++) {\n if (n1[i] !== n2[i]) {\n   return false;\n   }\n }\n return true;\n}\n\nexport function isInt(a: number): boolean {\n return a % 1 === 0;\n}\n\nexport function tanh(x: number): number {\n // tslint:disable-next-line:no-any\n if ((Math as any).tanh != null) {\n   // tslint:disable-next-line:no-any\n   return (Math as any).tanh(x);\n }\n if (x === Infinity) {\n   return 1;\n } else if (x === -Infinity) {\n   return -1;\n } else {\n   const e2x = Math.exp(2 * x);\n   return (e2x - 1) / (e2x + 1);\n }\n}\n\nexport function sizeToSquarishShape(size: number): [number, number] {\n const width = Math.ceil(Math.sqrt(size));\n return [width, Math.ceil(size / width)];\n}\n\n/**\n * Creates a new array with randomized\n indicies to a given quantity.\n *\n * ```js\n * const randomTen = tf.util.createShuffledIndices(10);\n * console.log(randomTen);\n * ```\n *\n * @param number Quantity of how many shuffled indicies to create.\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\nexport function createShuffledIndices(n: number): Uint32Array {\n const shuffledIndices = new Uint32Array(n);\n for (let i = 0; i < n; ++i) {\n   shuffledIndices[i] = i;\n }\n shuffle(shuffledIndices);\n return shuffledIndices;\n}\n\nexport function rightPad(a: string, size: number): string {\n if (size <= a.length) {\n   return a;\n }\n return a + ' '.repeat(size - a.length);\n}\n\nexport function repeatedTry(\n   checkFn: () => boolean, delayFn = (counter: number) => 0,\n   maxCounter?: number): Promise<void> {\n return

new Promise<void>((resolve, reject) => {\n let tryCount = 0;\n\n const tryFn = () => {\n if (checkFn()) {\n resolve();\n return;\n }\n\n tryCount++;\n\n const nextBackoff = delayFn(tryCount);\n\n if (maxCounter != null && tryCount >= maxCounter) {\n reject();\n return;\n }\n setTimeout(tryFn, nextBackoff);\n };\n\n tryFn();\n });\n}\n\n/**\n * Given the full size of the array and a shape that may contain -1 as the\n * implicit dimension, returns the inferred shape where -1 is replaced.\n * E.g. For shape=[2, -1, 3] and size=24, it will return [2, 4, 3].\n *\n * @param shape The shape, which may contain -1 in some dimension.\n * @param size The full size (number of elements) of the array.\n * @return The inferred shape where -1 is replaced with the inferred size.\n */\nexport function inferFromImplicitShape(\n shape: number[], size: number): number[] {\n let shapeProd = 1;\n let implicitIdx = -1;\n\n for (let i = 0; i < shape.length; ++i) {\n if (shape[i] >= 0) {\n shapeProd *= shape[i];\n } else if (shape[i] === -1) {\n if (implicitIdx !== -1) {\n throw Error(\n `Shapes can only have 1 implicit size. ` +\n `Found -1 at dim ${implicitIdx} and dim ${i}`);\n }\n implicitIdx = i;\n } else if (shape[i] < 0) {\n throw Error(`Shapes can not be < 0. Found ${shape[i]} at dim ${i}`);\n }\n }\n\n if (implicitIdx === -1) {\n if (size > 0 && size !== shapeProd) {\n throw Error(`Size(${size}) must match the product of shape ${shape}`);\n }\n return shape;\n }\n\n if (shapeProd === 0) {\n throw Error(\n `Cannot infer the missing size in [${shape}] when ` +\n `there are 0 elements`);\n }\n if (size % shapeProd !== 0) {\n throw Error(\n `The implicit shape can't be a fractional number. ` +\n `Got ${size} / ${shapeProd}`);\n }\n\n const newShape = shape.slice();\n newShape[implicitIdx] = size / shapeProd;\n return newShape;\n}\n\nexport function parseAxisParam(\n axis: number|number[], shape: number[]): number[] {\n const rank = shape.length;\n\n // Normalize input\n axis = axis == null ? shape.map((s, i) => i) : [].concat(axis);\n\n // Check for valid range\n assert(\n axis.every(ax => ax >= -rank && ax < rank),\n () =>\n `All values in axis param must be in range [-${rank}, ${rank}) but ` +\n `got axis ${axis}`);\n\n // Check for only integers\n assert(\n axis.every(ax => isInt(ax)),\n () => `All values in axis param must be integers but ` +\n `got axis ${axis}`);\n\n // Handle negative axis.\n return axis.map(a => a < 0 ? rank + a : a);\n}\n\n/** Reduces the shape by removing all dimensions of shape 1. */\nexport function squeezeShape(shape: number[], axis?: number[]):\n {newShape: number[], keptDims: number[]} {\n const newShape: number[] = [];\n const keptDims: number[] = [];\n const isEmptyArray = axis != null && Array.isArray(axis) && axis.length === 0;\n const axes = (axis == null || isEmptyArray) ?\n null :\n parseAxisParam(axis, shape).sort();\n let j = 0;\n for (let i = 0; i < shape.length; ++i) {\n if (axes != null) {\n if (axes[j] === i && shape[i] !== 1) {\n throw new Error(\n `Can't squeeze axis ${i} since its dim '${shape[i]}' is not 1`);\n }\n if ((axes[j] == null || axes[j] > i) && shape[i] === 1) {\n newShape.push(shape[i]);\n keptDims.push(i);\n }\n if (axes[j] <= i) {\n j++;\n }\n }\n if (shape[i] !== 1) {\n newShape.push(shape[i]);\n keptDims.push(i);\n }\n }\n return {newShape, keptDims};\n}\n\nexport function getTypedArrayFromDType<D extends NumericDataType>(\n dtype: D, size: number): DataTypeMap[D] {\n let values = null;\n if (dtype == null || dtype === 'float32') {\n values = new Float32Array(size);\n } else if (dtype === 'int32') {\n values = new Int32Array(size);\n } else if (dtype === 'bool') {\n values = new Uint8Array(size);\n } else {\n throw new Error(`Unknown data type ${dtype}`);\n }\n return values as DataTypeMap[D];\n}\n\nexport function getArrayFromDType<D extends DataType>(\n dtype: D, size: number): DataTypeMap[D] {\n let values = null;\n if (dtype == null || dtype === 'float32') {\n values = new Float32Array(size);\n } else if (dtype === 'int32') {\n values = new Int32Array(size);\n } else if (dtype === 'bool') {\n values = new Uint8Array(size);\n } else if (dtype === 'string') {\n values = new Array<'string'>(size);\n } else {\n throw new Error(`Unknown data type ${dtype}`);\n }\n return values as DataTypeMap[D];\n}\n\nexport function checkConversionForErrors<D extends DataType>(\n vals: DataTypeMap[D]|number[], dtype: D): void {\n for (let i = 0; i < vals.length; i++) {\n const num = vals[i] as number;\n if (isNaN(num) || !isFinite(num)) {\n throw Error(`A tensor of type ${dtype} being uploaded contains ${num}.`);\n }\n }\n}\n\n/** Returns true if the dtype is valid. */\nexport function isValidDtype(dtype: DataType): boolean {\n return

```
 dtype === 'bool' || dtype === 'complex64' || dtype === 'float32' ||\n      dtype === 'int32' || dtype ===
'string';\n}\n\n/**\n * Returns true if the new type can't encode the old type without loss of\n * precision.\n
*/\nexport function hasEncodingLoss(oldType: DataType, newType: DataType): boolean {\n  if (newType ===
'complex64') {\n    return false;\n  }\n  if (newType === 'float32' && oldType !== 'complex64') {\n    return false;\n
}\n  if (newType === 'int32' && oldType !== 'float32' && oldType !== 'complex64') {\n    return false;\n  }\n  if
(newType === 'bool' && oldType === 'bool') {\n    return false;\n  }\n  return true;\n}\n\nexport function
isTypedArray(a: {}): a is Float32Array|Int32Array|Uint8Array {\n  return a instanceof Float32Array || a instanceof
Int32Array ||\n      a instanceof Uint8Array;\n}\n\nexport function bytesPerElement(dtype: DataType): number {\n
if (dtype === 'float32' || dtype === 'int32') {\n    return 4;\n  } else if (dtype === 'complex64') {\n
 return 8;\n  } else if (dtype === 'bool') {\n    return 1;\n  } else {\n    throw new Error(`Unknown dtype
${dtype}`);\n  }\n}\n\n/**\n * Returns the approximate number of bytes allocated in the string array - 2\n * bytes per
character. Computing the exact bytes for a native string in JS is\n * not possible since it depends on the encoding of
the html page that serves\n * the website.\n */\nexport function bytesFromStringArray(arr: Uint8Array[]): number
{\n  if (arr == null) {\n    return 0;\n  }\n  let bytes = 0;\n  arr.forEach(x => bytes += x.length);\n  return
bytes;\n}\n\n/** Returns true if the value is a string. */\nexport function isString(value: {}): value is string {\n
return typeof value === 'string' || value instanceof String;\n}\n\nexport function isBoolean(value: {}): boolean {\n
return typeof value === 'boolean';\n}\n\nexport function isNumber(value: {}): boolean {\n  return typeof value ===
'number';\n}\n\nexport function inferDtype(values: TensorLike): DataType {\n  if
 (Array.isArray(values)) {\n    return inferDtype(values[0]);\n  }\n  if (values instanceof Float32Array) {\n    return
'float32';\n  } else if (values instanceof Int32Array || values instanceof Uint8Array) {\n    return 'int32';\n  } else if
(isNumber(values)) {\n    return 'float32';\n  } else if (isString(values)) {\n    return 'string';\n  } else if
(isBoolean(values)) {\n    return 'bool';\n  }\n  return 'float32';\n}\n\nexport function isFunction(f: Function) {\n
return !!(f && f.constructor && f.call && f.apply);\n}\n\nexport function nearestDivisor(size: number, start:
number): number {\n  for (let i = start; i < size; ++i) {\n    if (size % i === 0) {\n      return i;\n    }\n  }\n  return
size;\n}\n\nexport function computeStrides(shape: number[]): number[] {\n  const rank = shape.length;\n  if (rank <
2) {\n    return [];\n  }\n\n  // Last dimension has implicit stride of 1, thus having D-1 (instead of D)\n  // strides.\n
const strides = new Array(rank - 1);\n  strides[rank
 - 2] = shape[rank - 1];\n  for (let i = rank - 3; i >= 0; --i) {\n    strides[i] = strides[i + 1] * shape[i + 1];\n  }\n  return
strides;\n}\n\nfunction createNestedArray(offset: number, shape: number[], a: TypedArray) {\n  const ret = new
Array();\n  if (shape.length === 1) {\n    const d = shape[0];\n    for (let i = 0; i < d; i++) {\n      ret[i] = a[offset +
i];\n    }\n  } else {\n    const d = shape[0];\n    const rest = shape.slice(1);\n    const len = rest.reduce((acc, c) => acc
* c);\n    for (let i = 0; i < d; i++) {\n      ret[i] = createNestedArray(offset + i * len, rest, a);\n    }\n  }\n  return
ret;\n}\n\n// Provide a nested array of TypedArray in given shape.\nexport function toNestedArray(shape: number[],
a: TypedArray) {\n  if (shape.length === 0) {\n    // Scalar type should return a single number.\n    return a[0];\n  }\n
const size = shape.reduce((acc, c) => acc * c);\n  if (size === 0) {\n    // A tensor with shape zero should be turned
into empty list.\n    return
 [];\n  }\n  if (size !== a.length) {\n    throw new Error(`[${shape}] does not match the input size ${a.length}.`);\n
}\n\n  return createNestedArray(0, shape, a);\n}\n\nexport function makeOnesTypedArray<D extends DataType>(\n
  size: number, dtype: D): DataTypeMap[D] {\n  const array = makeZerosTypedArray(size, dtype);\n  for (let i = 0; i
< array.length; i++) {\n    array[i] = 1;\n  }\n  return array;\n}\n\nexport function makeZerosTypedArray<D extends
DataType>(\n    size: number, dtype: D): DataTypeMap[D] {\n  if (dtype == null || dtype === 'float32' || dtype ===
'complex64') {\n    return new Float32Array(size) as DataTypeMap[D];\n  } else if (dtype === 'int32') {\n    return
new Int32Array(size) as DataTypeMap[D];\n  } else if (dtype === 'bool') {\n    return new Uint8Array(size) as
DataTypeMap[D];\n  } else {\n    throw new Error(`Unknown data type ${dtype}`);\n  }\n}\n\n/**\n * Make nested
`TypedArray` filled with zeros.\n * @param shape The shape information for the nested
 array.\n * @param dtype dtype of the array element.\n */\nexport function makeZerosNestedTypedArray<D
extends DataType>(\n    shape: number[], dtype: D) {\n  const size = shape.reduce((prev, curr) => prev * curr, 1);\n
if (dtype == null || dtype === 'float32') {\n    return toNestedArray(shape, new Float32Array(size));\n  } else if
```

(dtype === 'int32') {\n   return toNestedArray(shape, new Int32Array(size));\n } else if (dtype === 'bool') {\n return toNestedArray(shape, new Uint8Array(size));\n } else {\n   throw new Error(`Unknown data type ${dtype}`);\n }\n}\n\nexport function assertNonNegativeIntegerDimensions(shape: number[]) {\n shape.forEach(dimSize => {\n   assert(\n   Number.isInteger(dimSize) && dimSize >= 0,\n   () =>\n `Tensor must have a shape comprised of positive integers but got ` +\n   `shape [${shape}].`);\n });\n}\n\n/**\n * Computes flat index for a given location (multidimentionsal index) in a\n * Tensor/multidimensional
 array.\n *\n * @param locs Location in the tensor.\n * @param rank Rank of the tensor.\n * @param strides Tensor strides.\n */\nexport function locToIndex(\n   locs: number[], rank: number, strides: number[]): number {\n if (rank === 0) {\n   return 0;\n } else if (rank === 1) {\n   return locs[0];\n }\n let index = locs[locs.length - 1];\n for (let i = 0; i < locs.length - 1; ++i) {\n   index += strides[i] * locs[i];\n }\n return index;\n}\n\n/**\n * Computes the location (multidimensional index) in a tensor/multidimentional\n * array for a given flat index.\n *\n * @param index Index in flat array.\n * @param rank Rank of tensor.\n * @param strides Strides of tensor.\n */\nexport function indexToLoc(\n   index: number, rank: number, strides: number[]): number[] {\n if (rank === 0) {\n return [];\n } else if (rank === 1) {\n   return [index];\n }\n const locs: number[] = new Array(rank);\n for (let i = 0; i < locs.length - 1; ++i) {\n   locs[i] = Math.floor(index
 / strides[i]);\n   index -= locs[i] * strides[i];\n }\n locs[locs.length - 1] = index;\n return locs;\n}\n\n/**\n * This method asserts whether an object is a Promise instance.\n * @param object\n */\n// tslint:disable-next-line: no-any\nexport function isPromise(object: any) {\n // We chose to not use 'obj instanceOf Promise' for two reasons:\n // 1. It only reliably works for es6 Promise, not other Promise\n // implementations.\n // 2. It doesn't work with framework that uses zone.js. zone.js monkey patch\n // the async calls, so it is possible the obj (patched) is comparing to a\n // pre-patched Promise.\n return object && object.then && typeof object.then === 'function';\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Platform} from './platforms/platform';\nimport {isPromise} from './util_base';\n\n// Expects flags from URL in the format ?tfjsflags=FLAG1:1,FLAG2:true.\nconst TENSORFLOWJS_FLAGS_PREFIX = 'tfjsflags';\n\ntype FlagValue = number|boolean;\ntype FlagEvaluationFn = (() => FlagValue)|(() => Promise<FlagValue>);\nexport type Flags = {\n [featureName: string]: FlagValue\n};\nexport type FlagRegistryEntry = {\n evaluationFn: FlagEvaluationFn;\n setHook?: (value: FlagValue) => void;\n};\n\n/**\n * The environment contains evaluated flags as well as the registered
 platform.\n * This is always used as a global singleton and can be retrieved with\n * `tf.env()`.\n *\n * @doc {heading: 'Environment'}\n */\nexport class Environment {\n private flags: Flags = {};\n private flagRegistry: {[flagName: string]: FlagRegistryEntry} = {};\n\n private urlFlags: Flags = {};\n\n platformName: string;\n platform: Platform;\n\n // tslint:disable-next-line: no-any\n constructor(public global: any) {\n this.populateURLFlags();\n }\n\n setPlatform(platformName: string, platform: Platform) {\n   if (this.platform != null) {\n   console.warn(\n   `Platform ${this.platformName} has already been set. ` +\n   `Overwriting the platform with ${platform}.`);\n   }\n   this.platformName = platformName;\n   this.platform = platform;\n }\n\n registerFlag(\n   flagName: string, evaluationFn: FlagEvaluationFn,\n   setHook?: (value: FlagValue) => void) {\n   this.flagRegistry[flagName] = {evaluationFn, setHook};\n\n   // Override
 the flag value from the URL. This has to happen here because the\n   // environment is initialized before flags get registered.\n   if (this.urlFlags[flagName] != null) {\n   const flagValue = this.urlFlags[flagName];\n   console.warn(\n   `Setting feature override from URL ${flagName}: ${flagValue}.`);\n   this.set(flagName,

flagValue);\n }\n }\n\n async getAsync(flagName: string): Promise<FlagValue> {\n if (flagName in this.flags) {\n return this.flags[flagName];\n }\n\n this.flags[flagName] = await this.evaluateFlag(flagName);\n return this.flags[flagName];\n }\n\n get(flagName: string): FlagValue {\n if (flagName in this.flags) {\n return this.flags[flagName];\n }\n\n const flagValue = this.evaluateFlag(flagName);\n if (isPromise(flagValue)) {\n throw new Error(\n `Flag ${flagName} cannot be synchronously evaluated. ` +\n `Please use getAsync() instead.`);\n }\n\n this.flags[flagName] = flagValue
 as number | boolean;\n\n return this.flags[flagName];\n }\n\n getNumber(flagName: string): number {\n return this.get(flagName) as number;\n }\n\n getBool(flagName: string): boolean {\n return this.get(flagName) as boolean;\n }\n\n getFlags(): Flags {\n return this.flags;\n }\n // For backwards compatibility.\n get features(): Flags {\n return this.flags;\n }\n\n set(flagName: string, value: FlagValue): void {\n if (this.flagRegistry[flagName] == null) {\n throw new Error(\n `Cannot set flag ${flagName} as it has not been registered.`);\n }\n this.flags[flagName] = value;\n if (this.flagRegistry[flagName].setHook != null) {\n this.flagRegistry[flagName].setHook(value);\n }\n }\n\n private evaluateFlag(flagName: string): FlagValue|Promise<FlagValue> {\n if (this.flagRegistry[flagName] == null) {\n throw new Error(\n `Cannot evaluate flag '${flagName}': no evaluation function found.`);\n }\n return this.flagRegistry[flagName].evaluationFn();\n
 }\n\n setFlags(flags: Flags) {\n this.flags = Object.assign({}, flags);\n }\n\n reset() {\n this.flags = {};\n this.urlFlags = {};\n this.populateURLFlags();\n }\n\n private populateURLFlags(): void {\n if (typeof this.global === 'undefined' ||\n typeof this.global.location === 'undefined' ||\n typeof this.global.location.search === 'undefined') {\n return;\n }\n\n const urlParams = getQueryParams(this.global.location.search);\n if (TENSORFLOWJS_FLAGS_PREFIX in urlParams) {\n const keyValues = urlParams[TENSORFLOWJS_FLAGS_PREFIX].split(',');\n keyValues.forEach(keyValue => {\n const [key, value] = keyValue.split(':') as [string, string];\n this.urlFlags[key] = parseValue(key, value);\n });\n }\n }\n}\n\nexport function getQueryParams(queryString: string): {[key: string]: string} {\n const params = {};\n queryString.replace(/[?&]([^=?&]+)(?:=([^&]*))?/g, (s, ...t)
 => {\n decodeParam(params, t[0], t[1]);\n return t.join('=');\n });\n return params;\n}\n\nfunction decodeParam(\n params: {[key: string]: string}, name: string, value?: string) {\n params[decodeURIComponent(name)] = decodeURIComponent(value || '');\n}\n\nfunction parseValue(flagName: string, value: string): FlagValue {\n value = value.toLowerCase();\n if (value === 'true' || value === 'false') {\n return value === 'true';\n } else if (`${+ value}` === value) {\n return +value;\n }\n throw new Error(\n `Could not parse value flag value ${value} for flag ${flagName}.`);\n}\n\n/**\n * Returns the current environment (a global singleton).\n *\n * The environment object contains the evaluated feature values as well as the\n * active platform.\n *\n * @doc {heading: 'Environment'}\n */\nexport function env() {\n return ENV;\n}\n\nexport let ENV: Environment = null;\nexport function setEnvironmentGlobal(environment: Environment) {\n ENV = environment;\n}\n","//
 shim for using process in browser\nvar process = module.exports = {};\n\n// cached from whatever global is present so that test runners that stub it\n// don't break things. But we need to wrap it in a try catch in case it is\n// wrapped in strict mode code which doesn't define any globals. It's inside a\n// function because try/catches deoptimize in certain engines.\n\nvar cachedSetTimeout;\nvar cachedClearTimeout;\n\nfunction defaultSetTimout() {\n throw new Error('setTimeout has not been defined');\n}\nfunction defaultClearTimeout () {\n throw new Error('clearTimeout has not been defined');\n}\n(function () {\n try {\n if (typeof setTimeout === 'function') {\n cachedSetTimeout = setTimeout;\n } else {\n cachedSetTimeout = defaultSetTimout;\n }\n } catch (e) {\n cachedSetTimeout = defaultSetTimout;\n }\n try {\n if (typeof clearTimeout === 'function') {\n cachedClearTimeout = clearTimeout;\n
  } else {\n cachedClearTimeout = defaultClearTimeout;\n }\n } catch (e) {\n cachedClearTimeout = defaultClearTimeout;\n }\n} ())\nfunction runTimeout(fun) {\n if (cachedSetTimeout === setTimeout) {\n //normal enviroments in sane situations\n return setTimeout(fun, 0);\n }\n // if setTimeout wasn't available but was latter defined\n if ((cachedSetTimeout === defaultSetTimout ||

!cachedSetTimeout) && setTimeout) {\n cachedSetTimeout = setTimeout;\n return setTimeout(fun, 0);\n }\n try {\n // when when somebody has screwed with setTimeout but no I.E. maddness\n return cachedSetTimeout(fun, 0);\n } catch(e){\n try {\n // When we are in I.E. but the script has been evaled so I.E. doesn't trust the global object when called normally\n return cachedSetTimeout.call(null, fun, 0);\n } catch(e){\n // same as above but when it's a version of I.E. that must have the global object for 'this', hopfully our context correct otherwise it will throw a global error\n return cachedSetTimeout.call(this, fun, 0);\n }\n }\n\n\n}\nfunction runClearTimeout(marker) {\n if (cachedClearTimeout === clearTimeout) {\n //normal enviroments in sane situations\n return clearTimeout(marker);\n }\n // if clearTimeout wasn't available but was latter defined\n if ((cachedClearTimeout === defaultClearTimeout || !cachedClearTimeout) && clearTimeout) {\n cachedClearTimeout = clearTimeout;\n return clearTimeout(marker);\n }\n try {\n // when when somebody has screwed with setTimeout but no I.E. maddness\n return cachedClearTimeout(marker);\n } catch (e){\n try {\n // When we are in I.E. but the script has been evaled so I.E. doesn't trust the global object when called normally\n return cachedClearTimeout.call(null, marker);\n } catch (e){\n // same as above but when it's a version of I.E. that must have the global object for 'this', hopfully our context correct otherwise it will throw a global error.\n // Some versions of I.E. have different rules for clearTimeout vs setTimeout\n return cachedClearTimeout.call(this, marker);\n }\n }\n\n\n\n}\nvar queue = [];\nvar draining = false;\nvar currentQueue;\nvar queueIndex = -1;\n\nfunction cleanUpNextTick() {\n if (!draining || !currentQueue) {\n return;\n }\n draining = false;\n if (currentQueue.length) {\n queue = currentQueue.concat(queue);\n } else {\n queueIndex = -1;\n }\n if (queue.length) {\n drainQueue();\n }\n}\n\nfunction drainQueue() {\n if (draining) {\n return;\n }\n var timeout = runTimeout(cleanUpNextTick);\n draining = true;\n\n var len = queue.length;\n while(len) {\n currentQueue = queue;\n queue = [];\n while (++queueIndex < len) {\n if (currentQueue) {\n currentQueue[queueIndex].run();\n }\n }\n queueIndex = -1;\n len = queue.length;\n }\n currentQueue = null;\n draining = false;\n runClearTimeout(timeout);\n}\n\nprocess.nextTick = function (fun) {\n var args = new Array(arguments.length - 1);\n if (arguments.length > 1) {\n for (var i = 1; i < arguments.length; i++) {\n args[i - 1] = arguments[i];\n }\n }\n queue.push(new Item(fun, args));\n if (queue.length === 1 && !draining) {\n runTimeout(drainQueue);\n }\n};\n\n// v8 likes predictible objects\nfunction Item(fun, array) {\n this.fun = fun;\n this.array = array;\n}\nItem.prototype.run = function () {\n this.fun.apply(null, this.array);\n};\nprocess.title = 'browser';\nprocess.browser = true;\nprocess.env = {};\nprocess.argv = [];\nprocess.version = ''; // empty string to avoid regexp issues\nprocess.versions = {};\n\nfunction noop() {}\n\nprocess.on = noop;\nprocess.addListener = noop;\nprocess.once = noop;\nprocess.off = noop;\nprocess.removeListener = noop;\nprocess.removeAllListeners = noop;\nprocess.emit = noop;\nprocess.prependListener = noop;\nprocess.prependOnceListener = noop;\n\nprocess.listeners = function (name) { return [] }\n\nprocess.binding = function (name) {\n throw new Error('process.binding is not supported');\n};\n\nprocess.cwd = function () { return '/' };\nprocess.chdir = function (dir) {\n throw new Error('process.chdir is not supported');\n};\nprocess.umask = function() { return 0; };\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\n// Note that the identifier globalNameSpace is scoped to this module, but will\n// always resolve to the same global object regardless of how the module is\n// resolved.\n// tslint:disable-next-line:no-any\nlet globalNameSpace:

{_tfGlobals: Map<string, any>};\n// tslint:disable-next-line:no-any\nexport function getGlobalNamespace(): {_tfGlobals: Map<string, any>} {\n if (globalNameSpace == null) {\n   // tslint:disable-next-line:no-any\n   let ns: any;\n   if (typeof (window) !== 'undefined') {\n   ns = window;\n   } else if (typeof (global) !== 'undefined') {\n   ns = global;\n   } else if (typeof (process) !== 'undefined') {\n   ns = process;\n   } else if (typeof (self) !== 'undefined') {\n   ns = self;\n   } else {\n   throw new Error('Could not find a global object');\n   }\n   globalNameSpace = ns;\n }\n return globalNameSpace;\n}\n\n// tslint:disable-next-line:no-any\nfunction getGlobalMap(): Map<string, any> {\n const ns = getGlobalNamespace();\n if (ns._tfGlobals == null) {\n   ns._tfGlobals = new Map();\n }\n return ns._tfGlobals;\n}\n\n/**\n * Returns a globally accessible 'singleton' object.\n *\n * @param key the name of the object\n * @param init a function to initialize to initialize this object\n *   the first time it is fetched.\n */\nexport function getGlobal<T>(key: string, init: () => T): T {\n const globalMap = getGlobalMap();\n if (globalMap.has(key)) {\n   return globalMap.get(key);\n } else {\n   const singleton = init();\n   globalMap.set(key, singleton);\n   return globalMap.get(key);\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n//
Allow UpperCamelCase variable names\n// tslint:disable: variable-name\n// Unfortunately just enabling PascalCase per file (tslint:enable:\n// allow-pascal-case) doesn't work.\nimport {NamedTensorInfoMap, TensorInfo} from './kernel_registry';\nimport {ExplicitPadding} from './ops/conv_util';\nimport {Activation} from './ops/fused_types';\nimport
 {DataType, PixelData} from './types';\n\nexport const Abs = 'Abs';\nexport type AbsInputs = UnaryInputs;\n\nexport const Acos = 'Acos';\nexport type AcosInputs = UnaryInputs;\n\nexport const Acosh = 'Acosh';\nexport type AcoshInputs = UnaryInputs;\n\nexport const Add = 'Add';\nexport type AddInputs = BinaryInputs;\n\nexport const AddN = 'AddN';\nexport type AddNInputs = TensorInfo[];\n\nexport const All = 'All';\nexport type AllInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface AllAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport const Any = 'Any';\nexport type AnyInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface AnyAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport const ArgMax = 'ArgMax';\nexport type ArgMaxInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface ArgMaxAttrs {\n axis: number;\n}\n\nexport const ArgMin = 'ArgMin';\nexport type ArgMinInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface ArgMinAttrs {\n axis: number;\n}\n\nexport const Asin = 'Asin';\nexport type AsinInputs = UnaryInputs;\n\nexport const Asinh = 'Asinh';\nexport type AsinhInputs = UnaryInputs;\n\nexport const Atan = 'Atan';\nexport type AtanInputs = UnaryInputs;\n\nexport const Atanh = 'Atanh';\nexport type AtanhInputs = UnaryInputs;\n\nexport const Atan2 = 'Atan2';\nexport type Atan2Inputs = BinaryInputs;\n\nexport const AvgPool = 'AvgPool';\nexport type AvgPoolInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface AvgPoolAttrs {\n filterSize: [number, number]|number;\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const AvgPoolGrad = 'AvgPoolGrad';\nexport type AvgPoolGradInputs = Pick<NamedTensorInfoMap, 'dy'|'input'>;\nexport interface AvgPoolGradAttrs {\n filterSize: [number, number]|number;\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n}\n\nexport const AvgPool3D = 'AvgPool3D';\nexport type AvgPool3DInputs = Pick<NamedTensorInfoMap,
 'x'>;\nexport interface AvgPool3DAttrs {\n filterSize: [number, number, number]|number;\n strides: [number, number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n dataFormat: 'NDHWC'|'NCDHW';\n}\n\nexport const AvgPool3DGrad = 'AvgPool3DGrad';\nexport type AvgPool3DGradInputs = Pick<NamedTensorInfoMap, 'dy'|'input'>;\nexport interface AvgPool3DGradAttrs {\n

filterSize: [number, number, number]|number;\n strides: [number, number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const BatchMatMul = 'BatchMatMul';\nexport type BatchMatMulInputs = Pick<NamedTensorInfoMap, 'a'|'b'>;\nexport interface BatchMatMulAttrs {\n transposeA: boolean;\n transposeB: boolean;\n}\n\nexport const BatchToSpaceND = 'BatchToSpaceND';\nexport type BatchToSpaceNDInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface BatchToSpaceNDAttrs {\n blockShape: number[];\n crops: number[][];\n}\n\nexport type BinaryInputs = Pick<NamedTensorInfoMap, 'a'|'b'>;\n\nexport const Bincount = 'Bincount';\nexport type BincountInputs = Pick<NamedTensorInfoMap, 'x'|'weights'>;\nexport interface BincountAttrs {\n size: number;\n}\n\nexport const BroadcastTo = 'BroadcastTo';\nexport type BroadcastToInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface BroadCastToAttrs {\n shape: number[];\n inputShape: number[]; // for gradient\n}\n\nexport const Cast = 'Cast';\nexport type CastInputs = UnaryInputs;\nexport interface CastAttrs {\n dtype: DataType;\n}\n\nexport const Ceil = 'Ceil';\nexport type CeilInputs = UnaryInputs;\n\nexport const ClipByValue = 'ClipByValue';\nexport type ClipByValueInputs = UnaryInputs;\nexport interface ClipByValueAttrs {\n clipValueMin: number;\n clipValueMax: number;\n}\n\nexport const Complex = 'Complex';\nexport type ComplexInputs = Pick<NamedTensorInfoMap, 'real'|'imag'>;\n\nexport const ComplexAbs = 'ComplexAbs';\nexport type ComplexAbsInputs = UnaryInputs;\n\nexport const Concat = 'Concat';\nexport type ConcatInputs = TensorInfo[];\nexport interface ConcatAttrs {\n axis: number;\n}\n\nexport const Conv2D = 'Conv2D';\nexport type Conv2DInputs = Pick<NamedTensorInfoMap, 'x'|'filter'>;\nexport interface Conv2DAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number|ExplicitPadding;\n dataFormat: 'NHWC'|'NCHW';\n dilations: [number, number]|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const Conv2DBackpropFilter = 'Conv2DBackpropFilter';\nexport type Conv2DBackpropFilterInputs = Pick<NamedTensorInfoMap, 'x'|'dy'>;\nexport interface Conv2DBackpropFilterAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number|ExplicitPadding;\n dataFormat: 'NHWC'|'NCHW';\n dimRoundingMode?: 'floor'|'round'|'ceil';\n filterShape: [number, number, number, number];\n}\n\nexport const Conv2DBackpropInput = 'Conv2DBackpropInput';\nexport type Conv2DBackpropInputInputs = Pick<NamedTensorInfoMap, 'dy'|'filter'>;\nexport interface Conv2DBackpropInputAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number|ExplicitPadding;\n dataFormat: 'NHWC'|'NCHW';\n dimRoundingMode?: 'floor'|'round'|'ceil';\n inputShape: [number, number, number, number];\n}\n\nexport const Conv3D = 'Conv3D';\nexport type Conv3DInputs = Pick<NamedTensorInfoMap, 'x'|'filter'>;\nexport interface Conv3DAttrs {\n strides: [number, number, number]|number;\n pad: 'valid'|'same';\n dataFormat: 'NDHWC'|'NCDHW';\n dilations: [number, number, number]|number;\n}\n\nexport const Conv3DBackpropFilterV2 = 'Conv3DBackpropFilterV2';\nexport type Conv3DBackpropFilterV2Inputs = Pick<NamedTensorInfoMap, 'x'|'dy'>;\n\nexport interface Conv3DBackpropFilterV2Attrs {\n strides: [number, number, number]|number;\n pad: 'valid'|'same';\n filterShape: [number, number, number, number, number];\n}\n\nexport const Conv3DBackpropInputV2 = 'Conv3DBackpropInputV2';\nexport type Conv3DBackpropInputV2Inputs =\n   Pick<NamedTensorInfoMap, 'dy'|'filter'>;\nexport interface Conv3DBackpropInputV2Attrs {\n strides: [number, number, number]|number;\n pad: 'valid'|'same';\n inputShape: [number, number, number, number, number];\n}\n\nexport const Cos = 'Cos';\nexport type CosInputs = UnaryInputs;\n\nexport const Cosh = 'Cosh';\nexport type CoshInputs = UnaryInputs;\n\nexport const Cumsum = 'Cumsum';\nexport type CumsumInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface CumsumAttrs {\n axis: number;\n exclusive: boolean;\n reverse: boolean;\n}\n\nexport const CropAndResize = 'CropAndResize';\nexport type CropAndResizeInputs =\n Pick<NamedTensorInfoMap, 'image'|'boxes'|'boxInd'>;\nexport interface CropAndResizeAttrs {\n cropSize: [number, number];\n method: 'bilinear'|'nearest';\n extrapolationValue: number;\n}\n\nexport const DenseBincount = 'DenseBincount';\nexport type DenseBincountInputs = Pick<NamedTensorInfoMap, 'x'|'weights'>;\nexport interface DenseBincountAttrs {\n size: number;\n binaryOutput?: boolean;\n}\n\nexport const DepthToSpace = 'DepthToSpace';\nexport type DepthToSpaceInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface DepthToSpaceAttrs {\n blockSize:

number;\n dataFormat: 'NHWC'|'NCHW';\n}\n\nexport const DepthwiseConv2dNative = 'DepthwiseConv2dNative';\nexport type DepthwiseConv2dNativeInputs =\n   Pick<NamedTensorInfoMap, 'x'|'filter'>;\nexport interface DepthwiseConv2dNativeAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dataFormat: 'NHWC'|'NCHW';\n dilations: [number, number]|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const DepthwiseConv2dNativeBackpropFilter =\n 'DepthwiseConv2dNativeBackpropFilter';\nexport type DepthwiseConv2dNativeBackpropFilterInputs =\n Pick<NamedTensorInfoMap, 'x'|'dy'>;\nexport interface DepthwiseConv2dNativeBackpropFilterAttrs {\n strides: [number, number]|number;\n dilations: [number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?:
 'floor'|'round'|'ceil';\n filterShape: [number, number, number, number];\n}\n\nexport const DepthwiseConv2dNativeBackpropInput =\n   'DepthwiseConv2dNativeBackpropInput';\nexport type DepthwiseConv2dNativeBackpropInputInputs =\n   Pick<NamedTensorInfoMap, 'dy'|'filter'>;\nexport interface DepthwiseConv2dNativeBackpropInputAttrs {\n strides: [number, number]|number;\n dilations: [number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n inputShape: [number, number, number, number];\n}\n\nexport const Diag = 'Diag';\nexport type DiagInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Dilation2D = 'Dilation2D';\nexport type Dilation2DInputs = Pick<NamedTensorInfoMap, 'x'|'filter'>;\nexport interface Dilation2DAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dilations: [number, number]|number;\n}\n\nexport const Dilation2DBackpropInput = 'Dilation2DBackpropInput';\nexport type Dilation2DBackpropInputInputs
 =\n   Pick<NamedTensorInfoMap, 'x'|'filter'|'dy'>;\n\nexport const Dilation2DBackpropFilter = 'Dilation2DBackpropFilter';\nexport type Dilation2DBackpropFilterInputs =\n   Pick<NamedTensorInfoMap, 'x'|'filter'|'dy'>;\n\nexport const RealDiv = 'RealDiv';\nexport type RealDivInputs = BinaryInputs;\n\nexport const Elu = 'Elu';\nexport type EluInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const EluGrad = 'EluGrad';\nexport type EluGradInputs = Pick<NamedTensorInfoMap, 'dy'|'y'>;\n\nexport const Erf = 'Erf';\nexport type ErfInputs = UnaryInputs;\n\nexport const Equal = 'Equal';\nexport type EqualInputs = BinaryInputs;\n\nexport const Exp = 'Exp';\nexport type ExpInputs = UnaryInputs;\n\nexport const ExpandDims = 'ExpandDims';\nexport type ExpandDimsInputs = Pick<NamedTensorInfoMap, 'input'>;\nexport interface ExpandDimsAttrs {\n dim: number;\n}\n\nexport const Expm1 = 'Expm1';\nexport type Expm1Inputs = UnaryInputs;\n\nexport const FFT = 'FFT';\nexport type FFTInputs =
 Pick<NamedTensorInfoMap, 'input'>;\n\nexport const Fill = 'Fill';\nexport interface FillAttrs {\n shape: number[];\n value: number|string;\n dtype: DataType;\n}\n\nexport const FlipLeftRight = 'FlipLeftRight';\nexport type FlipLeftRightInputs = Pick<NamedTensorInfoMap, 'image'>;\n\nexport const Floor = 'Floor';\nexport type FloorInputs = UnaryInputs;\n\nexport const FloorDiv = 'FloorDiv';\nexport type FloorDivInputs = BinaryInputs;\n\nexport const FusedBatchNorm = 'FusedBatchNorm';\nexport type FusedBatchNormInputs =\n Pick<NamedTensorInfoMap, 'x'|'scale'|'offset'|'mean'|'variance'>;\nexport interface FusedBatchNormAttrs {\n varianceEpsilon: number;\n}\n\nexport const GatherV2 = 'GatherV2';\nexport type GatherV2Inputs = Pick<NamedTensorInfoMap, 'x'|'indices'>;\nexport interface GatherV2Attrs {\n axis: number;\n batchDims: number;\n}\n\nexport const GatherNd = 'GatherNd';\nexport type GatherNdInputs = Pick<NamedTensorInfoMap, 'params'|'indices'>;\n\nexport const Greater = 'Greater';\nexport
 type GreaterInputs = BinaryInputs;\n\nexport const GreaterEqual = 'GreaterEqual';\nexport type GreaterEqualInputs = BinaryInputs;\n\nexport const Identity = 'Identity';\nexport type IdentityInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const IFFT = 'IFFT';\nexport type IFFTInputs = Pick<NamedTensorInfoMap, 'input'>;\n\nexport const Imag = 'Imag';\nexport type ImagInputs = Pick<NamedTensorInfoMap, 'input'>;\n\nexport const IsFinite = 'IsFinite';\nexport type IsFiniteInputs = UnaryInputs;\n\nexport const IsInf = 'IsInf';\nexport type IsInfInputs = UnaryInputs;\n\nexport const IsNan = 'IsNan';\nexport type IsNanInputs = UnaryInputs;\n\nexport const LeakyRelu = 'LeakyRelu';\nexport type LeakyReluInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface LeakyReluAttrs {\n alpha: number;\n}\n\nexport const Less = 'Less';\nexport type LessInputs = BinaryInputs;\n\nexport const LessEqual = 'LessEqual';\nexport type LessEqualInputs = BinaryInputs;\n\nexport const LinSpace =

'LinSpace';\nexport interface LinSpaceAttrs {\n start: number;\n stop: number;\n num: number;\n}\nexport const Log = 'Log';\nexport type LogInputs = UnaryInputs;\n\nexport const Log1p = 'Log1p';\nexport type Log1pInputs = UnaryInputs;\n\nexport const LogicalAnd = 'LogicalAnd';\nexport type LogicalAndInputs = BinaryInputs;\n\nexport const LogicalNot = 'LogicalNot';\nexport type LogicalNotInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const LogicalOr = 'LogicalOr';\nexport type LogicalOrInputs = BinaryInputs;\n\nexport const LogSoftmax = 'LogSoftmax';\nexport type LogSoftmaxInputs = Pick<NamedTensorInfoMap, 'logits'>;\nexport interface LogSoftmaxAttrs {\n axis: number;\n}\n\nexport const LRN = 'LRN';\nexport type LRNInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface LRNAttrs {\n depthRadius: number;\n bias: number;\n alpha: number;\n beta: number;\n}\n\nexport const LRNGrad = 'LRNGrad';\nexport type LRNGradInputs = Pick<NamedTensorInfoMap, 'x'|'y'|'dy'>;\nexport interface
LRNGradAttrs {\n depthRadius: number;\n bias: number;\n alpha: number;\n beta: number;\n}\n\nexport const Max = 'Max';\nexport type MaxInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MaxAttrs {\n reductionIndices: number|number[];\n keepDims: boolean;\n}\n\nexport const Maximum = 'Maximum';\nexport type MaximumInputs = BinaryInputs;\n\nexport const MaxPool = 'MaxPool';\nexport type MaxPoolInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MaxPoolAttrs {\n filterSize: [number, number]|number;\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const MaxPoolGrad = 'MaxPoolGrad';\nexport type MaxPoolGradInputs = Pick<NamedTensorInfoMap, 'dy'|'input'|'output'>;\nexport interface MaxPoolGradAttrs {\n filterSize: [number, number]|number;\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const MaxPool3D = 'MaxPool3D';\nexport
type MaxPool3DInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MaxPool3DAttrs {\n filterSize: [number, number, number]|number;\n strides: [number, number, number]|number;\n pad: 'valid'|'same'|number;\n dataFormat: 'NDHWC'|'NCDHW';\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const MaxPool3DGrad = 'MaxPool3DGrad';\nexport type MaxPool3DGradInputs =\n   Pick<NamedTensorInfoMap, 'dy'|'input'|'output'>;\nexport interface MaxPool3DGradAttrs {\n filterSize: [number, number, number]|number;\n strides: [number, number, number]|number;\n pad: 'valid'|'same'|number;\n dimRoundingMode?: 'floor'|'round'|'ceil';\n}\n\nexport const MaxPoolWithArgmax = 'MaxPoolWithArgmax';\nexport type MaxPoolWithArgmaxInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MaxPoolWithArgmaxAttrs {\n filterSize: [number, number]|number;\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n includeBatchInIndex: boolean;\n}\n\nexport const Mean = 'Mean';\nexport
type MeanInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MeanAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport const Min = 'Min';\nexport type MinInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MinAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport const Minimum = 'Minimum';\nexport type MinimumInputs = BinaryInputs;\n\nexport const MirrorPad = 'MirrorPad';\nexport type MirrorPadInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface MirrorPadAttrs {\n paddings: Array<[number, number]>;\n mode: 'reflect'|'symmetric';\n}\n\nexport const Mod = 'Mod';\nexport type ModInputs = BinaryInputs;\n\nexport const Multinomial = 'Multinomial';\nexport type MultinomialInputs = Pick<NamedTensorInfoMap, 'logits'>;\nexport interface MultinomialAttrs {\n numSamples: number;\n seed: number;\n normalized: boolean;\n}\n\nexport const Multiply = 'Multiply';\nexport type MultiplyInputs = BinaryInputs;\n\nexport const Neg = 'Neg';\nexport type
NegInputs = UnaryInputs;\n\nexport const NotEqual = 'NotEqual';\nexport type NotEqualInputs = BinaryInputs;\n\nexport const NonMaxSuppressionV3 = 'NonMaxSuppressionV3';\nexport type NonMaxSuppressionV3Inputs =\n   Pick<NamedTensorInfoMap, 'boxes'|'scores'>;\nexport interface NonMaxSuppressionV3Attrs {\n maxOutputSize: number;\n iouThreshold: number;\n scoreThreshold: number;\n}\n\nexport const NonMaxSuppressionV4 = 'NonMaxSuppressionV4';\nexport type NonMaxSuppressionV4Inputs =\n   Pick<NamedTensorInfoMap, 'boxes'|'scores'>;\nexport interface NonMaxSuppressionV4Attrs {\n maxOutputSize: number;\n iouThreshold: number;\n scoreThreshold: number;\n padToMaxOutputSize: boolean;\n}\n\nexport const NonMaxSuppressionV5 = 'NonMaxSuppressionV5';\nexport

type NonMaxSuppressionV5Inputs =\n Pick<NamedTensorInfoMap, 'boxes'|'scores'>;\nexport interface NonMaxSuppressionV5Attrs {\n maxOutputSize: number;\n iouThreshold: number;\n scoreThreshold: number;\n softNmsSigma: number;\n}\n\nexport
 const OnesLike = 'OnesLike';\nexport type OnesLikeInputs = UnaryInputs;\n\nexport const OneHot = 'OneHot';\nexport type OneHotInputs = Pick<NamedTensorInfoMap, 'indices'>;\nexport interface OneHotAttrs {\n depth: number;\n onValue: number;\n offValue: number;\n}\n\nexport const Pack = 'Pack';\nexport type PackInputs = TensorInfo[];\nexport interface PackAttrs {\n axis: number;\n}\n\nexport const PadV2 = 'PadV2';\nexport type PadV2Inputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface PadV2Attrs {\n paddings: Array<[number, number]>;\n constantValue: number;\n}\n\nexport const Pool = 'Pool';\nexport type PoolInputs = Pick<NamedTensorInfoMap, 'input'>;\n\nexport const Pow = 'Pow';\nexport type PowInputs = BinaryInputs;\n\nexport const Prelu = 'Prelu';\nexport type PreluInputs = Pick<NamedTensorInfoMap, 'x'|'alpha'>;\n\nexport const Prod = 'Prod';\nexport type ProdInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface ProdAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport
 const Range = 'Range';\nexport interface RangeAttrs {\n start: number;\n stop: number;\n step: number;\n dtype: 'float32'|'int32';\n}\n\nexport const Real = 'Real';\nexport type RealInputs = Pick<NamedTensorInfoMap, 'input'>;\n\nexport const Reciprocal = 'Reciprocal';\nexport type ReciprocalInputs = UnaryInputs;\n\nexport const Relu = 'Relu';\nexport type ReluInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Reshape = 'Reshape';\nexport type ReshapeInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface ReshapeAttrs {\n shape: number[];\n}\n\nexport const ResizeNearestNeighbor = 'ResizeNearestNeighbor';\nexport type ResizeNearestNeighborInputs = Pick<NamedTensorInfoMap, 'images'>;\nexport interface ResizeNearestNeighborAttrs {\n alignCorners: boolean;\n halfPixelCenters: boolean;\n size: [number, number];\n}\n\nexport const ResizeNearestNeighborGrad = 'ResizeNearestNeighborGrad';\nexport type ResizeNearestNeighborGradInputs =\n Pick<NamedTensorInfoMap,
 'images'|'dy'>;\nexport type ResizeNearestNeighborGradAttrs = ResizeNearestNeighborAttrs;\n\nexport const ResizeBilinear = 'ResizeBilinear';\nexport type ResizeBilinearInputs = Pick<NamedTensorInfoMap, 'images'>;\nexport interface ResizeBilinearAttrs {\n alignCorners: boolean;\n halfPixelCenters: boolean;\n size: [number, number];\n}\n\nexport const ResizeBilinearGrad = 'ResizeBilinearGrad';\nexport type ResizeBilinearGradInputs = Pick<NamedTensorInfoMap, 'images'|'dy'>;\nexport type ResizeBilinearGradAttrs = ResizeBilinearAttrs;\n\nexport const Relu6 = 'Relu6';\nexport type Relu6Inputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Reverse = 'Reverse';\nexport type ReverseInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface ReverseAttrs {\n dims: number|number[];\n}\n\nexport const Round = 'Round';\nexport type RoundInputs = UnaryInputs;\n\nexport const Rsqrt = 'Rsqrt';\nexport type RsqrtInputs = UnaryInputs;\n\nexport const ScatterNd = 'ScatterNd';\nexport type ScatterNdInputs
 = Pick<NamedTensorInfoMap, 'indices'|'updates'>;\nexport interface ScatterNdAttrs {\n shape: number[];\n}\n\nexport const Select = 'Select';\nexport type SelectInputs = Pick<NamedTensorInfoMap, 'condition'|'t'|'e'>;\n\nexport const Selu = 'Selu';\nexport type SeluInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Slice = 'Slice';\nexport type SliceInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface SliceAttrs {\n begin: number|number[];\n size: number|number[];\n}\nexport const Sin = 'Sin';\nexport type SinInputs = UnaryInputs;\n\nexport const Sinh = 'Sinh';\nexport type SinhInputs = UnaryInputs;\n\nexport const Sign = 'Sign';\nexport type SignInputs = UnaryInputs;\n\nexport const Sigmoid = 'Sigmoid';\nexport type SigmoidInputs = UnaryInputs;\n\nexport const Softplus = 'Softplus';\nexport type SoftplusInputs = UnaryInputs;\n\nexport const Sqrt = 'Sqrt';\nexport type SqrtInputs = UnaryInputs;\n\nexport const Sum = 'Sum';\nexport type SumInputs = Pick<NamedTensorInfoMap,
 'x'>;\nexport interface SumAttrs {\n axis: number|number[];\n keepDims: boolean;\n}\n\nexport const SpaceToBatchND = 'SpaceToBatchND';\nexport type SpaceToBatchNDInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface SpaceToBatchNDAttrs {\n blockShape: number[];\n paddings: number[][];\n}\n\nexport const SplitV = 'SplitV';\nexport type SplitVInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface SplitVAttrs {\n numOrSizeSplits: number[]|number;\n axis: number;\n}\n\nexport const Softmax = 'Softmax';\nexport type

SoftmaxInputs = Pick<NamedTensorInfoMap, 'logits'>;\nexport interface SoftmaxAttrs {\n dim: number;\n}\n\nexport const SquaredDifference = 'SquaredDifference';\nexport type SquaredDifferenceInputs = BinaryInputs;\n\nexport const Square = 'Square';\nexport type SquareInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Sub = 'Sub';\nexport type SubInputs = BinaryInputs;\n\nexport const SparseToDense = 'SparseToDense';\nexport type SparseToDenseInputs =\n Pick<NamedTensorInfoMap, 'sparseIndices'|'sparseValues'|'defaultValue'>;\nexport interface SparseToDenseAttrs {\n outputShape: number[];\n}\n\nexport const StridedSlice = 'StridedSlice';\nexport type StridedSliceInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface StridedSliceAttrs {\n begin: number[];\n end: number[];\n strides: number[];\n beginMask: number;\n endMask: number;\n ellipsisMask: number;\n newAxisMask: number;\n shrinkAxisMask: number;\n}\n\nexport const Tan = 'Tan';\nexport type TanInputs = UnaryInputs;\n\nexport const Tanh = 'Tanh';\nexport type TanhInputs = UnaryInputs;\n\nexport const Tile = 'Tile';\nexport type TileInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface TileAttrs {\n reps: number[];\n}\n\nexport const TopK = 'TopK';\nexport type TopKInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface TopKAttrs {\n k: number;\n sorted: boolean;\n}\n\nexport const Transpose = 'Transpose';\nexport type TransposeInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface TransposeAttrs {\n perm: number[];\n}\n\nexport const Unique = 'Unique';\nexport type UniqueInputs = Pick<NamedTensorInfoMap, 'x'>;\nexport interface UniqueAttrs {\n axis: number;\n}\n\nexport type UnaryInputs = Pick<NamedTensorInfoMap, 'x'>;\n\nexport const Unpack = 'Unpack';\nexport type UnpackInputs = Pick<NamedTensorInfoMap, 'value'>;\nexport interface UnpackAttrs {\n axis: number;\n}\n\nexport const UnsortedSegmentSum = 'UnsortedSegmentSum';\nexport type UnsortedSegmentSumInputs =\n   Pick<NamedTensorInfoMap, 'x'|'segmentIds'>;\nexport interface UnsortedSegmentSumAttrs {\n numSegments: number;\n}\n\nexport const ZerosLike = 'ZerosLike';\nexport type ZerosLikeInputs = UnaryInputs;\n\n/**\n * TensorFlow.js-only kernels\n */\nexport const Step = 'Step';\nexport type StepInputs = UnaryInputs;\nexport interface StepAttrs {\n alpha: number;\n}\n\nexport const FromPixels = 'FromPixels';\nexport interface FromPixelsInputs {\n pixels: PixelData|ImageData|HTMLImageElement|HTMLCanvasElement|\n   HTMLVideoElement|ImageBitmap;\n}\nexport interface FromPixelsAttrs {\n numChannels: number;\n}\n\nexport const RotateWithOffset = 'RotateWithOffset';\nexport type RotateWithOffsetInputs = Pick<NamedTensorInfoMap, 'image'>;\nexport interface RotateWithOffsetAttrs {\n radians: number;\n fillValue: number|[number, number, number];\n center: number|[number, number];\n}\n\nexport const _FusedMatMul = '_FusedMatMul';\n// tslint:disable-next-line: class-name\nexport interface _FusedMatMulInputs extends NamedTensorInfoMap {\n a: TensorInfo;\n b: TensorInfo;\n bias?: TensorInfo;\n preluActivationWeights?: TensorInfo;\n}\n\n// tslint:disable-next-line: class-name\nexport interface _FusedMatMulAttrs {\n transposeA: boolean;\n transposeB: boolean;\n activation: Activation;\n leakyreluAlpha?: number;\n}\n\nexport const FusedConv2D = 'FusedConv2D';\nexport interface FusedConv2DInputs extends NamedTensorInfoMap {\n x: TensorInfo;\n filter: TensorInfo;\n bias?: TensorInfo;\n preluActivationWeights?: TensorInfo;\n}\nexport interface FusedConv2DAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number|ExplicitPadding;\n dataFormat: 'NHWC'|'NCHW';\n dilations: [number, number]|number;\n dimRoundingMode: 'floor'|'round'|'ceil';\n activation: Activation;\n leakyreluAlpha?: number;\n}\n\nexport const FusedDepthwiseConv2D = 'FusedDepthwiseConv2D';\nexport interface FusedDepthwiseConv2DInputs extends NamedTensorInfoMap {\n x: TensorInfo;\n filter: TensorInfo;\n bias?: TensorInfo;\n preluActivationWeights?: TensorInfo;\n}\nexport interface FusedDepthwiseConv2DAttrs {\n strides: [number, number]|number;\n pad: 'valid'|'same'|number;\n dataFormat: 'NHWC'|'NCHW';\n dilations: [number, number]|number;\n dimRoundingMode: 'floor'|'round'|'ceil';\n activation: Activation;\n leakyreluAlpha?: number;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by

applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {env} from './environment';\n\nimport {getGlobal} from './global_util';\nimport {NamedGradientMap} from './tape';\nimport {Tensor} from './tensor';\nimport {DataType, RecursiveArray} from './types';\n\nconst kernelRegistry =\n getGlobal('kernelRegistry', () => new Map<string, KernelConfig>());\nconst gradRegistry =\n getGlobal('gradRegistry', () => new Map<string, GradConfig>());\n\nexport type DataId = object;\n\ntype AttributeValue =\n number|number[]|boolean|boolean[]|string|string[]|NamedAttrMap;\n\n/** These are extra non-tensor/primitive params passed to kernel functions. */\nexport type Attribute = AttributeValue|RecursiveArray<AttributeValue>;\n\n/** Specifies the code to run when executing a kernel. */\nexport type KernelFunc = (params: {\n inputs: NamedTensorInfoMap,\n backend: {},\n attrs?: NamedAttrMap,\n}) => TensorInfo|TensorInfo[];\n\n/** The function to run when computing a gradient during backprop. */\nexport type GradFunc =\n (dy: Tensor|Tensor[], saved: Tensor[], attrs: NamedAttrMap) =>\n NamedGradientMap;\n\n/** Function that gets called after the backend initializes. */\nexport type KernelSetupFunc = (backend: {}) => void;\n/** Function that gets called right before the backend is disposed. */\nexport type KernelDisposeFunc = KernelSetupFunc;\n\n/** Config object for registering a kernel in the global registry. */\nexport interface KernelConfig {\n kernelName: string;\n backendName: string;\n kernelFunc: KernelFunc;\n setupFunc?: KernelSetupFunc;\n disposeFunc?: KernelDisposeFunc;\n}\n\n/** Config object for registering a gradient in the global registry. */\nexport interface GradConfig {\n kernelName: string;\n inputsToSave?: string[];\n // When saveAllInputs is true, all inputs will be saved. Only use this flag\n // if inputs is an array of Tensors.\n saveAllInputs?: boolean;\n outputsToSave?: boolean[];\n gradFunc: GradFunc;\n}\n\n/** Holds metadata for a given tensor. */\nexport interface TensorInfo {\n dataId: DataId;\n shape: number[];\n dtype: DataType;\n}\n\nexport interface NamedTensorInfoMap {\n [name: string]: TensorInfo;\n}\n\nexport interface NamedAttrMap {\n [name: string]: Attribute;\n}\n\n/**\n * Returns the kernel function (code) associated with the provided names.\n *\n * @param kernelName The official name of the kernel.\n * @param backendName The official name of the backend.\n */\nexport function getKernel(\n kernelName: string, backendName: string): KernelConfig {\n const key = makeKey(kernelName, backendName);\n return kernelRegistry.get(key);\n}\n\n/**\n * Returns the registered gradient info associated with the provided kernel.\n * @param kernelName The official TF kernel name.\n */\nexport function getGradient(kernelName: string): GradConfig {\n return gradRegistry.get(kernelName);\n}\n\nexport function getKernelsForBackend(backendName: string): KernelConfig[] {\n const it = kernelRegistry.entries();\n const result: KernelConfig[] = [];\n\n while (true) {\n const {done, value} = it.next();\n if (done) {\n break;\n }\n const [key, config] = value;\n const [backend,] = key.split('_');\n if (backend === backendName) {\n result.push(config);\n }\n }\n return result;\n}\n\n/**\n * Registers the function (forward pass) for the kernel in a global registry.\n *\n * @param config A config object with the following properties:\n * - `kernelName` The official name of the kernel.\n * - `backendName` The official name of the backend.\n * - `kernelFunc` The function to run during the forward pass of the kernel.\n * - `setupFunc` Optional. Gets called once, after the backend initializes.\n * - `disposeFunc` Optional. Gets called once, right before the backend is\n * disposed.\n */\nexport function registerKernel(config: KernelConfig) {\n const {kernelName, backendName} = config;\n const key = makeKey(kernelName, backendName);\n if (kernelRegistry.has(key)) {\n console.warn(\n `The kernel '${kernelName}' for backend ` +\n `'${backendName}' is already registered`);\n }\n kernelRegistry.set(key, config);\n}\n\n/**\n * Registers a gradient function for a given kernel in the global registry,\n * to be used during the back-propagation of that kernel.\n *\n * @param config An object with the following properties:\n * - `kernelName` The name of the kernel that the gradient function is for.\n * - `gradFunc` The function to run during back-propagation.\n */\nexport function registerGradient(config: GradConfig) {\n const {kernelName} = config;\n\n if (gradRegistry.has(kernelName)) {\n

// TODO (yassogba) after 3.0 assess whether we need to keep this gated\n // to debug mode.\n if (env().getBool('DEBUG')) {\n console.warn(`Overriding the gradient for '${kernelName}'`);\n }\n }\n gradRegistry.set(kernelName, config);\n}\n\n/**\n * Removes the kernel function from the registry.\n *\n * @param kernelName The official name of the kernel.\n * @param backendName The official name of the backend.\n *\n */\nexport function unregisterKernel(\n kernelName: string, backendName: string): void {\n const key = makeKey(kernelName, backendName);\n if (!kernelRegistry.has(key)) {\n throw new Error(\n `The kernel '${kernelName}' for backend ` +\n `'${backendName}' is not registered`);\n }\n kernelRegistry.delete(key);\n}\n\n/**
Removes the registered gradient from the global registry. */\nexport function unregisterGradient(kernelName: string): void {\n if (!gradRegistry.has(kernelName)) {\n throw new Error(\n `The gradient '${kernelName}' for backend is not registered`);\n }\n gradRegistry.delete(kernelName);\n}\n\n/**\n * Finds kernels that have already been registered to a backend and re-registers\n * them for a new backend. Useful for registering custom backends.\n * @param registeredBackendName Already registered backend.\n * @param newBackendName New backend.\n */\nexport function copyRegisteredKernels(\n registeredBackendName: string, newBackendName: string): void {\n const kernels = getKernelsForBackend(registeredBackendName);\n kernels.forEach(kernelConfig => {\n const newKernelConfig =\n Object.assign({}, kernelConfig, {backendName: newBackendName});\n registerKernel(newKernelConfig);\n });\n}\n\nfunction makeKey(kernelName: string, backendName: string) {\n return `${backendName}_${kernelName}`;\n}\n","/**\n
* @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {env} from './environment';\nimport {BackendValues, DataType, TensorLike, TypedArray} from './types';\nimport * as base from './util_base';\nexport * from './util_base';\n\n/**\n * Create typed array for scalar value. Used for storing
in `DataStorage`.\n */\nexport function createScalarValue(\n value: DataType, dtype: DataType): BackendValues {\n if (dtype === 'string') {\n return encodeString(value);\n }\n\n return toTypedArray([value], dtype);\n}\n\nfunction noConversionNeeded(a: TensorLike, dtype: DataType): boolean {\n return (a instanceof Float32Array && dtype === 'float32') ||\n (a instanceof Int32Array && dtype === 'int32') ||\n (a instanceof Uint8Array && dtype === 'bool');\n}\n\nexport function toTypedArray(a: TensorLike, dtype: DataType): TypedArray {\n if (dtype === 'string') {\n throw new Error('Cannot convert a string[] to a TypedArray');\n }\n if (Array.isArray(a)) {\n a = base.flatten(a);\n }\n\n if (env().getBool('DEBUG')) {\n base.checkConversionForErrors(a as number[], dtype);\n }\n if (noConversionNeeded(a, dtype)) {\n return a as TypedArray;\n }\n if (dtype == null || dtype === 'float32' || dtype === 'complex64') {\n return new Float32Array(a as number[]);\n
} else if (dtype === 'int32') {\n return new Int32Array(a as number[]);\n } else if (dtype === 'bool') {\n const bool = new Uint8Array((a as number[]).length);\n for (let i = 0; i < bool.length; ++i) {\n if (Math.round((a as number[])[i]) !== 0) {\n bool[i] = 1;\n }\n }\n return bool;\n } else {\n throw new Error(`Unknown data type ${dtype}`);\n }\n}\n\n/**\n * Returns the current high-resolution time in milliseconds relative to an\n * arbitrary time in the past. It works across different platforms (node.js,\n * browsers).\n *\n * ```js\n * console.log(tf.util.now());\n * ```\n *\n * @doc {heading: 'Util', namespace: 'util'}\n */\nexport function now(): number {\n return env().platform.now();\n}\n\n/**\n * Returns a platform-specific implementation of\n * [`fetch`](https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API).\n *\n * If `fetch` is defined on the global object (`window`, `process`, etc.),\n * `tf.util.fetch` returns that

function.\n *\n * If not, `tf.util.fetch` returns a platform-specific solution.\n *\n * ```js\n * const resource = await tf.util.fetch('https://unpkg.com/@tensorflow/tfjs');\n * // handle response\n * ```\n *\n * @doc {heading: 'Util'}\n */\nexport function fetch(\n path: string, requestInits?: RequestInit): Promise<Response> {\n return env().platform.fetch(path, requestInits);\n}\n\n/**\n * Encodes the provided string into bytes using the provided encoding scheme.\n *\n * @param s The string to encode.\n * @param encoding The encoding scheme. Defaults to utf-8.\n *\n * @doc {heading: 'Util'}\n */\nexport function encodeString(s: string, encoding = 'utf-8'): Uint8Array {\n encoding = encoding || 'utf-8';\n return env().platform.encode(s, encoding);\n}\n\n/**\n * Decodes the provided bytes into a string using the provided encoding scheme.\n * @param bytes The bytes to decode.\n *\n * @param encoding The encoding scheme. Defaults to utf-8.\n *\n * @doc {heading: 'Util'}\n */\nexport function decodeString(bytes: Uint8Array, encoding = 'utf-8'): string {\n encoding = encoding || 'utf-8';\n return env().platform.decode(bytes, encoding);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {BackendTimer, BackendTimingInfo} from './backends/backend';\nimport {env} from './environment';\nimport {Tensor} from './tensor';\nimport {NamedTensorMap} from './tensor_types';\nimport {DataType, DataTypeMap, TypedArray} from './types';\nimport * as util from './util';\n\nexport type KernelProfile = {\n kernelName: string,\n outputs: Tensor[],\n inputs: NamedTensorMap,\n timeMs: Promise<number|{error: string}>,\n extraInfo: Promise<string>\n};\n\nexport class Profiler {\n constructor(private backendTimer: BackendTimer, private logger?: Logger) {\n if (logger == null) {\n this.logger = new Logger();\n }\n }\n\n profileKernel(kernelName: string, inputs: NamedTensorMap, f: () => Tensor[]):\n KernelProfile {\n let outputs: Tensor[];\n const holdResultWrapperFn = () => {\n outputs = f();\n };\n let timer: Promise<BackendTimingInfo>;\n const start = util.now();\n if (this.backendTimer.timerAvailable()) {\n timer = this.backendTimer.time(holdResultWrapperFn);\n } else {\n holdResultWrapperFn();\n outputs.map(output => output.dataSync());\n timer = Promise.resolve({kernelMs: util.now() - start});\n }\n if (env().getBool('CHECK_COMPUTATION_FOR_ERRORS')) {\n for (let i = 0; i < outputs.length; i++) {\n const output = outputs[i];\n // Dangling promise here because we don't want to propagate up\n // asynchronicity.\n output.data().then(tensorVals => {\n checkComputationForErrors(tensorVals, output.dtype, kernelName);\n });\n }\n }\n\n const kernelProfile = {\n kernelName,\n outputs,\n inputs,\n timeMs: timer.then(timing => timing.kernelMs),\n extraInfo: timer.then(\n timing => timing.getExtraProfileInfo != null ?\n timing.getExtraProfileInfo() :\n '')\n };\n return kernelProfile;\n }\n\n logKernelProfile(kernelProfile: KernelProfile): void {\n const {kernelName, outputs, timeMs, inputs, extraInfo} = kernelProfile;\n\n outputs.forEach(result => {\n Promise.all([result.data(), timeMs, extraInfo]).then(valueContainer => {\n this.logger.logKernelProfile(\n kernelName, result, valueContainer[0], valueContainer[1], inputs,\n valueContainer[2]);\n });\n });\n }\n}\n\nexport function checkComputationForErrors<D extends DataType>(\n vals: DataTypeMap[D], dtype: D, kernelName: string): boolean {\n if (dtype !== 'float32') {\n // Only floating point computations will generate NaN values\n return false;\n }\n for (let i = 0; i < vals.length; i++) {\n const num = vals[i] as number;\n if (isNaN(num) || !isFinite(num)) {\n // Throwing custom exception so behavior is testable.\n console.warn(`Found ${num} in the result of '${kernelName}'`);\n return true;\n }\n }\n return false;\n}\n\nexport class Logger {\n logKernelProfile(\n name: string, result: Tensor, vals: TypedArray,\n timeMs: number|{error: string}, inputs: NamedTensorMap,\n extraInfo?: string) {\n const time

```
 = typeof timeMs === 'number' ? util.rightPad(`${timeMs}ms`, 9) :\n                                timeMs['error'];\n
 const paddedName = util.rightPad(name, 25);\n    const rank = result.rank;\n    const size = result.size;\n    const
shape = util.rightPad(result.shape.toString(), 14);\n    let inputShapesDescription = '';\n\n    for (const name in
inputs) {\n      const input = inputs[name];\n      if (input != null) {\n        // The input might be a non-tensor (e.g
HTMLImageElement), in which case\n        // we claim the output shape as input shape.\n        const inputShape =
input.shape || result.shape;\n        const inputRank = inputShape.length;\n        inputShapesDescription +=\n
`${name}: ${inputRank}D ${inputRank > 0 ? inputShape : ''} `;\n      }\n    }\n\n    console.log(\n
`%c${paddedName}\\t%c${time}\\t%c${rank}D ${shape}\\t%c${size}\\t%c${\n
inputShapesDescription}\\t%c${extraInfo}`,\n        'font-weight:bold', 'color:red',
 'color:blue', 'color: orange',\n        'color: green', 'color: steelblue');\n  }\n}\n","/**\n * @license\n * Copyright 2017
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {Tensor} from './tensor';\nimport {NamedTensorMap} from './tensor_types';\nimport * as util from
'./util';\n\nexport interface TapeNode {\n  id: number;\n  kernelName: string;\n
  outputs: Tensor[];\n  inputs: NamedTensorMap;\n  // Optional params, defined only for ops with gradient impl.\n
gradient?: (dys: Tensor[]) => NamedGradientMap;\n  saved?: Tensor[];\n}\n\nexport type NamedGradientMap = {\n
[inputName: string]: () => Tensor;\n};\n\n/**\n * Computes a list of TapeNodes that connect x to y, filtering
everything else\n * out and preserving the order of the original tape elements.\n *\n * @param tape The tape
elements to filter.\n * @param xs The input Tensors.\n * @param y The output Tensor.\n */\nexport function
getFilteredNodesXToY(\n    tape: TapeNode[], xs: Tensor[], y: Tensor): TapeNode[] {\n  // Forward pass to
compute all the nodes and Tensors that are transitively a\n  // function of x.\n  const tensorsFromX: {[tensorId:
number]: boolean} = {};\n  const nodesFromX: {[nodeId: number]: boolean} = {};\n  for (let i = 0; i < xs.length;
i++) {\n    tensorsFromX[xs[i].id] = true;\n  }\n\n  for (let i = 0; i < tape.length; i++) {\n    const node = tape[i];\n
    const nodeInputs = node.inputs;\n    for (const inputName in nodeInputs) {\n      const input =
nodeInputs[inputName];\n\n      let anyInputFromX = false;\n      for (let j = 0; j < xs.length; j++) {\n        if
(tensorsFromX[input.id]) {\n          node.outputs.forEach(output => tensorsFromX[output.id] = true);\n
anyInputFromX = true;\n          nodesFromX[node.id] = true;\n          break;\n        }\n      }\n\n      if
(anyInputFromX) {\n        break;\n      }\n    }\n  }\n\n  // Backward pass to find all of the nodes and Tensors that
lead to y.\n  const tensorsLeadToY: {[tensorId: number]: boolean} = {};\n  tensorsLeadToY[y.id] = true;\n  const
nodesToY: {[nodeId: number]: boolean} = {};\n\n  for (let i = tape.length - 1; i >= 0; i--) {\n    const node =
tape[i];\n    const nodeInputs = node.inputs;\n\n    // If any of the outputs lead to y, mark all of the inputs as leading
to y.\n    for (let j = 0; j < node.outputs.length; j++) {\n      if (tensorsLeadToY[node.outputs[j].id])
 {\n        for (const inputName in nodeInputs) {\n          tensorsLeadToY[nodeInputs[inputName].id] = true;\n
nodesToY[node.id] = true;\n        }\n        break;\n      }\n    }\n  }\n\n  // Return the paths that come from x and lead
to y.\n  const filteredTape: TapeNode[] = [];\n  for (let i = 0; i < tape.length; i++) {\n    const node = tape[i];\n\n    if
(nodesFromX[node.id] && nodesToY[node.id]) {\n      // Prune the inputs from the node that aren't a function of
x.\n      const prunedInputs: {[inputName: string]: Tensor} = {};\n      for (const inputName in node.inputs) {\n
const nodeInput = node.inputs[inputName];\n        if (tensorsFromX[nodeInput.id]) {\n
prunedInputs[inputName] = nodeInput;\n        }\n      }\n\n      // Copy the node and overwrite inputsAndArgs to the
pruned version.\n      const prunedNode = Object.assign({}, node);\n      prunedNode.inputs = prunedInputs;\n
prunedNode.outputs = node.outputs;\n\n      filteredTape.push(prunedNode);\n
    }\n  }\n\n  return filteredTape;\n}\n\n/**\n * Backpropagate gradients through the filtered TapeNodes.\n *\n *
@param tensorAccumulatedGradientMap A map of Tensor to its gradient. This map\n * is mutated by this
```

```
method.\n * @param filteredTape The filtered TapeNodes to backprop through.\n */\nexport function backpropagateGradients(\n    tensorAccumulatedGradientMap: {[tensorId: number]: Tensor},\n    filteredTape: TapeNode[], tidy: (f: Function) => Tensor,\n    add: (a: Tensor, b: Tensor) => Tensor) {\n  // Walk the tape backward and keep a map of Tensor to its gradient.\n  for (let i = filteredTape.length - 1; i >= 0; i--) {\n    const node = filteredTape[i];\n\n    const dys: Tensor[] = [];\n    node.outputs.forEach(o => {\n      const gradTensor = tensorAccumulatedGradientMap[o.id];\n      if (gradTensor != null) {\n        dys.push(gradTensor);\n      } else {\n        // This particular output is not in the back-propagation subgraph, so it\n        // does not affect the final output, thus we put null for its dy.\n        dys.push(null);\n      }\n    });\n\n    if (node.gradient == null) {\n      throw new Error(\n          `Cannot compute gradient: gradient function not found ` +\n          `for ${node.kernelName}.`);\n    }\n\n    // Backprop dy through this node and accumulate gradients over the inputs.\n    const inputGradients = node.gradient(dys);\n\n    for (const inputName in node.inputs) {\n      if (!(inputName in inputGradients)) {\n        throw new Error(\n            `Cannot backprop through input ${inputName}. ` +\n            `Available gradients found: ${Object.keys(inputGradients)}.`);\n      }\n\n      // Call the gradient function.\n      const dx = tidy(() => inputGradients[inputName]());\n      if (dx.dtype !== 'float32') {\n        throw new Error(\n            `Error in gradient for op ${\n                node.kernelName}. The gradient of input ` +\n            `${inputName} must have 'float32' dtype, but\n        has '${dx.dtype}'`);\n      }\n      const x = node.inputs[inputName];\n      if (!util.arraysEqual(dx.shape, x.shape)) {\n        throw new Error(\n            `Error in gradient for op ${\n                node.kernelName}. The gradient of input ` +\n            `'${inputName}' has shape '${dx.shape}', which does not match ` +\n            `the shape of the input '${x.shape}'`);\n      }\n\n      if (tensorAccumulatedGradientMap[x.id] == null) {\n        tensorAccumulatedGradientMap[x.id] = dx;\n      } else {\n        const curGradient = tensorAccumulatedGradientMap[x.id];\n        tensorAccumulatedGradientMap[x.id] = add(curGradient, dx);\n        curGradient.dispose();\n      }\n    }\n  }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {DataType, TypedArray} from './types';\nimport {computeStrides, isString, rightPad, sizeFromShape} from './util';\n\n// Maximum number of values before we decide to show ellipsis.\nconst FORMAT_LIMIT_NUM_VALS = 20;\n// Number of first and last values to show when displaying a, b,...,y, z.\nconst FORMAT_NUM_FIRST_LAST_VALS = 3;\n// Number of significant digits to show.\nconst FORMAT_NUM_SIG_DIGITS = 7;\n\nexport function tensorToString(\n    vals: TypedArray|string[], shape: number[], dtype: DataType,\n    verbose: boolean) {\n  const strides = computeStrides(shape);\n  const padPerCol = computeMaxSizePerColumn(vals, shape, dtype, strides);\n  const rank = shape.length;\n  const valsLines = subTensorToString(vals, shape, dtype, strides, padPerCol);\n  const lines = ['Tensor'];\n  if (verbose) {\n    lines.push(`  dtype: ${dtype}`);\n    lines.push(`  rank: ${rank}`);\n    lines.push(`  shape: [${shape}]`);\n    lines.push(`  values:`);\n  }\n  lines.push(valsLines.map(l => '    ' + l).join('\\n'));\n  return lines.join('\\n');\n}\n\nfunction computeMaxSizePerColumn(\n    vals: TypedArray|string[], shape: number[], dtype: DataType,\n    strides: number[]): number[] {\n  const n = sizeFromShape(shape);\n  const numCols = strides[strides.length - 1];\n  const padPerCol = new Array(numCols).fill(0);\n  const rank = shape.length;\n  const valuesOrTuples =\n      dtype === 'complex64' ? createComplexTuples(vals) : vals;\n\n  if (rank > 1) {\n    for (let row = 0; row < n / numCols; row++) {\n      const offset = row * numCols;\n      for (let j = 0; j < numCols; j++) {\n        padPerCol[j] = Math.max(\n            padPerCol[j],\n            valToString(valuesOrTuples[offset + j], 0, dtype).length);\n      }\n    }\n  }\n  return padPerCol;\n}\n\nfunction
```

```
valToString(\n    val: number|string|[number, number], pad: number, dtype: DataType) {\n  let valStr: string;\n  if (Array.isArray(val)) {\n    valStr = `${parseFloat(val[0].toFixed(FORMAT_NUM_SIG_DIGITS))} + ` +\n        `${parseFloat(val[1].toFixed(FORMAT_NUM_SIG_DIGITS))}j`;\n  } else if (isString(val)) {\n    valStr = `'${val}'`;\n  } else if (dtype === 'bool') {\n    valStr = boolNumToString(val);\n  } else {\n    valStr = parseFloat(val.toFixed(FORMAT_NUM_SIG_DIGITS)).toString();\n  }\n\n  return rightPad(valStr, pad);\n}\n\nfunction boolNumToString(v: number): string {\n  return v === 0 ? 'false' : 'true';\n}\n\nfunction subTensorToString(\n    vals: TypedArray|string[], shape: number[], dtype: DataType,\n    strides: number[], padPerCol: number[], isLast = true):
 string[] {\n  const storagePerElement = dtype === 'complex64' ? 2 : 1;\n\n  const size = shape[0];\n  const rank = shape.length;\n  if (rank === 0) {\n    if (dtype === 'complex64') {\n      const complexTuple = createComplexTuples(vals);\n      return [valToString(complexTuple[0], 0, dtype)];\n    }\n    if (dtype === 'bool') {\n      return [boolNumToString(vals[0] as number)];\n    }\n    return [vals[0].toString()];\n  }\n\n  if (rank === 1) {\n    if (size > FORMAT_LIMIT_NUM_VALS) {\n      const firstValsSize = FORMAT_NUM_FIRST_LAST_VALS * storagePerElement;\n\n      let firstVals = Array.from<number|string|[number, number]>(\n          vals.slice(0, firstValsSize));\n      let lastVals = Array.from<number|string|[number, number]>(vals.slice(\n          (size - FORMAT_NUM_FIRST_LAST_VALS) * storagePerElement,\n          size * storagePerElement));\n      if (dtype === 'complex64') {\n        firstVals = createComplexTuples(firstVals);\n        lastVals = createComplexTuples(lastVals);\n      }\n      return [\n        '[' +\n        firstVals.map((x, i) => valToString(x, padPerCol[i], dtype))\n            .join(', ') +\n        ', ..., ' +\n        lastVals\n            .map(\n                (x, i) => valToString(\n                    x, padPerCol[size - FORMAT_NUM_FIRST_LAST_VALS + i], dtype))\n            .join(', ') +\n        ']'\n      ];\n    }\n    const displayVals: Array<number|string|[number, number]> =\n        dtype === 'complex64' ? createComplexTuples(vals) :\n                                Array.from<number|string>(vals);\n\n    return [\n      '[' +\n      displayVals.map((x, i) => valToString(x, padPerCol[i], dtype))\n          .join(', ') +\n      ']'\n    ];\n  }\n\n  // The array is rank 2 or more.\n  const subshape = shape.slice(1);\n  const substrides = strides.slice(1);\n  const stride = strides[0] * storagePerElement;\n  const lines: string[] = [];\n  if (size > FORMAT_LIMIT_NUM_VALS) {\n    for (let i = 0; i < FORMAT_NUM_FIRST_LAST_VALS;
 i++) {\n      const start = i * stride;\n      const end = start + stride;\n      lines.push(...subTensorToString(\n          vals.slice(start, end), subshape, dtype, substrides, padPerCol,\n          false /* isLast */));\n    }\n    lines.push('...');\n    for (let i = size - FORMAT_NUM_FIRST_LAST_VALS; i < size; i++) {\n      const start = i * stride;\n      const end = start + stride;\n      lines.push(...subTensorToString(\n          vals.slice(start, end), subshape, dtype, substrides, padPerCol,\n          i === size - 1 /* isLast */));\n    }\n  } else {\n    for (let i = 0; i < size; i++) {\n      const start = i * stride;\n      const end = start + stride;\n      lines.push(...subTensorToString(\n          vals.slice(start, end), subshape, dtype, substrides, padPerCol,\n          i === size - 1 /* isLast */));\n    }\n  }\n  const sep = rank === 2 ? ',' : '';\n  lines[0] = '[' + lines[0] + sep;\n  for (let i = 1; i < lines.length - 1; i++) {\n    lines[i] = ' ' + lines[i] + sep;\n  }\n  let newLineSep = ',\\n';\n  for (let i = 2; i < rank; i++) {\n    newLineSep += '\\n';\n  }\n  lines[lines.length - 1] =\n      ' ' + lines[lines.length - 1] + ']' + (isLast ? '' : newLineSep);\n  return lines;\n}\n\nfunction createComplexTuples(vals: Array<{}>|\n                             TypedArray): Array<[number, number]> {\n  const complexTuples: Array<[number, number]> = [];\n  for (let i = 0; i < vals.length; i += 2) {\n    complexTuples.push([vals[i], vals[i + 1]] as [number, number]);\n  }\n  return complexTuples;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
 BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {getGlobal} from './global_util';\nimport {tensorToString} from './tensor_format';\nimport {ArrayMap,
```

```
BackendValues, DataType, DataTypeMap, DataValues, NumericDataType, Rank, ShapeMap, SingleValueMap,
TypedArray} from './types';\nimport * as util from './util';\nimport {computeStrides, toNestedArray} from
'./util';\n\nexport interface TensorData<D extends DataType> {\n  dataId?: DataId;\n  values?:
DataTypeMap[D];\n}\n\n// This interface mimics KernelBackend (in backend.ts), which would create a\n// circular
dependency if imported.\nexport interface Backend {}\n\n/**\n * A mutable object, similar to `tf.Tensor`, that
allows users to set values\n * at locations before converting to an immutable `tf.Tensor`.\n
 *\n * See `tf.buffer` for creating a tensor buffer.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n
*/\nexport class TensorBuffer<R extends Rank, D extends DataType = 'float32'> {\n  size: number;\n  shape:
ShapeMap[R];\n  strides: number[];\n  values: DataTypeMap[D];\n\n  constructor(shape: ShapeMap[R], public
dtype: D, values?: DataTypeMap[D]) {\n    this.shape = shape.slice() as ShapeMap[R];\n    this.size =
util.sizeFromShape(shape);\n\n    if (values != null) {\n      const n = values.length;\n      util.assert(\n          n ===
this.size,\n          () => `Length of values '${n}' does not match the size ` +\n              `inferred by the shape
'${this.size}'.`);\n    }\n    if (dtype === 'complex64') {\n      throw new Error(\n          `complex64 dtype
TensorBuffers are not supported. Please create ` +\n          `a TensorBuffer for the real and imaginary parts
separately and ` +\n          `call tf.complex(real, imag).`);\n    }\n    this.values = values ||
 util.getArrayFromDType(dtype, this.size);\n    this.strides = computeStrides(shape);\n  }\n\n  /**\n   * Sets a value
in the buffer at a given location.\n   *\n   * @param value The value to set.\n   * @param locs  The location
indices.\n   *\n   * @doc {heading: 'Tensors', subheading: 'Creation'}\n   */\n  set(value: SingleValueMap[D], ...locs:
number[]): void {\n    if (locs.length === 0) {\n      locs = [0];\n    }\n    util.assert(\n        locs.length === this.rank,\n
    () => `The number of provided coordinates (${locs.length}) must ` +\n          `match the rank
(${this.rank})`);\n\n    const index = this.locToIndex(locs);\n    this.values[index] = value as number;\n  }\n\n  /**\n
* Returns the value in the buffer at the provided location.\n   *\n   * @param locs The location indices.\n   *\n   *
@doc {heading: 'Tensors', subheading: 'Creation'}\n   */\n  get(...locs: number[]): SingleValueMap[D] {\n    if
(locs.length === 0) {\n      locs = [0];\n    }\n    let i = 0;\n
    for (const loc of locs) {\n      if (loc < 0 || loc >= this.shape[i]) {\n        const msg = `Requested out of range
element at ${locs}. ` +\n            `  Buffer shape=${this.shape}`;\n        throw new Error(msg);\n      }\n      i++;\n
}\n    let index = locs[locs.length - 1];\n    for (let i = 0; i < locs.length - 1; ++i) {\n      index += this.strides[i] *
locs[i];\n    }\n    return this.values[index] as SingleValueMap[D];\n  }\n\n  locToIndex(locs: number[]): number {\n
 if (this.rank === 0) {\n      return 0;\n    } else if (this.rank === 1) {\n      return locs[0];\n    }\n    let index =
locs[locs.length - 1];\n    for (let i = 0; i < locs.length - 1; ++i) {\n      index += this.strides[i] * locs[i];\n    }\n
return index;\n  }\n\n  indexToLoc(index: number): number[] {\n    if (this.rank === 0) {\n      return [];\n    } else if
(this.rank === 1) {\n      return [index];\n    }\n    const locs: number[] = new Array(this.shape.length);\n    for (let i =
0; i < locs.length
 - 1; ++i) {\n      locs[i] = Math.floor(index / this.strides[i]);\n      index -= locs[i] * this.strides[i];\n    }\n
locs[locs.length - 1] = index;\n    return locs;\n  }\n\n  get rank() {\n    return this.shape.length;\n  }\n\n  /**\n   *
Creates an immutable `tf.Tensor` object from the buffer.\n   *\n   * @doc {heading: 'Tensors', subheading:
'Creation'}\n   */\n  toTensor(): Tensor<R> {\n    return trackerFn().makeTensor(this.values, this.shape, this.dtype)
as\n        Tensor<R>;\n  }\n}\n\nexport interface TensorTracker {\n  makeTensor(\n      values: DataValues, shape:
number[], dtype: DataType,\n      backend?: Backend): Tensor;\n  makeVariable(\n      initialValue: Tensor,
trainable?: boolean, name?: string,\n      dtype?: DataType): Variable;\n  incRef(a: Tensor, backend: Backend):
void;\n  disposeTensor(t: Tensor): void;\n  disposeVariable(v: Variable): void;\n  read(dataId: DataId):
Promise<BackendValues>;\n  readSync(dataId: DataId): BackendValues;\n}\n\n/**\n
 * The Tensor class calls into this handler to delegate chaining operations.\n */\nexport interface OpHandler {\n
cast<T extends Tensor>(x: T, dtype: DataType): T;\n  buffer<R extends Rank, D extends DataType>(\n      shape:
ShapeMap[R], dtype: D,\n      values?: DataTypeMap[D]): TensorBuffer<R, D>;\n  print<T extends Tensor>(x: T,
verbose: boolean): void;\n  clone<T extends Tensor>(x: T): T;\n  // TODO(yassogba) bring reshape back?\n}\n\n//
For tracking tensor creation and disposal.\nlet trackerFn: () => TensorTracker = null;\n// Used by chaining methods
to call into ops.\nlet opHandler: OpHandler = null;\n// Used to warn about deprecated methods.\nlet
```

deprecationWarningFn: (msg: string) => void = null;\n// This here so that we can use this method on dev branches and keep the\n// functionality at master.\n// tslint:disable-next-line:no-unused-expression\n[deprecationWarningFn];\n\n/**\n * An external consumer can register itself as the tensor tracker. This way\n * the Tensor class can
notify the tracker for every tensor created and\n * disposed.\n */\nexport function setTensorTracker(fn: () => TensorTracker) {\n trackerFn = fn;\n}\n\n/**\n * An external consumer can register itself as the op handler. This way the\n * Tensor class can have chaining methods that call into ops via the op\n * handler.\n */\nexport function setOpHandler(handler: OpHandler) {\n opHandler = handler;\n}\n\n/**\n * Sets the deprecation warning function to be used by this file. This way the\n * Tensor class can be a leaf but still use the environment.\n */\nexport function setDeprecationWarningFn(fn: (msg: string) => void) {\n deprecationWarningFn = fn;\n}\n\n/**\n * We wrap data id since we use weak map to avoid memory leaks.\n * Since we have our own memory management, we have a reference counter\n * mapping a tensor to its data, so there is always a pointer (even if that\n * data is otherwise garbage collectable).\n * See https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/\n * Global_Objects/WeakMap\n */\nexport type DataId = object; // object instead of {} to force non-primitive.\n\n// Declare this namespace to make Tensor class augmentation work in google3.\nexport declare namespace Tensor {}\n/**\n * A `tf.Tensor` object represents an immutable, multidimensional array of\n * numbers that has a shape and a data type.\n *\n * See `tf.tensor` for details on how to create a `tf.Tensor`.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\nexport class Tensor<R extends Rank = Rank> {\n /** Unique id of this tensor. */\n readonly id: number;\n /**\n * Id of the bucket holding the data for this tensor. Multiple arrays can\n * point to the same bucket (e.g. when calling array.reshape()).\n */\n dataId: DataId;\n /** The shape of the tensor. */\n readonly shape: ShapeMap[R];\n /** Number of elements in the tensor. */\n readonly size: number;\n /** The data type for the array. */\n readonly dtype: DataType;\n /** The rank type for
the array (see `Rank` enum). */\n readonly rankType: R;\n\n /** Whether this tensor has been globally kept. */\n kept = false;\n /** The id of the scope this tensor is being tracked in. */\n scopeId: number;\n\n /**\n * Number of elements to skip in each dimension when indexing. See\n * https://docs.scipy.org/doc/numpy/reference/generated/\\\n * numpy.ndarray.strides.html\n */\n readonly strides: number[];\n\n constructor(shape: ShapeMap[R], dtype: DataType, dataId: DataId, id: number) {\n this.shape = shape.slice() as ShapeMap[R];\n this.dtype = dtype || 'float32';\n this.size = util.sizeFromShape(shape);\n this.strides = computeStrides(shape);\n this.dataId = dataId;\n this.id = id;\n this.rankType = (this.rank < 5 ? this.rank.toString() : 'higher') as R;\n }\n\n get rank(): number {\n return this.shape.length;\n }\n\n /**\n * Returns a promise of `tf.TensorBuffer` that holds the underlying data.\n *\n * @doc {heading: 'Tensors', subheading:
'Classes'}\n */\n async buffer<D extends DataType = 'float32'>(): Promise<TensorBuffer<R, D>> {\n const vals = await this.data<D>();\n return opHandler.buffer(this.shape, this.dtype as D, vals);\n }\n\n /**\n * Returns a `tf.TensorBuffer` that holds the underlying data.\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n bufferSync<D extends DataType = 'float32'>(): TensorBuffer<R, D> {\n return opHandler.buffer(this.shape, this.dtype as D, this.dataSync());\n }\n\n /**\n * Returns the tensor data as a nested array. The transfer of data is done\n * asynchronously.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n async array(): Promise<ArrayMap[R]> {\n const vals = await this.data();\n return toNestedArray(this.shape, vals) as ArrayMap[R];\n }\n\n /**\n * Returns the tensor data as a nested array. The transfer of data is done\n * synchronously.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n
arraySync(): ArrayMap[R] {\n return toNestedArray(this.shape, this.dataSync()) as ArrayMap[R];\n }\n\n /**\n * Asynchronously downloads the values from the `tf.Tensor`. Returns a\n * promise of `TypedArray` that resolves when the computation has finished.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n async data<D extends DataType = NumericDataType>(): Promise<DataTypeMap[D]> {\n this.throwIfDisposed();\n const data = trackerFn().read(this.dataId);\n if (this.dtype === 'string') {\n   const bytes = await data as Uint8Array[];\n   try {\n   return bytes.map(b => util.decodeString(b)) as DataTypeMap[D];\n   } catch {\n   throw new Error(\n   'Failed to decode the string bytes into utf-8. ' +\n   'To get the original bytes, call

tensor.bytes().');\n }\n }\n return data as Promise<DataTypeMap[D]>;\n }\n\n /**\n * Synchronously downloads the values from the `tf.Tensor`. This blocks the\n * UI
thread until the values are ready, which can cause performance issues.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n dataSync<D extends DataType = NumericDataType>(): DataTypeMap[D] {\n this.throwIfDisposed();\n const data = trackerFn().readSync(this.dataId);\n if (this.dtype === 'string') {\n try {\n return (data as Uint8Array[]).map(b => util.decodeString(b)) as\n DataTypeMap[D];\n } catch {\n throw new Error(\n 'Failed to decode the string bytes into utf-8. ' +\n 'To get the original bytes, call tensor.bytes().');\n }\n }\n return data as DataTypeMap[D];\n }\n\n /** Returns the underlying bytes of the tensor's data. */\n async bytes(): Promise<Uint8Array[]|Uint8Array> {\n this.throwIfDisposed();\n const data = await trackerFn().read(this.dataId);\n if (this.dtype === 'string') {\n return data as Uint8Array[];\n } else {\n return new Uint8Array((data as TypedArray).buffer);\n
}\n }\n\n /**\n * Disposes `tf.Tensor` from memory.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n dispose(): void {\n if (this.isDisposed) {\n return;\n }\n trackerFn().disposeTensor(this);\n this.isDisposedInternal = true;\n }\n\n protected isDisposedInternal = false;\n get isDisposed(): boolean {\n return this.isDisposedInternal;\n }\n\n throwIfDisposed() {\n if (this.isDisposed) {\n throw new Error(`Tensor is disposed.`);\n }\n }\n\n /**\n * Prints the `tf.Tensor`. See `tf.print` for details.\n *\n * @param verbose Whether to print verbose information about the tensor,\n * including dtype and size.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n print(verbose = false): void {\n return opHandler.print(this, verbose);\n }\n\n /**\n * Returns a copy of the tensor. See `tf.clone` for details.\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n clone<T
extends Tensor>(this: T): T {\n this.throwIfDisposed();\n return opHandler.clone(this);\n }\n\n /**\n * Returns a human-readable description of the tensor. Useful for logging.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n toString(verbose = false): string {\n const vals = this.dataSync();\n return tensorToString(vals, this.shape, this.dtype, verbose);\n }\n\n cast<T extends this>(dtype: DataType): T {\n this.throwIfDisposed();\n return opHandler.cast(this as T, dtype);\n }\n variable(trainable = true, name?: string, dtype?: DataType): Variable<R> {\n this.throwIfDisposed();\n return trackerFn().makeVariable(this, trainable, name, dtype) as\n Variable<R>;\n }\n}\nObject.defineProperty(Tensor, Symbol.hasInstance, {\n value: (instance: Tensor) => {\n // Implementation note: we should use properties of the object that will be\n // defined before the constructor body has finished executing (methods).\n // This
is because when this code is transpiled by babel, babel will call\n // classCallCheck before the constructor body is run.\n // See https://github.com/tensorflow/tfjs/issues/3384 for backstory.\n return !!instance && instance.data != null && instance.dataSync != null &&\n instance.throwIfDisposed != null;\n }\n});\n\nexport function getGlobalTensorClass() {\n // Use getGlobal so that we can augment the Tensor class across package\n // boundaries becase the node resolution alg may result in different modules\n // being returned for this file depending on the path they are loaded from.\n return getGlobal('Tensor', () => {\n return Tensor;\n });\n}\n\n// Global side effect. Cache global reference to Tensor class\ngetGlobalTensorClass();\n\nexport interface NumericTensor<R extends Rank = Rank> extends Tensor<R> {\n dtype: NumericDataType;\n dataSync<D extends DataType = NumericDataType>(): DataTypeMap[D];\n data<D extends DataType = NumericDataType>(): Promise<DataTypeMap[D]>;\n}\n\nexport
interface StringTensor<R extends Rank = Rank> extends Tensor<R> {\n dtype: 'string';\n dataSync<D extends DataType = 'string'>(): DataTypeMap[D];\n data<D extends DataType = 'string'>(): Promise<DataTypeMap[D]>;\n}\n\n/** @doclink Tensor */\nexport type Scalar = Tensor<Rank.R0>;\n/** @doclink Tensor */\nexport type Tensor1D = Tensor<Rank.R1>;\n/** @doclink Tensor */\nexport type Tensor2D = Tensor<Rank.R2>;\n/** @doclink Tensor */\nexport type Tensor3D = Tensor<Rank.R3>;\n/** @doclink Tensor */\nexport type Tensor4D = Tensor<Rank.R4>;\n/** @doclink Tensor */\nexport type Tensor5D = Tensor<Rank.R5>;\n/** @doclink Tensor */\nexport type Tensor6D = Tensor<Rank.R6>;\n\n/**\n * A mutable `tf.Tensor`, useful for persisting state, e.g. for training.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\nexport class Variable<R extends Rank = Rank> extends Tensor<R> {\n name: string;\n\n constructor(\n

initialValue: Tensor<R>, public trainable: boolean,
 name: string,\n tensorId: number) {\n super(\n initialValue.shape, initialValue.dtype, initialValue.dataId, tensorId);\n this.name = name;\n }\n\n /**\n * Assign a new `tf.Tensor` to this variable. The new `tf.Tensor` must have\n * the same shape and dtype as the old `tf.Tensor`.\n *\n * @param newValue New tensor to be assigned to this variable.\n *\n * @doc {heading: 'Tensors', subheading: 'Classes'}\n */\n assign(newValue: Tensor<R>): void {\n if (newValue.dtype !== this.dtype) {\n throw new Error(\n `dtype of the new value (${newValue.dtype}) and ` +\n `previous value (${this.dtype}) must match`);\n }\n if (!util.arraysEqual(newValue.shape, this.shape)) {\n throw new Error(\n `shape of the new value (${newValue.shape}) and ` +\n `previous value (${this.shape}) must match`);\n }\n trackerFn().disposeTensor(this);\n this.dataId = newValue.dataId;\n trackerFn().incRef(this, null
 /* backend */);\n }\n\n dispose(): void {\n trackerFn().disposeVariable(this);\n this.isDisposedInternal = true;\n }\n}\n\nObject.defineProperty(Variable, Symbol.hasInstance, {\n value: (instance: Variable) => {\n return instance instanceof Tensor && instance.assign != null &&\n instance.assign instanceof Function;\n }\n});\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\n/** @docalias number[] */\nexport interface ShapeMap {\n R0: number[];\n R1: [number];\n R2: [number, number];\n R3: [number, number, number];\n R4: [number, number, number, number];\n R5: [number, number, number, number, number];\n R6: [number, number, number, number, number, number];\n}\n\n/** @docalias number[] */\nexport interface ArrayMap {\n R0: number;\n R1: number[];\n R2: number[][];\n R3: number[][][];\n R4: number[][][][];\n R5: number[][][][][];\n R6: number[][][][][][];\n}\n\nexport interface DataTypeMap {\n float32: Float32Array;\n int32: Int32Array;\n bool: Uint8Array;\n complex64: Float32Array;\n string: string[];\n}\n\nexport interface SingleValueMap {\n bool: boolean;\n int32: number;\n float32: number;\n complex64: number;\n string: string;\n}\n\n/** @docalias 'float32'|'int32'|'bool'|'complex64'|'string' */\nexport type DataType = keyof DataTypeMap;\nexport type NumericDataType
 = 'float32'|'int32'|'bool'|'complex64';\nexport type TypedArray = Float32Array|Int32Array|Uint8Array;\n/** Tensor data used in tensor creation and user-facing API. */\nexport type DataValues = DataTypeMap[DataType];\n/** The underlying tensor data that gets stored in a backend. */\nexport type BackendValues = Float32Array|Int32Array|Uint8Array|Uint8Array[];\n\nexport enum Rank {\n R0 = 'R0',\n R1 = 'R1',\n R2 = 'R2',\n R3 = 'R3',\n R4 = 'R4',\n R5 = 'R5',\n R6 = 'R6'\n}\n\nexport type FlatVector = boolean[]|number[]|TypedArray;\nexport type RegularArray<T> =\n T[]|T[][]|T[][][]|T[][][][]|T[][][][][]|T[][][][][][];\n\n// tslint:disable-next-line:no-any\nexport interface RecursiveArray<T extends any> {\n [index: number]: T|RecursiveArray<T>;\n}\n\n// Looks for upcasting types. Used, for example, in operations with mixed dtype\n// inputs.\nenum UpcastInt32AndMap {\n 'float32' = 'float32',\n 'int32' = 'int32',\n 'bool' = 'int32',\n 'complex64' = 'complex64'\n}\n\nenum
 UpcastBoolAndMap {\n 'float32' = 'float32',\n 'int32' = 'int32',\n 'bool' = 'bool',\n 'complex64' = 'complex64'\n}\n\nenum UpcastFloat32AndMap {\n 'float32' = 'float32',\n 'int32' = 'float32',\n 'bool' = 'float32',\n 'complex64' = 'complex64'\n}\n\nenum UpcastComplex64AndMap {\n 'float32' = 'complex64',\n 'int32' = 'complex64',\n 'bool' = 'complex64',\n 'complex64' = 'complex64'\n}\n\nconst upcastTypeMap = {\n 'float32': UpcastFloat32AndMap,\n 'int32': UpcastInt32AndMap,\n 'bool': UpcastBoolAndMap,\n 'complex64': UpcastComplex64AndMap\n};\n\nexport function upcastType(typeA: DataType, typeB: DataType): DataType {\n if (typeA === 'string' || typeB === 'string') {\n if (typeA === 'string' && typeB === 'string') {\n return 'string';\n }\n throw new Error(`Can not upcast ${typeA} with ${typeB}`);\n }\n return upcastTypeMap[typeA][typeB];\n}\n\n/** Returns the output type after summation. */\nexport function

sumOutType(type: DataType): DataType {\n return
 upcastType(type, 'int32');\n}\n\n/** @docalias TypedArray|Array */\nexport type TensorLike =\n
TypedArray|number|boolean|string|RecursiveArray<number|number[]|TypedArray>|\n
RecursiveArray<boolean>|RecursiveArray<string>|Uint8Array[];\nexport type ScalarLike =
number|boolean|string|Uint8Array;\n/** @docalias TypedArray|Array */\nexport type TensorLike1D =
TypedArray|number[]|boolean[]|string[]|Uint8Array[];\n/** @docalias TypedArray|Array */\nexport type
TensorLike2D = TypedArray|number[]|number[][]|boolean[]|boolean[][]|\n
string[]|string[][]|Uint8Array[]|Uint8Array[][];\n/** @docalias TypedArray|Array */\nexport type TensorLike3D =
TypedArray|number[]|number[][][]|boolean[]|\n
boolean[][][]|string[]|string[][][]|Uint8Array[]|Uint8Array[][][];\n/** @docalias TypedArray|Array */\nexport type
TensorLike4D = TypedArray|number[]|number[][][][]|boolean[]|\n
boolean[][][][]|string[]|string[][][][]|Uint8Array[]|Uint8Array[][][][];\n/** @docalias TypedArray|Array */\nexport
 type TensorLike5D =\n   TypedArray|number[]|number[][][][][]|boolean[]|boolean[][][][][]|string[]|\n
string[][][][][]|Uint8Array[]|Uint8Array[][][][][];\n/** @docalias TypedArray|Array */\nexport type TensorLike6D
=\n   TypedArray|number[]|number[][][][][][]|boolean[]|boolean[][][][][][]|\n
string[]|string[][][][][][]|Uint8Array[]|Uint8Array[][][][][];\n\n/** Type for representing image data in Uint8Array
type. */\nexport interface PixelData {\n width: number;\n height: number;\n data: Uint8Array;\n}\n","/**\n *
@license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR
 CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from './tensor';\nimport {TensorContainer, TensorContainerArray} from
'./tensor_types';\nimport {upcastType} from './types';\nimport {assert} from './util';\n\nexport function
makeTypesMatch<T extends Tensor>(a: T, b: T): [T, T] {\n if (a.dtype === b.dtype) {\n   return [a, b];\n }\n
const dtype = upcastType(a.dtype, b.dtype);\n return [a.cast(dtype), b.cast(dtype)];\n}\n\nexport function
assertTypesMatch(a: Tensor, b: Tensor): void {\n assert(\n   a.dtype === b.dtype,\n   () => `The dtypes of the
first(${a.dtype}) and` +\n          ` second(${b.dtype}) input must match`);\n}\n\nexport function
isTensorInList(tensor: Tensor, tensorList: Tensor[]): boolean {\n return tensorList.some(x => x.id ===
tensor.id);\n}\n\n/**\n
 * Extracts any `Tensor`s found within the provided object.\n *\n * @param container an object that may be a
`Tensor` or may directly contain\n *   `Tensor`s, such as a `Tensor[]` or `{key: Tensor, ...}`. In general it\n *   is safe
to pass any object here, except that `Promise`s are not\n *   supported.\n * @returns An array of `Tensors` found
within the passed object. If the\n *   argument is simply a `Tensor', a list containing that `Tensor` is\n *   returned. If
the object is not a `Tensor` or does not\n *   contain `Tensors`, an empty list is returned.\n */\nexport function
getTensorsInContainer(result: TensorContainer): Tensor[] {\n const list: Tensor[] = [];\n const seen = new
Set<{}|void>();\n walkTensorContainer(result, list, seen);\n return list;\n}\n\nfunction walkTensorContainer(\n
container: TensorContainer, list: Tensor[], seen: Set<{}|void>): void {\n if (container == null) {\n   return;\n }\n if
(container instanceof Tensor) {\n   list.push(container);\n
    return;\n }\n if (!isIterable(container)) {\n   return;\n }\n // Iteration over keys works also for arrays.\n const
iterable = container as TensorContainerArray;\n for (const k in iterable) {\n   const val = iterable[k];\n   if
(!seen.has(val)) {\n   seen.add(val);\n   walkTensorContainer(val, list, seen);\n   }\n }\n}\n\n// tslint:disable-
next-line:no-any\nfunction isIterable(obj: any): boolean {\n return Array.isArray(obj) || typeof obj ===
'object';\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the

License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {BackendTimingInfo, DataMover, KernelBackend} from './backends/backend';\nimport {Environment, setEnvironmentGlobal} from './environment';\nimport {getGlobalNamespace} from './global_util';\nimport {Add, Cast, Identity} from './kernel_names';\nimport {getGradient, getKernel, getKernelsForBackend, GradFunc, NamedAttrMap, TensorInfo} from './kernel_registry';\nimport {KernelProfile, Profiler} from './profiler';\nimport {backpropagateGradients, getFilteredNodesXToY, TapeNode} from './tape';\nimport {DataId, setTensorTracker, Tensor, TensorTracker, Variable} from './tensor';\nimport {GradSaveFunc, NamedTensorMap, NamedVariableMap, TensorContainer} from './tensor_types';\nimport {getTensorsInContainer} from './tensor_util';\nimport {BackendValues, DataType, DataValues} from './types';\nimport * as util from './util';\nimport {bytesFromStringArray, makeOnesTypedArray, now, sizeFromShape} from './util';\n\n/**\n * A function that computes an output. The save function is for saving tensors\n * computed in the forward pass, that we need in the backward pass.\n */\nexport type ForwardFunc<T> = (backend: KernelBackend, save?: GradSaveFunc) => T;\n\n/**\n * @docalias (a: Tensor, b: Tensor,..., save?: Function) => {\n *   value: Tensor,\n *   gradFunc: (dy: Tensor, saved?: NamedTensorMap) => Tensor | Tensor[]\n * }\n */\nexport type CustomGradientFunc<T extends Tensor> =\n   (...inputs: Array<Tensor|GradSaveFunc>) => {\n   value: T;\n   gradFunc: (dy: T, saved: Tensor[]) => Tensor | Tensor[];\n   };\n\nexport type MemoryInfo = {\n numTensors: number; numDataBuffers: number; numBytes: number;\n unreliable?: boolean; reasons: string[];\n};\n\ntype KernelInfo = {\n name: string; bytesAdded: number; totalBytesSnapshot: number;\n tensorsAdded: number;\n totalTensorsSnapshot:
  number;\n inputShapes: number[][];\n outputShapes: number[][];\n kernelTimeMs: number | {error: string} | Promise<number|{error: string}>;\n extraInfo: string | Promise<string>;\n};\n\nexport type ProfileInfo = {\n newBytes: number; newTensors: number; peakBytes: number;\n kernels: KernelInfo[];\n result: TensorContainer;\n kernelNames: string[];\n};\n\nexport interface TimingInfo extends BackendTimingInfo {\n wallMs: number;\n}\n\n/** @docalias Function */\nexport type ScopeFn<T extends TensorContainer> = () => T;\n\ninterface ScopeState {\n track: Tensor[];\n name: string;\n id: number;\n}\n\ninterface RegisteredKernelInvocation<I extends NamedTensorMap> {\n kernelName: string;\n inputs: I;\n attrs?: NamedAttrMap;\n}\n\ninterface CustomGradKernelInvocation<T extends Tensor|Tensor[],\n   I extends NamedTensorMap> {\n forwardFunc: ForwardFunc<T>;\n backwardsFunc: (dy: T, saved: Tensor[]) => {\n   [P in keyof
  I]: () => I[P]\n };\n inputs: I;\n attrs?: NamedAttrMap;\n}\n\nfunction isRegisteredKernelInvocation<T extends Tensor|Tensor[],\n   I extends NamedTensorMap>(\n   kernelInvocation:
RegisteredKernelInvocation<I>|\n   CustomGradKernelInvocation<T, I>):\n   kernelInvocation is RegisteredKernelInvocation<I> {\n return (kernelInvocation as RegisteredKernelInvocation<I>).kernelName !=
null;\n}\n\nclass EngineState {\n // Public since optimizers will use it.\n registeredVariables: NamedVariableMap = {};\n\n nextTapeNodeId = 0;\n numBytes = 0;\n numTensors = 0;\n numStringTensors = 0;\n numDataBuffers = 0;\n\n activeTape: TapeNode[];\n // Number of nested tf.grad() statements when computing higher-order\n // gradients. E.g. `1` for first-order gradients and `2` for second-order\n // gradients. Used to track if the tape should be removed after a backprop.\n gradientDepth = 0;\n // Number of nested kernel calls. When kernel depth
  is greater than 1, we turn\n // off the tape.\n kernelDepth = 0;\n\n // Keep Tensors that parallel the tapes.\n activeScope: ScopeState;\n scopeStack: ScopeState[] = [];\n /**\n   * Keeps track of the number of data moves during a kernel execution. We\n   * maintain a stack since kernels can call other kernels, recursively.\n   */\n numDataMovesStack: number[] = [];\n nextScopeId = 0;\n\n tensorInfo = new WeakMap<DataId, {\n   backend: KernelBackend,\n   bytes: number,\n   dtype: DataType,\n   shape: number[]\n }>();\n\n profiling = false;\n

```
activeProfile: ProfileInfo = {\n    newBytes: 0,\n    newTensors: 0,\n    peakBytes: 0,\n    kernels: [],\n    result: null,\n    get kernelNames():\n        string[] {\n        return Array.from(new Set(this.kernels.map(k => k.name)));\n    }\n  };\n\n  dispose() {\n    for (const variableName in this.registeredVariables) {\n      this.registeredVariables[variableName].dispose();\n    }\n  }\n}\n\nexport class Engine implements TensorTracker, DataMover {\n  state: EngineState;\n  backendName: string;\n  registry: {[id: string]: KernelBackend} = {};\n  registryFactory: {\n    [id: string]: {\n      factory: () => KernelBackend | Promise<KernelBackend>,\n      priority: number\n    }\n  } = {};\n\n  private profiler: Profiler;\n  private backendInstance: KernelBackend;\n  private pendingBackendInit: Promise<boolean>;\n  private pendingBackendInitId = 0;\n\n  constructor(public ENV: Environment) {\n    this.state = new EngineState();\n  }\n\n  async ready(): Promise<void> {\n    if (this.pendingBackendInit != null) {\n      return this.pendingBackendInit.then(() => {});\n    }\n    if (this.backendInstance != null) {\n      return;\n    }\n    const sortedBackends = this.getSortedBackends();\n\n    for (let i = 0; i < sortedBackends.length; i++) {\n      const backendName = sortedBackends[i];\n      const success = await this.initializeBackend(backendName).success;\n      if (success) {\n        await this.setBackend(backendName);\n        return;\n      }\n    }\n\n    throw new Error(\n        `Could not initialize any backends, all backend initializations ` +\n        `failed.`);\n  }\n\n  get backend(): KernelBackend {\n    if (this.pendingBackendInit != null) {\n      throw new Error(\n          `Backend '${this.backendName}' has not yet been initialized. Make ` +\n          `sure to await tf.ready() or await tf.setBackend() before calling ` +\n          `other methods`);\n    }\n    if (this.backendInstance == null) {\n      const {name, asyncInit} = this.initializeBackendsAndReturnBest();\n      if (asyncInit) {\n        throw new Error(\n            `The highest priority backend '${name}' has not yet been ` +\n            `initialized. Make sure to await tf.ready() or ` +\n            `await tf.setBackend() before calling other methods`);\n      }\n      this.setBackend(name);\n    }\n    return this.backendInstance;\n  }\n\n  backendNames(): string[] {\n    return Object.keys(this.registryFactory);\n  }\n\n  findBackend(backendName: string): KernelBackend {\n    if (!(backendName in this.registry)) {\n      // If the backend hasn't been initialized but we have a registry entry for\n      // it, initialize it and return it.\n      if (backendName in this.registryFactory) {\n        const {asyncInit} = this.initializeBackend(backendName);\n        if (asyncInit) {\n          // Backend is not ready yet.\n          return null;\n        }\n      } else {\n        return null;\n      }\n    }\n    return this.registry[backendName];\n  }\n\n  findBackendFactory(backendName: string):\n      () => KernelBackend | Promise<KernelBackend> {\n    if (!(backendName in this.registryFactory)) {\n      return null;\n    }\n    return this.registryFactory[backendName].factory;\n  }\n\n  registerBackend(\n      backendName: string,\n      factory: () => KernelBackend | Promise<KernelBackend>,\n      priority = 1): boolean {\n    if (backendName in this.registryFactory) {\n      console.warn(\n          `${backendName} backend was already registered. ` +\n          `Reusing existing backend factory.`);\n      return false;\n    }\n    this.registryFactory[backendName] = {factory, priority};\n    return true;\n  }\n\n  async setBackend(backendName: string): Promise<boolean> {\n    if (this.registryFactory[backendName] == null) {\n      throw new Error(`Backend name '${backendName}' not found in registry`);\n    }\n    this.backendName = backendName;\n    if (this.registry[backendName] == null) {\n      this.backendInstance = null;\n      const {success, asyncInit} = this.initializeBackend(backendName);\n      const result = asyncInit ? await success : success;\n      if (!result) {\n        return false;\n      }\n    }\n    this.backendInstance = this.registry[backendName];\n    this.setupRegisteredKernels();\n    // Reset the profiler.\n    this.profiler = new Profiler(this.backendInstance);\n\n    return true;\n  }\n\n  private setupRegisteredKernels():\n      void {\n    const kernels = getKernelsForBackend(this.backendName);\n    kernels.forEach(kernel => {\n      if (kernel.setupFunc != null) {\n        kernel.setupFunc(this.backendInstance);\n      }\n    });\n  }\n\n  private disposeRegisteredKernels(backendName: string): void {\n    const kernels = getKernelsForBackend(backendName);\n    kernels.forEach(kernel => {\n      if (kernel.disposeFunc != null) {\n        kernel.disposeFunc(this.registry[backendName]);\n      }\n    });\n  }\n\n  /**\n   * Initializes a backend by looking up the backend name in the factory\n   * registry and calling the factory method. Returns a boolean representing\n   * whether the initialization of the backend suceeded. Throws an error if\n   * there is no backend in the factory
```

```
registry.\n   */\n  private initializeBackend(backendName: string):\n      {success: boolean|Promise<boolean>,
asyncInit: boolean} {\n    const registryFactoryEntry = this.registryFactory[backendName];\n    if
(registryFactoryEntry
 == null) {\n      throw new Error(\n          `Cannot initialize backend ${backendName}, no registration found.`);\n
}\n\n    try {\n      const backend = registryFactoryEntry.factory();\n      /* Test if the factory returns a promise.\n
Done in a more liberal way than\n      previous 'Promise.resolve(backend)===backend'\n      as we needed to account
for custom Promise\n      implementations (e.g. Angular) */\n      if (backend && !(backend instanceof
KernelBackend) &&\n          typeof backend.then === 'function') {\n        const promiseId =
++this.pendingBackendInitId;\n        const success =\n            backend\n                .then(backendInstance => {\n
        // Outdated promise. Another backend was set in the meantime.\n                if (promiseId <
this.pendingBackendInitId) {\n                  return false;\n                }\n                this.registry[backendName] =
backendInstance;\n                this.pendingBackendInit = null;\n
            return true;\n                })\n                .catch(err => {\n                  // Outdated promise. Another backend
was set in the meantime.\n                  if (promiseId < this.pendingBackendInitId) {\n                    return false;\n
      }\n                  this.pendingBackendInit = null;\n                  console.warn(\n                      `Initialization of
backend ${backendName} failed`);\n                  console.warn(err.stack || err.message);\n                  return false;\n
        });\n        this.pendingBackendInit = success;\n        return {success, asyncInit: true};\n      } else {\n
this.registry[backendName] = backend as KernelBackend;\n        return {success: true, asyncInit: false};\n      }\n    }
catch (err) {\n      console.warn(`Initialization of backend ${backendName} failed`);\n      console.warn(err.stack ||
err.message);\n      return {success: false, asyncInit: false};\n    }\n  }\n\n  removeBackend(backendName:
 string): void {\n    if (!(backendName in this.registryFactory)) {\n      throw new Error(`${backendName} backend
not found in registry`);\n    }\n    if (this.backendName === backendName && this.pendingBackendInit != null) {\n
  // There is a pending promise of the backend we want to remove. Make it\n      // obsolete.\n
this.pendingBackendInitId++;\n    }\n\n    if (backendName in this.registry) {\n
this.disposeRegisteredKernels(backendName);\n      this.registry[backendName].dispose();\n      delete
this.registry[backendName];\n    }\n\n    delete this.registryFactory[backendName];\n\n    // Unset the backend if it is
active.\n    if (this.backendName === backendName) {\n      this.pendingBackendInit = null;\n      this.backendName
= null;\n      this.backendInstance = null;\n    }\n  }\n\n  private getSortedBackends(): string[] {\n    if
(Object.keys(this.registryFactory).length === 0) {\n      throw new Error('No backend found in registry.');\n    }\n
  return Object.keys(this.registryFactory).sort((a: string, b: string) => {\n      // Highest priority comes first.\n
return this.registryFactory[b].priority -\n          this.registryFactory[a].priority;\n    });\n  }\n\n  private
initializeBackendsAndReturnBest():\n      {name: string, asyncInit: boolean} {\n    const sortedBackends =
this.getSortedBackends();\n\n    for (let i = 0; i < sortedBackends.length; i++) {\n      const backendName =
sortedBackends[i];\n      const {success, asyncInit} = this.initializeBackend(backendName);\n      if (asyncInit ||
success) {\n        return {name: backendName, asyncInit};\n      }\n    }\n    throw new Error(\n        `Could not
initialize any backends, all backend initializations ` +\n        `failed.`);\n  }\n\n  moveData(backend: KernelBackend,
dataId: DataId) {\n    const info = this.state.tensorInfo.get(dataId);\n    const srcBackend = info.backend;\n    const
values = this.readSync(dataId);\n    const refCount = srcBackend.refCount(dataId);\n
   // Delete the tensor from the old backend and move it to the new\n    // backend.\n
srcBackend.disposeData(dataId, true);\n    info.backend = backend;\n    backend.move(dataId, values, info.shape,
info.dtype, refCount);\n    if (this.shouldCheckForMemLeaks()) {\n      // Track the number of moves during a kernel
execution to correctly\n      // detect memory leaks.\n
this.state.numDataMovesStack[this.state.numDataMovesStack.length - 1]++;\n    }\n  }\n\n  tidy<T extends
TensorContainer>(nameOrFn: string|ScopeFn<T>, fn?: ScopeFn<T>):\n      T {\n    let name: string = null;\n    if (fn
== null) {\n      // Called with only 1 argument.\n      if (typeof nameOrFn !== 'function') {\n        throw new
Error('Please provide a function to tidy()');\n      }\n      fn = nameOrFn;\n    } else {\n      // Called with 2
arguments.\n      if (typeof nameOrFn !== 'string' && !(nameOrFn instanceof String)) {\n        throw new Error(\n
    'When calling with two arguments,
```

```
 the first argument ' +\n            'to tidy() must be a string');\n      }\n      if (typeof fn !== 'function') {\n        throw new Error(\n            'When calling with two arguments, the 2nd argument ' +\n            'to tidy() must be a function');\n      }\n      name = nameOrFn as string;\n      // TODO(nsthorat,smilkov): Do operation logging and performance\n      // profiling.\n    }\n    let result: T;\n    return this.scopedRun(\n        () => this.startScope(name), () => this.endScope(result), () => {\n          result = fn();\n          if (result instanceof Promise) {\n            console.error('Cannot return a Promise inside of tidy.');\n          }\n          return result;\n        });\n  }\n\n  private scopedRun<T>(start: () => void, end: () => void, f: () => T): T {\n    start();\n    try {\n      const res = f();\n      end();\n      return res;\n    } catch (ex) {\n      end();\n      throw ex;\n    }\n  }\n\n  private static nextTensorId = 0;\n  private nextTensorId():
 number {\n    return Engine.nextTensorId++;\n  }\n\n  private static nextVariableId = 0;\n  private nextVariableId(): number {\n    return Engine.nextVariableId++;\n  }\n\n  /**\n   * This method is called instead of the public-facing tensor.clone() when\n   * saving a tensor for backwards pass. It makes sure to add the clone\n   * operation to the tape regardless of being called inside a kernel\n   * execution.\n   */\n  private clone(x: Tensor): Tensor {\n    const y: Tensor = ENGINE.runKernel(Identity, {x} as {} as NamedTensorMap);\n    const inputs = {x};\n    const grad = (dy: Tensor) => ({\n      x: () => {\n        const dtype = 'float32';\n        const gradInputs = {x: dy};\n        const attrs = {dtype};\n\n        return ENGINE.runKernel(\n                   Cast, gradInputs as {} as NamedTensorMap,\n                   // tslint:disable-next-line: no-unnecessary-type-assertion\n                   attrs as {} as NamedAttrMap) as Tensor;\n      }\n    });\n    const
 saved: Tensor[] = [];\n    this.addTapeNode(this.state.activeScope.name, inputs, [y], grad, saved, {});\n    return y;\n  }\n\n  /**\n   * Execute a kernel with the given name and return the output tensor.\n   *\n   * @param kernelName The name of the kernel to execute.\n   * @param inputs A map of input names to tensors.\n   * @param attrs A map of attribute names to their values. An attribute is a\n   *     primitive (non-tensor) input to the kernel.\n   * @param inputsToSave A list of tensors, inputs to save for the backprop\n   *     computation.\n   * @param outputsToSave A list of booleans, specifying which output to save\n   *     for the backprop computation. These are booleans since the output\n   * tensors are not visible to the user.\n   */\n  runKernel<T extends Tensor|Tensor[]>(\n      kernelName: string, inputs: NamedTensorMap, attrs?: NamedAttrMap): T {\n    const hasKernel = getKernel(kernelName, this.backendName) != null;\n    if (!hasKernel) {\n      throw new Error(`Kernel
 '${kernelName}' not registered for backend '${\n          this.backendName}'`);\n    }\n    return this.runKernelFunc({kernelName, inputs, attrs});\n  }\n\n  private shouldCheckForMemLeaks(): boolean {\n    return this.ENV.getBool('IS_TEST');\n  }\n\n  private checkKernelForMemLeak(\n      kernelName: string, numDataIdsBefore: number,\n      outInfos: TensorInfo[]): void {\n    const numDataIdsAfter = this.backend.numDataIds();\n\n    // Count the number of data ids associated with the result of the kernel.\n    let numOutputDataIds = 0;\n    outInfos.forEach(info => {\n      // Complex numbers allocate 3 data ids, one for 'real', one for\n      // 'imaginary', and one for the container that holds the former two.\n      numOutputDataIds += (info.dtype === 'complex64' ? 3 : 1);\n    });\n\n    // Account for the number of moves during kernel execution. A \"data move\"\n    // can happen in the middle of a kernel execution, placing a new (key,value)\n    // pair in the data storage.
 Since data moves have net zero effect (we\n    // always remove the data from the old backend), we have to cancel them out\n    // when detecting memory leaks.\n    const numMoves =\n        this.state.numDataMovesStack[this.state.numDataMovesStack.length - 1];\n    const dataIdsLeaked =\n        numDataIdsAfter - numDataIdsBefore - numOutputDataIds - numMoves;\n    if (dataIdsLeaked > 0) {\n      throw new Error(\n          `Backend '${this.backendName}' has an internal memory leak ` +\n          `(${dataIdsLeaked} data ids) after running '${kernelName}'`);\n    }\n  }\n\n  /**\n   * Internal helper method to execute a kernel Func\n   *\n   * Use `runKernel` to execute kernels from outside of engine.\n   */\n  private runKernelFunc<T extends Tensor|Tensor[], I extends NamedTensorMap>(\n      kernelParams: RegisteredKernelInvocation<I>|\n      CustomGradKernelInvocation<T, I>): T {\n    let outputs: Tensor[];\n    let saved: Tensor[] = [];\n    const isTapeOn = this.isTapeOn();\n\n
```

```
    const startingBytecount = this.state.numBytes;\n    const startingNumTensors = this.state.numTensors;\n\n    if (this.shouldCheckForMemLeaks()) {\n      this.state.numDataMovesStack.push(0);\n    }\n\n    let kernelFunc: () => Tensor[];\n    if (this.backendName == null) {\n      // backend has not been initialized yet (backend initialization is lazy\n      // can be deferred until an op/ kernel is run).\n      // The below getter has side effects that will try to initialize the\n      // backend and set properties like this.backendName\n      // tslint:disable-next-line: no-unused-expression\n      this.backend;\n    }\n\n    let out: TensorInfo|TensorInfo[];\n\n    const kernelOrScopeName = isRegisteredKernelInvocation(kernelParams) ?\n        kernelParams.kernelName :\n        this.state.activeScope != null ? this.state.activeScope.name : '';\n\n    // Create the kernelFunc from either a registered kernel OR passed in\n    // forward/backward functions (used by custom grad). In
 this context a\n    // kernelFunc wraps a kernel implementation with some bookkeeping.\n\n    if (isRegisteredKernelInvocation(kernelParams)) {\n      const {kernelName, inputs, attrs} = kernelParams;\n      if (this.backendName == null) {\n        // backend has not been initialized yet (backend initialization is lazy\n        // can be deferred until an op/ kernel is run).\n        // The below getter has side effects that will try to initialize the\n
 // backend and set properties like this.backendName\n        // tslint:disable-next-line: no-unused-expression\n
this.backend;\n      }\n      const kernel = getKernel(kernelName, this.backendName);\n      util.assert(\n          kernel != null,\n          () => `Cannot find registered kernel '${kernelName}' for backend '${\n
this.backendName}'`);\n\n      kernelFunc = () => {\n        const numDataIdsBefore = this.backend.numDataIds();\n
    out = kernel.kernelFunc({inputs, attrs, backend: this.backend});\n
        const outInfos = Array.isArray(out) ? out : [out];\n        if (this.shouldCheckForMemLeaks()) {\n
this.checkKernelForMemLeak(kernelName, numDataIdsBefore, outInfos);\n        }\n\n        const outTensors =
outInfos.map((outInfo: TensorInfo|Tensor) => {\n          // todo (yassogba) remove this option (Tensor) when node
backend\n          // methods have been modularized and they all return tensorInfo.\n          // TensorInfos do not have
a rank attribute.\n          if ((outInfo as Tensor).rank != null) {\n            return outInfo as Tensor;\n          }\n
const {dataId, shape, dtype} = outInfo as TensorInfo;\n          return this.makeTensorFromDataId(dataId, shape,
dtype);\n        });\n\n        // Save any required inputs and outputs.\n\n        // Do not save unless we are recording to
the tape. Otherwise it would\n        // cause a mem leak since there would be no backprop for these tensors\n        //
(which would otherwise dispose them).\n
    if (isTapeOn) {\n          const tensorsToSave =\n              this.getTensorsForGradient(kernelName, inputs,
outTensors);\n          saved = this.saveTensorsForBackwardMode(tensorsToSave);\n        }\n        return
outTensors;\n      };\n    } else {\n      const {forwardFunc} = kernelParams;\n      // Running a customGrad op.\n
const saveFunc: GradSaveFunc = (tensors) => {\n        // Do not save unless we are recording to the tape. Otherwise
it would\n        // cause a mem leak since we would never run backprop, which disposes\n        // the kept tensors.\n
  if (!isTapeOn) {\n          return;\n        }\n        saved = tensors.map(tensor => this.keep(this.clone(tensor)));\n
};\n\n      kernelFunc = () => {\n        const numDataIdsBefore = this.backend.numDataIds();\n        out = this.tidy(()
=> forwardFunc(this.backend, saveFunc));\n        const outs = (Array.isArray(out) ? out : [out]) as Tensor[];\n        if
(this.shouldCheckForMemLeaks()) {\n
  // Scope name is used to print a more helpful error message if needed.\n
this.checkKernelForMemLeak(kernelOrScopeName, numDataIdsBefore, outs);\n        }\n        return outs;\n      };\n
}\n\n    //\n    // Run the kernelFunc. Optionally profiling it.\n    //\n    const {inputs, attrs} = kernelParams;\n    const
backwardsFunc = isRegisteredKernelInvocation(kernelParams) ?\n        null :\n
kernelParams.backwardsFunc;\n\n    let kernelProfile: KernelProfile;\n    this.scopedRun(\n        // Stop recording to
a tape when running a kernel.\n        () => this.state.kernelDepth++, () => this.state.kernelDepth--, () => {\n          if
(!this.ENV.getBool('DEBUG') && !this.state.profiling) {\n            outputs = kernelFunc();\n          } else {\n
kernelProfile = this.profiler.profileKernel(\n                kernelOrScopeName, inputs, () => kernelFunc());\n            if
(this.ENV.getBool('DEBUG')) {\n              this.profiler.logKernelProfile(kernelProfile);\n
          }\n            outputs = kernelProfile.outputs;\n          }\n        });\n\n    if (isTapeOn) {\n
this.addTapeNode(\n          kernelOrScopeName, inputs, outputs, backwardsFunc, saved, attrs);\n    }\n\n    if
(this.state.profiling) {\n      this.state.activeProfile.kernels.push({\n        name: kernelOrScopeName,\n
```

```
bytesAdded: this.state.numBytes - startingBytecount,\n totalBytesSnapshot: this.state.numBytes,\n tensorsAdded: this.state.numTensors - startingNumTensors,\n totalTensorsSnapshot: this.state.numTensors,\n inputShapes: Object.keys(inputs).map(\n key => inputs[key] != null ? inputs[key].shape : null),\n outputShapes: outputs.map(item => item.shape),\n kernelTimeMs: kernelProfile.timeMs,\n extraInfo: kernelProfile.extraInfo\n });\n }\n return (Array.isArray(out) ? outputs : outputs[0]) as T;\n }\n\n /**\n * Saves tensors used in forward mode for use in backward mode.\n *\n * @param tensors the list of tensors to save.\n */\n private saveTensorsForBackwardMode(tensors: Tensor[]): Tensor[] {\n const saved = tensors.map(tensor => this.keep(this.clone(tensor)));\n return saved;\n }\n\n /**\n * Returns a list of tensors to save for a given gradient calculation.\n *\n * @param kernelName name of kernel to look up gradient for.\n * @param inputs a map of input tensors.\n * @param outputs an array of output tensors from forward mode of kernel.\n */\n private getTensorsForGradient(\n kernelName: string, inputs: NamedTensorMap,\n outputs: Tensor[]): Tensor[]|null {\n const gradConfig = getGradient(kernelName);\n if (gradConfig != null) {\n const inputsToSave: string[] = gradConfig.inputsToSave || [];\n const outputsToSave: boolean[] = gradConfig.outputsToSave || [];\n\n // If saveAllInputs is true, all inputs will be saved. Otherwise, inputs\n // specified in inputsToSave will be saved.\n let inputTensorsToSave: Tensor[];\n if (gradConfig.saveAllInputs) {\n util.assert(\n Array.isArray(inputs),\n () => 'saveAllInputs is true, expected inputs to be an array.');\n\n inputTensorsToSave = Object.keys(inputs).map((key) => inputs[key]);\n } else {\n inputTensorsToSave = inputsToSave.map((inputName) => inputs[inputName]);\n }\n\n const outputTensorsToSave: Tensor[] =\n outputs.filter((_, i) => outputsToSave[i]);\n\n return inputTensorsToSave.concat(outputTensorsToSave);\n }\n // We return an empty list rather than throw an error because the kernel we\n // are looking up may not actually be relevant to backproping through the\n // overall function\n //\n // See 'does not error if irrelevant (pruned) ops are missing grads' test\n // in gradients_test.ts for an example.\n return [];\n }\n\n /**\n * Internal method used by public APIs for tensor creation. Makes a new\n * tensor with the provided shape, dtype and values. It always\n * creates a new data id and writes the values to the underlying backend.\n */\n makeTensor(\n values: DataValues, shape: number[], dtype: DataType,\n backend?: KernelBackend): Tensor {\n if (values == null) {\n throw new Error('Values passed to engine.makeTensor() are null');\n }\n dtype = dtype || 'float32';\n backend = backend || this.backend;\n let backendVals = values as BackendValues;\n if (dtype === 'string' && util.isString(values[0])) {\n backendVals = (values as string[]).map(d => util.encodeString(d));\n }\n const dataId = backend.write(backendVals, shape, dtype);\n const t = new Tensor(shape, dtype, dataId, this.nextTensorId());\n this.trackTensor(t, backend);\n\n // Count bytes for string tensors.\n if (dtype === 'string') {\n const info = this.state.tensorInfo.get(dataId);\n const newBytes = bytesFromStringArray(backendVals as Uint8Array[]);\n this.state.numBytes += newBytes - info.bytes;\n info.bytes = newBytes;\n }\n return t;\n }\n\n /**\n * Internal method used by backends. Makes a new tensor\n * that is a wrapper around an existing data id. It doesn't create\n * a new data id, only increments the ref count used in memory tracking.\n */\n makeTensorFromDataId(\n dataId: DataId, shape: number[], dtype: DataType,\n backend?: KernelBackend): Tensor {\n dtype = dtype || 'float32';\n const t = new Tensor(shape, dtype, dataId, this.nextTensorId());\n this.trackTensor(t, backend);\n return t;\n }\n\n makeVariable(\n initialValue: Tensor, trainable = true, name?: string,\n dtype?: DataType): Variable {\n name = name || this.nextVariableId().toString();\n if (dtype != null && dtype !== initialValue.dtype) {\n initialValue = initialValue.cast(dtype);\n }\n const v = new Variable(initialValue, trainable, name, this.nextTensorId());\n if (this.state.registeredVariables[v.name] != null) {\n throw new Error(`Variable with name ${v.name} was already registered`);\n }\n this.state.registeredVariables[v.name] = v;\n this.incRef(v, this.backend);\n return v;\n }\n\n trackTensor(a: Tensor, backend: KernelBackend): void {\n this.state.numTensors++;\n if (a.dtype === 'string') {\n this.state.numStringTensors++;\n }\n // Bytes for complex numbers are counted by their components. Bytes for\n // string tensors are counted when writing values.\n let bytes = 0;\n if (a.dtype !== 'complex64' && a.dtype !== 'string') {\n bytes = a.size * util.bytesPerElement(a.dtype);\n }\n this.state.numBytes += bytes;\n\n if
```

```
(!this.state.tensorInfo.has(a.dataId)) {\n      this.state.numDataBuffers++;\n      this.state.tensorInfo.set(a.dataId, {\n
  backend: backend || this.backend,\n        dtype: a.dtype,\n        shape: a.shape,\n        bytes\n      });\n    }\n\n    if
(!(a instanceof Variable)) {\n      this.track(a);\n
    }\n  }\n\n  // Track the tensor by dataId and increase the refCount for the dataId in the\n  // backend.\n  //
TODO(pyu10055): This is currently used by makeVariable method, to increase\n  // refCount on the backend for the
dataId. It can potentially be replaced with\n  // Identity op indead of calling backend directly.\n  incRef(a: Tensor,
backend: KernelBackend): void {\n    this.trackTensor(a, backend);\n    this.backend.incRef(a.dataId);\n  }\n\n
removeDataId(dataId: DataId, backend: KernelBackend) {\n    if (this.state.tensorInfo.has(dataId) &&\n
this.state.tensorInfo.get(dataId).backend === backend) {\n      this.state.tensorInfo.delete(dataId);\n
this.state.numDataBuffers--;\n    }\n  }\n  disposeTensor(a: Tensor): void {\n    if
(!this.state.tensorInfo.has(a.dataId)) {\n      return;\n    }\n    const info = this.state.tensorInfo.get(a.dataId);\n\n
this.state.numTensors--;\n    if (a.dtype === 'string') {\n      this.state.numStringTensors--;\n
      this.state.numBytes -= info.bytes;\n    }\n    // Don't count bytes for complex numbers as they are counted by
their\n    // components.\n    if (a.dtype !== 'complex64' && a.dtype !== 'string') {\n      const bytes = a.size *
util.bytesPerElement(a.dtype);\n      this.state.numBytes -= bytes;\n    }\n\n    // Remove the reference to dataId if
backend dispose the data successfully\n    if (info.backend.disposeData(a.dataId)) {\n
this.removeDataId(a.dataId, info.backend);\n    }\n\n    // TODO(nsthorat): Construct an error and save the stack
trace for\n    // debugging when in debug mode. Creating a stack trace is too expensive\n    // to do unconditionally.\n
}\n\n  disposeVariables(): void {\n    for (const varName in this.state.registeredVariables) {\n      const v =
this.state.registeredVariables[varName];\n      this.disposeVariable(v);\n    }\n  }\n\n  disposeVariable(v: Variable):
void {\n    this.disposeTensor(v);\n    if (this.state.registeredVariables[v.name] != null)
  {\n      delete this.state.registeredVariables[v.name];\n    }\n  }\n\n  memory(): MemoryInfo {\n    const info =
this.backend.memory() as MemoryInfo;\n    info.numTensors = this.state.numTensors;\n    info.numDataBuffers =
this.state.numDataBuffers;\n    info.numBytes = this.state.numBytes;\n    if (this.state.numStringTensors > 0) {\n
info.unreliable = true;\n      if (info.reasons == null) {\n        info.reasons = [];\n      }\n      info.reasons.push(\n
'Memory usage by string tensors is approximate ' +\n          '(2 bytes per character)');\n    }\n    return info;\n  }\n\n
async profile(query: () => (TensorContainer | Promise<TensorContainer>)):\n      Promise<ProfileInfo> {\n
this.state.profiling = true;\n\n    const startBytes = this.state.numBytes;\n    const startNumTensors =
this.state.numTensors;\n\n    this.state.activeProfile.kernels = [];\n    this.state.activeProfile.result = await
query();\n\n    this.state.profiling = false;\n\n    this.state.activeProfile.peakBytes
  = Math.max(\n        ...this.state.activeProfile.kernels.map(d => d.totalBytesSnapshot));\n
this.state.activeProfile.newBytes = this.state.numBytes - startBytes;\n    this.state.activeProfile.newTensors =\n
this.state.numTensors - startNumTensors;\n    for (const kernel of this.state.activeProfile.kernels) {\n
kernel.kernelTimeMs = await kernel.kernelTimeMs;\n      kernel.extraInfo = await kernel.extraInfo;\n    }\n    return
this.state.activeProfile;\n  }\n\n  isTapeOn(): boolean {\n    return this.state.gradientDepth > 0 &&
this.state.kernelDepth === 0;\n  }\n\n  private addTapeNode(\n      kernelName: string, inputs: NamedTensorMap,
outputs: Tensor[],\n      gradientsFunc: GradFunc, saved: Tensor[], attrs: NamedAttrMap): void {\n    const
tapeNode: TapeNode =\n        {id: this.state.nextTapeNodeId++, kernelName, inputs, outputs, saved};\n\n    const
gradConfig = getGradient(kernelName);\n    if (gradConfig != null) {\n      gradientsFunc = gradConfig.gradFunc;\n
    }\n    if (gradientsFunc != null) {\n      tapeNode.gradient = (dys: Tensor[]) => {\n        // TODO(smilkov): To
optimize back-prop, pass dys that are not used in\n        // the backprop graph to the user as null instead of zeros\n
dys = dys.map((dy, i) => {\n          if (dy == null) {\n            const output = outputs[i];\n            const vals =
util.makeZerosTypedArray(output.size, output.dtype);\n            return this.makeTensor(vals, output.shape,
output.dtype);\n          }\n          return dy;\n        });\n        // Grad functions of ops with single outputs expect a dy,
while ops\n        // with multiple outputs expect dys (array of dy).\n        return gradientsFunc(dys.length > 1 ? dys :
dys[0], saved, attrs);\n      };\n    }\n    this.state.activeTape.push(tapeNode);\n  }\n\n  keep<T extends
Tensor>(result: T): T {\n    result.kept = true;\n    return result;\n  }\n\n  private startTape() {\n    if
(this.state.gradientDepth === 0) {\n
```

```
    this.state.activeTape = [];\n    }\n    this.state.gradientDepth++;\n  }\n\n  private endTape() {\n
this.state.gradientDepth--;\n  }\n\n  /**\n   * Start a scope. Use this with endScope() to achieve the same
functionality\n   * as scope() without the need for a function closure.\n   */\n  startScope(name?: string) {\n    const
scopeInfo: ScopeState = {\n      track: [],\n      name: 'unnamed scope',\n      id: this.state.nextScopeId++\n    };\n    if
(name) {\n      scopeInfo.name = name;\n    }\n    this.state.scopeStack.push(scopeInfo);\n    this.state.activeScope =
scopeInfo;\n  }\n\n  /**\n   * End a scope. Use this with startScope() to achieve the same functionality\n   * as
scope() without the need for a function closure.\n   */\n  endScope(result?: TensorContainer) {\n    const
tensorsToTrackInParent = getTensorsInContainer(result);\n    const tensorsToTrackInParentSet =\n        new
Set(tensorsToTrackInParent.map(t => t.id));\n\n    // Dispose the arrays tracked in this
 scope.\n    for (let i = 0; i < this.state.activeScope.track.length; i++) {\n      const tensor =
this.state.activeScope.track[i];\n      if (!tensor.kept && !tensorsToTrackInParentSet.has(tensor.id)) {\n
tensor.dispose();\n      }\n    }\n\n    const oldScope = this.state.scopeStack.pop();\n    this.state.activeScope =
this.state.scopeStack.length === 0 ?\n        null :\n        this.state.scopeStack[this.state.scopeStack.length - 1];\n\n    //
Track the current result in the parent scope.\n    tensorsToTrackInParent.forEach(tensor => {\n      // Only track the
tensor if was allocated in the inner scope and is not\n      // globally kept.\n      if (!tensor.kept && tensor.scopeId
=== oldScope.id) {\n        this.track(tensor);\n      }\n    });\n  }\n\n  /**\n   * Returns gradients of `f` with respect to
each of the `xs`. The gradients\n   * returned are of the same length as `xs`, but some might be null if `f`\n   * was
not a function of that `x`. It also takes optional dy
 to multiply the\n   * gradient, which defaults to `1`.\n   */\n  gradients<T extends Tensor>(\n      f: () => T, xs:
Tensor[], dy?: T,\n      allowNoGradients = false): {value: T, grads: Tensor[]} {\n    util.assert(\n        xs.length > 0,
() => 'gradients() received an empty list of xs.');\n    if (dy != null && dy.dtype !== 'float32') {\n      throw new
Error(`dy must have 'float32' dtype, but has '${dy.dtype}'`);\n    }\n\n    const y = this.scopedRun(\n        () =>
this.startTape(), () => this.endTape(),\n        () => this.tidy('forward', f));\n\n    util.assert(\n        y instanceof
Tensor,\n        () => 'The result y returned by f() must be a tensor.');\n    // Filter out the nodes that don't connect x =>
y.\n    const filteredTape = getFilteredNodesXToY(this.state.activeTape, xs, y);\n    if (!allowNoGradients &&
filteredTape.length === 0 && xs.length > 0) {\n      throw new Error(\n          'Cannot compute gradient of y=f(x)
with respect to x. Make sure ' +\n          'that
 the f you passed encloses all operations that lead from x ' +\n          'to y.');\n    }\n\n    return this.tidy('backward', ()
=> {\n      const accumulatedGradientMap: {[tensorId: number]: Tensor} = {};\n      accumulatedGradientMap[y.id]
= (dy == null) ? ones(y.shape) : dy;\n\n      // Backprop gradients through the filtered nodes.\n
backpropagateGradients(\n          accumulatedGradientMap, filteredTape,\n          // Pass the tidy function to avoid
circular dep with `tape.ts`.\n          f => this.tidy(f as ScopeFn<Tensor>),\n          // Pass an add function to avoide a
circular dep with `tape.ts`.\n          add);\n      const grads = xs.map(x => accumulatedGradientMap[x.id]);\n\n      if
(this.state.gradientDepth === 0) {\n        // This means that we are not computing higher-order gradients\n        // and
can clean up the tape.\n        this.state.activeTape.forEach(node => {\n          for (const tensor of node.saved) {\n
  tensor.dispose();\n          }\n
      });\n        this.state.activeTape = null;\n      }\n      return {value: y, grads};\n    });\n  }\n\n  customGrad<T
extends Tensor>(f: CustomGradientFunc<T>):\n      (...args: Array<Tensor|GradSaveFunc>) => T {\n    util.assert(\n
    util.isFunction(f),\n        () => 'The f passed in customGrad(f) must be a function.');\n    return (...inputs:
Tensor[]): T => {\n      util.assert(\n          inputs.every(t => t instanceof Tensor),\n          () => 'The args passed in
customGrad(f)(x1, x2,...) must all be ' +\n              'tensors');\n\n      let res: {\n        value: T,\n        gradFunc: (dy: T,
saved: Tensor[]) => Tensor | Tensor[],\n      };\n      const inputMap: NamedTensorMap = {};\n
inputs.forEach((input, i) => {\n        inputMap[i] = input;\n      });\n\n      const forwardFunc: ForwardFunc<T> = (_,
save) => {\n        res = f(...[...inputs, save]);\n        util.assert(\n            res.value instanceof Tensor,\n            () =>
'The function f passed in
 customGrad(f) must return an ' +\n              'object where `obj.value` is a tensor');\n        util.assert(\n
util.isFunction(res.gradFunc),\n            () => 'The function f passed in customGrad(f) must return an ' +\n
'object where `obj.gradFunc` is a function.');\n        return res.value;\n      };\n\n      const backwardsFunc = (dy: T,
```

saved: Tensor[]) => {\n const gradRes = res.gradFunc(dy, saved);\n const grads: Tensor[] = Array.isArray(gradRes) ? gradRes : [gradRes];\n util.assert(\n grads.length === inputs.length,\n () => 'The function f passed in customGrad(f) must return an ' +\n 'object where `obj.gradFunc` is a function that returns ' +\n 'the same number of tensors as inputs passed to f(...).');\n util.assert(\n grads.every(t => t instanceof Tensor),\n () => 'The function f passed in customGrad(f) must return an ' +\n 'object where `obj.gradFunc` is a function that returns ' +\n 'a list of only tensors.');\n const gradMap: {[key: string]: () => Tensor} = {};\n grads.forEach((grad, i) => {\n gradMap[i] = () => grad;\n });\n return gradMap;\n };\n\n return this.runKernelFunc({\n forwardFunc,\n backwardsFunc,\n inputs: inputMap,\n });\n };\n }\n\n readSync(dataId: DataId): BackendValues {\n // Route the read to the correct backend.\n const info = this.state.tensorInfo.get(dataId);\n return info.backend.readSync(dataId);\n }\n read(dataId: DataId): Promise<BackendValues> {\n // Route the read to the correct backend.\n const info = this.state.tensorInfo.get(dataId);\n return info.backend.read(dataId);\n }\n\n async time(query: () => void): Promise<TimingInfo> {\n const start = now();\n const timingInfo = await this.backend.time(query) as TimingInfo;\n timingInfo.wallMs = now() - start;\n return timingInfo;\n }\n\n /**\n * Tracks a Tensor in the current scope to be automatically cleaned up\n * when the current scope ends, and returns the value.\n *\n * @param result The Tensor to track in the current scope.\n */\n private track<T extends Tensor>(result: T): T {\n if (this.state.activeScope != null) {\n result.scopeId = this.state.activeScope.id;\n this.state.activeScope.track.push(result);\n }\n\n return result;\n }\n\n get registeredVariables(): NamedVariableMap {\n return this.state.registeredVariables;\n }\n\n /**\n * Resets the engine state. Removes all backends but does not remove\n * registered backend factories.\n */\n reset(): void {\n // Make any pending promise obsolete.\n this.pendingBackendInitId++;\n\n this.state.dispose();\n this.ENV.reset();\n this.state = new EngineState();\n\n for (const backendName in this.registry) {\n this.disposeRegisteredKernels(backendName);\n this.registry[backendName].dispose();\n delete this.registry[backendName];\n }\n this.backendName = null;\n this.backendInstance = null;\n this.pendingBackendInit = null;\n }\n}\n\nfunction ones(shape: number[]): Tensor {\n const values = makeOnesTypedArray(sizeFromShape(shape), 'float32');\n return ENGINE.makeTensor(values, shape, 'float32');\n}\n\nexport function getOrMakeEngine(): Engine {\n const ns = getGlobalNamespace() as {} as {_tfengine: Engine};\n if (ns._tfengine == null) {\n const environment = new Environment(ns);\n ns._tfengine = new Engine(environment);\n }\n setEnvironmentGlobal(ns._tfengine.ENV);\n\n // Tell the current tensor interface that the global engine is responsible\n // for tracking.\n setTensorTracker(() => ns._tfengine);\n return ns._tfengine;\n}\n\nexport const ENGINE = getOrMakeEngine();\n\n/**\n * A implementation of the add op for use within engine and tape.\n *\n * This allows us to avoid a circular dependency between add.ts and engine.\n * It is exported to be available in tape tests.\n */\nexport function add(a: Tensor, b: Tensor): Tensor {\n // We duplicate Add here to avoid a circular dependency with add.ts.\n const inputs = {a, b};\n return ENGINE.runKernel(Add, inputs as {} as NamedTensorMap);\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\n// tslint:disable-next-line:no-any\nfunction _isNavigatorDefined(): boolean {\n return typeof navigator !== 'undefined' && navigator != null;\n}\n\nexport function isMobile(): boolean {\n if (_isNavigatorDefined()) {\n // tslint:disable-next-line:no-any\n const a = navigator.userAgent || navigator.vendor || (window as any).opera;\n // tslint:disable-next-line:max-line-length\n return /(android|bb\\d+|meego).+mobile|avantgo|bada\\/|blackberry|blazer|compal|elaine|fennec|hiptop|iemobile|ip(hone|od)|

```
iris|kindle|lge |maemo|midp|mmp|mobile.+firefox|netfront|opera m(ob|in)i|palm(
os)?|phone|p(ixi|re)\\/|plucker|pocket|psp|series(4|6)0|symbian|treo|up\\.(browser|link)|vodafone|wap|windows
ce|xda|xiino/i\n             .test(a) ||\n       // tslint:disable-next-line:max-line-length\n
/1207|6310|6590|3gso|4thp|50[1-6]i|770s|802s|a wa|abac|ac(er|oo|s\\-
)|ai(ko|rn)|al(av|ca|co)|amoi|an(ex|ny|yw)|aptu|ar(ch|go)|as(te|us)|attw|au(di|\\-m|r |s
)|avan|be(ck|ll|nq)|bi(lb|rd)|bl(ac|az)|br(e|v)w|bumb|bw\\-(n|u)|c55\\/|capi|ccwa|cdm\\-|cell|chtm|cldc|cmd\\-
|co(mp|nd)|craw|da(it|ll|ng)|dbte|dc\\-s|devi|dica|dmob|do(c|p)o|ds(12|\\-d)|el(49|ai)|em(l2|ul)|er(ic|k0)|esl8|ez([4-
7]0|os|wa|ze)|fetc|fly(\\-|_)|g1
 u|g560|gene|gf\\-5|g\\-mo|go(\\.w|od)|gr(ad|un)|haie|hcit|hd\\-(m|p|t)|hei\\-|hi(pt|ta)|hp( i|ip)|hs\\-c|ht(c(\\-|
|_|a|g|p|s|t)|tp)|hu(aw|tc)|i\\-(20|go|ma)|i230|iac( |\\-
|\\/)|ibro|idea|ig01|ikom|im1k|inno|ipaq|iris|ja(t|v)a|jbro|jemu|jigs|kddi|keji|kgt( |\\/)|klon|kpt |kwc\\-
|kyo(c|k)|le(no|xi)|lg( g|\\/(k|l|u)|50|54|\\-[a-w])|libw|lynx|m1\\-w|m3ga|m50\\/|ma(te|ui|xo)|mc(01|21|ca)|m\\-
cr|me(rc|ri)|mi(o8|oa|ts)|mmef|mo(01|02|bi|de|do|t(\\-| |o|v)|zz)|mt(50|p1|v )|mwbp|mywa|n10[0-2]|n20[2-
3]|n30(0|2)|n50(0|2|5)|n7(0(0|1)|10)|ne((c|m)\\-
|on|tf|wf|wg|wt)|nok(6|i)|nzph|o2im|op(ti|wv)|oran|owg1|p800|pan(a|d|t)|pdxg|pg(13|\\-([1-
8]|c))|phil|pire|pl(ay|uc)|pn\\-2|po(ck|rt|se)|prox|psio|pt\\-g|qa\\-a|qc(07|12|21|32|60|\\-[2-7]|i\\-
)|qtek|r380|r600|raks|rim9|ro(ve|zo)|s55\\/|sa(ge|ma|mm|ms|ny|va)|sc(01|h\\-|oo|p\\-)|sdk\\/|se(c(\\-
|0|1)|47|mc|nd|ri)|sgh\\-|shar|sie(\\-|m)|sk\\-0|sl(45|id)|sm(al|ar|b3|it|t5)|so(ft|ny)|sp(01|h\\-|v\\-|v
 )|sy(01|mb)|t2(18|50)|t6(00|10|18)|ta(gt|lk)|tcl\\-|tdg\\-|tel(i|m)|tim\\-|t\\-mo|to(pl|sh)|ts(70|m\\-|m3|m5)|tx\\-
9|up(\\.b|g1|si)|utst|v400|v750|veri|vi(rg|te)|vk(40|5[0-3]|\\-
v)|vm40|voda|vulc|vx(52|53|60|61|70|80|81|83|85|98)|w3c(\\-| )|webc|whit|wi(g |nc|nw)|wmlb|wonu|x700|yas\\-
|your|zeto|zte\\-/i\n             .test(a.substr(0, 4));\n  }\n  return false;\n}\n\nexport function isBrowser(): boolean {\n
return (typeof window !== 'undefined' && window.document != null) ||\n      //@ts-ignore\n      (typeof
WorkerGlobalScope !== 'undefined');\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========================================================================\n
*/\nimport './engine';\n\nimport * as device_util from './device_util';\nimport {env} from './environment';\n\nconst
ENV = env();\n\n/**\n * This file contains environment-related flag registrations.\n */\n\n/** Whether to enable
debug mode. */\nENV.registerFlag('DEBUG', () => false, debugValue => {\n  if (debugValue) {\n
console.warn(\n          'Debugging mode is ON. The output of every math call will ' +\n          'be downloaded to CPU
and checked for NaNs. ' +\n          'This significantly impacts performance.');\n  }\n});\n\n/** Whether
 we are in a browser (as versus, say, node.js) environment. */\nENV.registerFlag('IS_BROWSER', () =>
device_util.isBrowser());\n\n/** Whether we are in a browser (as versus, say, node.js) environment.
*/\nENV.registerFlag(\n    'IS_NODE',\n    () => (typeof process !== 'undefined') &&\n        (typeof process.versions
!== 'undefined') &&\n        (typeof process.versions.node !== 'undefined'));\n\n/** Whether this browser is Chrome.
*/\nENV.registerFlag(\n    'IS_CHROME',\n    () => typeof navigator !== 'undefined' && navigator != null &&\n
 navigator.userAgent != null && /Chrome/.test(navigator.userAgent) &&\n        /Google
Inc/.test(navigator.vendor));\n\n/**\n * True when the environment is \"production\" where we disable safety
checks\n * to gain performance.\n */\nENV.registerFlag('PROD', () => false);\n\n/**\n * Whether to do sanity
checks when inferring a shape from user-provided\n * values, used when creating a new tensor.\n
*/\nENV.registerFlag(\n    'TENSORLIKE_CHECK_SHAPE_CONSISTENCY',
```

```
() => ENV.getBool('DEBUG'));\n\n/** Whether deprecation warnings are enabled.
*/\nENV.registerFlag('DEPRECATION_WARNINGS_ENABLED', () => true);\n\n/** True if running unit tests.
*/\nENV.registerFlag('IS_TEST', () => false);\n\n/** Whether to check computation result for errors.
*/\nENV.registerFlag('CHECK_COMPUTATION_FOR_ERRORS', () => true);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * =============================================================================\n
*/\n\nimport {ENGINE} from './engine';\nimport {env} from './environment';\nimport {Tensor} from './tensor';\nimport {DataType, TensorLike} from './types';\nimport {assert, flatten, inferDtype, isTypedArray, toTypedArray} from './util';\n\nexport function inferShape(val: TensorLike, dtype?: DataType): number[] {\n  let firstElem: typeof val = val;\n\n  if (isTypedArray(val)) {\n    return dtype === 'string' ? [] : [val.length];\n  }\n  if (!Array.isArray(val)) {\n    return [];  // Scalar.\n  }\n  const shape: number[] = [];\n\n  while (Array.isArray(firstElem) ||\n         isTypedArray(firstElem) && dtype !== 'string') {\n    shape.push(firstElem.length);\n    firstElem = firstElem[0];\n  }\n  if (Array.isArray(val) &&\n      env().getBool('TENSORLIKE_CHECK_SHAPE_CONSISTENCY')) {\n    deepAssertShapeConsistency(val, shape, []);\n  }\n\n  return shape;\n}\n\nfunction deepAssertShapeConsistency(\n    val: TensorLike, shape: number[], indices: number[]) {\n  indices = indices || [];\n  if (!(Array.isArray(val)) && !isTypedArray(val)) {\n    assert(\n        shape.length === 0,\n        () => `Element arr[${indices.join('][')}] is a primitive, ` +\n            `but should be an array/TypedArray of ${shape[0]} elements`);\n    return;\n  }\n  assert(\n      shape.length > 0,\n      () => `Element arr[${indices.join('][')}] should be a primitive, ` +\n          `but is an array of ${val.length} elements`);\n  assert(\n      val.length === shape[0],\n      () => `Element arr[${indices.join('][')}] should have ${shape[0]} ` +\n          `elements, but has ${val.length} elements`);\n  const subShape = shape.slice(1);\n  for (let i = 0; i < val.length; ++i) {\n    deepAssertShapeConsistency(val[i], subShape, indices.concat(i));\n  }\n}\n\nfunction assertDtype(\n    expectedDtype: DataType|'numeric'|'string_or_numeric',\n    actualDType: DataType, argName: string, functionName: string)
 {\n  if (expectedDtype === 'string_or_numeric') {\n    return;\n  }\n  if (expectedDtype == null) {\n    throw new Error(`Expected dtype cannot be null.`);\n  }\n  if (expectedDtype !== 'numeric' && expectedDtype !== actualDType ||\n      expectedDtype === 'numeric' && actualDType === 'string') {\n    throw new Error(\n`Argument '${argName}' passed to '${functionName}' must ` +\n        `be ${expectedDtype} tensor, but got ${actualDType} tensor`);\n  }\n}\n\nexport function convertToTensor<T extends Tensor>(\n    x: T|TensorLike, argName: string, functionName: string,\n    parseAsDtype: DataType|'numeric'|'string_or_numeric' = 'numeric'): T {\n  if (x instanceof Tensor) {\n    assertDtype(parseAsDtype, x.dtype, argName, functionName);\n    return x;\n  }\n  let inferredDtype = inferDtype(x);\n  // If the user expects a bool/int/float, use that info to update the\n  // inferredDtype when it is not a string.\n  if (inferredDtype !== 'string' &&\n      ['bool', 'int32', 'float32'].indexOf(parseAsDtype)
 >= 0) {\n    inferredDtype = parseAsDtype as DataType;\n  }\n  assertDtype(parseAsDtype, inferredDtype, argName, functionName);\n\n  if ((x == null) ||\n      (!isTypedArray(x) && !Array.isArray(x) && typeof x !== 'number' &&\n       typeof x !== 'boolean' && typeof x !== 'string')) {\n    const type = x == null ? 'null' : (x as {}).constructor.name;\n    throw new Error(\n        `Argument '${argName}' passed to '${functionName}' must be a ` +\n        `Tensor or TensorLike, but got '${type}'`);\n  }\n  const inferredShape = inferShape(x, inferredDtype);\n  if (!isTypedArray(x) && !Array.isArray(x)) {\n    x = [x] as number[];\n  }\n  const skipTypedArray = true;\n  const values = inferredDtype !== 'string' ?\n      toTypedArray(x, inferredDtype as DataType) :\n      flatten(x as string[], [], skipTypedArray) as string[];\n  return ENGINE.makeTensor(values, inferredShape, inferredDtype) as T;\n}\n\nexport function convertToTensorArray<T extends Tensor>(\n    arg:
```

Array<T|TensorLike>, argName: string, functionName: string,\n parseAsDtype: DataType|'numeric'|'string_or_numeric' = 'numeric'): T[] {\n if (!Array.isArray(arg)) {\n throw new Error(\n `Argument ${argName} passed to ${functionName} must be a ` +\n '`Tensor[]` or `TensorLike[]`');\n }\n const tensors = arg as T[];\n return tensors.map(\n (t, i) =>\n convertToTensor(t, `${argName}[${i}]`, functionName, parseAsDtype));\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n *\n See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {ENGINE} from '../engine';\nimport {isPromise} from '../util';\n\nexport const OP_SCOPE_SUFFIX = '__op';\n\n/**\n * Used for wrapping functions that perform math operations on\n * Tensors. The function will be wrapped in a named scope that cleans all\n * memory usage after the function is done.\n */\nexport function op<T extends Function>(f: {[name: string]: T}): T {\n const keys = Object.keys(f);\n if (keys.length !== 1) {\n throw new Error(\n `Please provide an object with a single key ` +\n `(operation name) mapping to a function. Got an object with ` +\n `${keys.length} keys.`);\n }\n\n let opName = keys[0];\n const fn = f[opName];\n\n // Strip the underscore from the end of the function name.\n if (opName.endsWith('_')) {\n opName = opName.substring(0,\n opName.length - 1);\n }\n\n // add an __op suffix to distinguish ops from kernels in tf.profile\n opName = opName + OP_SCOPE_SUFFIX;\n\n // tslint:disable-next-line:no-any\n const f2 = (...args: any[]) => {\n ENGINE.startScope(opName);\n try {\n const result = fn(...args);\n if (isPromise(result)) {\n console.error('Cannot return a Promise inside of tidy.');\n }\n ENGINE.endScope(result);\n return result;\n } catch (ex) {\n ENGINE.endScope(null);\n throw ex;\n }\n };\n Object.defineProperty(f2, 'name', {value: opName, configurable: true});\n\n // tslint:disable-next-line:no-any\n return f2 as any as T;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {ENGINE} from '../engine';\nimport {Complex, ComplexInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Converts two real numbers to a complex number.\n *\n * Given a tensor `real` representing the real part of a complex number, and a\n * tensor `imag` representing the imaginary part of a complex number, this\n * operation returns complex numbers elementwise
of the form [r0, i0, r1, i1],\n * where r represents the real part and i represents the imag part.\n *\n * The input tensors real and imag must have the same shape.\n *\n * ```js\n * const real = tf.tensor1d([2.25, 3.25]);\n * const imag = tf.tensor1d([4.75, 5.75]);\n * const complex = tf.complex(real, imag);\n *\n * complex.print();\n * ```\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction complex_<T extends Tensor>(real: T|TensorLike, imag: T|TensorLike): T {\n const $real = convertToTensor(real, 'real', 'complex');\n const $imag = convertToTensor(imag, 'imag', 'complex');\n util.assertShapesMatch(\n $real.shape, $imag.shape,\n `real and imag shapes, ${$real.shape} and ${$imag.shape}, ` +\n `must match in call to tf.complex().`);\n\n const inputs: ComplexInputs = {real: $real, imag: $imag};\n return ENGINE.runKernel(Complex, inputs as {} as NamedTensorMap);\n}\n\nexport const complex = op({complex_});\n","/**\n * @license\n * Copyright

2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Tensor} from '../tensor';\nimport {TensorLike, TypedArray} from '../types';\nimport {DataType} from '../types';\nimport {assert, assertNonNegativeIntegerDimensions, flatten, inferDtype, isTypedArray, sizeFromShape, toTypedArray} from '../util';\n\n/** This is
shared code across all tensor creation methods. */\nexport function makeTensor(\n values: TensorLike, shape: number[], inferredShape: number[],\n dtype?: DataType): Tensor {\n if (dtype == null) {\n dtype = inferDtype(values);\n }\n if (dtype === 'complex64') {\n throw new Error(\n `Cannot construct a complex64 tensor directly. ` +\n `Please use tf.complex(real, imag).`);\n }\n if (!isTypedArray(values) && !Array.isArray(values) &&\n typeof values !== 'number' && typeof values !== 'boolean' &&\n typeof values !== 'string') {\n throw new Error(\n 'values passed to tensor(values) must be a number/boolean/string or ' +\n 'an array of numbers/booleans/strings, or a TypedArray');\n }\n if (shape != null) {\n assertNonNegativeIntegerDimensions(shape);\n\n const providedSize = sizeFromShape(shape);\n const inferredSize = sizeFromShape(inferredShape);\n assert(\n providedSize === inferredSize,\n () =>\n `Based on the provided shape, [${shape}], the tensor should have ` +\n `${providedSize} values but has ${inferredSize}`);\n\n for (let i = 0; i < inferredShape.length; ++i) {\n const inferred = inferredShape[i];\n const flatDimsDontMatch = i === inferredShape.length - 1 ?\n inferred !== sizeFromShape(shape.slice(i)) :\n true;\n assert(\n inferredShape[i] === shape[i] || !flatDimsDontMatch,\n () => `Error creating a new Tensor. Inferred shape ` +\n `(${inferredShape}) does not match the provided ` +\n `shape (${shape}). `);\n }\n }\n\n if (!isTypedArray(values) && !Array.isArray(values)) {\n values = [values] as number[];\n }\n\n shape = shape || inferredShape;\n values = dtype !== 'string' ?\n toTypedArray(values, dtype) :\n flatten(values as string[], [], true) as string[];\n return ENGINE.makeTensor(values as TypedArray, shape, dtype);\n}\n","/**\n * @license\n * Copyright
2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {DataType, Rank, ShapeMap} from '../types';\n\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates a `tf.Tensor` with the provided values, shape and dtype.\n *\n * ```js\n * // Pass an array of values to create a vector.\n * tf.tensor([1, 2, 3, 4]).print();\n * ```\n *\n * ```js\n * // Pass a nested array of values to make a matrix or a higher\n * // dimensional tensor.\n * tf.tensor([[1, 2], [3, 4]]).print();\n * ```\n *\n * ```js\n * // Pass a flat array and specify a shape yourself.\n * tf.tensor([1, 2, 3, 4], [2, 2]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n * or a flat array, or a `TypedArray`. If the values are strings,\n * they will be encoded as utf-8 and kept as `Uint8Array[]`.\n * @param shape The shape of the tensor. Optional. If not provided,\n * it is inferred from `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor<R extends Rank>(\n values: TensorLike, shape?: ShapeMap[R], dtype?: DataType): Tensor<R> {\n const inferredShape = inferShape(values, dtype);\n return makeTensor(values,

shape, inferredShape, dtype) as Tensor<R>;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n/* Type definitions for exporting and importing of models. */\n\n/**\n * A map from Tensor dtype to number of bytes per element of the Tensor.\n */\nexport const DTYPE_VALUE_SIZE_MAP: {[dtype: string]: number} = {\n 'float32':
4,\n 'float16': 2,\n 'int32': 4,\n 'uint16': 2,\n 'uint8': 1,\n 'bool': 1,\n 'complex64': 8\n};\n\n/**\n * A weight manifest.\n *\n * The weight manifest consists of an ordered list of weight-manifest groups.\n * Each weight-manifest group (\"group\" for short hereafter) consists of a\n * number of weight values stored in a number of paths.\n * See the documentation of `WeightManifestGroupConfig` below for more details.\n */\nexport declare type WeightsManifestConfig = WeightsManifestGroupConfig[];\n\n/**\n * A weight-manifest group.\n *\n * Consists of an ordered list of weight values encoded in binary format,\n * stored in an ordered list of paths.\n */\nexport declare interface WeightsManifestGroupConfig {\n /**\n * An ordered list of paths.\n *\n * Paths are intentionally abstract in order to be general. For example, they\n * can be relative URL paths or relative paths on the file system.\n */\n paths: string[];\n\n /**\n * Specifications of the weights
stored in the paths.\n */\n weights: WeightsManifestEntry[];\n}\n\n/**\n * Group to which the weight belongs.\n *\n * - 'optimizer': Weight from a stateful optimizer.\n */\nexport type WeightGroup = 'model'|'optimizer';\n\n/**\n * An entry in the weight manifest.\n *\n * The entry contains specification of a weight.\n */\nexport declare interface WeightsManifestEntry {\n /**\n * Name of the weight, e.g., 'Dense_1/bias'\n */\n name: string;\n\n /**\n * Shape of the weight.\n */\n shape: number[];\n\n /**\n * Data type of the weight.\n */\n dtype: 'float32'|'int32'|'bool'|'string'|'complex64';\n\n /**\n * Type of the weight.\n *\n * Optional.\n *\n * The value 'optimizer' indicates the weight belongs to an optimizer\n * (i.e., used only during model training and not during inference).\n */\n group?: WeightGroup;\n\n /**\n * Information for dequantization of the weight.\n */\n quantization?: {\n scale?: number, // The scaling constant to multiply
by.\n min?: number, // The (possibly nudged) minimum weight to add.\n dtype: 'uint16'|'uint8'|'float16' // The dtype of the quantized weights.\n };\n}\n\n/**\n * Options for saving a model.\n * @innamespace io\n */\nexport interface SaveConfig {\n /**\n * Whether to save only the trainable weights of the model, ignoring the\n * non-trainable ones.\n */\n trainableOnly?: boolean;\n\n /**\n * Whether the optimizer will be saved (if exists).\n *\n * Default: `false`.\n */\n includeOptimizer?: boolean;\n}\n\n/**\n * Result of a saving operation.\n */\nexport interface SaveResult {\n /**\n * Information about the model artifacts saved.\n */\n modelArtifactsInfo: ModelArtifactsInfo;\n\n /**\n * HTTP responses from the server that handled the model-saving request (if\n * any). This is applicable only to server-based saving routes.\n */\n responses?: Response[];\n\n /**\n * Error messages and related data (if any).\n */\n errors?: Array<{}|string>;\n}\n\nexport declare interface ModelArtifactsInfo {\n /**\n * Timestamp for when the model is saved.\n */\n dateSaved: Date;\n\n /**\n * TODO (cais,yassogba) consider removing GraphDef as GraphDefs now\n * come in a JSON format and none of our IOHandlers support a non json\n * format. We could conder replacing this with 'Binary' if we want to\n * allow future handlers to save to non json formats (though they will\n * probably want more information than 'Binary').\n * Type of the model topology\n *\n * Type of the model topology\n *\n * Possible values:\n * - JSON: JSON config (human-readable, e.g., Keras JSON).\n * - GraphDef: TensorFlow\n * [GraphDef](https://www.tensorflow.org/extend/tool_developers/#graphdef)\n * protocol buffer (binary).\n */\n modelTopologyType: 'JSON'|'GraphDef';\n\n /**\n * Size of model topology (Keras JSON or GraphDef), in bytes.\n */\n modelTopologyBytes?: number;\n\n /**\n * Size of weight

specification or manifest, in bytes.\n */\n weightSpecsBytes?: number;\n\n /**\n * Size of weight value data, in bytes.\n */\n weightDataBytes?: number;\n}\n\n/** Model training configuration. */\nexport declare interface TrainingConfig {\n // TODO(cais): Tighten the typing once keras spec is available to tfjs-core.\n // See\n // tslint:disable-next-line:max-line-length\n // https://github.com/tensorflow/tfjs-layers/blob/master/src/keras_format/training_config.ts\n /** Optimizer used for the model training. */\n optimizer_config: {};\n\n // TODO(cais): Tighten the typing once keras spec is available to tfjs-core.\n /** Loss function(s) for the model's output(s). */\n loss: string|string[]|{[key: string]: string};\n\n // TODO(cais): Tighten the typing once keras spec is available to tfjs-core.\n /** Metric function(s) for the model's output(s). */\n metrics?: string[]|{[key: string]: string};\n\n // TODO(cais): Tighten the typing once keras spec is available to tfjs-core.\n weighted_metrics?: string[];\n\n // TODO(cais): Tighten the typing once keras spec is available to tfjs-core.\n sample_weight_mode?: string;\n\n loss_weights?: number[]|{[key: string]: number};\n}\n\n/**\n * The serialized artifacts of a model, including topology and weights.\n *\n * The `modelTopology`, `trainingConfig`, `weightSpecs` and `weightData` fields\n * of this interface are optional, in order to support topology- or weights-only\n * saving and loading.\n *\n * Note this interface is used internally in IOHandlers. For the file format\n * written to disk as `model.json`, see `ModelJSON`.\n */\nexport declare interface ModelArtifacts {\n /**\n * Model topology.\n *\n * For Keras-style `tf.Model`s, this is a JSON object.\n * For TensorFlow-style models (e.g., `SavedModel`), this is the JSON\n * encoding of the `GraphDef` protocol buffer.\n */\n modelTopology?: {}|ArrayBuffer;\n\n /**\n * Serialized configuration for the model's training.\n */\n trainingConfig?: TrainingConfig;\n\n /**\n * Weight specifications.\n *\n * This corresponds to the weightsData below.\n */\n weightSpecs?: WeightsManifestEntry[];\n\n /**\n * Binary buffer for all weight values concatenated in the order specified\n * by `weightSpecs`.\n */\n weightData?: ArrayBuffer;\n\n /**\n * Hard-coded format name for models saved from TensorFlow.js or converted\n * by TensorFlow.js Converter.\n */\n format?: string;\n\n /**\n * What library is responsible for originally generating this artifact.\n *\n * Used for debugging purposes. E.g., 'TensorFlow.js v1.0.0'.\n */\n generatedBy?: string;\n\n /**\n * What library or tool is responsible for converting the original model\n * to this format, applicable only if the model is output by a converter.\n *\n * Used for debugging purposes. E.g., 'TensorFlow.js Converter v1.0.0'.\n *\n * A value of `null` means the model artifacts are generated without any\n * conversion process (e.g., saved directly from a TensorFlow.js\n * `tf.LayersModel` instance.)\n */\n convertedBy?: string|null;\n\n /**\n * Inputs and outputs signature for saved model.\n */\n signature?: {};\n\n /**\n * User-defined metadata about the model.\n */\n userDefinedMetadata?: {[key: string]: {}};\n\n /**\n * Initializer for the model.\n */\n modelInitializer?: {};\n}\n\n/**\n * The on-disk format of the `model.json` file.\n *\n * TF.js 1.0 always populates the optional fields when writing model.json.\n * Prior versions did not provide those fields.\n */\nexport declare interface ModelJSON {\n /**\n * Model topology.\n *\n * For Keras-style `tf.Model`s, this is a JSON object.\n * For TensorFlow-style models (e.g., `SavedModel`), this is the JSON\n * encoding of the `GraphDef` protocol buffer.\n */\n modelTopology: {};\n\n /** Model training configuration. */\n trainingConfig?: TrainingConfig;\n\n /**\n * Weights manifest.\n *\n * The weights manifest consists of an ordered list of weight-manifest\n * groups. Each weight-manifest group consists of a number of weight values\n * stored in a number of paths. See the documentation of\n * `WeightsManifestConfig` for more details.\n */\n weightsManifest: WeightsManifestConfig;\n\n /**\n * Hard-coded format name for models saved from TensorFlow.js or converted\n * by TensorFlow.js Converter.\n */\n format?: string;\n\n /**\n * What library is responsible for originally generating this artifact.\n *\n * Used for debugging purposes. E.g., 'TensorFlow.js v1.0.0'.\n */\n generatedBy?: string;\n\n /**\n * What library or tool is responsible for converting the original model\n * to this format, applicable only if the model is output by a converter.\n *\n * Used for debugging purposes. E.g., 'TensorFlow.js Converter v1.0.0'.\n *\n * A value of `null` means the model artifacts are generated without any\n * conversion process (e.g., saved directly from a TensorFlow.js\n * `tf.LayersModel` instance.)\n */\n convertedBy?: string|null;\n\n /**\n * Inputs and outputs signature for saved model.\n */\n signature?: {};\n\n /**\n * User-defined metadata about the model.\n */\n userDefinedMetadata?: {[key: string]: {}};\n\n /**\n * Initializer for the model.\n */\n modelInitializer?:

{};\n}\n\n/**\n * Type definition for handlers of loading operations.\n */\nexport type LoadHandler = () => Promise<ModelArtifacts>;\n\n/**\n * Type definition for handlers of saving operations.\n */\nexport type SaveHandler = (modelArtifact: ModelArtifacts) =>\n Promise<SaveResult>;\n\n/**\n * Interface for a model import/export handler.\n *\n * The `save` and `load` handlers are both optional, in order to allow handlers\n * that support only saving or loading.\n */\n// tslint:disable-next-line:interface-name\nexport interface IOHandler {\n save?: SaveHandler;\n load?: LoadHandler;\n}\n\n/**\n * An interface for the manager of a model store.\n *\n * A model store is defined as a storage medium on which multiple models can\n * be stored. Each stored model has a unique `path` as its identifier.\n * A `ModelStoreManager` for the store allows actions including\n *\n * - Listing the models stored in the store.\n * - Deleting a model from the store.\n */\nexport interface ModelStoreManager {\n /**\n * List all models in the model store.\n *\n * @returns A dictionary mapping paths of existing models to their\n * model artifacts info. Model artifacts info include type of the model's\n * topology, byte sizes of the topology, weights, etc.\n */\n listModels(): Promise<{[path: string]: ModelArtifactsInfo}>;\n\n /**\n * Remove a model specified by `path`.\n *\n * @param path\n * @returns ModelArtifactsInfo of the deleted model (if and only if deletion\n * is successful).\n * @throws Error if deletion fails, e.g., if no model exists at `path`.\n */\n removeModel(path: string): Promise<ModelArtifactsInfo>;\n}\n\n/**\n * Callback for the progress of a long-running action such as an HTTP\n * request for a large binary object.\n *\n * `fraction` should be a number in the [0, 1] interval, indicating how\n * much of the action has completed.\n */\nexport type OnProgressCallback = (fraction: number) => void;\n\n/** @innamespace io */\nexport interface LoadOptions {\n /**\n * RequestInit (options) for HTTP requests.\n *\n * For detailed information on the supported fields, see\n * [https://developer.mozilla.org/en-US/docs/Web/API/Request/Request](\n * https://developer.mozilla.org/en-US/docs/Web/API/Request/Request)\n */\n requestInit?: RequestInit;\n\n /**\n * Progress callback.\n */\n onProgress?: OnProgressCallback;\n\n /**\n * A function used to override the `window.fetch` function.\n */\n fetchFunc?: Function;\n\n /**\n * Strict loading model: whether extraneous weights or missing\n * weights should trigger an `Error`.\n *\n *
If `true`, require that the provided weights exactly match those\n * required by the layers. `false` means that both extra weights\n * and missing weights will be silently ignored.\n *\n * Default: `true`.\n */\n strict?: boolean;\n\n /**\n * Path prefix for weight files, by default this is calculated from the\n * path of the model JSON file.\n *\n * For instance, if the path to the model JSON file is\n * `http://localhost/foo/model.json`, then the default path prefix will be\n * `http://localhost/foo/`. If a weight file has the path value\n * `group1-shard1of2` in the weight manifest, then the weight file will be\n * loaded from `http://localhost/foo/group1-shard1of2` by default. However,\n * if you provide a `weightPathPrefix` value of\n * `http://localhost/foo/alt-weights`, then the weight file will be loaded\n * from the path `http://localhost/foo/alt-weights/group1-shard1of2` instead.\n */\n weightPathPrefix?: string;\n\n /**\n * Whether the module or model is to be loaded from TF Hub.\n *\n * Setting this to `true` allows passing a TF-Hub module URL, omitting the\n * standard model file name and the query parameters.\n *\n * Default: `false`.\n */\n fromTFHub?: boolean;\n\n /**\n * An async function to convert weight file name to URL. The weight file\n * names are stored in model.json's weightsManifest.paths field. By default we\n * consider weight files are colocated with the model.json file. For example:\n * model.json URL: https://www.google.com/models/1/model.json\n * group1-shard1of1.bin url:\n * https://www.google.com/models/1/group1-shard1of1.bin\n *\n * With this func you can convert the weight file name to any URL.\n */\n weightUrlConverter?: (weightFileName: string) => Promise<string>;\n}\n\n/**\n * Additional options for Platform.fetch\n */\nexport interface RequestDetails {\n /**\n * Is this request for a binary file (as opposed to a json file)\n */\n isBinary?: boolean;\n}\n","'use strict'\n\nexports.byteLength = byteLength\nexports.toByteArray = toByteArray\nexports.fromByteArray = fromByteArray\n\nvar lookup = []\nvar revLookup = []\nvar Arr = typeof Uint8Array !== 'undefined' ? Uint8Array : Array\n\nvar code = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/'\nfor (var i = 0, len = code.length; i < len; ++i) {\n lookup[i] = code[i]\n revLookup[code.charCodeAt(i)] = i\n}\n\n// Support decoding

URL-safe base64 strings, as Node.js does.\n// See:
https://en.wikipedia.org/wiki/Base64#URL_applications\nrevLookup['-'.charCodeAt(0)] =
62\nrevLookup['_'.charCodeAt(0)] = 63\n\nfunction getLens (b64) {\n var len = b64.length\n\n if (len % 4 > 0) {\n
throw new Error('Invalid string. Length must be a multiple of 4')\n }\n\n // Trim off extra bytes after placeholder
bytes are found\n // See: https://github.com/beatgammit/base64-js/issues/42\n var validLen = b64.indexOf('=')\n if
(validLen === -1) validLen = len\n\n var
placeHoldersLen = validLen === len\n   ? 0\n   : 4 - (validLen % 4)\n\n return [validLen,
placeHoldersLen]\n}\n\n// base64 is 4/3 + up to two characters of the original data\nfunction byteLength (b64) {\n
var lens = getLens(b64)\n var validLen = lens[0]\n var placeHoldersLen = lens[1]\n return ((validLen +
placeHoldersLen) * 3 / 4) - placeHoldersLen\n}\n\nfunction _byteLength (b64, validLen, placeHoldersLen) {\n
return ((validLen + placeHoldersLen) * 3 / 4) - placeHoldersLen\n}\n\nfunction toByteArray (b64) {\n var tmp\n
var lens = getLens(b64)\n var validLen = lens[0]\n var placeHoldersLen = lens[1]\n\n var arr = new
Arr(_byteLength(b64, validLen, placeHoldersLen))\n\n var curByte = 0\n\n // if there are placeholders, only get up
to the last complete 4 chars\n var len = placeHoldersLen > 0\n   ? validLen - 4\n   : validLen\n\n var i\n for (i = 0;
i < len; i += 4) {\n   tmp =\n   (revLookup[b64.charCodeAt(i)] << 18) |\n   (revLookup[b64.charCodeAt(i + 1)]
<< 12) |\n   (revLookup[b64.charCodeAt(i + 2)] << 6) |\n   revLookup[b64.charCodeAt(i + 3)]\n
arr[curByte++] = (tmp >> 16) & 0xFF\n   arr[curByte++] = (tmp >> 8) & 0xFF\n   arr[curByte++] = tmp & 0xFF\n
}\n\n if (placeHoldersLen === 2) {\n   tmp =\n   (revLookup[b64.charCodeAt(i)] << 2) |\n
(revLookup[b64.charCodeAt(i + 1)] >> 4)\n   arr[curByte++] = tmp & 0xFF\n }\n\n if (placeHoldersLen === 1)
{\n   tmp =\n   (revLookup[b64.charCodeAt(i)] << 10) |\n   (revLookup[b64.charCodeAt(i + 1)] << 4) |\n
(revLookup[b64.charCodeAt(i + 2)] >> 2)\n   arr[curByte++] = (tmp >> 8) & 0xFF\n   arr[curByte++] = tmp &
0xFF\n }\n\n return arr\n}\n\nfunction tripletToBase64 (num) {\n return lookup[num >> 18 & 0x3F] +\n
lookup[num >> 12 & 0x3F] +\n   lookup[num >> 6 & 0x3F] +\n   lookup[num & 0x3F]\n}\n\nfunction
encodeChunk (uint8, start, end) {\n var tmp\n var output = []\n for (var i = start; i < end; i += 3) {\n   tmp =\n
((uint8[i] << 16) & 0xFF0000)
+\n   ((uint8[i + 1] << 8) & 0xFF00) +\n   (uint8[i + 2] & 0xFF)\n   output.push(tripletToBase64(tmp))\n }\n
return output.join('')\n}\n\nfunction fromByteArray (uint8) {\n var tmp\n var len = uint8.length\n var extraBytes =
len % 3 // if we have 1 byte left, pad 2 bytes\n var parts = []\n var maxChunkLength = 16383 // must be multiple of
3\n\n // go through the array every three bytes, we'll deal with trailing stuff later\n for (var i = 0, len2 = len -
extraBytes; i < len2; i += maxChunkLength) {\n   parts.push(encodeChunk(\n   uint8, i, (i + maxChunkLength) >
len2 ? len2 : (i + maxChunkLength)\n   ))\n }\n\n // pad the end with zeros, but make sure to not forget the extra
bytes\n if (extraBytes === 1) {\n   tmp = uint8[len - 1]\n   parts.push(\n   lookup[tmp >> 2] +\n   lookup[(tmp
<< 4) & 0x3F] +\n   '==\n   )\n } else if (extraBytes === 2) {\n   tmp = (uint8[len - 2] << 8) + uint8[len - 1]\n
parts.push(\n   lookup[tmp >> 10] +\n
  lookup[(tmp >> 4) & 0x3F] +\n   lookup[(tmp << 2) & 0x3F] +\n   '=\n   )\n }\n\n return
parts.join('')\n}\n","exports.read = function (buffer, offset, isLE, mLen, nBytes) {\n var e, m\n var eLen = (nBytes
* 8) - mLen - 1\n var eMax = (1 << eLen) - 1\n var eBias = eMax >> 1\n var nBits = -7\n var i = isLE ? (nBytes -
1) : 0\n var d = isLE ? -1 : 1\n var s = buffer[offset + i]\n\n i += d\n\n e = s & ((1 << (-nBits)) - 1)\n s >>= (-
nBits)\n nBits += eLen\n for (; nBits > 0; e = (e * 256) + buffer[offset + i], i += d, nBits -= 8) {}\n\n m = e & ((1
<< (-nBits)) - 1)\n e >>= (-nBits)\n nBits += mLen\n for (; nBits > 0; m = (m * 256) + buffer[offset + i], i += d,
nBits -= 8) {}\n\n if (e === 0) {\n   e = 1 - eBias\n } else if (e === eMax) {\n   return m ? NaN : ((s ? -1 : 1) *
Infinity)\n } else {\n   m = m + Math.pow(2, mLen)\n   e = e - eBias\n }\n return (s ? -1 : 1) * m * Math.pow(2, e
- mLen)\n}\n\nexports.write = function (buffer, value, offset, isLE,
  mLen, nBytes) {\n var e, m, c\n var eLen = (nBytes * 8) - mLen - 1\n var eMax = (1 << eLen) - 1\n var eBias =
eMax >> 1\n var rt = (mLen === 23 ? Math.pow(2, -24) - Math.pow(2, -77) : 0)\n var i = isLE ? 0 : (nBytes - 1)\n
var d = isLE ? 1 : -1\n var s = value < 0 || (value === 0 && 1 / value < 0) ? 1 : 0\n\n value = Math.abs(value)\n\n if
(isNaN(value) || value === Infinity) {\n   m = isNaN(value) ? 1 : 0\n   e = eMax\n } else {\n   e =
Math.floor(Math.log(value) / Math.LN2)\n   if (value * (c = Math.pow(2, -e)) < 1) {\n   e--\n   c *= 2\n   }\n   if

(e + eBias >= 1) {\n value += rt / c\n } else {\n value += rt * Math.pow(2, 1 - eBias)\n }\n if (value * c >= 2) {\n e++\n c /= 2\n }\n\n if (e + eBias >= eMax) {\n m = 0\n e = eMax\n } else if (e + eBias >= 1) {\n m = ((value * c) - 1) * Math.pow(2, mLen)\n e = e + eBias\n } else {\n m = value * Math.pow(2, eBias - 1) * Math.pow(2, mLen)\n e = 0\n }\n }\n\n for (; mLen >= 8; buffer[offset + i] = m & 0xff, i += d, m /= 256, mLen -= 8) {}\n\n e = (e << mLen) | m\n eLen += mLen\n for (; eLen > 0; buffer[offset + i] = e & 0xff, i += d, e /= 256, eLen -= 8) {}\n\n buffer[offset + i - d] |= s * 128\n}\n","var toString = {}.toString;\n\nmodule.exports = Array.isArray || function (arr) {\n return toString.call(arr) == '[object Array]';\n};\n","/*!\n * The buffer module from node.js, for the browser.\n *\n * @author Feross Aboukhadijeh <feross@feross.org> <http://feross.org>\n * @license MIT\n */\n/* eslint-disable no-proto */\n\n'use strict'\n\nvar base64 = require('base64-js')\nvar ieee754 = require('ieee754')\nvar isArray = require('isarray')\n\nexports.Buffer = Buffer\nexports.SlowBuffer = SlowBuffer\nexports.INSPECT_MAX_BYTES = 50\n\n/**\n * If `Buffer.TYPED_ARRAY_SUPPORT`:\n * === true Use Uint8Array implementation (fastest)\n * === false Use Object implementation (most compatible, even IE6)\n *\n * Browsers that support typed arrays are IE 10+, Firefox 4+, Chrome 7+, Safari 5.1+,\n * Opera 11.6+, iOS 4.2+.\n *\n * Due to various browser bugs, sometimes the Object implementation will be used even\n * when the browser supports typed arrays.\n *\n * Note:\n *\n * - Firefox 4-29 lacks support for adding new properties to `Uint8Array` instances,\n * See: https://bugzilla.mozilla.org/show_bug.cgi?id=695438.\n *\n * - Chrome 9-10 is missing the `TypedArray.prototype.subarray` function.\n *\n * - IE10 has a broken `TypedArray.prototype.subarray` function which returns arrays of\n * incorrect length in some situations.\n\n * We detect these buggy browsers and set `Buffer.TYPED_ARRAY_SUPPORT` to `false` so they\n * get the Object implementation, which is slower but behaves correctly.\n */\nBuffer.TYPED_ARRAY_SUPPORT = global.TYPED_ARRAY_SUPPORT !== undefined\n ? global.TYPED_ARRAY_SUPPORT\n : typedArraySupport()\n\n/*\n * Export kMaxLength after typed array support is determined.\n */\nexports.kMaxLength = kMaxLength()\n\nfunction typedArraySupport () {\n try {\n var arr = new Uint8Array(1)\n arr.__proto__ = {__proto__: Uint8Array.prototype, foo: function () { return 42 }}\n return arr.foo() === 42 && // typed array instances can be augmented\n typeof arr.subarray === 'function' && // chrome 9-10 lack `subarray`\n arr.subarray(1, 1).byteLength === 0 // ie10 has broken `subarray`\n } catch (e) {\n return false\n }\n}\n\nfunction kMaxLength () {\n return Buffer.TYPED_ARRAY_SUPPORT\n ? 0x7fffffff\n : 0x3fffffff\n}\n\nfunction createBuffer (that, length) {\n if (kMaxLength() < length) {\n throw new RangeError('Invalid typed array length')\n }\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n // Return an augmented `Uint8Array` instance, for best performance\n that = new Uint8Array(length)\n that.__proto__ = Buffer.prototype\n } else {\n // Fallback: Return an object instance of the Buffer class\n if (that === null) {\n that = new Buffer(length)\n }\n that.length = length\n }\n\n return that\n}\n\n/**\n * The Buffer constructor returns instances of `Uint8Array` that have their\n * prototype changed to `Buffer.prototype`. Furthermore, `Buffer` is a subclass of\n * `Uint8Array`, so the returned instances will have all the node `Buffer` methods\n * and the `Uint8Array` methods. Square bracket notation works as expected -- it\n * returns a single octet.\n *\n * The `Uint8Array` prototype remains unmodified.\n */\n\nfunction Buffer (arg, encodingOrOffset, length) {\n if (!Buffer.TYPED_ARRAY_SUPPORT && !(this instanceof Buffer)) {\n return new Buffer(arg, encodingOrOffset, length)\n }\n\n // Common case.\n if (typeof arg === 'number') {\n if (typeof encodingOrOffset === 'string') {\n throw new Error(\n 'If encoding is specified then the first argument must be a string'\n)\n }\n return allocUnsafe(this, arg)\n }\n return from(this, arg, encodingOrOffset, length)\n}\n\nBuffer.poolSize = 8192 // not used by this implementation\n\n// TODO: Legacy, not needed anymore. Remove in next major version.\nBuffer._augment = function (arr) {\n arr.__proto__ = Buffer.prototype\n return arr\n}\n\nfunction from (that, value, encodingOrOffset, length) {\n if (typeof value === 'number') {\n throw new TypeError('\"value\" argument must not be a number')\n }\n\n if (typeof ArrayBuffer !== 'undefined' && value instanceof ArrayBuffer) {\n return fromArrayBuffer(that, value, encodingOrOffset, length)\n }\n\n if (typeof value === 'string') {\n

```
return fromString(that, value, encodingOrOffset)\n  }\n\n  return fromObject(that, value)\n}\n\n/**\n * Functionally equivalent to Buffer(arg, encoding) but throws a TypeError\n * if value is a number.\n * Buffer.from(str[, encoding])\n * Buffer.from(array)\n * Buffer.from(buffer)\n * Buffer.from(arrayBuffer[, byteOffset[, length]])\n **/\nBuffer.from = function (value, encodingOrOffset, length) {\n  return
 from(null, value, encodingOrOffset, length)\n}\n\nif (Buffer.TYPED_ARRAY_SUPPORT) {\n Buffer.prototype.__proto__ = Uint8Array.prototype\n  Buffer.__proto__ = Uint8Array\n  if (typeof Symbol !== 'undefined' && Symbol.species &&\n      Buffer[Symbol.species] === Buffer) {\n    // Fix subarray() in ES2016. See: https://github.com/feross/buffer/pull/97\n    Object.defineProperty(Buffer, Symbol.species, {\n      value: null,\n      configurable: true\n    })\n  }\n}\n\nfunction assertSize (size) {\n  if (typeof size !== 'number') {\n    throw new TypeError('\"size\" argument must be a number')\n  } else if (size < 0) {\n    throw new RangeError('\"size\" argument must not be negative')\n  }\n}\n\nfunction alloc (that, size, fill, encoding) {\n  assertSize(size)\n  if (size <= 0) {\n    return createBuffer(that, size)\n  }\n  if (fill !== undefined) {\n    // Only pay attention to encoding if it's a string. This\n    // prevents accidentally sending in a number that would\n    // be interpretted
 as a start offset.\n    return typeof encoding === 'string'\n      ? createBuffer(that, size).fill(fill, encoding)\n      : createBuffer(that, size).fill(fill)\n  }\n  return createBuffer(that, size)\n}\n\n/**\n * Creates a new filled Buffer instance.\n * alloc(size[, fill[, encoding]])\n **/\nBuffer.alloc = function (size, fill, encoding) {\n  return alloc(null, size, fill, encoding)\n}\n\nfunction allocUnsafe (that, size) {\n  assertSize(size)\n  that = createBuffer(that, size < 0 ? 0 : checked(size) | 0)\n  if (!Buffer.TYPED_ARRAY_SUPPORT) {\n    for (var i = 0; i < size; ++i) {\n      that[i] = 0\n    }\n  }\n  return that\n}\n\n/**\n * Equivalent to Buffer(num), by default creates a non-zero-filled Buffer instance.\n * */\nBuffer.allocUnsafe = function (size) {\n  return allocUnsafe(null, size)\n}\n/**\n * Equivalent to SlowBuffer(num), by default creates a non-zero-filled Buffer instance.\n */\nBuffer.allocUnsafeSlow = function (size) {\n  return allocUnsafe(null, size)\n}\n\nfunction
 fromString (that, string, encoding) {\n  if (typeof encoding !== 'string' || encoding === '') {\n    encoding = 'utf8'\n  }\n\n  if (!Buffer.isEncoding(encoding)) {\n    throw new TypeError('\"encoding\" must be a valid string encoding')\n  }\n\n  var length = byteLength(string, encoding) | 0\n  that = createBuffer(that, length)\n\n  var actual = that.write(string, encoding)\n\n  if (actual !== length) {\n    // Writing a hex string, for example, that contains invalid characters will\n    // cause everything after the first invalid character to be ignored. (e.g.\n    // 'abxxcd' will be treated as 'ab')\n    that = that.slice(0, actual)\n  }\n\n  return that\n}\n\nfunction fromArrayLike (that, array) {\n  var length = array.length < 0 ? 0 : checked(array.length) | 0\n  that = createBuffer(that, length)\n  for (var i = 0; i < length; i += 1) {\n    that[i] = array[i] & 255\n  }\n  return that\n}\n\nfunction fromArrayBuffer (that, array, byteOffset, length) {\n  array.byteLength
 // this throws if `array` is not a valid ArrayBuffer\n\n  if (byteOffset < 0 || array.byteLength < byteOffset) {\n    throw new RangeError('\\'offset\\' is out of bounds')\n  }\n\n  if (array.byteLength < byteOffset + (length || 0)) {\n    throw new RangeError('\\'length\\' is out of bounds')\n  }\n\n  if (byteOffset === undefined && length === undefined) {\n    array = new Uint8Array(array)\n  } else if (length === undefined) {\n    array = new Uint8Array(array, byteOffset)\n  } else {\n    array = new Uint8Array(array, byteOffset, length)\n  }\n\n  if (Buffer.TYPED_ARRAY_SUPPORT) {\n    // Return an augmented `Uint8Array` instance, for best performance\n    that = array\n    that.__proto__ = Buffer.prototype\n  } else {\n    // Fallback: Return an object instance of the Buffer class\n    that = fromArrayLike(that, array)\n  }\n  return that\n}\n\nfunction fromObject (that, obj) {\n  if (Buffer.isBuffer(obj)) {\n    var len = checked(obj.length) | 0\n    that = createBuffer(that,
 len)\n\n    if (that.length === 0) {\n      return that\n    }\n\n    obj.copy(that, 0, 0, len)\n    return that\n  }\n\n  if (obj) {\n    if ((typeof ArrayBuffer !== 'undefined' &&\n        obj.buffer instanceof ArrayBuffer) || 'length' in obj) {\n      if (typeof obj.length !== 'number' || isnan(obj.length)) {\n        return createBuffer(that, 0)\n      }\n      return fromArrayLike(that, obj)\n    }\n\n    if (obj.type === 'Buffer' && isArray(obj.data)) {\n      return fromArrayLike(that, obj.data)\n    }\n  }\n\n  throw new TypeError('First argument must be a string, Buffer, ArrayBuffer, Array, or array-like object.')\n}\n\nfunction checked (length) {\n  // Note: cannot use `length < kMaxLength()` here because that fails when\n  // length is NaN (which is otherwise coerced to zero.)\n  if (length >= kMaxLength()) {\n    throw new RangeError('Attempt to allocate Buffer larger than maximum ' +\n
```

'size: 0x' + kMaxLength().toString(16) + ' bytes')\n }\n return
length | 0\n}\n\nfunction SlowBuffer (length) {\n if (+length != length) { // eslint-disable-line eqeqeq\n length = 0\n }\n return Buffer.alloc(+length)\n}\n\nBuffer.isBuffer = function isBuffer (b) {\n return !!(b != null && b._isBuffer)\n}\n\nBuffer.compare = function compare (a, b) {\n if (!Buffer.isBuffer(a) || !Buffer.isBuffer(b)) {\n throw new TypeError('Arguments must be Buffers')\n }\n\n if (a === b) return 0\n\n var x = a.length\n var y = b.length\n\n for (var i = 0, len = Math.min(x, y); i < len; ++i) {\n if (a[i] !== b[i]) {\n x = a[i]\n y = b[i]\n break\n }\n }\n\n if (x < y) return -1\n if (y < x) return 1\n return 0\n}\n\nBuffer.isEncoding = function isEncoding (encoding) {\n switch (String(encoding).toLowerCase()) {\n case 'hex':\n case 'utf8':\n case 'utf-8':\n case 'ascii':\n case 'latin1':\n case 'binary':\n case 'base64':\n case 'ucs2':\n case 'ucs-2':\n case 'utf16le':\n case 'utf-16le':\n
return true\n default:\n return false\n }\n}\n\nBuffer.concat = function concat (list, length) {\n if (!isArray(list)) {\n throw new TypeError('\"list\" argument must be an Array of Buffers')\n }\n\n if (list.length === 0) {\n return Buffer.alloc(0)\n }\n\n var i\n if (length === undefined) {\n length = 0\n for (i = 0; i < list.length; ++i) {\n length += list[i].length\n }\n }\n\n var buffer = Buffer.allocUnsafe(length)\n var pos = 0\n for (i = 0; i < list.length; ++i) {\n var buf = list[i]\n if (!Buffer.isBuffer(buf)) {\n throw new TypeError('\"list\" argument must be an Array of Buffers')\n }\n buf.copy(buffer, pos)\n pos += buf.length\n }\n return buffer\n}\n\nfunction byteLength (string, encoding) {\n if (Buffer.isBuffer(string)) {\n return string.length\n }\n if (typeof ArrayBuffer !== 'undefined' && typeof ArrayBuffer.isView === 'function' &&\n (ArrayBuffer.isView(string) || string instanceof ArrayBuffer))
{\n return string.byteLength\n }\n if (typeof string !== 'string') {\n string = '' + string\n }\n\n var len = string.length\n if (len === 0) return 0\n\n // Use a for loop to avoid recursion\n var loweredCase = false\n for (;;) {\n switch (encoding) {\n case 'ascii':\n case 'latin1':\n case 'binary':\n return len\n case 'utf8':\n case 'utf-8':\n case undefined:\n return utf8ToBytes(string).length\n case 'ucs2':\n case 'ucs-2':\n case 'utf16le':\n case 'utf-16le':\n return len * 2\n case 'hex':\n return len >>> 1\n case 'base64':\n
return base64ToBytes(string).length\n default:\n if (loweredCase) return utf8ToBytes(string).length // assume utf8\n encoding = ('' + encoding).toLowerCase()\n loweredCase = true\n }\n}\n\nBuffer.byteLength = byteLength\n\nfunction slowToString (encoding, start, end) {\n var loweredCase = false\n\n // No need
to verify that \"this.length <= MAX_UINT32\" since it's a read-only\n // property of a typed array.\n\n // This behaves neither like String nor Uint8Array in that we set start/end\n // to their upper/lower bounds if the value passed is out of range.\n // undefined is handled specially as per ECMA-262 6th Edition,\n // Section 13.3.3.7 Runtime Semantics: KeyedBindingInitialization.\n if (start === undefined || start < 0) {\n start = 0\n }\n // Return early if start > this.length. Done here to prevent potential uint32\n // coercion fail below.\n if (start > this.length) {\n return ''\n }\n\n if (end === undefined || end > this.length) {\n end = this.length\n }\n\n if (end <= 0) {\n return ''\n }\n\n // Force coersion to uint32. This will also coerce falsey/NaN values to 0.\n end >>>= 0\n start >>>= 0\n\n if (end <= start) {\n return ''\n }\n\n if (!encoding) encoding = 'utf8'\n\n while (true) {\n switch (encoding) {\n case 'hex':\n return
hexSlice(this, start, end)\n\n case 'utf8':\n case 'utf-8':\n return utf8Slice(this, start, end)\n\n case 'ascii':\n return asciiSlice(this, start, end)\n\n case 'latin1':\n case 'binary':\n return latin1Slice(this, start, end)\n\n case 'base64':\n return base64Slice(this, start, end)\n\n case 'ucs2':\n case 'ucs-2':\n case 'utf16le':\n case 'utf-16le':\n return utf16leSlice(this, start, end)\n\n default:\n if (loweredCase) throw new TypeError('Unknown encoding: ' + encoding)\n encoding = (encoding + '').toLowerCase()\n loweredCase = true\n }\n }\n}\n\n// The property is used by `Buffer.isBuffer` and `is-buffer` (in Safari 5-7) to detect\n// Buffer instances.\nBuffer.prototype._isBuffer = true\n\nfunction swap (b, n, m) {\n var i = b[n]\n b[n] = b[m]\n b[m] = i\n}\n\nBuffer.prototype.swap16 = function swap16 () {\n var len = this.length\n if (len % 2 !== 0) {\n
throw new RangeError('Buffer size must be a multiple of 16-bits')\n }\n for (var i = 0; i < len; i += 2) {\n swap(this, i, i + 1)\n }\n return this\n}\n\nBuffer.prototype.swap32 = function swap32 () {\n var len = this.length\n

if (len % 4 !== 0) {\n throw new RangeError('Buffer size must be a multiple of 32-bits')\n }\n for (var i = 0; i < len; i += 4) {\n swap(this, i, i + 3)\n swap(this, i + 1, i + 2)\n }\n return this\n}\n\nBuffer.prototype.swap64 = function swap64 () {\n var len = this.length\n if (len % 8 !== 0) {\n throw new RangeError('Buffer size must be a multiple of 64-bits')\n }\n for (var i = 0; i < len; i += 8) {\n swap(this, i, i + 7)\n swap(this, i + 1, i + 6)\n swap(this, i + 2, i + 5)\n swap(this, i + 3, i + 4)\n }\n return this\n}\n\nBuffer.prototype.toString = function toString () {\n var length = this.length | 0\n if (length === 0) return ''\n if (arguments.length === 0) return utf8Slice(this, 0, length)\n return slowToString.apply(this,
 arguments)\n}\n\nBuffer.prototype.equals = function equals (b) {\n if (!Buffer.isBuffer(b)) throw new TypeError('Argument must be a Buffer')\n if (this === b) return true\n return Buffer.compare(this, b) === 0\n}\n\nBuffer.prototype.inspect = function inspect () {\n var str = ''\n var max = exports.INSPECT_MAX_BYTES\n if (this.length > 0) {\n str = this.toString('hex', 0, max).match(/.{2}/g).join(' ')\n if (this.length > max) str += ' ... '\n }\n return '<Buffer ' + str + '>'\n}\n\nBuffer.prototype.compare = function compare (target, start, end, thisStart, thisEnd) {\n if (!Buffer.isBuffer(target)) {\n throw new TypeError('Argument must be a Buffer')\n }\n\n if (start === undefined) {\n start = 0\n }\n if (end === undefined) {\n end = target ? target.length : 0\n }\n if (thisStart === undefined) {\n thisStart = 0\n }\n if (thisEnd === undefined) {\n thisEnd = this.length\n }\n\n if (start < 0 || end > target.length || thisStart < 0 || thisEnd > this.length) {\n throw new RangeError('out of range index')\n }\n\n if (thisStart >= thisEnd && start >= end) {\n return 0\n }\n if (thisStart >= thisEnd) {\n return -1\n }\n if (start >= end) {\n return 1\n }\n\n start >>>= 0\n end >>>= 0\n thisStart >>>= 0\n thisEnd >>>= 0\n\n if (this === target) return 0\n\n var x = thisEnd - thisStart\n var y = end - start\n var len = Math.min(x, y)\n\n var thisCopy = this.slice(thisStart, thisEnd)\n var targetCopy = target.slice(start, end)\n\n for (var i = 0; i < len; ++i) {\n if (thisCopy[i] !== targetCopy[i]) {\n   x = thisCopy[i]\n   y = targetCopy[i]\n   break\n }\n }\n\n if (x < y) return -1\n if (y < x) return 1\n return 0\n}\n\n// Finds either the first index of `val` in `buffer` at offset >= `byteOffset`,\n// OR the last index of `val` in `buffer` at offset <= `byteOffset`.\n//\n// Arguments:\n// - buffer - a Buffer to search\n// - val - a string, Buffer, or number\n// -
 byteOffset - an index into `buffer`; will be clamped to an int32\n// - encoding - an optional encoding, relevant is val is a string\n// - dir - true for indexOf, false for lastIndexOf\nfunction bidirectionalIndexOf (buffer, val, byteOffset, encoding, dir) {\n // Empty buffer means no match\n if (buffer.length === 0) return -1\n\n // Normalize byteOffset\n if (typeof byteOffset === 'string') {\n encoding = byteOffset\n byteOffset = 0\n } else if (byteOffset > 0x7fffffff) {\n byteOffset = 0x7fffffff\n } else if (byteOffset < -0x80000000) {\n byteOffset = -0x80000000\n }\n byteOffset = +byteOffset // Coerce to Number.\n if (isNaN(byteOffset)) {\n // byteOffset: it it's undefined, null, NaN, \"foo\", etc, search whole buffer\n byteOffset = dir ? 0 : (buffer.length - 1)\n }\n\n // Normalize byteOffset: negative offsets start from the end of the buffer\n if (byteOffset < 0) byteOffset = buffer.length + byteOffset\n if (byteOffset >= buffer.length) {\n if (dir)
 return -1\n else byteOffset = buffer.length - 1\n } else if (byteOffset < 0) {\n if (dir) byteOffset = 0\n else return -1\n }\n\n // Normalize val\n if (typeof val === 'string') {\n val = Buffer.from(val, encoding)\n }\n\n // Finally, search either indexOf (if dir is true) or lastIndexOf\n if (Buffer.isBuffer(val)) {\n // Special case: looking for empty string/buffer always fails\n if (val.length === 0) {\n   return -1\n }\n return arrayIndexOf(buffer, val, byteOffset, encoding, dir)\n } else if (typeof val === 'number') {\n val = val & 0xFF // Search for a byte value [0-255]\n if (Buffer.TYPED_ARRAY_SUPPORT &&\n   typeof Uint8Array.prototype.indexOf === 'function') {\n   if (dir) {\n   return Uint8Array.prototype.indexOf.call(buffer, val, byteOffset)\n   } else {\n   return Uint8Array.prototype.lastIndexOf.call(buffer, val, byteOffset)\n   }\n }\n return arrayIndexOf(buffer, [val], byteOffset, encoding, dir)\n
 }\n\n throw new TypeError('val must be string, number or Buffer')\n}\n\nfunction arrayIndexOf (arr, val, byteOffset, encoding, dir) {\n var indexSize = 1\n var arrLength = arr.length\n var valLength = val.length\n\n if (encoding !== undefined) {\n encoding = String(encoding).toLowerCase()\n if (encoding === 'ucs2' || encoding === 'ucs-2' ||\n   encoding === 'utf16le' || encoding === 'utf-16le') {\n   if (arr.length < 2 || val.length < 2) {\n   return -1\n   }\n   indexSize = 2\n   arrLength /= 2\n   valLength /= 2\n   byteOffset /= 2\n }\n }\n\n

```
function read (buf, i) {\n  if (indexSize === 1) {\n    return buf[i]\n  } else {\n    return buf.readUInt16BE(i * indexSize)\n  }\n }\n\n var i\n if (dir) {\n  var foundIndex = -1\n  for (i = byteOffset; i < arrLength; i++) {\n if (read(arr, i) === read(val, foundIndex === -1 ? 0 : i - foundIndex)) {\n    if (foundIndex === -1) foundIndex = i\n    if (i - foundIndex +
 1 === valLength) return foundIndex * indexSize\n  } else {\n    if (foundIndex !== -1) i -= i - foundIndex\n foundIndex = -1\n  }\n  }\n } else {\n  if (byteOffset + valLength > arrLength) byteOffset = arrLength - valLength\n  for (i = byteOffset; i >= 0; i--) {\n    var found = true\n    for (var j = 0; j < valLength; j++) {\n if (read(arr, i + j) !== read(val, j)) {\n      found = false\n      break\n    }\n  }\n    if (found) return i\n  }\n }\n\n  return -1\n}\n\nBuffer.prototype.includes = function includes (val, byteOffset, encoding) {\n  return this.indexOf(val, byteOffset, encoding) !== -1\n}\n\nBuffer.prototype.indexOf = function indexOf (val, byteOffset, encoding) {\n  return bidirectionalIndexOf(this, val, byteOffset, encoding, true)\n}\n\nBuffer.prototype.lastIndexOf = function lastIndexOf (val, byteOffset, encoding) {\n  return bidirectionalIndexOf(this, val, byteOffset, encoding, false)\n}\n\nfunction hexWrite (buf,
 string, offset, length) {\n  offset = Number(offset) || 0\n  var remaining = buf.length - offset\n  if (!length) {\n length = remaining\n  } else {\n    length = Number(length)\n    if (length > remaining) {\n      length = remaining\n  }\n }\n\n  // must be an even number of digits\n  var strLen = string.length\n  if (strLen % 2 !== 0) throw new TypeError('Invalid hex string')\n\n  if (length > strLen / 2) {\n    length = strLen / 2\n  }\n  for (var i = 0; i < length; ++i) {\n    var parsed = parseInt(string.substr(i * 2, 2), 16)\n    if (isNaN(parsed)) return i\n    buf[offset + i] = parsed\n  }\n  return i\n}\n\nfunction utf8Write (buf, string, offset, length) {\n  return blitBuffer(utf8ToBytes(string, buf.length - offset), buf, offset, length)\n}\n\nfunction asciiWrite (buf, string, offset, length) {\n  return blitBuffer(asciiToBytes(string), buf, offset, length)\n}\n\nfunction latin1Write (buf, string, offset, length) {\n  return asciiWrite(buf, string, offset, length)\n}\n\nfunction
 base64Write (buf, string, offset, length) {\n  return blitBuffer(base64ToBytes(string), buf, offset, length)\n}\n\nfunction ucs2Write (buf, string, offset, length) {\n  return blitBuffer(utf16leToBytes(string, buf.length - offset), buf, offset, length)\n}\n\nBuffer.prototype.write = function write (string, offset, length, encoding) {\n  // Buffer#write(string)\n  if (offset === undefined) {\n    encoding = 'utf8'\n    length = this.length\n    offset = 0\n  // Buffer#write(string, encoding)\n  } else if (length === undefined && typeof offset === 'string') {\n    encoding = offset\n    length = this.length\n    offset = 0\n  // Buffer#write(string, offset[, length][, encoding])\n  } else if (isFinite(offset)) {\n    offset = offset | 0\n    if (isFinite(length)) {\n      length = length | 0\n      if (encoding === undefined) encoding = 'utf8'\n    } else {\n      encoding = length\n      length = undefined\n    }\n  // legacy write(string, encoding, offset, length) - remove
 in v0.13\n  } else {\n    throw new Error(\n      'Buffer.write(string, encoding, offset[, length]) is no longer supported'\n    )\n  }\n\n  var remaining = this.length - offset\n  if (length === undefined || length > remaining) length = remaining\n\n  if ((string.length > 0 && (length < 0 || offset < 0)) || offset > this.length) {\n    throw new RangeError('Attempt to write outside buffer bounds')\n  }\n\n  if (!encoding) encoding = 'utf8'\n\n  var loweredCase = false\n  for (;;) {\n    switch (encoding) {\n      case 'hex':\n        return hexWrite(this, string, offset, length)\n\n      case 'utf8':\n      case 'utf-8':\n        return utf8Write(this, string, offset, length)\n\n      case 'ascii':\n        return asciiWrite(this, string, offset, length)\n\n      case 'latin1':\n      case 'binary':\n        return latin1Write(this, string, offset, length)\n\n      case 'base64':\n        // Warning: maxLength not taken into account in base64Write\n        return base64Write(this, string,
 offset, length)\n\n      case 'ucs2':\n      case 'ucs-2':\n      case 'utf16le':\n      case 'utf-16le':\n        return ucs2Write(this, string, offset, length)\n\n      default:\n        if (loweredCase) throw new TypeError('Unknown encoding: ' + encoding)\n        encoding = ('' + encoding).toLowerCase()\n        loweredCase = true\n    }\n  }\n}\n\nBuffer.prototype.toJSON = function toJSON () {\n  return {\n    type: 'Buffer',\n    data: Array.prototype.slice.call(this._arr || this, 0)\n  }\n}\n\nfunction base64Slice (buf, start, end) {\n  if (start === 0 && end === buf.length) {\n    return base64.fromByteArray(buf)\n  } else {\n    return base64.fromByteArray(buf.slice(start, end))\n  }\n}\n\nfunction utf8Slice (buf, start, end) {\n  end = Math.min(buf.length, end)\n  var res = []\n\n  var i = start\n  while (i < end) {\n    var firstByte = buf[i]\n    var
```

codePoint = null\n var bytesPerSequence = (firstByte > 0xEF) ? 4\n   : (firstByte > 0xDF) ? 3\n   : (firstByte > 0xBF) ? 2\n   : 1\n\n if (i + bytesPerSequence <= end) {\n   var secondByte, thirdByte, fourthByte, tempCodePoint\n\n   switch (bytesPerSequence) {\n   case 1:\n   if (firstByte < 0x80) {\n   codePoint = firstByte\n   }\n   break\n   case 2:\n   secondByte = buf[i + 1]\n   if ((secondByte & 0xC0) === 0x80) {\n   tempCodePoint = (firstByte & 0x1F) << 0x6 | (secondByte & 0x3F)\n   if (tempCodePoint > 0x7F) {\n   codePoint = tempCodePoint\n   }\n   }\n   break\n   case 3:\n   secondByte = buf[i + 1]\n   thirdByte = buf[i + 2]\n   if ((secondByte & 0xC0) === 0x80 && (thirdByte & 0xC0) === 0x80) {\n   tempCodePoint = (firstByte & 0xF) << 0xC | (secondByte & 0x3F) << 0x6 | (thirdByte & 0x3F)\n   if (tempCodePoint > 0x7FF && (tempCodePoint < 0xD800 || tempCodePoint > 0xDFFF)) {\n   codePoint = tempCodePoint\n   }\n   }\n   break\n   case 4:\n   secondByte = buf[i + 1]\n   thirdByte = buf[i + 2]\n   fourthByte = buf[i + 3]\n   if ((secondByte & 0xC0) === 0x80 && (thirdByte & 0xC0) === 0x80 && (fourthByte & 0xC0) === 0x80) {\n   tempCodePoint = (firstByte & 0xF) << 0x12 | (secondByte & 0x3F) << 0xC | (thirdByte & 0x3F) << 0x6 | (fourthByte & 0x3F)\n   if (tempCodePoint > 0xFFFF && tempCodePoint < 0x110000) {\n   codePoint = tempCodePoint\n   }\n   }\n   }\n\n if (codePoint === null) {\n   // we did not generate a valid codePoint so insert a\n   // replacement char (U+FFFD) and advance only 1 byte\n   codePoint = 0xFFFD\n   bytesPerSequence = 1\n } else if (codePoint > 0xFFFF) {\n   // encode to utf16 (surrogate pair dance)\n   codePoint -= 0x10000\n   res.push(codePoint >>> 10 & 0x3FF | 0xD800)\n   codePoint = 0xDC00 | codePoint & 0x3FF\n }\n\n res.push(codePoint)\n i += bytesPerSequence\n}\n\nreturn decodeCodePointsArray(res)\n}\n\n// Based on http://stackoverflow.com/a/22747272/680742, the browser with\n// the lowest limit is Chrome, with 0x10000 args.\n// We go 1 magnitude less, for safety\nvar MAX_ARGUMENTS_LENGTH = 0x1000\n\nfunction decodeCodePointsArray (codePoints) {\n var len = codePoints.length\n if (len <= MAX_ARGUMENTS_LENGTH) {\n   return String.fromCharCode.apply(String, codePoints) // avoid extra slice()\n }\n\n // Decode in chunks to avoid \"call stack size exceeded\".\n var res = ''\n var i = 0\n while (i < len) {\n   res += String.fromCharCode.apply(\n   String,\n   codePoints.slice(i, i += MAX_ARGUMENTS_LENGTH)\n   )\n }\n return res\n}\n\nfunction asciiSlice (buf, start, end) {\n var ret = ''\n end = Math.min(buf.length, end)\n\n for (var i = start; i < end; ++i) {\n   ret += String.fromCharCode(buf[i] & 0x7F)\n }\n return ret\n}\n\nfunction latin1Slice (buf, start, end) {\n var ret = ''\n end = Math.min(buf.length, end)\n\n for (var i = start; i < end; ++i) {\n   ret += String.fromCharCode(buf[i])\n }\n return ret\n}\n\nfunction hexSlice (buf, start, end) {\n var len = buf.length\n\n if (!start || start < 0) start = 0\n if (!end || end < 0 || end > len) end = len\n\n var out = ''\n for (var i = start; i < end; ++i) {\n   out += toHex(buf[i])\n }\n return out\n}\n\nfunction utf16leSlice (buf, start, end) {\n var bytes = buf.slice(start, end)\n var res = ''\n for (var i = 0; i < bytes.length; i += 2) {\n   res += String.fromCharCode(bytes[i] + bytes[i + 1] * 256)\n }\n return res\n}\n\nBuffer.prototype.slice = function slice (start, end) {\n var len = this.length\n start = ~~start\n end = end === undefined ? len : ~~end\n\n if (start < 0) {\n   start += len\n   if (start < 0) start = 0\n } else if (start > len) {\n   start = len\n }\n\n if (end < 0) {\n   end += len\n   if (end < 0) end = 0\n } else if (end > len) {\n   end = len\n }\n\n if (end < start) end = start\n\n var newBuf\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n   newBuf = this.subarray(start, end)\n   newBuf.__proto__ = Buffer.prototype\n } else {\n   var sliceLen = end - start\n   newBuf = new Buffer(sliceLen, undefined)\n   for (var i = 0; i < sliceLen; ++i) {\n   newBuf[i] = this[i + start]\n   }\n }\n\n return newBuf\n}\n\n/*\n * Need to make sure that buffer isn't trying to write out of bounds.\n */\nfunction checkOffset (offset, ext, length) {\n if ((offset % 1) !== 0 || offset < 0) throw new RangeError('offset is not uint')\n if (offset + ext > length) throw new RangeError('Trying to access beyond buffer length')\n}\n\nBuffer.prototype.readUIntLE = function readUIntLE (offset, byteLength, noAssert) {\n offset = offset | 0\n byteLength = byteLength | 0\n if (!noAssert) checkOffset(offset, byteLength, this.length)\n\n var val = this[offset]\n var mul = 1\n var i = 0\n while (++i < byteLength && (mul *= 0x100)) {\n   val += this[offset

```
 + i] * mul\n  }\n\n  return val\n}\n\nBuffer.prototype.readUIntBE = function readUIntBE (offset, byteLength,
noAssert) {\n  offset = offset | 0\n  byteLength = byteLength | 0\n  if (!noAssert) {\n    checkOffset(offset,
byteLength, this.length)\n  }\n\n  var val = this[offset + --byteLength]\n  var mul = 1\n  while (byteLength > 0 &&
(mul *= 0x100)) {\n    val += this[offset + --byteLength] * mul\n  }\n\n  return val\n}\n\nBuffer.prototype.readUInt8
= function readUInt8 (offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 1, this.length)\n  return
this[offset]\n}\n\nBuffer.prototype.readUInt16LE = function readUInt16LE (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 2, this.length)\n  return this[offset] | (this[offset + 1] <<
8)\n}\n\nBuffer.prototype.readUInt16BE = function readUInt16BE (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 2, this.length)\n  return (this[offset] << 8) | this[offset + 1]\n}\n\nBuffer.prototype.readUInt32LE
= function readUInt32LE
 (offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 4, this.length)\n\n  return ((this[offset]) |\n      (this[offset +
1] << 8) |\n      (this[offset + 2] << 16)) +\n      (this[offset + 3] * 0x1000000)\n}\n\nBuffer.prototype.readUInt32BE
= function readUInt32BE (offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 4, this.length)\n\n  return
(this[offset] * 0x1000000) +\n    ((this[offset + 1] << 16) |\n    (this[offset + 2] << 8) |\n    this[offset +
3])\n}\n\nBuffer.prototype.readIntLE = function readIntLE (offset, byteLength, noAssert) {\n  offset = offset | 0\n
byteLength = byteLength | 0\n  if (!noAssert) checkOffset(offset, byteLength, this.length)\n\n  var val =
this[offset]\n  var mul = 1\n  var i = 0\n  while (++i < byteLength && (mul *= 0x100)) {\n    val += this[offset + i] *
mul\n  }\n  mul *= 0x80\n\n  if (val >= mul) val -= Math.pow(2, 8 * byteLength)\n\n  return
val\n}\n\nBuffer.prototype.readIntBE = function readIntBE (offset, byteLength, noAssert)
 {\n  offset = offset | 0\n  byteLength = byteLength | 0\n  if (!noAssert) checkOffset(offset, byteLength,
this.length)\n\n  var i = byteLength\n  var mul = 1\n  var val = this[offset + --i]\n  while (i > 0 && (mul *= 0x100))
{\n    val += this[offset + --i] * mul\n  }\n  mul *= 0x80\n\n  if (val >= mul) val -= Math.pow(2, 8 * byteLength)\n\n
return val\n}\n\nBuffer.prototype.readInt8 = function readInt8 (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 1, this.length)\n  if (!(this[offset] & 0x80)) return (this[offset])\n  return ((0xff - this[offset] + 1)
* -1)\n}\n\nBuffer.prototype.readInt16LE = function readInt16LE (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 2, this.length)\n  var val = this[offset] | (this[offset + 1] << 8)\n  return (val & 0x8000) ? val |
0xFFFF0000 : val\n}\n\nBuffer.prototype.readInt16BE = function readInt16BE (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 2, this.length)\n  var val = this[offset + 1] | (this[offset] << 8)\n
  return (val & 0x8000) ? val | 0xFFFF0000 : val\n}\n\nBuffer.prototype.readInt32LE = function readInt32LE
(offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 4, this.length)\n\n  return (this[offset]) |\n    (this[offset + 1]
<< 8) |\n    (this[offset + 2] << 16) |\n    (this[offset + 3] << 24)\n}\n\nBuffer.prototype.readInt32BE = function
readInt32BE (offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 4, this.length)\n\n  return (this[offset] << 24)
|\n    (this[offset + 1] << 16) |\n    (this[offset + 2] << 8) |\n    (this[offset + 3])\n}\n\nBuffer.prototype.readFloatLE =
function readFloatLE (offset, noAssert) {\n  if (!noAssert) checkOffset(offset, 4, this.length)\n  return
ieee754.read(this, offset, true, 23, 4)\n}\n\nBuffer.prototype.readFloatBE = function readFloatBE (offset, noAssert)
{\n  if (!noAssert) checkOffset(offset, 4, this.length)\n  return ieee754.read(this, offset, false, 23,
4)\n}\n\nBuffer.prototype.readDoubleLE = function readDoubleLE (offset, noAssert)
 {\n  if (!noAssert) checkOffset(offset, 8, this.length)\n  return ieee754.read(this, offset, true, 52,
8)\n}\n\nBuffer.prototype.readDoubleBE = function readDoubleBE (offset, noAssert) {\n  if (!noAssert)
checkOffset(offset, 8, this.length)\n  return ieee754.read(this, offset, false, 52, 8)\n}\n\nfunction checkInt (buf,
value, offset, ext, max, min) {\n  if (!Buffer.isBuffer(buf)) throw new TypeError('\"buffer\" argument must be a
Buffer instance')\n  if (value > max || value < min) throw new RangeError('\"value\" argument is out of bounds')\n  if
(offset + ext > buf.length) throw new RangeError('Index out of range')\n}\n\nBuffer.prototype.writeUIntLE =
function writeUIntLE (value, offset, byteLength, noAssert) {\n  value = +value\n  offset = offset | 0\n  byteLength =
byteLength | 0\n  if (!noAssert) {\n    var maxBytes = Math.pow(2, 8 * byteLength) - 1\n    checkInt(this, value,
offset, byteLength, maxBytes, 0)\n  }\n\n  var mul = 1\n  var i = 0\n  this[offset] = value & 0xFF\n
  while (++i < byteLength && (mul *= 0x100)) {\n    this[offset + i] = (value / mul) & 0xFF\n  }\n\n  return offset +
byteLength\n}\n\nBuffer.prototype.writeUIntBE = function writeUIntBE (value, offset, byteLength, noAssert) {\n
```

value = +value\n offset = offset | 0\n byteLength = byteLength | 0\n if (!noAssert) {\n   var maxBytes = Math.pow(2, 8 * byteLength) - 1\n   checkInt(this, value, offset, byteLength, maxBytes, 0)\n }\n\n var i = byteLength - 1\n var mul = 1\n this[offset + i] = value & 0xFF\n while (--i >= 0 && (mul *= 0x100)) {\n this[offset + i] = (value / mul) & 0xFF\n }\n\n return offset + byteLength\n}\n\nBuffer.prototype.writeUInt8 = function writeUInt8 (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 1, 0xff, 0)\n if (!Buffer.TYPED_ARRAY_SUPPORT) value = Math.floor(value)\n this[offset] = (value & 0xff)\n return offset + 1\n}\n\nfunction objectWriteUInt16 (buf, value, offset, littleEndian) {\n if (value < 0) value = 0xffff + value + 1\n for (var i = 0, j = Math.min(buf.length - offset, 2); i < j; ++i) {\n buf[offset + i] = (value & (0xff << (8 * (littleEndian ? i : 1 - i)))) >>>\n   (littleEndian ? i : 1 - i) * 8\n }\n}\n\nBuffer.prototype.writeUInt16LE = function writeUInt16LE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 2, 0xffff, 0)\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n   this[offset] = (value & 0xff)\n   this[offset + 1] = (value >>> 8)\n } else {\n   objectWriteUInt16(this, value, offset, true)\n }\n return offset + 2\n}\n\nBuffer.prototype.writeUInt16BE = function writeUInt16BE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 2, 0xffff, 0)\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n   this[offset] = (value >>> 8)\n   this[offset + 1] = (value & 0xff)\n } else {\n   objectWriteUInt16(this, value, offset, false)\n }\n return offset + 2\n}\n\nfunction objectWriteUInt32 (buf, value, offset, littleEndian) {\n if (value < 0) value = 0xffffffff + value + 1\n for (var i = 0, j = Math.min(buf.length - offset, 4); i < j; ++i) {\n   buf[offset + i] = (value >>> (littleEndian ? i : 3 - i) * 8) & 0xff\n }\n}\n\nBuffer.prototype.writeUInt32LE = function writeUInt32LE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 4, 0xffffffff, 0)\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n   this[offset + 3] = (value >>> 24)\n   this[offset + 2] = (value >>> 16)\n   this[offset + 1] = (value >>> 8)\n   this[offset] = (value & 0xff)\n } else {\n   objectWriteUInt32(this, value, offset, true)\n }\n return offset + 4\n}\n\nBuffer.prototype.writeUInt32BE = function writeUInt32BE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 4, 0xffffffff, 0)\n if (Buffer.TYPED_ARRAY_SUPPORT)
  {\n   this[offset] = (value >>> 24)\n   this[offset + 1] = (value >>> 16)\n   this[offset + 2] = (value >>> 8)\n   this[offset + 3] = (value & 0xff)\n } else {\n   objectWriteUInt32(this, value, offset, false)\n }\n return offset + 4\n}\n\nBuffer.prototype.writeIntLE = function writeIntLE (value, offset, byteLength, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) {\n   var limit = Math.pow(2, 8 * byteLength - 1)\n\n   checkInt(this, value, offset, byteLength, limit - 1, -limit)\n }\n\n var i = 0\n var mul = 1\n var sub = 0\n this[offset] = value & 0xFF\n while (++i < byteLength && (mul *= 0x100)) {\n   if (value < 0 && sub === 0 && this[offset + i - 1] !== 0) {\n   sub = 1\n   }\n   this[offset + i] = ((value / mul) >> 0) - sub & 0xFF\n }\n\n return offset + byteLength\n}\n\nBuffer.prototype.writeIntBE = function writeIntBE (value, offset, byteLength, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) {\n   var limit
  = Math.pow(2, 8 * byteLength - 1)\n\n   checkInt(this, value, offset, byteLength, limit - 1, -limit)\n }\n\n var i = byteLength - 1\n var mul = 1\n var sub = 0\n this[offset + i] = value & 0xFF\n while (--i >= 0 && (mul *= 0x100)) {\n   if (value < 0 && sub === 0 && this[offset + i + 1] !== 0) {\n   sub = 1\n   }\n   this[offset + i] = ((value / mul) >> 0) - sub & 0xFF\n }\n\n return offset + byteLength\n}\n\nBuffer.prototype.writeInt8 = function writeInt8 (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 1, 0x7f, -0x80)\n if (!Buffer.TYPED_ARRAY_SUPPORT) value = Math.floor(value)\n if (value < 0) value = 0xff + value + 1\n this[offset] = (value & 0xff)\n return offset + 1\n}\n\nBuffer.prototype.writeInt16LE = function writeInt16LE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 2, 0x7fff, -0x8000)\n if (Buffer.TYPED_ARRAY_SUPPORT)
  {\n   this[offset] = (value & 0xff)\n   this[offset + 1] = (value >>> 8)\n } else {\n   objectWriteUInt16(this, value, offset, true)\n }\n return offset + 2\n}\n\nBuffer.prototype.writeInt16BE = function writeInt16BE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 2, 0x7fff, -0x8000)\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n   this[offset] = (value >>> 8)\n   this[offset + 1] = (value & 0xff)\n } else {\n   objectWriteUInt16(this, value, offset, false)\n }\n return offset + 2\n}\n\nBuffer.prototype.writeInt32LE

= function writeInt32LE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 4, 0x7fffffff, -0x80000000)\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n this[offset] = (value & 0xff)\n   this[offset + 1] = (value >>> 8)\n   this[offset + 2] = (value >>> 16)\n   this[offset + 3] = (value >>> 24)\n } else {\n   objectWriteUInt32(this, value, offset, true)\n }\n return offset + 4\n}\n\nBuffer.prototype.writeInt32BE = function writeInt32BE (value, offset, noAssert) {\n value = +value\n offset = offset | 0\n if (!noAssert) checkInt(this, value, offset, 4, 0x7fffffff, -0x80000000)\n if (value < 0) value = 0xffffffff + value + 1\n if (Buffer.TYPED_ARRAY_SUPPORT) {\n this[offset] = (value >>> 24)\n   this[offset + 1] = (value >>> 16)\n   this[offset + 2] = (value >>> 8)\n   this[offset + 3] = (value & 0xff)\n } else {\n   objectWriteUInt32(this, value, offset, false)\n }\n return offset + 4\n}\n\nfunction checkIEEE754 (buf, value, offset, ext, max, min) {\n if (offset + ext > buf.length) throw new RangeError('Index out of range')\n if (offset < 0) throw new RangeError('Index out of range')\n}\n\nfunction writeFloat (buf, value, offset, littleEndian, noAssert) {\n if (!noAssert) {\n   checkIEEE754(buf, value, offset, 4, 3.4028234663852886e+38, -3.4028234663852886e+38)\n }\n ieee754.write(buf, value, offset, littleEndian, 23, 4)\n return offset + 4\n}\n\nBuffer.prototype.writeFloatLE = function writeFloatLE (value, offset, noAssert) {\n return writeFloat(this, value, offset, true, noAssert)\n}\n\nBuffer.prototype.writeFloatBE = function writeFloatBE (value, offset, noAssert) {\n return writeFloat(this, value, offset, false, noAssert)\n}\n\nfunction writeDouble (buf, value, offset, littleEndian, noAssert) {\n if (!noAssert) {\n   checkIEEE754(buf, value, offset, 8, 1.7976931348623157E+308, -1.7976931348623157E+308)\n }\n ieee754.write(buf, value, offset, littleEndian, 52, 8)\n return offset + 8\n}\n\nBuffer.prototype.writeDoubleLE = function writeDoubleLE (value, offset, noAssert) {\n return writeDouble(this, value, offset, true, noAssert)\n}\n\nBuffer.prototype.writeDoubleBE = function writeDoubleBE (value, offset, noAssert) {\n return writeDouble(this, value, offset, false, noAssert)\n}\n\n// copy(targetBuffer, targetStart=0, sourceStart=0, sourceEnd=buffer.length)\nBuffer.prototype.copy = function copy (target, targetStart, start, end) {\n if (!start) start = 0\n if (!end && end !== 0) end = this.length\n if (targetStart >= target.length) targetStart = target.length\n if (!targetStart) targetStart = 0\n if (end > 0 && end < start) end = start\n\n // Copy 0 bytes; we're done\n if (end === start) return 0\n if (target.length === 0 || this.length === 0) return 0\n\n // Fatal error conditions\n if (targetStart < 0) {\n   throw new RangeError('targetStart out of bounds')\n }\n if (start < 0 || start >= this.length) throw new RangeError('sourceStart out of bounds')\n if (end < 0) throw new RangeError('sourceEnd out of bounds')\n\n // Are we oob?\n if (end > this.length) end = this.length\n if (target.length - targetStart < end - start) {\n   end = target.length - targetStart + start\n }\n\n var len = end - start\n var i\n\n if (this === target && start < targetStart && targetStart < end) {\n   // descending copy from end\n   for (i = len - 1; i >= 0; --i) {\n   target[i + targetStart] = this[i + start]\n   }\n } else if (len < 1000 || !Buffer.TYPED_ARRAY_SUPPORT) {\n   // ascending copy from start\n   for (i = 0; i < len; ++i) {\n   target[i + targetStart] = this[i + start]\n   }\n } else {\n   Uint8Array.prototype.set.call(\n   target,\n   this.subarray(start, start + len),\n   targetStart\n   )\n }\n\n return len\n}\n\n// Usage:\n//   buffer.fill(number[, offset[, end]])\n//   buffer.fill(buffer[, offset[, end]])\n//   buffer.fill(string[, offset[, end]][, encoding])\nBuffer.prototype.fill = function fill (val, start, end, encoding) {\n // Handle string cases:\n if (typeof val === 'string') {\n   if (typeof start === 'string') {\n   encoding = start\n   start = 0\n   end = this.length\n   } else if (typeof end === 'string') {\n   encoding = end\n   end = this.length\n   }\n   if (val.length === 1) {\n   var code = val.charCodeAt(0)\n   if (code < 256) {\n   val = code\n   }\n   }\n   if (encoding !== undefined && typeof encoding !== 'string') {\n   throw new TypeError('encoding must be a string')\n   }\n   if (typeof encoding === 'string' && !Buffer.isEncoding(encoding)) {\n   throw new TypeError('Unknown encoding: ' + encoding)\n   }\n } else if (typeof val === 'number') {\n   val = val & 255\n }\n\n // Invalid ranges are not set to a default, so can range check early.\n if (start < 0 || this.length < start || this.length < end) {\n   throw new RangeError('Out of range index')\n }\n\n if (end <= start) {\n   return this\n }\n\n start = start >>> 0\n end = end === undefined ? this.length : end >>> 0\n\n if (!val) val = 0\n\n var i\n if (typeof val === 'number') {\n   for (i = start; i < end; ++i) {\n   this[i] = val\n   }\n } else {\n   var bytes = Buffer.isBuffer(val)\n   ? val\n   : utf8ToBytes(new Buffer(val, encoding).toString())\n   var len = bytes.length\n

```
 for (i = 0; i < end - start; ++i)
 {\n      this[i + start] = bytes[i % len]\n    }\n  }\n\n  return this\n}\n\n// HELPER FUNCTIONS\n//
================\n\nvar INVALID_BASE64_RE = /[^+\\/0-9A-Za-z-_]/g\n\nfunction base64clean (str) {\n  //
Node strips out invalid characters like \\n and \\t from the string, base64-js does not\n  str =
stringtrim(str).replace(INVALID_BASE64_RE, '')\n  // Node converts strings with length < 2 to ''\n  if (str.length <
2) return ''\n  // Node allows for non-padded base64 strings (missing trailing ===), base64-js does not\n  while
(str.length % 4 !== 0) {\n    str = str + '='\n  }\n  return str\n}\n\nfunction stringtrim (str) {\n  if (str.trim) return
str.trim()\n  return str.replace(/^\\s+|\\s+$/g, '')\n}\n\nfunction toHex (n) {\n  if (n < 16) return '0' + n.toString(16)\n
return n.toString(16)\n}\n\nfunction utf8ToBytes (string, units) {\n  units = units || Infinity\n  var codePoint\n  var
length = string.length\n  var leadSurrogate = null\n  var bytes = []\n\n  for (var i = 0; i < length;
 ++i) {\n    codePoint = string.charCodeAt(i)\n\n    // is surrogate component\n    if (codePoint > 0xD7FF &&
codePoint < 0xE000) {\n      // last char was a lead\n      if (!leadSurrogate) {\n        // no lead yet\n        if (codePoint
> 0xDBFF) {\n          // unexpected trail\n          if ((units -= 3) > -1) bytes.push(0xEF, 0xBF, 0xBD)\n
continue\n        } else if (i + 1 === length) {\n          // unpaired lead\n          if ((units -= 3) > -1) bytes.push(0xEF,
0xBF, 0xBD)\n          continue\n        }\n\n        // valid lead\n        leadSurrogate = codePoint\n\n        continue\n
}\n\n      // 2 leads in a row\n      if (codePoint < 0xDC00) {\n        if ((units -= 3) > -1) bytes.push(0xEF, 0xBF,
0xBD)\n        leadSurrogate = codePoint\n        continue\n      }\n\n      // valid surrogate pair\n      codePoint =
(leadSurrogate - 0xD800 << 10 | codePoint - 0xDC00) + 0x10000\n    } else if (leadSurrogate) {\n      // valid bmp
char, but last char was a lead\n
    if ((units -= 3) > -1) bytes.push(0xEF, 0xBF, 0xBD)\n    }\n\n    leadSurrogate = null\n\n    // encode utf8\n    if
(codePoint < 0x80) {\n      if ((units -= 1) < 0) break\n      bytes.push(codePoint)\n    } else if (codePoint < 0x800)
{\n      if ((units -= 2) < 0) break\n      bytes.push(\n        codePoint >> 0x6 | 0xC0,\n        codePoint & 0x3F | 0x80\n
  )\n    } else if (codePoint < 0x10000) {\n      if ((units -= 3) < 0) break\n      bytes.push(\n        codePoint >> 0xC |
0xE0,\n        codePoint >> 0x6 & 0x3F | 0x80,\n        codePoint & 0x3F | 0x80\n      )\n    } else if (codePoint <
0x110000) {\n      if ((units -= 4) < 0) break\n      bytes.push(\n        codePoint >> 0x12 | 0xF0,\n        codePoint >>
0xC & 0x3F | 0x80,\n        codePoint >> 0x6 & 0x3F | 0x80,\n        codePoint & 0x3F | 0x80\n      )\n    } else {\n
throw new Error('Invalid code point')\n    }\n  }\n\n  return bytes\n}\n\nfunction asciiToBytes (str) {\n  var
byteArray = []\n  for (var
 i = 0; i < str.length; ++i) {\n    // Node's code seems to be doing this and not & 0x7F..\n
byteArray.push(str.charCodeAt(i) & 0xFF)\n  }\n  return byteArray\n}\n\nfunction utf16leToBytes (str, units) {\n
var c, hi, lo\n  var byteArray = []\n  for (var i = 0; i < str.length; ++i) {\n    if ((units -= 2) < 0) break\n\n    c =
str.charCodeAt(i)\n    hi = c >> 8\n    lo = c % 256\n    byteArray.push(lo)\n    byteArray.push(hi)\n  }\n\n  return
byteArray\n}\n\nfunction base64ToBytes (str) {\n  return base64.toByteArray(base64clean(str))\n}\n\nfunction
blitBuffer (src, dst, offset, length) {\n  for (var i = 0; i < length; ++i) {\n    if ((i + offset >= dst.length) || (i >=
src.length)) break\n    dst[i + offset] = src[i]\n  }\n  return i\n}\n\nfunction isnan (val) {\n  return val !== val // eslint-
disable-line no-self-compare\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
 use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {complex} from '../ops/complex';\n\nimport {tensor} from '../ops/tensor';\nimport {NamedTensor,
NamedTensorMap} from '../tensor_types';\nimport {TypedArray} from '../types';\nimport {sizeFromShape} from
'../util';\n\nimport {DTYPE_VALUE_SIZE_MAP, ModelArtifacts, ModelArtifactsInfo, WeightGroup,
WeightsManifestEntry} from './types';\n\n/** Number of bytes reserved for the length of the string. (32bit integer).
*/\nconst
```

```
NUM_BYTES_STRING_LENGTH = 4;\n\n/**\n * Encode a map from names to weight values as an ArrayBuffer, along with an\n * `Array` of `WeightsManifestEntry` as specification of the encoded weights.\n *\n * This function does not perform sharding.\n *\n * This function is the reverse of `decodeWeights`.\n *\n * @param tensors A map (\"dict\") from names to tensors.\n * @param group Group to which the weights belong (optional).\n * @returns A `Promise` of\n *   - A flat `ArrayBuffer` with all the binary values of the `Tensor`s\n *     concatenated.\n *   - An `Array` of `WeightManifestEntry`s, carrying information including\n *     tensor names, `dtype`s and shapes.\n * @throws Error: on unsupported tensor `dtype`.\n */\nexport async function encodeWeights(\n    tensors: NamedTensorMap|NamedTensor[], group?: WeightGroup):\n    Promise<{data: ArrayBuffer, specs: WeightsManifestEntry[]}> {\n  // TODO(adarob, cais): Support quantization.\n  const specs: WeightsManifestEntry[] = [];\n  const dataPromises:
 Array<Promise<TypedArray>> = [];\n\n  const names: string[] = Array.isArray(tensors) ?\n      tensors.map(tensor => tensor.name) :\n      Object.keys(tensors);\n\n  for (let i = 0; i < names.length; ++i) {\n    const name = names[i];\n    const t = Array.isArray(tensors) ? tensors[i].tensor : tensors[name];\n    if (t.dtype !== 'float32' && t.dtype !== 'int32' && t.dtype !== 'bool' &&\n        t.dtype !== 'string' && t.dtype !== 'complex64') {\n      throw new Error(`Unsupported dtype in weight '${name}': ${t.dtype}`);\n    }\n    const spec: WeightsManifestEntry = {name, shape: t.shape, dtype: t.dtype};\n    if (t.dtype === 'string') {\n      const utf8bytes = new Promise<TypedArray>(async resolve => {\n        const vals = await t.bytes() as Uint8Array[];\n        const totalNumBytes = vals.reduce((p, c) => p + c.length, 0) +\n            NUM_BYTES_STRING_LENGTH * vals.length;\n        const bytes = new Uint8Array(totalNumBytes);\n        let offset = 0;\n        for (let
 i = 0; i < vals.length; i++) {\n          const val = vals[i];\n          const bytesOfLength =\n              new Uint8Array(new Uint32Array([val.length]).buffer);\n          bytes.set(bytesOfLength, offset);\n          offset += NUM_BYTES_STRING_LENGTH;\n          bytes.set(val, offset);\n          offset += val.length;\n        }\n        resolve(bytes);\n      });\n      dataPromises.push(utf8bytes);\n    } else {\n      dataPromises.push(t.data());\n    }\n    if (group != null) {\n      spec.group = group;\n    }\n    specs.push(spec);\n  }\n\n  const tensorValues = await Promise.all(dataPromises);\n  return {data: concatenateTypedArrays(tensorValues), specs};\n}\n\n/**\n * Decode flat ArrayBuffer as weights.\n *\n * This function does not handle sharding.\n *\n * This function is the reverse of `encodeWeights`.\n *\n * @param buffer A flat ArrayBuffer carrying the binary values of the tensors\n *     concatenated in the order specified in `specs`.\n * @param specs Specifications of
 the names, dtypes and shapes of the tensors\n *     whose value are encoded by `buffer`.\n * @return A map from tensor name to tensor value, with the names corresponding\n *     to names in `specs`.\n * @throws Error, if any of the tensors has unsupported dtype.\n */\nexport function decodeWeights(\n    buffer: ArrayBuffer, specs: WeightsManifestEntry[]): NamedTensorMap {\n  // TODO(adarob, cais): Support quantization.\n  const out: NamedTensorMap = {};\n  let float16Decode: (buffer: Uint16Array) => Float32Array | undefined;\n  let offset = 0;\n  for (const spec of specs) {\n    const name = spec.name;\n    const dtype = spec.dtype;\n    const shape = spec.shape;\n    const size = sizeFromShape(shape);\n    let values: TypedArray|string[]|Uint8Array[];\n\n    if ('quantization' in spec) {\n      const quantization = spec.quantization;\n      if (quantization.dtype === 'uint8' || quantization.dtype === 'uint16') {\n        if (!('min' in quantization && 'scale' in quantization)) {\n          throw new Error(\n              `Weight ${spec.name} with quantization ${quantization.dtype} ` +\n              `doesn't have corresponding metadata min and scale.`);\n        }\n      } else if (quantization.dtype === 'float16') {\n        if (dtype !== 'float32') {\n          throw new Error(\n              `Weight ${spec.name} is quantized with ${quantization.dtype} ` +\n              `which only supports weights of type float32 not ${dtype}.`);\n        }\n      } else {\n        throw new Error(\n            `Weight ${spec.name} has unknown ` +\n            `quantization dtype ${quantization.dtype}. ` +\n            `Supported quantization dtypes are: ` +\n            `'uint8', 'uint16', and 'float16'.`);\n      }\n      const quantizationSizeFactor = DTYPE_VALUE_SIZE_MAP[quantization.dtype];\n      const byteBuffer =\n          buffer.slice(offset, offset + size * quantizationSizeFactor);\n      const quantizedArray = (quantization.dtype === 'uint8') ?\n          new Uint8Array(byteBuffer)
 :\n          new Uint16Array(byteBuffer);\n      if (dtype === 'float32') {\n        if (quantization.dtype === 'uint8' || quantization.dtype === 'uint16') {\n          values = new Float32Array(quantizedArray.length);\n          for (let i = 0; i
```

```
< quantizedArray.length; i++) {\n            const v = quantizedArray[i];\n            values[i] = v * quantization.scale + quantization.min;\n          }\n        } else if (quantization.dtype === 'float16') {\n          if (float16Decode === undefined) {\n            float16Decode = getFloat16Decoder();\n          }\n          values = float16Decode(quantizedArray as Uint16Array);\n        } else {\n          throw new Error(\n            `Unsupported quantization type ${quantization.dtype} ` +\n            `for weight type float32.`);\n        }\n      } else if (dtype === 'int32') {\n        if (quantization.dtype !== 'uint8' && quantization.dtype !== 'uint16') {\n          throw new Error(\n            `Unsupported quantization
 type ${quantization.dtype} ` +\n            `for weight type int32.`);\n        }\n        values = new Int32Array(quantizedArray.length);\n        for (let i = 0; i < quantizedArray.length; i++) {\n          const v = quantizedArray[i];\n          values[i] = Math.round(v * quantization.scale + quantization.min);\n        }\n      } else {\n        throw new Error(`Unsupported dtype in weight '${name}': ${dtype}`);\n      }\n      offset += size * quantizationSizeFactor;\n    } else if (dtype === 'string') {\n      const size = sizeFromShape(spec.shape);\n      values = [];\n      for (let i = 0; i < size; i++) {\n        const byteLength = new Uint32Array(\n            buffer.slice(offset, offset + NUM_BYTES_STRING_LENGTH))[0];\n        offset += NUM_BYTES_STRING_LENGTH;\n        const bytes = new Uint8Array(buffer.slice(offset, offset + byteLength));\n        (values as Uint8Array[]).push(bytes);\n        offset += byteLength;\n      }\n    } else {\n      const dtypeFactor
 = DTYPE_VALUE_SIZE_MAP[dtype];\n      const byteBuffer = buffer.slice(offset, offset + size * dtypeFactor);\n\n      if (dtype === 'float32') {\n        values = new Float32Array(byteBuffer);\n      } else if (dtype === 'int32') {\n        values = new Int32Array(byteBuffer);\n      } else if (dtype === 'bool') {\n        values = new Uint8Array(byteBuffer);\n      } else if (dtype === 'complex64') {\n        values = new Float32Array(byteBuffer);\n        const real = new Float32Array(values.length / 2);\n        const image = new Float32Array(values.length / 2);\n        for (let i = 0; i < real.length; i++) {\n          real[i] = values[i * 2];\n          image[i] = values[i * 2 + 1];\n        }\n        const realTensor = tensor(real, shape, 'float32');\n        const imageTensor = tensor(image, shape, 'float32');\n        out[name] = complex(realTensor, imageTensor);\n        realTensor.dispose();\n        imageTensor.dispose();\n      } else {\n        throw new Error(`Unsupported
 dtype in weight '${name}': ${dtype}`);\n      }\n      offset += size * dtypeFactor;\n    }\n    if (dtype !== 'complex64') {\n      out[name] = tensor(values, shape, dtype);\n    }\n  }\n  return out;\n}\n\n/**\n * Concatenate TypedArrays into an ArrayBuffer.\n */\nexport function concatenateTypedArrays(xs: TypedArray[]): ArrayBuffer {\n  // TODO(adarob, cais): Support quantization.\n  if (xs === null) {\n    throw new Error(`Invalid input value: ${JSON.stringify(xs)}`);\n  }\n\n  let totalByteLength = 0;\n\n  // `normalizedXs` is here for this reason: a `TypedArray`'s `buffer'\n  // can have a different byte length from that of the `TypedArray` itself,\n  // for example, when the `TypedArray` is created from an offset in an\n  // `ArrayBuffer`. `normliazedXs` holds `TypedArray`s whose `buffer`s match\n  // the `TypedArray` in byte length. If an element of `xs` does not show\n  // this property, a new `TypedArray` that satisfy this property will be\n  // constructed and pushed
 into `normalizedXs`.\n  const normalizedXs: TypedArray[] = [];\n  xs.forEach((x: TypedArray) => {\n    totalByteLength += x.byteLength;\n    // tslint:disable:no-any\n    normalizedXs.push(\n        x.byteLength === x.buffer.byteLength ? x :\n                                               new (x.constructor as any)(x));\n    if (!(x as any instanceof Float32Array || x as any instanceof Int32Array ||\n          x as any instanceof Uint8Array)) {\n      throw new Error(`Unsupported TypedArray subtype: ${x.constructor.name}`);\n    }\n    // tslint:enable:no-any\n  });\n\n  const y = new Uint8Array(totalByteLength);\n  let offset = 0;\n  normalizedXs.forEach((x: TypedArray) => {\n    y.set(new Uint8Array(x.buffer), offset);\n    offset += x.byteLength;\n  });\n\n  return y.buffer;\n}\n\n// Use Buffer on Node.js instead of Blob/atob/btoa\nconst useNodeBuffer = typeof Buffer !== 'undefined' &&\n    (typeof Blob === 'undefined' || typeof atob === 'undefined' ||\n     typeof btoa === 'undefined');\n\n/**\n
 * Calculate the byte length of a JavaScript string.\n *\n * Note that a JavaScript string can contain wide characters, therefore the\n * length of the string is not necessarily equal to the byte length.\n *\n * @param str Input string.\n * @returns Byte length.\n */\nexport function stringByteLength(str: string): number {\n  if (useNodeBuffer) {\n    return Buffer.byteLength(str);\n  }\n  return new Blob([str]).size;\n}\n\n/**\n * Encode an ArrayBuffer as a base64 encoded string.\n *\n * @param buffer `ArrayBuffer` to be converted.\n * @returns A string that base64-encodes
```

`buffer`.\n */\nexport function arrayBufferToBase64String(buffer: ArrayBuffer): string {\n if (useNodeBuffer) {\n return Buffer.from(buffer).toString('base64');\n }\n const buf = new Uint8Array(buffer);\n let s = '';\n for (let i = 0, l = buf.length; i < l; i++) {\n s += String.fromCharCode(buf[i]);\n }\n return btoa(s);\n}\n\n/**\n * Decode a base64 string as an ArrayBuffer.\n *\n * @param str Base64 string.\n * @returns Decoded `ArrayBuffer`.\n */\nexport function base64StringToArrayBuffer(str: string): ArrayBuffer {\n if (useNodeBuffer) {\n const buf = Buffer.from(str, 'base64');\n return buf.buffer.slice(buf.byteOffset, buf.byteOffset + buf.byteLength);\n }\n const s = atob(str);\n const buffer = new Uint8Array(s.length);\n for (let i = 0; i < s.length; ++i) {\n buffer.set([s.charCodeAt(i)], i);\n }\n return buffer.buffer;\n}\n\n/**\n * Concatenate a number of ArrayBuffers into one.\n *\n * @param buffers A number of array buffers to concatenate.\n * @returns Result of concatenating `buffers` in order.\n */\nexport function concatenateArrayBuffers(buffers: ArrayBuffer[]): ArrayBuffer {\n if (buffers.length === 1) {\n return buffers[0];\n }\n\n let totalByteLength = 0;\n buffers.forEach((buffer: ArrayBuffer) => {\n totalByteLength += buffer.byteLength;\n });\n\n const temp = new Uint8Array(totalByteLength);\n let offset = 0;\n buffers.forEach((buffer: ArrayBuffer) => {\n temp.set(new Uint8Array(buffer), offset);\n offset += buffer.byteLength;\n });\n return temp.buffer;\n}\n\n/**\n * Get the basename of a path.\n *\n * Behaves in a way analogous to Linux's basename command.\n *\n * @param path\n */\nexport function basename(path: string): string {\n const SEPARATOR = '/';\n path = path.trim();\n while (path.endsWith(SEPARATOR)) {\n path = path.slice(0, path.length - 1);\n }\n const items = path.split(SEPARATOR);\n return items[items.length - 1];\n}\n\n/**\n * Populate ModelArtifactsInfo fields for a model with JSON topology.\n * @param modelArtifacts\n * @returns A ModelArtifactsInfo object.\n */\nexport function getModelArtifactsInfoForJSON(modelArtifacts: ModelArtifacts):\n ModelArtifactsInfo {\n if (modelArtifacts.modelTopology instanceof ArrayBuffer) {\n throw new Error('Expected JSON model topology, received ArrayBuffer.');\n }\n\n return {\n dateSaved: new Date(),\n modelTopologyType: 'JSON',\n modelTopologyBytes: modelArtifacts.modelTopology == null ?\n 0 :\n stringByteLength(JSON.stringify(modelArtifacts.modelTopology)),\n weightSpecsBytes: modelArtifacts.weightSpecs == null ?\n 0 :\n stringByteLength(JSON.stringify(modelArtifacts.weightSpecs)),\n weightDataBytes: modelArtifacts.weightData == null ?\n 0 :\n modelArtifacts.weightData.byteLength,\n };\n}\n\n/**\n * Computes mantisa table for casting Float16 to Float32\n * See http://www.fox-toolkit.org/ftp/fasthalffloatconversion.pdf\n *\n * @returns Uint32Array, 2048 mantissa lookup values.\n */\nfunction computeFloat16MantisaTable(): Uint32Array {\n const convertMantissa = (i: number): number => {\n let m = i << 13;\n let e = 0;\n\n while ((m & 0x00800000) === 0) {\n e -= 0x00800000;\n m <<= 1;\n }\n m &= ~0x00800000;\n e += 0x38800000;\n\n return m | e;\n };\n\n const mantisaTable = new Uint32Array(2048);\n\n mantisaTable[0] = 0;\n for (let i = 1; i < 1024; i++) {\n mantisaTable[i] = convertMantissa(i);\n }\n for (let i = 1024; i < 2048; i++) {\n mantisaTable[i] = 0x38000000 + ((i - 1024) << 13);\n }\n\n return mantisaTable;\n}\n\n/**\n * Computes exponent table for casting Float16 to Float32\n * See http://www.fox-toolkit.org/ftp/fasthalffloatconversion.pdf\n *\n * @returns Uint32Array, 64 exponent lookup values.\n */\nfunction computeFloat16ExponentTable(): Uint32Array {\n const exponentTable = new Uint32Array(64);\n\n exponentTable[0] = 0;\n exponentTable[31] = 0x47800000;\n exponentTable[32] = 0x80000000;\n exponentTable[63] = 0xc7800000;\n for (let i = 1; i < 31; i++) {\n exponentTable[i] = i << 23;\n }\n for (let i = 33; i < 63; i++) {\n exponentTable[i] = 0x80000000 + ((i - 32) << 23);\n }\n\n return exponentTable;\n}\n\n/**\n * Computes offset table for casting Float16 to Float32\n * See http://www.fox-toolkit.org/ftp/fasthalffloatconversion.pdf\n *\n * @returns Uint32Array, 6d offset values.\n */\nfunction computeFloat16OffsetTable(): Uint32Array {\n const offsetTable = new Uint32Array(64);\n\n for (let i = 0; i < 64; i++) {\n offsetTable[i] = 1024;\n }\n offsetTable[0] = offsetTable[32] = 0;\n\n return offsetTable;\n}\n\n/**\n * Retrieve a Float16 decoder which will decode a ByteArray of Float16 values\n * to a Float32Array.\n *\n * @returns Function (buffer: Uint16Array) => Float32Array which decodes\n * the Uint16Array of Float16 bytes to a Float32Array.\n */\nexport function getFloat16Decoder(): (buffer:

Uint16Array) => Float32Array {\n // Algorithm is based off of\n // http://www.fox-toolkit.org/ftp/fasthalffloatconversion.pdf\n\n // Cache lookup tables\n const mantisaTable = computeFloat16MantisaTable();\n const exponentTable = computeFloat16ExponentTable();\n const offsetTable = computeFloat16OffsetTable();\n\n return (quantizedArray: Uint16Array) => {\n   const buffer = new ArrayBuffer(4 * quantizedArray.length);\n
    const bufferUint32View = new Uint32Array(buffer);\n   for (let index = 0; index < quantizedArray.length; index++) {\n   const float16Bits = quantizedArray[index];\n   const float32Bits =\n mantisaTable[offsetTable[float16Bits >> 10] + (float16Bits & 0x3ff)] +\n   exponentTable[float16Bits >> 10];\n
    bufferUint32View[index] = float32Bits;\n   }\n   return new Float32Array(buffer);\n };\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {IOHandler, LoadOptions} from './types';\n\nexport type IORouter = (url: string|string[], loadOptions?: LoadOptions) =>\n   IOHandler;\n\nexport class IORouterRegistry {\n // Singleton instance.\n private static instance: IORouterRegistry;\n\n private saveRouters: IORouter[];\n private loadRouters: IORouter[];\n\n private constructor() {\n   this.saveRouters = [];\n   this.loadRouters = [];\n }\n\n private static getInstance(): IORouterRegistry {\n   if (IORouterRegistry.instance == null) {\n   IORouterRegistry.instance = new IORouterRegistry();\n   }\n   return IORouterRegistry.instance;\n }\n\n /**\n   * Register a save-handler router.\n   *\n   * @param saveRouter A function that maps a URL-like string onto an instance\n   * of `IOHandler` with the `save` method defined or `null`.\n   */\n static registerSaveRouter(saveRouter:
 IORouter) {\n   IORouterRegistry.getInstance().saveRouters.push(saveRouter);\n }\n\n /**\n   * Register a load-handler router.\n   *\n   * @param loadRouter A function that maps a URL-like string onto an instance\n   * of `IOHandler` with the `load` method defined or `null`.\n   */\n static registerLoadRouter(loadRouter: IORouter) {\n IORouterRegistry.getInstance().loadRouters.push(loadRouter);\n }\n\n /**\n   * Look up IOHandler for saving, given a URL-like string.\n   *\n   * @param url\n   * @returns If only one match is found, an instance of IOHandler with the\n   * `save` method defined. If no match is found, `null`.\n   * @throws Error, if more than one match is found.\n   */\n static getSaveHandlers(url: string|string[]): IOHandler[] {\n   return IORouterRegistry.getHandlers(url, 'save');\n }\n\n /**\n   * Look up IOHandler for loading, given a URL-like string.\n   *\n   * @param url\n   * @param loadOptions Optional, custom load options.\n   *
 @returns All valid handlers for `url`, given the currently registered\n   *   handler routers.\n   */\n static getLoadHandlers(url: string|string[], loadOptions?: LoadOptions):\n   IOHandler[] {\n   return IORouterRegistry.getHandlers(url, 'load', loadOptions);\n }\n\n private static getHandlers(\n   url: string|string[], handlerType: 'save'|'load',\n   loadOptions?: LoadOptions): IOHandler[] {\n   const validHandlers: IOHandler[] = [];\n   const routers = handlerType === 'load' ?\n   IORouterRegistry.getInstance().loadRouters :\n IORouterRegistry.getInstance().saveRouters;\n   routers.forEach(router => {\n   const handler = router(url, loadOptions);\n   if (handler !== null) {\n   validHandlers.push(handler);\n   }\n   });\n   return validHandlers;\n }\n}\n\nexport const registerSaveRouter = (loudRouter: IORouter) =>\n IORouterRegistry.registerSaveRouter(loudRouter);\nexport const registerLoadRouter = (loudRouter: IORouter) =>\n   IORouterRegistry.registerLoadRouter(loudRouter);\nexport
 const getSaveHandlers = (url: string|string[]) =>\n   IORouterRegistry.getSaveHandlers(url);\nexport const getLoadHandlers =\n   (url: string|string[], loadOptions?: LoadOptions) =>\n IORouterRegistry.getLoadHandlers(url, loadOptions);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this

file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport '../flags';\n\nimport {env} from '../environment';\n\nimport {getModelArtifactsInfoForJSON} from './io_utils';\nimport {IORouter, IORouterRegistry} from './router_registry';\nimport {IOHandler, ModelArtifacts, ModelArtifactsInfo, ModelStoreManager, SaveResult} from './types';\n\nconst DATABASE_NAME = 'tensorflowjs';\nconst DATABASE_VERSION = 1;\n\n// Model data and ModelArtifactsInfo (metadata) are stored in two separate\n// stores for efficient access of the list of stored models and their metadata.\n// 1. The object store for model data: topology, weights and weight manifests.\nconst MODEL_STORE_NAME = 'models_store';\n// 2. The object store for ModelArtifactsInfo, including meta-information such\n// as the type of topology (JSON vs binary), byte size of the topology, byte\n// size of the weights, etc.\nconst INFO_STORE_NAME = 'model_info_store';\n\n/**\n * Delete the entire database for tensorflow.js, including the models store.\n */\nexport async function deleteDatabase(): Promise<void> {\n const idbFactory = getIndexedDBFactory();\n\n return new Promise<void>((resolve, reject) => {\n const deleteRequest = idbFactory.deleteDatabase(DATABASE_NAME);\n deleteRequest.onsuccess = () => resolve();\n deleteRequest.onerror = error => reject(error);\n });\n}\n\nfunction getIndexedDBFactory(): IDBFactory {\n if (!env().getBool('IS_BROWSER')) {\n // TODO(cais): Add more info about what IOHandler subtypes are available.\n // Maybe point to a doc page on the web and/or automatically determine\n // the available IOHandlers and print them in the error message.\n throw new Error(\n 'Failed to obtain IndexedDB factory because the current environment' +\n 'is not a web browser.');\n }\n // tslint:disable-next-line:no-any\n const theWindow: any = typeof window === 'undefined' ? self : window;\n const factory = theWindow.indexedDB || theWindow.mozIndexedDB ||\n theWindow.webkitIndexedDB || theWindow.msIndexedDB ||\n theWindow.shimIndexedDB;\n if (factory == null) {\n throw new Error(\n 'The current browser does not appear to support IndexedDB.');\n }\n return factory;\n}\n\nfunction setUpDatabase(openRequest: IDBRequest) {\n const db = openRequest.result as IDBDatabase;\n db.createObjectStore(MODEL_STORE_NAME, {keyPath: 'modelPath'});\n db.createObjectStore(INFO_STORE_NAME, {keyPath: 'modelPath'});\n}\n\n/**\n * IOHandler subclass: Browser IndexedDB.\n *\n * See the doc string of `browserIndexedDB` for more details.\n */\nexport class BrowserIndexedDB implements IOHandler {\n protected readonly indexedDB: IDBFactory;\n protected readonly modelPath: string;\n\n static readonly URL_SCHEME = 'indexeddb://';\n\n constructor(modelPath: string) {\n this.indexedDB = getIndexedDBFactory();\n\n if (modelPath == null || !modelPath) {\n throw new Error(\n 'For IndexedDB, modelPath must not be null, undefined or empty.');\n }\n this.modelPath = modelPath;\n }\n\n async save(modelArtifacts: ModelArtifacts): Promise<SaveResult> {\n // TODO(cais): Support saving GraphDef models.\n if (modelArtifacts.modelTopology instanceof ArrayBuffer) {\n throw new Error(\n 'BrowserLocalStorage.save() does not support saving model topology ' +\n 'in binary formats yet.');\n }\n\n return this.databaseAction(this.modelPath, modelArtifacts) as\n Promise<SaveResult>;\n }\n\n async load(): Promise<ModelArtifacts> {\n return this.databaseAction(this.modelPath) as\n Promise<ModelArtifacts>;\n }\n\n /**\n * Perform database action to put model artifacts into or read model artifacts\n * from IndexedDB object store.\n *\n * Whether the action is put or get depends on whether `modelArtifacts` is\n * specified. If it is specified, the action will be put; otherwise the action\n * will be get.\n *\n * @param modelPath A unique string path for the model.\n * @param modelArtifacts If specified, it will be the model artifacts to be\n * stored in IndexedDB.\n * @returns A `Promise` of `SaveResult`, if the action is put, or a `Promise`\n * of `ModelArtifacts`, if the action is get.\n */\n private databaseAction(modelPath: string, modelArtifacts?: ModelArtifacts):\n Promise<ModelArtifacts|SaveResult> {\n

```
 return new Promise<ModelArtifacts|SaveResult>((resolve, reject) => {\n      const openRequest =
this.indexedDB.open(DATABASE_NAME, DATABASE_VERSION);\n      openRequest.onupgradeneeded = () =>
setUpDatabase(openRequest);\n\n      openRequest.onsuccess = () => {\n        const db = openRequest.result;\n\n
if (modelArtifacts == null) {\n          // Read model out from object store.\n          const modelTx =
db.transaction(MODEL_STORE_NAME, 'readonly');\n          const modelStore =
modelTx.objectStore(MODEL_STORE_NAME);\n          const getRequest = modelStore.get(this.modelPath);\n
 getRequest.onsuccess = () => {\n            if
 (getRequest.result == null) {\n              db.close();\n              return reject(new Error(\n                  `Cannot find
model with path '${this.modelPath}' ` +\n                  `in IndexedDB.`));\n            } else {\n
resolve(getRequest.result.modelArtifacts);\n            }\n          };\n          getRequest.onerror = error => {\n
db.close();\n            return reject(getRequest.error);\n          };\n          modelTx.oncomplete = () => db.close();\n
} else {\n          // Put model into object store.\n          const modelArtifactsInfo: ModelArtifactsInfo =\n
getModelArtifactsInfoForJSON(modelArtifacts);\n          // First, put ModelArtifactsInfo into info store.\n
const infoTx = db.transaction(INFO_STORE_NAME, 'readwrite');\n          let infoStore =
infoTx.objectStore(INFO_STORE_NAME);\n          const putInfoRequest =\n              infoStore.put({modelPath:
this.modelPath, modelArtifactsInfo});\n          let modelTx:
 IDBTransaction;\n          putInfoRequest.onsuccess = () => {\n            // Second, put model data into model store.\n
        modelTx = db.transaction(MODEL_STORE_NAME, 'readwrite');\n            const modelStore =
modelTx.objectStore(MODEL_STORE_NAME);\n            const putModelRequest = modelStore.put({\n
modelPath: this.modelPath,\n              modelArtifacts,\n              modelArtifactsInfo\n            });\n
putModelRequest.onsuccess = () => resolve({modelArtifactsInfo});\n            putModelRequest.onerror = error =>
{\n              // If the put-model request fails, roll back the info entry as\n              // well.\n              infoStore =
infoTx.objectStore(INFO_STORE_NAME);\n              const deleteInfoRequest =
infoStore.delete(this.modelPath);\n              deleteInfoRequest.onsuccess = () => {\n                db.close();\n
return reject(putModelRequest.error);\n              };\n              deleteInfoRequest.onerror
 = error => {\n                db.close();\n                return reject(putModelRequest.error);\n              };\n            };\n
};\n          putInfoRequest.onerror = error => {\n            db.close();\n            return reject(putInfoRequest.error);\n
  };\n          infoTx.oncomplete = () => {\n            if (modelTx == null) {\n              db.close();\n            } else {\n
    modelTx.oncomplete = () => db.close();\n            }\n          };\n        }\n      };\n      openRequest.onerror = error
=> reject(openRequest.error);\n    });\n  }\n}\n\nexport const indexedDBRouter: IORouter = (url: string|string[]) =>
{\n  if (!env().getBool('IS_BROWSER')) {\n    return null;\n  } else {\n    if (!Array.isArray(url) &&
url.startsWith(BrowserIndexedDB.URL_SCHEME)) {\n      return
browserIndexedDB(url.slice(BrowserIndexedDB.URL_SCHEME.length));\n    } else {\n      return null;\n    }\n
}\n};\nIORouterRegistry.registerSaveRouter(indexedDBRouter);\nIORouterRegistry.registerLoadRouter(indexedD
BRouter);\n\n/**\n
 * Creates a browser IndexedDB IOHandler for saving and loading models.\n *\n * ```js\n * const model =
tf.sequential();\n * model.add(\n *     tf.layers.dense({units: 1, inputShape: [100], activation: 'sigmoid'}));\n *\n *
const saveResult = await model.save('indexeddb://MyModel'));\n * console.log(saveResult);\n * ```\n *\n * @param
modelPath A unique identifier for the model to be saved. Must be a\n *    non-empty string.\n * @returns An
instance of `BrowserIndexedDB` (sublcass of `IOHandler`),\n *    which can be used with, e.g., `tf.Model.save`.\n
*/\nexport function browserIndexedDB(modelPath: string): IOHandler {\n  return new
BrowserIndexedDB(modelPath);\n}\n\nfunction maybeStripScheme(key: string) {\n  return
key.startsWith(BrowserIndexedDB.URL_SCHEME) ?\n      key.slice(BrowserIndexedDB.URL_SCHEME.length)
:\n      key;\n}\n\nexport class BrowserIndexedDBManager implements ModelStoreManager {\n  private
indexedDB:
 IDBFactory;\n\n  constructor() {\n    this.indexedDB = getIndexedDBFactory();\n  }\n\n  async listModels():
Promise<{[path: string]: ModelArtifactsInfo}> {\n    return new Promise<{[path: string]: ModelArtifactsInfo}>(\n
  (resolve, reject) => {\n          const openRequest =\n              this.indexedDB.open(DATABASE_NAME,
```

```
DATABASE_VERSION);\n          openRequest.onupgradeneeded = () => setUpDatabase(openRequest);\n\n
openRequest.onsuccess = () => {\n            const db = openRequest.result;\n            const tx =
db.transaction(INFO_STORE_NAME, 'readonly');\n            const store = tx.objectStore(INFO_STORE_NAME);\n
        // tslint:disable:max-line-length\n            // Need to cast `store` as `any` here because TypeScript's DOM\n
 // library does not have the `getAll()` method even though the\n            // method is supported in the latest version of
most mainstream\n            // browsers:\n            // https://developer.mozilla.org/en-
US/docs/Web/API/IDBObjectStore/getAll\n
            // tslint:enable:max-line-length\n            // tslint:disable-next-line:no-any\n            const getAllInfoRequest =
(store as any).getAll() as IDBRequest;\n            getAllInfoRequest.onsuccess = () => {\n              const out: {[path:
string]: ModelArtifactsInfo} = {};\n              for (const item of getAllInfoRequest.result) {\n
out[item.modelPath] = item.modelArtifactsInfo;\n              }\n              resolve(out);\n            };\n
getAllInfoRequest.onerror = error => {\n              db.close();\n              return reject(getAllInfoRequest.error);\n
  };\n            tx.oncomplete = () => db.close();\n          };\n          openRequest.onerror = error =>
reject(openRequest.error);\n        });\n  }\n\n  async removeModel(path: string): Promise<ModelArtifactsInfo> {\n
path = maybeStripScheme(path);\n    return new Promise<ModelArtifactsInfo>((resolve, reject) => {\n      const
openRequest
 = this.indexedDB.open(DATABASE_NAME, DATABASE_VERSION);\n      openRequest.onupgradeneeded = ()
=> setUpDatabase(openRequest);\n\n      openRequest.onsuccess = () => {\n        const db = openRequest.result;\n
  const infoTx = db.transaction(INFO_STORE_NAME, 'readwrite');\n        const infoStore =
infoTx.objectStore(INFO_STORE_NAME);\n\n        const getInfoRequest = infoStore.get(path);\n        let modelTx:
IDBTransaction;\n        getInfoRequest.onsuccess = () => {\n          if (getInfoRequest.result == null) {\n
db.close();\n            return reject(new Error(\n                `Cannot find model with path '${path}' ` +\n                `in
IndexedDB.`));\n          } else {\n            // First, delete the entry in the info store.\n            const deleteInfoRequest =
infoStore.delete(path);\n            const deleteModelData = () => {\n              // Second, delete the entry in the model
store.\n              modelTx = db.transaction(MODEL_STORE_NAME,
 'readwrite');\n              const modelStore = modelTx.objectStore(MODEL_STORE_NAME);\n              const
deleteModelRequest = modelStore.delete(path);\n              deleteModelRequest.onsuccess = () =>\n
resolve(getInfoRequest.result.modelArtifactsInfo);\n              deleteModelRequest.onerror = error =>\n
reject(getInfoRequest.error);\n            };\n            // Proceed with deleting model data regardless of whether
deletion\n            // of info data succeeds or not.\n            deleteInfoRequest.onsuccess = deleteModelData;\n
deleteInfoRequest.onerror = error => {\n              deleteModelData();\n              db.close();\n              return
reject(getInfoRequest.error);\n            };\n          }\n        };\n        getInfoRequest.onerror = error => {\n
db.close();\n          return reject(getInfoRequest.error);\n        };\n\n        infoTx.oncomplete = () => {\n          if
(modelTx == null) {\n
      db.close();\n          } else {\n            modelTx.oncomplete = () => db.close();\n          }\n        };\n      };\n
openRequest.onerror = error => reject(openRequest.error);\n    });\n  }\n}\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport '../flags';\nimport {env} from '../environment';\n\nimport
 {assert} from '../util';\nimport {arrayBufferToBase64String, base64StringToArrayBuffer,
getModelArtifactsInfoForJSON} from './io_utils';\nimport {IORouter, IORouterRegistry} from
'./router_registry';\nimport {IOHandler, ModelArtifacts, ModelArtifactsInfo, ModelStoreManager, SaveResult}
from './types';\n\nconst PATH_SEPARATOR = '/';\nconst PATH_PREFIX = 'tensorflowjs_models';\nconst
```

```
INFO_SUFFIX = 'info';\nconst MODEL_TOPOLOGY_SUFFIX = 'model_topology';\nconst
WEIGHT_SPECS_SUFFIX = 'weight_specs';\nconst WEIGHT_DATA_SUFFIX = 'weight_data';\nconst
MODEL_METADATA_SUFFIX = 'model_metadata';\n\n/**\n * Purge all tensorflow.js-saved model artifacts from
local storage.\n *\n * @returns Paths of the models purged.\n */\nexport function purgeLocalStorageArtifacts():
string[] {\n  if (!env().getBool('IS_BROWSER') || typeof window === 'undefined' ||\n      typeof
window.localStorage === 'undefined') {\n    throw new Error(\n        'purgeLocalStorageModels() cannot proceed
because local storage is
' +\n        'unavailable in the current environment.');\n  }\n  const LS = window.localStorage;\n  const
purgedModelPaths: string[] = [];\n  for (let i = 0; i < LS.length; ++i) {\n    const key = LS.key(i);\n    const prefix =
PATH_PREFIX + PATH_SEPARATOR;\n    if (key.startsWith(prefix) && key.length > prefix.length) {\n
LS.removeItem(key);\n      const modelName = getModelPathFromKey(key);\n      if
(purgedModelPaths.indexOf(modelName) === -1) {\n        purgedModelPaths.push(modelName);\n      }\n    }\n
}\n  return purgedModelPaths;\n}\n\nfunction getModelKeys(path: string): {\n  info: string,\n  topology: string,\n
weightSpecs: string,\n  weightData: string,\n  modelMetadata: string\n} {\n  return {\n    info: [PATH_PREFIX,
path, INFO_SUFFIX].join(PATH_SEPARATOR),\n    topology: [PATH_PREFIX, path,
MODEL_TOPOLOGY_SUFFIX].join(PATH_SEPARATOR),\n    weightSpecs: [PATH_PREFIX, path,
WEIGHT_SPECS_SUFFIX].join(PATH_SEPARATOR),\n    weightData: [PATH_PREFIX, path,
WEIGHT_DATA_SUFFIX].join(PATH_SEPARATOR),\n
   modelMetadata:\n        [PATH_PREFIX, path, MODEL_METADATA_SUFFIX].join(PATH_SEPARATOR)\n
};\n}\n\n/**\n * Get model path from a local-storage key.\n *\n * E.g., 'tensorflowjs_models/my/model/1/info' -->
'my/model/1'\n *\n * @param key\n */\nfunction getModelPathFromKey(key: string) {\n  const items =
key.split(PATH_SEPARATOR);\n  if (items.length < 3) {\n    throw new Error(`Invalid key format: ${key}`);\n  }\n
return items.slice(1, items.length - 1).join(PATH_SEPARATOR);\n}\n\nfunction maybeStripScheme(key: string)
{\n  return key.startsWith(BrowserLocalStorage.URL_SCHEME) ?\n
key.slice(BrowserLocalStorage.URL_SCHEME.length) :\n      key;\n}\n\ndeclare type LocalStorageKeys = {\n
info: string,\n  topology: string,\n  weightSpecs: string,\n  weightData: string,\n  modelMetadata: string\n};\n\n/**\n
* IOHandler subclass: Browser Local Storage.\n *\n * See the doc string to `browserLocalStorage` for more
details.\n */\nexport class BrowserLocalStorage
 implements IOHandler {\n  protected readonly LS: Storage;\n  protected readonly modelPath: string;\n  protected
readonly keys: LocalStorageKeys;\n\n  static readonly URL_SCHEME = 'localstorage://';\n\n
constructor(modelPath: string) {\n    if (!env().getBool('IS_BROWSER') || typeof window === 'undefined' ||\n
typeof window.localStorage === 'undefined') {\n      // TODO(cais): Add more info about what IOHandler subtypes
are\n      // available.\n      //   Maybe point to a doc page on the web and/or automatically determine\n      //   the
available IOHandlers and print them in the error message.\n      throw new Error(\n          'The current environment
does not support local storage.');\n    }\n    this.LS = window.localStorage;\n\n    if (modelPath == null || !modelPath)
{\n      throw new Error(\n          'For local storage, modelPath must not be null, undefined or empty.');\n    }\n
this.modelPath = modelPath;\n    this.keys = getModelKeys(this.modelPath);\n  }\n\n
  /**\n   * Save model artifacts to browser local storage.\n   *\n   * See the documentation to `browserLocalStorage`
for details on the saved\n   * artifacts.\n   *\n   * @param modelArtifacts The model artifacts to be stored.\n   *
@returns An instance of SaveResult.\n   */\n  async save(modelArtifacts: ModelArtifacts): Promise<SaveResult>
{\n    if (modelArtifacts.modelTopology instanceof ArrayBuffer) {\n      throw new Error(\n
'BrowserLocalStorage.save() does not support saving model topology ' +\n          'in binary formats yet.');\n    } else
{\n      const topology = JSON.stringify(modelArtifacts.modelTopology);\n      const weightSpecs =
JSON.stringify(modelArtifacts.weightSpecs);\n\n      const modelArtifactsInfo: ModelArtifactsInfo =\n
getModelArtifactsInfoForJSON(modelArtifacts);\n\n      try {\n        this.LS.setItem(this.keys.info,
JSON.stringify(modelArtifactsInfo));\n        this.LS.setItem(this.keys.topology, topology);\n
this.LS.setItem(this.keys.weightSpecs,
```

```
 weightSpecs);\n        this.LS.setItem(\n            this.keys.weightData,\n
arrayBufferToBase64String(modelArtifacts.weightData));\n        const result: ModelArtifacts = {\n
format: modelArtifacts.format,\n            generatedBy: modelArtifacts.generatedBy,\n
convertedBy: modelArtifacts.convertedBy\n        };\n        if (modelArtifacts.signature != null) {\n
result.signature = modelArtifacts.signature;\n        }\n        if (modelArtifacts.userDefinedMetadata != null) {\n
result.userDefinedMetadata = modelArtifacts.userDefinedMetadata;\n        }\n        if
(modelArtifacts.modelInitializer != null) {\n            result.modelInitializer = modelArtifacts.modelInitializer;\n
}\n        this.LS.setItem(this.keys.modelMetadata, JSON.stringify(result));\n\n        return {modelArtifactsInfo};\n
} catch (err) {\n        // If saving failed, clean up all items saved so far.\n        this.LS.removeItem(this.keys.info);\n
        this.LS.removeItem(this.keys.topology);\n        this.LS.removeItem(this.keys.weightSpecs);\n
this.LS.removeItem(this.keys.weightData);\n        this.LS.removeItem(this.keys.modelMetadata);\n\n        throw new
Error(\n            `Failed to save model '${this.modelPath}' to local storage: ` +\n            `size quota being exceeded is
a possible cause of this failure: ` +\n            `modelTopologyBytes=${modelArtifactsInfo.modelTopologyBytes}, ` +\n
+\n            `weightSpecsBytes=${modelArtifactsInfo.weightSpecsBytes}, ` +\n
`weightDataBytes=${modelArtifactsInfo.weightDataBytes}.`);\n      }\n    }\n  }\n\n  /**\n   * Load a model from
local storage.\n   *\n   * See the documentation to `browserLocalStorage` for details on the saved\n   * artifacts.\n
*\n   * @returns The loaded model (if loading succeeds).\n   */\n  async load(): Promise<ModelArtifacts> {\n
const info =\n        JSON.parse(this.LS.getItem(this.keys.info)) as ModelArtifactsInfo;\n
    if (info == null) {\n      throw new Error(\n          `In local storage, there is no model with name
'${this.modelPath}'`);\n    }\n\n    if (info.modelTopologyType !== 'JSON') {\n      throw new Error(\n
'BrowserLocalStorage does not support loading non-JSON model ' +\n          'topology yet.');\n    }\n\n    const out:
ModelArtifacts = {};\n\n    // Load topology.\n    const topology =
JSON.parse(this.LS.getItem(this.keys.topology));\n    if (topology == null) {\n      throw new Error(\n          `In local
storage, the topology of model '${this.modelPath}' ` +\n          `is missing.`);\n    }\n    out.modelTopology =
topology;\n\n    // Load weight specs.\n    const weightSpecs =
JSON.parse(this.LS.getItem(this.keys.weightSpecs));\n    if (weightSpecs == null) {\n      throw new Error(\n
`In local storage, the weight specs of model '${this.modelPath}' ` +\n          `are missing.`);\n    }\n
out.weightSpecs = weightSpecs;\n\n    // Load meta-data fields.\n
    const metadataString = this.LS.getItem(this.keys.modelMetadata);\n    if (metadataString != null) {\n      const
metadata = JSON.parse(metadataString) as ModelArtifacts;\n      out.format = metadata['format'];\n
out.generatedBy = metadata['generatedBy'];\n      out.convertedBy = metadata['convertedBy'];\n      if
(metadata['signature'] != null) {\n        out.signature = metadata['signature'];\n      }\n      if
(metadata['userDefinedMetadata'] != null) {\n        out.userDefinedMetadata = metadata['userDefinedMetadata'];\n
  }\n      if (metadata['modelInitializer'] != null) {\n        out.modelInitializer = metadata['modelInitializer'];\n      }\n
}\n\n    // Load weight data.\n    const weightDataBase64 = this.LS.getItem(this.keys.weightData);\n    if
(weightDataBase64 == null) {\n      throw new Error(\n          `In local storage, the binary weight values of model ` +\n
`'${this.modelPath}' are missing.`);\n    }\n    out.weightData =
base64StringToArrayBuffer(weightDataBase64);\n\n
    return out;\n  }\n}\n\nexport const localStorageRouter: IORouter = (url: string|string[]) => {\n  if
(!env().getBool('IS_BROWSER')) {\n    return null;\n  } else {\n    if (!Array.isArray(url) &&
url.startsWith(BrowserLocalStorage.URL_SCHEME)) {\n      return browserLocalStorage(\n
url.slice(BrowserLocalStorage.URL_SCHEME.length));\n    } else {\n      return null;\n    }\n
}\n};\nIORouterRegistry.registerSaveRouter(localStorageRouter);\nIORouterRegistry.registerLoadRouter(localStor
ageRouter);\n\n/**\n * Factory function for local storage IOHandler.\n *\n * This `IOHandler` supports both `save`
and `load`.\n *\n * For each model's saved artifacts, four items are saved to local storage.\n *   -
`${PATH_SEPARATOR}/${modelPath}/info`: Contains meta-info about the\n *     model, such as date saved, type
of the topology, size in bytes, etc.\n *   - `${PATH_SEPARATOR}/${modelPath}/topology`: Model topology. For
Keras-\n *     style models, this is a
```

```
 stringized JSON.\n *   - `${PATH_SEPARATOR}/${modelPath}/weight_specs`: Weight specs of the\n *     model, can be used to decode the saved binary weight values (see\n *     item below).\n *   - `${PATH_SEPARATOR}/${modelPath}/weight_data`: Concatenated binary\n *     weight values, stored as a base64-encoded string.\n *\n * Saving may throw an `Error` if the total size of the artifacts exceed the\n * browser-specific quota.\n *\n * @param modelPath A unique identifier for the model to be saved. Must be a\n *   non-empty string.\n * @returns An instance of `IOHandler`, which can be used with, e.g.,\n *   `tf.Model.save`.\n */\nexport function browserLocalStorage(modelPath: string): IOHandler {\n  return new BrowserLocalStorage(modelPath);\n}\n\nexport class BrowserLocalStorageManager implements ModelStoreManager {\n  private readonly LS: Storage;\n\n  constructor() {\n    assert(\n        env().getBool('IS_BROWSER'),\n        () => 'Current environment is not a web browser');\n    assert(\n        typeof window === 'undefined' ||\n            typeof window.localStorage !== 'undefined',\n        () => 'Current browser does not appear to support localStorage');\n    this.LS = window.localStorage;\n  }\n\n  async listModels(): Promise<{[path: string]: ModelArtifactsInfo}> {\n    const out: {[path: string]: ModelArtifactsInfo} = {};\n    const prefix = PATH_PREFIX + PATH_SEPARATOR;\n    const suffix = PATH_SEPARATOR + INFO_SUFFIX;\n    for (let i = 0; i < this.LS.length; ++i) {\n      const key = this.LS.key(i);\n      if (key.startsWith(prefix) && key.endsWith(suffix)) {\n        const modelPath = getModelPathFromKey(key);\n        out[modelPath] = JSON.parse(this.LS.getItem(key)) as ModelArtifactsInfo;\n      }\n    }\n    return out;\n  }\n\n  async removeModel(path: string): Promise<ModelArtifactsInfo> {\n    path = maybeStripScheme(path);\n    const keys = getModelKeys(path);\n    if (this.LS.getItem(keys.info) == null) {\n      throw new Error(`Cannot find model at path '${path}'`);\n    }\n    const info = JSON.parse(this.LS.getItem(keys.info)) as ModelArtifactsInfo;\n\n    this.LS.removeItem(keys.info);\n    this.LS.removeItem(keys.topology);\n    this.LS.removeItem(keys.weightSpecs);\n    this.LS.removeItem(keys.weightData);\n    return info;\n  }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * =============================================================================\n */\n\n/**\n * Classes and functions for model management across multiple storage mediums.\n *\n * Supported client actions:\n * - Listing models on all registered storage mediums.\n * - Remove model by URL from any registered storage mediums, by using URL\n *   string.\n * - Moving or copying model from one path to another in the same medium or from\n *   one medium to another, by using URL strings.\n */\n\nimport {assert} from '../util';\n\nimport {IORouterRegistry} from './router_registry';\nimport {ModelArtifactsInfo, ModelStoreManager} from './types';\n\nconst URL_SCHEME_SUFFIX = '://';\n\nexport class ModelStoreManagerRegistry {\n  // Singleton instance.\n  private static instance: ModelStoreManagerRegistry;\n\n  private managers: {[scheme: string]: ModelStoreManager};\n\n  private constructor() {\n    this.managers = {};\n  }\n\n  private static getInstance(): ModelStoreManagerRegistry {\n    if (ModelStoreManagerRegistry.instance == null) {\n      ModelStoreManagerRegistry.instance\n          = new ModelStoreManagerRegistry();\n    }\n    return ModelStoreManagerRegistry.instance;\n  }\n\n  /**\n   * Register a save-handler router.\n   *\n   * @param saveRouter A function that maps a URL-like string onto an instance\n   * of `IOHandler` with the `save` method defined or `null`.\n   */\n  static registerManager(scheme: string, manager: ModelStoreManager) {\n    assert(scheme != null, () => 'scheme must not be undefined or null.');\n    if (scheme.endsWith(URL_SCHEME_SUFFIX)) {\n      scheme = scheme.slice(0, scheme.indexOf(URL_SCHEME_SUFFIX));\n    }\n    assert(scheme.length > 0, () => 'scheme must not be an empty string.');\n    const registry = ModelStoreManagerRegistry.getInstance();\n    assert(\n        registry.managers[scheme] == null,\n        () => `A model store manager is already registered for scheme '${\n            scheme}'.`);\n    registry.managers[scheme] = manager;\n  }\n\n  static getManager(scheme: string):
```

```
ModelStoreManager {\n
  const manager = this.getInstance().managers[scheme];\n    if (manager == null) {\n      throw new Error(`Cannot find model manager for scheme '${scheme}'`);\n    }\n    return manager;\n  }\n\n  static getSchemes(): string[] {\n return Object.keys(this.getInstance().managers);\n  }\n}\n\n/**\n * Helper method for parsing a URL string into a scheme and a path.\n *\n * @param url E.g., 'localstorage://my-model'\n * @returns A dictionary with two fields: scheme and path.\n *   Scheme: e.g., 'localstorage' in the example above.\n *   Path: e.g., 'my-model' in the example above.\n */\nfunction parseURL(url: string): {scheme: string, path: string} {\n  if (url.indexOf(URL_SCHEME_SUFFIX) === -1) {\n    throw new Error(\n        `The url string provided does not contain a scheme. ` +\n        `Supported schemes are: ` +\n `${ModelStoreManagerRegistry.getSchemes().join(',')}`);\n  }\n  return {\n    scheme: url.split(URL_SCHEME_SUFFIX)[0],\n    path: url.split(URL_SCHEME_SUFFIX)[1],\n  };\n}\n\nasync function cloneModelInternal(\n    sourceURL: string, destURL: string,\n    deleteSource = false): Promise<ModelArtifactsInfo> {\n  assert(\n      sourceURL !== destURL,\n      () => `Old path and new path are the same: '${sourceURL}'`);\n\n  const loadHandlers = IORouterRegistry.getLoadHandlers(sourceURL);\n  assert(\n loadHandlers.length > 0,\n      () => `Copying failed because no load handler is found for source URL ${\n sourceURL}.`);\n  assert(\n      loadHandlers.length < 2,\n      () => `Copying failed because more than one (${loadHandlers.length}) ` +\n          `load handlers for source URL ${sourceURL}.`);\n  const loadHandler = loadHandlers[0];\n\n  const saveHandlers = IORouterRegistry.getSaveHandlers(destURL);\n  assert(\n saveHandlers.length > 0,\n      () => `Copying failed because no save handler is found for destination ` +\n `URL ${destURL}.`);\n  assert(\n      saveHandlers.length < 2,\n      () => `Copying failed because more than one (${loadHandlers.length}) ` +\n          `save handlers for destination URL ${destURL}.`);\n  const saveHandler = saveHandlers[0];\n\n  const sourceScheme = parseURL(sourceURL).scheme;\n  const sourcePath = parseURL(sourceURL).path;\n  const sameMedium = sourceScheme === parseURL(sourceURL).scheme;\n\n const modelArtifacts = await loadHandler.load();\n\n  // If moving within the same storage medium, remove the old model as soon as\n  // the loading is done. Without doing this, it is possible that the combined\n  // size of the two models will cause the cloning to fail.\n  if (deleteSource && sameMedium) {\n    await ModelStoreManagerRegistry.getManager(sourceScheme)\n        .removeModel(sourcePath);\n  }\n\n  const saveResult = await saveHandler.save(modelArtifacts);\n\n  // If moving between mediums, the deletion is done after the save succeeds.\n  // This guards against the case in which saving to the destination medium\n  // fails.\n  if (deleteSource && !sameMedium)
  {\n    await ModelStoreManagerRegistry.getManager(sourceScheme)\n        .removeModel(sourcePath);\n  }\n\n return saveResult.modelArtifactsInfo;\n}\n\n/**\n * List all models stored in registered storage mediums.\n *\n * For a web browser environment, the registered mediums are Local Storage and\n * IndexedDB.\n *\n * ```js\n * // First create and save a model.\n * const model = tf.sequential();\n * model.add(tf.layers.dense(\n *     {units: 1, inputShape: [10], activation: 'sigmoid'}));\n * await model.save('localstorage://demo/management/model1');\n *\n * // Then list existing models.\n * console.log(JSON.stringify(await tf.io.listModels()));\n *\n * // Delete the model.\n * await tf.io.removeModel('localstorage://demo/management/model1');\n *\n * // List models again.\n * console.log(JSON.stringify(await tf.io.listModels()));\n * ```\n *\n * @returns A `Promise` of a dictionary mapping URLs of existing models to\n * their model artifacts info. URLs include medium-specific schemes,
  e.g.,\n *   'indexeddb://my/model/1'. Model artifacts info include type of the\n * model's topology, byte sizes of the topology, weights, etc.\n *\n * @doc {\n *   heading: 'Models',\n *   subheading: 'Management',\n *   namespace: 'io',\n *   ignoreCI: true\n * }\n */\nasync function listModels(): Promise<{[url: string]: ModelArtifactsInfo}> {\n const schemes = ModelStoreManagerRegistry.getSchemes();\n  const out: {[url: string]: ModelArtifactsInfo} = {};\n  for (const scheme of schemes) {\n    const schemeOut =\n        await ModelStoreManagerRegistry.getManager(scheme).listModels();\n    for (const path in schemeOut) {\n      const url = scheme + URL_SCHEME_SUFFIX + path;\n      out[url] = schemeOut[path];\n    }\n  }\n  return out;\n}\n\n/**\n * Remove a model specified by URL from a reigstered storage medium.\n *\n * ```js\n * // First create and save a model.\n * const model = tf.sequential();\n * model.add(tf.layers.dense(\n *     {units: 1, inputShape: [10],
```

activation: 'sigmoid'}));\n
 * await model.save('localstorage://demo/management/model1');\n *\n * // Then list existing models.\n *
console.log(JSON.stringify(await tf.io.listModels()));\n *\n * // Delete the model.\n * await
tf.io.removeModel('localstorage://demo/management/model1');\n *\n * // List models again.\n *
console.log(JSON.stringify(await tf.io.listModels()));\n * ```\n *\n * @param url A URL to a stored model, with a
scheme prefix, e.g.,\n * 'localstorage://my-model-1', 'indexeddb://my/model/2'.\n * @returns ModelArtifactsInfo of
the deleted model (if and only if deletion\n * is successful).\n * @throws Error if deletion fails, e.g., if no model
exists at `path`.\n *\n * @doc {\n * heading: 'Models',\n * subheading: 'Management',\n * namespace: 'io',\n *
ignoreCI: true\n * }\n */\nasync function removeModel(url: string): Promise<ModelArtifactsInfo> {\n const
schemeAndPath = parseURL(url);\n const manager =
ModelStoreManagerRegistry.getManager(schemeAndPath.scheme);\n return
 manager.removeModel(schemeAndPath.path);\n}\n\n/**\n * Copy a model from one URL to another.\n *\n * This
function supports:\n *\n * 1. Copying within a storage medium, e.g.,\n * `tf.io.copyModel('localstorage://model-1',
'localstorage://model-2')`\n * 2. Copying between two storage mediums, e.g.,\n *
`tf.io.copyModel('localstorage://model-1', 'indexeddb://model-1')`\n *\n * ```js\n * // First create and save a model.\n
* const model = tf.sequential();\n * model.add(tf.layers.dense(\n * {units: 1, inputShape: [10], activation:
'sigmoid'}));\n * await model.save('localstorage://demo/management/model1');\n *\n * // Then list existing
models.\n * console.log(JSON.stringify(await tf.io.listModels()));\n *\n * // Copy the model, from Local Storage to
IndexedDB.\n * await tf.io.copyModel(\n * 'localstorage://demo/management/model1',\n *
'indexeddb://demo/management/model1');\n *\n * // List models again.\n * console.log(JSON.stringify(await
tf.io.listModels()));\n *\n * //
 Remove both models.\n * await tf.io.removeModel('localstorage://demo/management/model1');\n * await
tf.io.removeModel('indexeddb://demo/management/model1');\n * ```\n *\n * @param sourceURL Source URL of
copying.\n * @param destURL Destination URL of copying.\n * @returns ModelArtifactsInfo of the copied model
(if and only if copying\n * is successful).\n * @throws Error if copying fails, e.g., if no model exists at
`sourceURL`, or\n * if `oldPath` and `newPath` are identical.\n *\n * @doc {\n * heading: 'Models',\n *
subheading: 'Management',\n * namespace: 'io',\n * ignoreCI: true\n * }\n */\nasync function copyModel(\n
sourceURL: string, destURL: string): Promise<ModelArtifactsInfo> {\n const deleteSource = false;\n return
cloneModelInternal(sourceURL, destURL, deleteSource);\n}\n\n/**\n * Move a model from one URL to another.\n
*\n * This function supports:\n *\n * 1. Moving within a storage medium, e.g.,\n *
`tf.io.moveModel('localstorage://model-1', 'localstorage://model-2')`\n
 * 2. Moving between two storage mediums, e.g.,\n * `tf.io.moveModel('localstorage://model-1',
'indexeddb://model-1')`\n *\n * ```js\n * // First create and save a model.\n * const model = tf.sequential();\n *
model.add(tf.layers.dense(\n * {units: 1, inputShape: [10], activation: 'sigmoid'}));\n * await
model.save('localstorage://demo/management/model1');\n *\n * // Then list existing models.\n *
console.log(JSON.stringify(await tf.io.listModels()));\n *\n * // Move the model, from Local Storage to
IndexedDB.\n * await tf.io.moveModel(\n * 'localstorage://demo/management/model1',\n *
'indexeddb://demo/management/model1');\n *\n * // List models again.\n * console.log(JSON.stringify(await
tf.io.listModels()));\n *\n * // Remove the moved model.\n * await
tf.io.removeModel('indexeddb://demo/management/model1');\n * ```\n *\n * @param sourceURL Source URL of
moving.\n * @param destURL Destination URL of moving.\n * @returns ModelArtifactsInfo of the copied
 model (if and only if copying\n * is successful).\n * @throws Error if moving fails, e.g., if no model exists at
`sourceURL`, or\n * if `oldPath` and `newPath` are identical.\n *\n * @doc {\n * heading: 'Models',\n *
subheading: 'Management',\n * namespace: 'io',\n * ignoreCI: true\n * }\n */\nasync function moveModel(\n
sourceURL: string, destURL: string): Promise<ModelArtifactsInfo> {\n const deleteSource = true;\n return
cloneModelInternal(sourceURL, destURL, deleteSource);\n}\n\nexport {moveModel, copyModel, removeModel,
listModels};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the

License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport '../flags';\n\nimport {env} from '../environment';\nimport {BrowserIndexedDB, BrowserIndexedDBManager} from '../io/indexed_db';\nimport {BrowserLocalStorage, BrowserLocalStorageManager} from '../io/local_storage';\nimport {ModelStoreManagerRegistry} from '../io/model_management';\n\nimport {Platform} from './platform';\n\nexport class PlatformBrowser implements Platform {\n // According to the spec, the built-in encoder can do only UTF-8 encoding.\n // https://developer.mozilla.org/en-US/docs/Web/API/TextEncoder/TextEncoder\n private textEncoder: TextEncoder;\n\n fetch(path: string, init?: RequestInit): Promise<Response> {\n return fetch(path, init);\n }\n\n now(): number {\n return
performance.now();\n }\n\n encode(text: string, encoding: string): Uint8Array {\n if (encoding !== 'utf-8' && encoding !== 'utf8') {\n throw new Error(\n `Browser's encoder only supports utf-8, but got ${encoding}`);\n }\n if (this.textEncoder == null) {\n this.textEncoder = new TextEncoder();\n }\n return this.textEncoder.encode(text);\n }\n decode(bytes: Uint8Array, encoding: string): string {\n return new TextDecoder(encoding).decode(bytes);\n }\n}\n\nif (env().get('IS_BROWSER')) {\n env().setPlatform('browser', new PlatformBrowser());\n\n // Register LocalStorage IOHandler\n try {\n ModelStoreManagerRegistry.registerManager(\n BrowserLocalStorage.URL_SCHEME, new BrowserLocalStorageManager());\n } catch (err) {\n }\n\n // Register IndexedDB IOHandler\n try {\n ModelStoreManagerRegistry.registerManager(\n BrowserIndexedDB.URL_SCHEME, new BrowserIndexedDBManager());\n } catch (err) {\n }\n}\n","/**\n * @license\n
* Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {env} from '../environment';\n\nimport {Platform} from './platform';\n\n// We are wrapping this within an object so it can be stubbed by Jasmine.\nexport const getNodeFetch = {\n // tslint:disable-next-line:no-require-imports\n importFetch: () => require('node-fetch')\n};\n\ntype FetchFn
= (url: string, init?: RequestInit) => Promise<Response>;\nlet systemFetch: FetchFn;\n// These getters and setters are for testing so we don't export a mutable\n// variable.\nexport function resetSystemFetch() {\n systemFetch = null;\n}\nexport function setSystemFetch(fetchFn: FetchFn) {\n systemFetch = fetchFn;\n}\nexport function getSystemFetch(): FetchFn {\n return systemFetch;\n}\n\nexport class PlatformNode implements Platform {\n private textEncoder: TextEncoder;\n // tslint:disable-next-line:no-any\n util: any;\n\n constructor() {\n // tslint:disable-next-line:no-require-imports\n this.util = require('util');\n // According to the spec, the built-in encoder can do only UTF-8 encoding.\n // https://developer.mozilla.org/en-US/docs/Web/API/TextEncoder/TextEncoder\n this.textEncoder = new this.util.TextEncoder();\n }\n\n fetch(path: string, requestInits?: RequestInit): Promise<Response> {\n if (env().global.fetch != null) {\n return env().global.fetch(path,
requestInits);\n }\n\n if (systemFetch == null) {\n systemFetch = getNodeFetch.importFetch();\n }\n return systemFetch(path, requestInits);\n }\n\n now(): number {\n const time = process.hrtime();\n return time[0] * 1000 + time[1] / 1000000;\n }\n\n encode(text: string, encoding: string): Uint8Array {\n if (encoding !== 'utf-8' && encoding !== 'utf8') {\n throw new Error(\n `Node built-in encoder only supports utf-8, but

got ${encoding}`);\n }\n return this.textEncoder.encode(text);\n }\n decode(bytes: Uint8Array, encoding: string): string {\n if (bytes.length === 0) {\n return '';\n }\n return new this.util.TextDecoder(encoding).decode(bytes);\n }\n}\n\nif (env().get('IS_NODE')) {\n env().setPlatform('node', new PlatformNode());\n}\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {TensorBuffer} from '../tensor';\nimport {DataType, DataTypeMap, Rank, ShapeMap} from '../types';\nimport * as util from '../util';\n\n/**\n * Creates an empty `tf.TensorBuffer` with the specified `shape` and `dtype`.\n *\n * The values are stored in CPU as `TypedArray`. Fill the buffer using\n * `buffer.set()`, or by modifying directly `buffer.values`.\n *\n * When done, call `buffer.toTensor()` to get an immutable `tf.Tensor` with\n *
those values.\n *\n * ```js\n * // Create a buffer and set values at particular indices.\n * const buffer = tf.buffer([2, 2]);\n * buffer.set(3, 0, 0);\n * buffer.set(5, 1, 0);\n *\n * // Convert the buffer back to a tensor.\n * buffer.toTensor().print();\n * ```\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param dtype The dtype of the buffer. Defaults to 'float32'.\n * @param values The values of the buffer as `TypedArray`. Defaults to\n * zeros.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function buffer<R extends Rank, D extends DataType = 'float32'>(\n shape: ShapeMap[R], dtype: D = 'float32' as D,\n values?: DataTypeMap[D]): TensorBuffer<R, D> {\n dtype = dtype || 'float32' as D;\n util.assertNonNegativeIntegerDimensions(shape);\n return new TensorBuffer<R, D>(shape, dtype, values);\n}\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport {ENGINE} from '../engine';\nimport {Cast, CastAttrs, CastInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {DataType, TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n
* Casts a `tf.Tensor` to a new dtype.\n *\n * ```js\n * const x = tf.tensor1d([1.5, 2.5, 3]);\n * tf.cast(x, 'int32').print();\n * ```\n * @param x The input tensor to be casted.\n * @param dtype The dtype to cast the input tensor to.\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction cast_<T extends Tensor>(x: T|TensorLike, dtype: DataType): T {\n const $x = convertToTensor(x, 'x', 'cast');\n\n // Sanity checks.\n if (!util.isValidDtype(dtype)) {\n throw new Error(`Failed to cast to unknown dtype ${dtype}`);\n }\n if (dtype === 'string' && $x.dtype !== 'string' ||\n dtype !== 'string' && $x.dtype === 'string') {\n throw new Error('Only strings can be casted to strings');\n }\n\n const inputs: CastInputs = {x: $x};\n const attrs: CastAttrs = {dtype};\n\n return ENGINE.runKernel(\n Cast, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const cast = op({cast_});\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Identity, IdentityInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Creates a new tensor with the same values and shape as the specified\n * tensor.\n *\n * ```js\n * const x = tf.tensor([1, 2]);\n *\n * x.clone().print();\n * ```\n *\n * @param x The tensor to clone.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction clone_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'clone', 'string_or_numeric');\n const inputs: IdentityInputs = {x: $x};\n\n // Note this op is called tf.identity in python. Hence the kernel name used\n // here.\n return ENGINE.runKernel(Identity, inputs as {} as NamedTensorMap);\n}\n\nexport const clone = op({clone_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor} from '../tensor';\n\n/**\n * Prints information about the `tf.Tensor` including its data.\n *\n * ```js\n * const verbose = true;\n * tf.tensor2d([1, 2, 3, 4], [2, 2]).print(verbose);\n * ```\n * @param x The tensor to be printed.\n * @param verbose Whether to print verbose information about the ` Tensor`,\n * including dtype and size.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function print<T extends Tensor>(x: T, verbose = false): void {\n console.log(x.toString(verbose));\n}\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\n// Required side effectful code for tfjs-core\n\n// Set up Engine and ENV\nimport {getOrMakeEngine} from './engine';\ngetOrMakeEngine();\n\n// Register backend-agnostic flags.\nimport './flags';\n// Register platforms\nimport './platforms/platform_browser';\nimport './platforms/platform_node';\n\n// Set up OpHandler\nimport {buffer} from './ops/buffer';\nimport {cast}
from './ops/cast';\nimport {clone} from './ops/clone';\nimport {print} from './ops/print';\nimport {OpHandler, setOpHandler} from './tensor';\nconst opHandler: OpHandler = {\n buffer,\n cast,\n clone,\n print\n};\nsetOpHandler(opHandler);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\n/**\n * IOHandlers related

```
 to files, such as browser-triggered file downloads,\n * user-selected files in browser.\n */\n\nimport
'../flags';\nimport {env} from '../environment';\n\nimport {basename, concatenateArrayBuffers,
getModelArtifactsInfoForJSON} from './io_utils';\nimport {IORouter, IORouterRegistry} from
'./router_registry';\nimport {IOHandler, ModelArtifacts, ModelJSON, SaveResult, WeightsManifestConfig,
WeightsManifestEntry} from './types';\n\nconst DEFAULT_FILE_NAME_PREFIX = 'model';\nconst
DEFAULT_JSON_EXTENSION_NAME = '.json';\nconst DEFAULT_WEIGHT_DATA_EXTENSION_NAME =
'.weights.bin';\n\nfunction defer<T>(f: () => T): Promise<T> {\n  return new Promise(resolve =>
setTimeout(resolve)).then(f);\n}\n\nexport class BrowserDownloads implements IOHandler {\n  private readonly
modelTopologyFileName: string;\n  private readonly weightDataFileName: string;\n  private readonly jsonAnchor:
HTMLAnchorElement;\n  private readonly weightDataAnchor: HTMLAnchorElement;\n\n  static readonly
URL_SCHEME = 'downloads://';\n\n
  constructor(fileNamePrefix?: string) {\n    if (!env().getBool('IS_BROWSER')) {\n      // TODO(cais): Provide info
on what IOHandlers are available under the\n      //   current environment.\n      throw new Error(\n
'browserDownloads() cannot proceed because the current environment ' +\n          'is not a browser.');\n    }\n\n    if
(fileNamePrefix.startsWith(BrowserDownloads.URL_SCHEME)) {\n      fileNamePrefix =
fileNamePrefix.slice(BrowserDownloads.URL_SCHEME.length);\n    }\n    if (fileNamePrefix == null ||
fileNamePrefix.length === 0) {\n      fileNamePrefix = DEFAULT_FILE_NAME_PREFIX;\n    }\n\n
this.modelTopologyFileName = fileNamePrefix + DEFAULT_JSON_EXTENSION_NAME;\n
this.weightDataFileName =\n        fileNamePrefix + DEFAULT_WEIGHT_DATA_EXTENSION_NAME;\n  }\n\n
async save(modelArtifacts: ModelArtifacts): Promise<SaveResult> {\n    if (typeof (document) === 'undefined') {\n
    throw new Error(\n          'Browser downloads are not supported in
' +\n          'this environment since `document` is not present');\n    }\n    const weightsURL =
window.URL.createObjectURL(new Blob(\n        [modelArtifacts.weightData], {type: 'application/octet-
stream'}));\n\n    if (modelArtifacts.modelTopology instanceof ArrayBuffer) {\n      throw new Error(\n
'BrowserDownloads.save() does not support saving model topology ' +\n          'in binary formats yet.');\n    } else {\n
    const weightsManifest: WeightsManifestConfig = [{\n        paths: ['./' + this.weightDataFileName],\n        weights:
modelArtifacts.weightSpecs\n      }];\n      const modelTopologyAndWeightManifest: ModelJSON = {\n
modelTopology: modelArtifacts.modelTopology,\n        format: modelArtifacts.format,\n        generatedBy:
modelArtifacts.generatedBy,\n        convertedBy: modelArtifacts.convertedBy,\n        weightsManifest\n      };\n
if (modelArtifacts.signature != null) {\n        modelTopologyAndWeightManifest.signature =
modelArtifacts.signature;\n
      }\n      if (modelArtifacts.userDefinedMetadata != null) {\n
modelTopologyAndWeightManifest.userDefinedMetadata =\n            modelArtifacts.userDefinedMetadata;\n      }\n
    if (modelArtifacts.modelInitializer != null) {\n        modelTopologyAndWeightManifest.modelInitializer =\n
 modelArtifacts.modelInitializer;\n      }\n      const modelTopologyAndWeightManifestURL =\n
window.URL.createObjectURL(new Blob(\n              [JSON.stringify(modelTopologyAndWeightManifest)],\n
    {type: 'application/json'}));\n\n      // If anchor elements are not provided, create them without attaching them\n
// to parents, so that the downloaded file names can be controlled.\n      const jsonAnchor = this.jsonAnchor == null
? document.createElement('a') :\n                                          this.jsonAnchor;\n      jsonAnchor.download =
this.modelTopologyFileName;\n      jsonAnchor.href = modelTopologyAndWeightManifestURL;\n
      // Trigger downloads by evoking a click event on the download anchors.\n      // When multiple downloads are
started synchronously, Firefox will only\n      // save the last one.\n      await defer(() =>
jsonAnchor.dispatchEvent(new MouseEvent('click')));\n\n      if (modelArtifacts.weightData != null) {\n        const
weightDataAnchor = this.weightDataAnchor == null ?\n            document.createElement('a') :\n
this.weightDataAnchor;\n        weightDataAnchor.download = this.weightDataFileName;\n
weightDataAnchor.href = weightsURL;\n        await defer(\n            () => weightDataAnchor.dispatchEvent(new
MouseEvent('click')));\n      }\n\n      return {modelArtifactsInfo:
getModelArtifactsInfoForJSON(modelArtifacts)};\n    }\n  }\n}\n\nclass BrowserFiles implements IOHandler {\n
```

```
private readonly files: File[];\n\n  constructor(files: File[]) {\n    if (files == null || files.length < 1) {\n      throw new Error(\n          `When calling browserFiles, at least
 1 file is required, ` +\n          `but received ${files}`);\n    }\n    this.files = files;\n  }\n\n  async load(): Promise<ModelArtifacts> {\n    const jsonFile = this.files[0];\n    const weightFiles = this.files.slice(1);\n\n    return new Promise<ModelArtifacts>((resolve, reject) => {\n      const jsonReader = new FileReader();\n jsonReader.onload = (event: Event) => {\n        // tslint:disable-next-line:no-any\n        const modelJSON = JSON.parse((event.target as any).result) as ModelJSON;\n        const modelTopology = modelJSON.modelTopology;\n        if (modelTopology == null) {\n          reject(new Error(\n `modelTopology field is missing from file ${jsonFile.name}`));\n          return;\n        }\n\n        if (weightFiles.length === 0) {\n          resolve({modelTopology});\n        }\n\n        const weightsManifest = modelJSON.weightsManifest;\n        if (weightsManifest == null) {\n          reject(new Error(\n `weightManifest field
 is missing from file ${jsonFile.name}`));\n          return;\n        }\n\n        let pathToFile: {[path: string]: File};\n try {\n          pathToFile =\n              this.checkManifestAndWeightFiles(weightsManifest, weightFiles);\n        } catch (err) {\n          reject(err);\n          return;\n        }\n\n        const weightSpecs: WeightsManifestEntry[] = [];\n  const paths: string[] = [];\n        const perFileBuffers: ArrayBuffer[] = [];\n weightsManifest.forEach(weightsGroup => {\n          weightsGroup.paths.forEach(path => {\n paths.push(path);\n            perFileBuffers.push(null);\n          });\n weightSpecs.push(...weightsGroup.weights);\n        });\n\n        weightsManifest.forEach(weightsGroup => {\n weightsGroup.paths.forEach(path => {\n            const weightFileReader = new FileReader();\n weightFileReader.onload = (event: Event) => {\n              // tslint:disable-next-line:no-any\n  const weightData = (event.target as any).result as ArrayBuffer;\n              const index = paths.indexOf(path);\n    perFileBuffers[index] = weightData;\n              if (perFileBuffers.indexOf(null) === -1) {\n                const result: ModelArtifacts = {\n                  modelTopology,\n                  weightSpecs,\n                  weightData: concatenateArrayBuffers(perFileBuffers),\n                  format: modelJSON.format,\n                  generatedBy: modelJSON.generatedBy,\n                  convertedBy: modelJSON.convertedBy\n                };\n                if (modelJSON.signature != null) {\n                  result.signature = modelJSON.signature;\n                }\n                if (modelJSON.userDefinedMetadata != null) {\n                  result.userDefinedMetadata = modelJSON.userDefinedMetadata;\n                }\n                if (modelJSON.modelInitializer != null) {\n result.modelInitializer = modelJSON.modelInitializer;\n                }\n                resolve(result);\n              }\n            };\n            weightFileReader.onerror = error =>\n  reject(`Failed to weights data from file of path '${path}'.`);\n weightFileReader.readAsArrayBuffer(pathToFile[path]);\n          });\n        });\n      };\n      jsonReader.onerror = error => reject(\n          `Failed to read model topology and weights manifest JSON ` +\n          `from file '${jsonFile.name}'. BrowserFiles supports loading ` +\n          `Keras-style tf.Model artifacts only.`);\n jsonReader.readAsText(jsonFile);\n    });\n  }\n\n  /**\n   * Check the compatibility between weights manifest and weight files.\n   */\n  private checkManifestAndWeightFiles(\n      manifest: WeightsManifestConfig, files: File[]): {[path: string]: File} {\n    const basenames: string[] = [];\n    const fileNames = files.map(file => basename(file.name));\n    const pathToFile: {[path: string]: File} = {};\n    for (const group of manifest) {\n      group.paths.forEach(path => {\n        const pathBasename = basename(path);\n        if (basenames.indexOf(pathBasename) !== -1) {\n          throw new Error(\n              `Duplicate file basename found in weights manifest: ` +\n              `'${pathBasename}'`);\n        }\n        basenames.push(pathBasename);\n        if (fileNames.indexOf(pathBasename) === -1) {\n          throw new Error(\n              `Weight file with basename '${pathBasename}' is not provided.`);\n        } else {\n          pathToFile[path] = files[fileNames.indexOf(pathBasename)];\n        }\n      });\n    }\n\n    if (basenames.length !== files.length) {\n throw new Error(\n          `Mismatch in the number of files in weights manifest ` +\n          `(${basenames.length}) and the number of weight files provided ` +\n          `(${files.length}).`);\n    }\n    return pathToFile;\n  }\n}\n\nexport const browserDownloadsRouter: IORouter = (url: string|string[]) => {\n
```

```
 if (!env().getBool('IS_BROWSER')) {\n    return null;\n  } else {\n    if (!Array.isArray(url) &&
url.startsWith(BrowserDownloads.URL_SCHEME)) {\n      return
browserDownloads(url.slice(BrowserDownloads.URL_SCHEME.length));\n    } else {\n      return null;\n    }\n
}\n};\nIORouterRegistry.registerSaveRouter(browserDownloadsRouter);\n\n/**\n * Creates an IOHandler that
triggers file downloads from the browser.\n *\n * The returned `IOHandler` instance can be used as model exporting
methods such\n * as `tf.Model.save` and supports only saving.\n *\n * ```js\n * const model = tf.sequential();\n *
model.add(tf.layers.dense(\n *     {units: 1, inputShape: [10], activation: 'sigmoid'}));\n * const saveResult = await
model.save('downloads://mymodel');\n * // This will trigger downloading of two files:\n * //   'mymodel.json' and
'mymodel.weights.bin'.\n * console.log(saveResult);\n * ```\n *\n * @param fileNamePrefix Prefix name of the files
to be downloaded. For use with\n *   `tf.Model`,
 `fileNamePrefix` should follow either of the following two\n *   formats:\n *   1. `null` or `undefined`, in which
case the default file\n *      names will be used:\n *      - 'model.json' for the JSON file containing the model topology
and\n *        weights manifest.\n *      - 'model.weights.bin' for the binary file containing the binary weight\n *
values.\n *   2. A single string or an Array of a single string, as the file name prefix.\n *      For example, if `'foo'` is
provided, the downloaded JSON\n *      file and binary weights file will be named 'foo.json' and\n *
'foo.weights.bin', respectively.\n * @param config Additional configuration for triggering downloads.\n * @returns
An instance of `BrowserDownloads` `IOHandler`.\n *\n * @doc {\n *   heading: 'Models',\n *   subheading:
'Loading',\n *   namespace: 'io',\n *   ignoreCI: true\n * }\n */\nexport function browserDownloads(fileNamePrefix =
'model'): IOHandler {\n  return new BrowserDownloads(fileNamePrefix);\n}\n\n/**\n
 * Creates an IOHandler that loads model artifacts from user-selected files.\n *\n * This method can be used for
loading from files such as user-selected files\n * in the browser.\n * When used in conjunction with
`tf.loadLayersModel`, an instance of\n * `tf.LayersModel` (Keras-style) can be constructed from the loaded
artifacts.\n *\n * ```js\n * // Note: This code snippet won't run properly without the actual file input\n * //   elements
in the HTML DOM.\n *\n * // Suppose there are two HTML file input (`<input type=\"file\" ...>`)\n * // elements.\n
* const uploadJSONInput = document.getElementById('upload-json');\n * const uploadWeightsInput =
document.getElementById('upload-weights');\n * const model = await tf.loadLayersModel(tf.io.browserFiles(\n *
[uploadJSONInput.files[0], uploadWeightsInput.files[0]]));\n * ```\n *\n * @param files `File`s to load from.
Currently, this function supports only\n *   loading from files that contain Keras-style models (i.e., `tf.Model`s),
 for\n *   which an `Array` of `File`s is expected (in that order):\n *   - A JSON file containing the model topology
and weight manifest.\n *   - Optionally, One or more binary files containing the binary weights.\n *      These files
must have names that match the paths in the `weightsManifest`\n *      contained by the aforementioned JSON file, or
errors will be thrown\n *      during loading. These weights files have the same format as the ones\n *      generated by
`tensorflowjs_converter` that comes with the `tensorflowjs`\n *      Python PIP package. If no weights files are
provided, only the model\n *      topology will be loaded from the JSON file above.\n * @returns An instance of
`Files` `IOHandler`.\n *\n * @doc {\n *   heading: 'Models',\n *   subheading: 'Loading',\n *   namespace: 'io',\n *
ignoreCI: true\n * }\n */\nexport function browserFiles(files: File[]): IOHandler {\n  return new
BrowserFiles(files);\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All
 Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {assert} from '../util';\n\nimport {OnProgressCallback} from './types';\n\n/**\n * Monitor Promise.all
progress, fire onProgress callback function.\n *\n * @param promises Promise list going to be monitored\n *
@param onProgress Callback function. Fired when a promise resolved.\n * @param startFraction Optional fraction
```

start. Default to 0.\n * @param endFraction Optional fraction end. Default to 1.\n */\nexport function monitorPromisesProgress(\n promises: Array<Promise<{}|void>>, onProgress: OnProgressCallback,\n startFraction?: number, endFraction?: number) {\n checkPromises(promises);\n startFraction = startFraction == null ? 0 : startFraction;\n endFraction = endFraction == null ? 1 : endFraction;\n checkFraction(startFraction, endFraction);\n let resolvedPromise = 0;\n\n const registerMonitor = (promise: Promise<{}>) => {\n promise.then(value => {\n const fraction = startFraction +\n ++resolvedPromise / promises.length * (endFraction - startFraction);\n // pass fraction as parameter to callback function.\n onProgress(fraction);\n return value;\n });\n return promise;\n };\n\n function checkPromises(promises: Array<Promise<{}|void>>): void {\n assert(\n promises != null && Array.isArray(promises) && promises.length > 0,\n () => 'promises must be a none empty array');\n }\n\n function checkFraction(startFraction: number, endFraction: number): void {\n assert(\n startFraction >= 0 && startFraction <= 1,\n () => `Progress fraction must be in range [0, 1], but ` +\n `got startFraction ${startFraction}`);\n assert(\n endFraction >= 0 && endFraction <= 1,\n () => `Progress fraction must be in range [0, 1], but ` +\n `got endFraction ${endFraction}`);\n assert(\n endFraction >= startFraction,\n () => `startFraction must be no more than endFraction, but ` +\n `got startFraction ${startFraction} and endFraction ` +\n `${endFraction}`);\n }\n\n return Promise.all(promises.map(registerMonitor));\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {env} from '../environment';\n\nimport {NamedTensorMap} from '../tensor_types';\nimport * as util from '../util';\nimport {decodeWeights} from './io_utils';\nimport {monitorPromisesProgress} from './progress';\nimport {DTYPE_VALUE_SIZE_MAP, LoadOptions, WeightsManifestConfig, WeightsManifestEntry} from './types';\n\n/**\n * Reads binary weights data from a number of URLs.\n *\n * @param fetchURLs URLs to send the HTTP requests at, using `fetch` calls.\n * @param requestOptions RequestInit (options) for the HTTP requests.\n * @param fetchFunc Optional overriding value for the `window.fetch` function.\n * @param onProgress Optional, progress callback function, fired periodically\n * before the load is completed.\n * @returns A `Promise` of an Array of `ArrayBuffer`. The Array has the same\n * length as `fetchURLs`.\n */\nexport async function loadWeightsAsArrayBuffer(\n fetchURLs: string[], loadOptions?: LoadOptions): Promise<ArrayBuffer[]> {\n if (loadOptions == null) {\n loadOptions = {};\n }\n\n const fetchFunc = loadOptions.fetchFunc == null ? env().platform.fetch :\n loadOptions.fetchFunc;\n\n // Create the requests for all of the weights in parallel.\n const requests = fetchURLs.map(\n fetchURL =>\n fetchFunc(fetchURL, loadOptions.requestInit, {isBinary: true}));\n\n const fetchStartFraction = 0;\n const fetchEndFraction = 0.5;\n\n const responses = loadOptions.onProgress == null ?\n await Promise.all(requests) :\n await monitorPromisesProgress(\n requests, loadOptions.onProgress, fetchStartFraction,\n fetchEndFraction);\n\n const bufferPromises = responses.map(response => response.arrayBuffer());\n\n const bufferStartFraction = 0.5;\n const bufferEndFraction = 1;\n\n const buffers = loadOptions.onProgress == null ?\n await Promise.all(bufferPromises) :\n await monitorPromisesProgress(\n bufferPromises, loadOptions.onProgress, bufferStartFraction,\n bufferEndFraction);\n return buffers;\n}\n\n/**\n * Reads a weights manifest JSON configuration, fetches the weights and\n * returns them as `Tensor`s.\n *\n * @param manifest The weights manifest JSON.\n * @param filePathPrefix The path prefix for filenames given in the manifest.\n * Defaults to the empty string.\n * @param weightNames The names of the weights to be fetched.\n */\nexport async function loadWeights(\n manifest: WeightsManifestConfig,

```
filePathPrefix = '',\n    weightNames?: string[],\n    requestInit?: RequestInit): Promise<NamedTensorMap> {\n  // TODO(nsthorat): Groups are currently fetched atomically. If you need a\n  // single weight from a group, the whole group will be fetched. At a future\n  // date, we should support fetching only the individual shards within a\n  // group that are needed to reconstruct the requested weight.\n  // TODO(cais): Use `decodeWeights` for implementation.\n\n  const fetchWeights = (fetchUrls: string[]) =>\n      loadWeightsAsArrayBuffer(fetchUrls, {requestInit});\n  const loadWeights = weightsLoaderFactory(fetchWeights);\n\n  return loadWeights(manifest, filePathPrefix, weightNames);\n}\n\n/**\n * Creates a function, which reads a weights manifest JSON configuration,\n * fetches the weight files using the specified function and returns them as\n * `Tensor`s.\n *\n * ```js\n * // example for creating a nodejs weight loader, which reads the weight files\n * // from disk using fs.readFileSync\n *\n * import * as fs from 'fs'\n *\n * const fetchWeightsFromDisk = (filePaths: string[]) =>\n * filePaths.map(filePath => fs.readFileSync(filePath).buffer)\n *\n * const loadWeights = tf.io.weightsLoaderFactory(fetchWeightsFromDisk)\n *\n * const manifest = JSON.parse(\n * fs.readFileSync('./my_model-weights_manifest').toString()\n * )\n * const weightMap = await loadWeights(manifest, './')\n * ```\n * @param fetchWeightsFunction The function used for fetching the weight files.\n * @returns Weight loading function.\n */\nexport function weightsLoaderFactory(\n    fetchWeightsFunction: (fetchUrls: string[]) => Promise<ArrayBuffer[]>):\n    (manifest: WeightsManifestConfig, filePathPrefix?: string,\n     weightNames?: string[]) => Promise<NamedTensorMap> {\n  return async(\n      manifest: WeightsManifestConfig, filePathPrefix = '',\n      weightNames?: string[]): Promise<NamedTensorMap> => {\n    // Collect all the groups, weights, and their relative offsets to be\n    // fetched.\n    const groupIndicesToFetchMap = manifest.map(() => false);\n    const groupWeightsToFetch: {\n      [group: number]: Array<{\n        manifestEntry: WeightsManifestEntry; groupOffset: number;\n        sizeBytes: number;\n      }>\n    } = {};\n    const weightsFound =\n        weightNames != null ? weightNames.map(() => false) : [];\n    const allManifestWeightNames: string[] = [];\n    manifest.forEach((manifestGroupConfig, groupIndex) => {\n      let groupOffset = 0;\n      manifestGroupConfig.weights.forEach(weightsEntry => {\n        const rawDtype = ('quantization' in weightsEntry)\n            ?\n            weightsEntry.quantization.dtype :\n            weightsEntry.dtype;\n\n        const weightsBytes = DTYPE_VALUE_SIZE_MAP[rawDtype] *\n            util.sizeFromShape(weightsEntry.shape);\n\n        const enqueueWeightsForFetchingFn = () => {\n          groupIndicesToFetchMap[groupIndex] = true;\n          if (groupWeightsToFetch[groupIndex] == null) {\n            groupWeightsToFetch[groupIndex] = [];\n          }\n\n          groupWeightsToFetch[groupIndex].push({\n            manifestEntry: weightsEntry,\n            groupOffset,\n            sizeBytes: weightsBytes\n          });\n        };\n\n        if (weightNames != null) {\n          weightNames.forEach((weightName, weightIndex) => {\n            if (weightName === weightsEntry.name) {\n              enqueueWeightsForFetchingFn();\n              weightsFound[weightIndex] = true;\n            }\n          });\n        } else {\n          enqueueWeightsForFetchingFn();\n        }\n\n        allManifestWeightNames.push(weightsEntry.name);\n        groupOffset += weightsBytes;\n      });\n    });\n\n    if (!weightsFound.every(found => found)) {\n      const weightsNotFound = weightNames.filter((_, i) => !weightsFound[i]);\n      throw new Error(\n          `Could not find weights in manifest with names: ` +\n          `${weightsNotFound.join(', ')}. \\n` +\n          `Manifest JSON has weights with names: ` +\n          `${allManifestWeightNames.join(', ')}.`);\n    }\n\n    // Convert the one-hot boolean groupId => shouldFetch map to a list of group\n    // IDs.\n    const groupIndicesToFetch =\n        groupIndicesToFetchMap.reduce((accumulator, shouldFetch, i) => {\n          if (shouldFetch) {\n            accumulator.push(i);\n          }\n          return accumulator;\n        }, []);\n\n    const fetchUrls: string[] = [];\n    groupIndicesToFetch.forEach(i => {\n      manifest[i].paths.forEach(filepath => {\n        const fetchUrl = filePathPrefix +\n            (!filePathPrefix.endsWith('/') ? '/' : '') + filepath;\n        fetchUrls.push(fetchUrl);\n      });\n    });\n    const buffers = await fetchWeightsFunction(fetchUrls);\n\n    const weightsTensorMap: NamedTensorMap = {};\n    let bufferIndexOffset = 0;\n    groupIndicesToFetch.forEach(i => {\n      const numBuffers = manifest[i].paths.length;\n\n      let groupBytes = 0;\n      for (let i = 0; i <
```

```
numBuffers; i++) {\n groupBytes += buffers[bufferIndexOffset + i].byteLength;\n }\n\n // Create a buffer for the whole group.\n const groupBuffer = new ArrayBuffer(groupBytes);\n const groupByteBuffer = new Uint8Array(groupBuffer);\n let groupBufferOffset = 0;\n for (let i = 0; i < numBuffers; i++) {\n const buffer = new Uint8Array(buffers[bufferIndexOffset + i]);\n groupByteBuffer.set(buffer, groupBufferOffset);\n groupBufferOffset += buffer.byteLength;\n }\n\n const weightsEntries = groupWeightsToFetch[i];\n weightsEntries.forEach(weightsEntry => {\n const byteBuffer = groupBuffer.slice(\n weightsEntry.groupOffset,\n weightsEntry.groupOffset + weightsEntry.sizeBytes);\n const nameToTensorMap =\n decodeWeights(byteBuffer, [weightsEntry.manifestEntry]);\n for (const name in nameToTensorMap) {\n weightsTensorMap[name] = nameToTensorMap[name];\n }\n });\n\n bufferIndexOffset += numBuffers;\n });\n\n return weightsTensorMap;\n };\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\n/**\n * IOHandler implementations based on HTTP requests in the web browser.\n *\n * Uses [`fetch`](https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API).\n */\n\nimport
{env} from '../environment';\n\nimport {assert} from '../util';\nimport {concatenateArrayBuffers, getModelArtifactsInfoForJSON} from './io_utils';\nimport {IORouter, IORouterRegistry} from
'./router_registry';\nimport {IOHandler, LoadOptions, ModelArtifacts, ModelJSON, OnProgressCallback, SaveResult, WeightsManifestConfig, WeightsManifestEntry} from './types';\nimport {loadWeightsAsArrayBuffer} from './weights_loader';\n\nconst OCTET_STREAM_MIME_TYPE = 'application/octet-stream';\nconst JSON_TYPE = 'application/json';\nexport class HTTPRequest implements IOHandler {\n protected readonly path: string;\n protected readonly requestInit: RequestInit;\n\n private readonly fetch: Function;\n private readonly weightUrlConverter: (weightName: string) => Promise<string>;\n\n readonly DEFAULT_METHOD = 'POST';\n\n static readonly URL_SCHEME_REGEX = /^https?:\\/\\//;\n\n private readonly weightPathPrefix: string;\n private readonly onProgress: OnProgressCallback;\n\n constructor(path:
string, loadOptions?: LoadOptions) {\n if (loadOptions == null) {\n loadOptions = {};\n }\n this.weightPathPrefix = loadOptions.weightPathPrefix;\n this.onProgress = loadOptions.onProgress;\n this.weightUrlConverter = loadOptions.weightUrlConverter;\n\n if (loadOptions.fetchFunc != null) {\n assert(\n typeof loadOptions.fetchFunc === 'function',\n () => 'Must pass a function that matches the signature of ' +\n '`fetch` (see ' +\n 'https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API)');\n this.fetch = loadOptions.fetchFunc;\n } else {\n this.fetch = env().platform.fetch;\n }\n\n assert(\n path != null && path.length > 0,\n () => 'URL path for http must not be null, undefined or ' +\n 'empty.');\n\n if (Array.isArray(path)) {\n assert(\n path.length === 2,\n () => 'URL paths for http must have a length of 2, ' +\n `(actual length is ${path.length}).`);\n }\n this.path = path;\n\n if (loadOptions.requestInit != null &&\n loadOptions.requestInit.body != null) {\n throw new Error(\n 'requestInit is expected to have no pre-existing body, but has one.');\n }\n this.requestInit = loadOptions.requestInit || {};\n }\n\n async save(modelArtifacts: ModelArtifacts): Promise<SaveResult> {\n if (modelArtifacts.modelTopology instanceof ArrayBuffer) {\n throw new Error(\n 'BrowserHTTPRequest.save() does not support saving model topology ' +\n 'in binary formats yet.');\n }\n\n const init = Object.assign({method: this.DEFAULT_METHOD}, this.requestInit);\n init.body = new FormData();\n\n const weightsManifest: WeightsManifestConfig = [{\n paths: ['./model.weights.bin'],\n weights: modelArtifacts.weightSpecs,\n }];\n const modelTopologyAndWeightManifest: ModelJSON = {\n modelTopology: modelArtifacts.modelTopology,\n format:
```

```
 modelArtifacts.format,\n      generatedBy: modelArtifacts.generatedBy,\n      convertedBy:
modelArtifacts.convertedBy,\n      weightsManifest\n    };\n    if (modelArtifacts.signature != null) {\n
modelTopologyAndWeightManifest.signature = modelArtifacts.signature;\n    }\n    if
(modelArtifacts.userDefinedMetadata != null) {\n      modelTopologyAndWeightManifest.userDefinedMetadata =\n
      modelArtifacts.userDefinedMetadata;\n    }\n    if (modelArtifacts.modelInitializer != null) {\n
modelTopologyAndWeightManifest.modelInitializer =\n          modelArtifacts.modelInitializer;\n    }\n\n
init.body.append(\n          'model.json',\n          new Blob(\n
[JSON.stringify(modelTopologyAndWeightManifest)],\n              {type: JSON_TYPE}),\n          'model.json');\n\n    if
(modelArtifacts.weightData != null) {\n      init.body.append(\n          'model.weights.bin',\n          new
Blob([modelArtifacts.weightData], {type: OCTET_STREAM_MIME_TYPE}),\n          'model.weights.bin');\n
    }\n\n    const response = await this.fetch(this.path, init);\n\n    if (response.ok) {\n      return {\n
modelArtifactsInfo: getModelArtifactsInfoForJSON(modelArtifacts),\n        responses: [response],\n      };\n    } else
{\n      throw new Error(\n          `BrowserHTTPRequest.save() failed due to HTTP response status ` +\n
`${response.status}.`);\n    }\n  }\n\n  /**\n   * Load model artifacts via HTTP request(s).\n   *\n   * See the
documentation to `tf.io.http` for details on the saved\n   * artifacts.\n   *\n   * @returns The loaded model artifacts (if
loading succeeds).\n   */\n  async load(): Promise<ModelArtifacts> {\n    const modelConfigRequest = await
this.fetch(this.path, this.requestInit);\n\n    if (!modelConfigRequest.ok) {\n      throw new Error(\n          `Request to
${this.path} failed with status code ` +\n          `${modelConfigRequest.status}. Please verify this URL points to ` +\n
          `the model JSON of the model to
 load.`);\n    }\n    let modelConfig: ModelJSON;\n    try {\n      modelConfig = await modelConfigRequest.json();\n
 } catch (e) {\n      let message = `Failed to parse model JSON of response from ${this.path}.`;\n      //
TODO(nsthorat): Remove this after some time when we're comfortable that\n      // .pb files are mostly gone.\n      if
(this.path.endsWith('.pb')) {\n        message += ' Your path contains a .pb file extension. ' +\n            'Support for .pb
models have been removed in TensorFlow.js 1.0 ' +\n            'in favor of .json models. You can re-convert your
Python ' +\n            'TensorFlow model using the TensorFlow.js 1.0 conversion scripts ' +\n            'or you can
convert your.pb models with the \\'pb2json\\'' +\n            'NPM script in the tensorflow/tfjs-converter repository.';\n
 } else {\n        message += ' Please make sure the server is serving valid ' +\n            'JSON for this request.';\n
}\n      throw new Error(message);\n    }\n
    const modelTopology = modelConfig.modelTopology;\n    const weightsManifest =
modelConfig.weightsManifest;\n    const generatedBy = modelConfig.generatedBy;\n    const convertedBy =
modelConfig.convertedBy;\n    const format = modelConfig.format;\n    const signature = modelConfig.signature;\n
 const userDefinedMetadata = modelConfig.userDefinedMetadata;\n\n    // We do not allow both modelTopology
and weightsManifest to be missing.\n    if (modelTopology == null && weightsManifest == null) {\n      throw new
Error(\n          `The JSON from HTTP path ${this.path} contains neither model ` +\n          `topology or manifest for
weights.`);\n    }\n\n    let weightSpecs: WeightsManifestEntry[];\n    let weightData: ArrayBuffer;\n    if
(weightsManifest != null) {\n      const results = await this.loadWeights(weightsManifest);\n      [weightSpecs,
weightData] = results;\n    }\n\n    const artifacts: ModelArtifacts = {\n      modelTopology,\n      weightSpecs,\n
weightData,\n
      generatedBy,\n      convertedBy,\n      format\n    };\n\n    if (signature != null) {\n      artifacts.signature =
signature;\n    }\n    if (userDefinedMetadata != null) {\n      artifacts.userDefinedMetadata =
userDefinedMetadata;\n    }\n\n    const initializer = modelConfig.modelInitializer;\n    if (initializer) {\n
artifacts.modelInitializer = initializer;\n    }\n\n    return artifacts;\n  }\n\n  private async
loadWeights(weightsManifest: WeightsManifestConfig):\n      Promise<[WeightsManifestEntry[], ArrayBuffer]>
{\n    const weightPath = Array.isArray(this.path) ? this.path[1] : this.path;\n    const [prefix, suffix] =
parseUrl(weightPath);\n    const pathPrefix = this.weightPathPrefix || prefix;\n\n    const weightSpecs = [];\n    for
(const entry of weightsManifest) {\n      weightSpecs.push(...entry.weights);\n    }\n\n    const fetchURLs: string[] =
[];\n    const urlPromises: Array<Promise<string>> = [];\n    for (const weightsGroup of weightsManifest) {\n
```

```
  for (const path of weightsGroup.paths) {\n        if (this.weightUrlConverter != null) {\n
urlPromises.push(this.weightUrlConverter(path));\n        } else {\n          fetchURLs.push(pathPrefix + path +
suffix);\n        }\n      }\n    }\n\n    if (this.weightUrlConverter) {\n      fetchURLs.push(...await
Promise.all(urlPromises));\n    }\n\n    const buffers = await loadWeightsAsArrayBuffer(fetchURLs, {\n
requestInit: this.requestInit,\n      fetchFunc: this.fetch,\n      onProgress: this.onProgress\n    });\n    return
[weightSpecs, concatenateArrayBuffers(buffers)];\n  }\n}\n\n/**\n * Extract the prefix and suffix of the url, where
the prefix is the path before\n * the last file, and suffix is the search params after the last file.\n * ```\n * const url =
'http://tfhub.dev/model/1/tensorflowjs_model.pb?tfjs-format=file'\n * [prefix, suffix] = parseUrl(url)\n * // prefix =
'http://tfhub.dev/model/1/'\n * // suffix = '?tfjs-format=file'\n * ```\n * @param url the model
 url to be parsed.\n */\nexport function parseUrl(url: string): [string, string] {\n  const lastSlash =
url.lastIndexOf('/');\n  const lastSearchParam = url.lastIndexOf('?');\n  const prefix = url.substring(0, lastSlash);\n
const suffix =\n      lastSearchParam > lastSlash ? url.substring(lastSearchParam) : '';\n  return [prefix + '/',
suffix];\n}\n\nexport function isHTTPScheme(url: string): boolean {\n  return
url.match(HTTPRequest.URL_SCHEME_REGEX) != null;\n}\n\nexport const httpRouter: IORouter =\n    (url:
string, loadOptions?: LoadOptions) => {\n      if (typeof fetch === 'undefined' &&\n          (loadOptions == null ||
loadOptions.fetchFunc == null)) {\n        // `http` uses `fetch` or `node-fetch`, if one wants to use it in\n        // an
environment that is not the browser or node they have to setup a\n        // global fetch polyfill.\n        return null;\n
} else {\n        let isHTTP = true;\n        if (Array.isArray(url)) {\n          isHTTP = url.every(urlItem
 => isHTTPScheme(urlItem));\n        } else {\n          isHTTP = isHTTPScheme(url);\n        }\n        if (isHTTP) {\n
      return http(url, loadOptions);\n        }\n      }\n      return null;\n
};\nIORouterRegistry.registerSaveRouter(httpRouter);\nIORouterRegistry.registerLoadRouter(httpRouter);\n\n/**\n
* Creates an IOHandler subtype that sends model artifacts to HTTP server.\n *\n * An HTTP request of the
`multipart/form-data` mime type will be sent to the\n * `path` URL. The form data includes artifacts that represent
the topology\n * and/or weights of the model. In the case of Keras-style `tf.Model`, two\n * blobs (files) exist in
form-data:\n *   - A JSON file consisting of `modelTopology` and `weightsManifest`.\n *   - A binary weights file
consisting of the concatenated weight values.\n * These files are in the same format as the one generated by\n *
[tfjs_converter](https://js.tensorflow.org/tutorials/import-keras.html).\n *\n * The following code snippet
exemplifies
 the client-side code that uses this\n * function:\n *\n * ```js\n * const model = tf.sequential();\n * model.add(\n *
tf.layers.dense({units: 1, inputShape: [100], activation: 'sigmoid'}));\n *\n * const saveResult = await
model.save(tf.io.http(\n *     'http://model-server:5000/upload', {requestInit: {method: 'PUT'}}));\n *
console.log(saveResult);\n * ```\n *\n * If the default `POST` method is to be used, without any custom parameters\n
* such as headers, you can simply pass an HTTP or HTTPS URL to `model.save`:\n *\n * ```js\n * const saveResult
= await model.save('http://model-server:5000/upload');\n * ```\n *\n * The following GitHub Gist\n *
https://gist.github.com/dsmilkov/1b6046fd6132d7408d5257b0976f7864\n * implements a server based on
[flask](https://github.com/pallets/flask) that\n * can receive the request. Upon receiving the model artifacts via the
requst,\n * this particular server reconsistutes instances of [Keras\n * Models](https://keras.io/models/model/) in
memory.\n
 *\n *\n * @param path A URL path to the model.\n *   Can be an absolute HTTP path (e.g.,\n *
'http://localhost:8000/model-upload)') or a relative path (e.g.,\n *   './model-upload').\n * @param requestInit
Request configurations to be used when sending\n *     HTTP request to server using `fetch`. It can contain fields
such as\n *     `method`, `credentials`, `headers`, `mode`, etc. See\n *     https://developer.mozilla.org/en-
US/docs/Web/API/Request/Request\n *     for more information. `requestInit` must not have a body, because the\n *
body will be set by TensorFlow.js. File blobs representing the model\n * topology (filename: 'model.json') and the
weights of the model (filename:\n * 'model.weights.bin') will be appended to the body. If `requestInit` has a\n *
`body`, an Error will be thrown.\n * @param loadOptions Optional configuration for the loading. It includes the\n *
following fields:\n *   - weightPathPrefix Optional, this specifies the path prefix for weight\n *
```

files, by default this is calculated from the path param.\n * - fetchFunc Optional, custom `fetch` function. E.g., in Node.js,\n * the `fetch` from node-fetch can be used here.\n * - onProgress Optional, progress callback function, fired periodically\n * before the load is completed.\n * @returns An instance of `IOHandler`.\n *\n * @doc {\n * heading: 'Models',\n * subheading: 'Loading',\n * namespace: 'io',\n * ignoreCI: true\n * }\n */\nexport function http(path: string, loadOptions?: LoadOptions): IOHandler {\n return new HTTPRequest(path, loadOptions);\n}\n\n/**\n * Deprecated. Use `tf.io.http`.\n * @param path\n * @param loadOptions\n */\nexport function browserHTTPRequest(\n path: string, loadOptions?: LoadOptions): IOHandler {\n return http(path, loadOptions);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\n/**\n * IOHandlers that pass through the in-memory ModelArtifacts format.\n */\n\nimport {IOHandler, ModelArtifacts, SaveResult, TrainingConfig, WeightsManifestEntry} from './types';\n\nclass PassthroughLoader implements IOHandler {\n constructor(private readonly modelArtifacts?: ModelArtifacts) {}\n\n async load(): Promise<ModelArtifacts> {\n   return this.modelArtifacts;\n }\n}\n\nclass PassthroughSaver implements IOHandler {\n constructor(\n   private readonly saveHandler:\n   (artifacts: ModelArtifacts) => Promise<SaveResult>) {}\n\n async save(modelArtifacts: ModelArtifacts) {\n   return this.saveHandler(modelArtifacts);\n }\n}\n\n/**\n * Creates an IOHandler that loads model artifacts from memory.\n *\n * When used in conjunction with `tf.loadLayersModel`, an instance of\n * `tf.LayersModel` (Keras-style) can be constructed from the loaded artifacts.\n *\n * ```js\n * const model = await tf.loadLayersModel(tf.io.fromMemory(\n *   modelTopology, weightSpecs, weightData));\n * ```\n *\n * @param modelArtifacts a object containing model topology (i.e., parsed from\n * the JSON format).\n * @param weightSpecs An array of `WeightsManifestEntry` objects describing the\n * names, shapes, types, and quantization of the weight data.\n * @param weightData A single `ArrayBuffer` containing the weight data,\n * concatenated in the order described by the weightSpecs.\n * @param trainingConfig Model training configuration. Optional.\n *\n * @returns A passthrough `IOHandler` that simply loads the provided data.\n */\nexport function fromMemory(\n   modelArtifacts: {}|ModelArtifacts, weightSpecs?: WeightsManifestEntry[],\n   weightData?: ArrayBuffer, trainingConfig?: TrainingConfig): IOHandler {\n if (arguments.length === 1) {\n   const isModelArtifacts =\n   (modelArtifacts as ModelArtifacts).modelTopology != null ||\n   (modelArtifacts as ModelArtifacts).weightSpecs != null;\n   if (isModelArtifacts) {\n   return new PassthroughLoader(modelArtifacts as ModelArtifacts);\n   } else {\n   // Legacy support: with only modelTopology.\n   // TODO(cais): Remove this deprecated API.\n   console.warn(\n   'Please call tf.io.fromMemory() with only one argument. ' +\n   'The argument should be of type ModelArtifacts. ' +\n   'The multi-argument signature of tf.io.fromMemory() has been ' +\n   'deprecated and will be removed in a future release.');\n   return new PassthroughLoader({modelTopology: modelArtifacts as {}});\n   }\n } else {\n   // Legacy support.\n   // TODO(cais): Remove this deprecated API.\n   console.warn(\n   'Please call tf.io.fromMemory() with only one argument. ' +\n   'The argument should be of type ModelArtifacts. ' +\n   'The multi-argument signature of tf.io.fromMemory() has been ' +\n   'deprecated and will be removed in a future release.');\n   return new PassthroughLoader({\n   modelTopology: modelArtifacts as {},\n   weightSpecs,\n   weightData,\n   trainingConfig\n   });\n }\n}\n\n/**\n * Creates an IOHandler that passes saved model artifacts to a callback.\n *\n * ```js\n * function handleSave(artifacts) {\n * // ... do something with the artifacts ...\n * return {modelArtifactsInfo: {...}, ...};\n * }\n *\n * const saveResult = model.save(tf.io.withSaveHandler(handleSave));\n * ```\n *\n * @param saveHandler A function that accepts a `ModelArtifacts` and returns

a\n *   `SaveResult`.\n */\nexport function withSaveHandler(\n   saveHandler: (artifacts: ModelArtifacts) =>\n Promise<SaveResult>): IOHandler {\n return new PassthroughSaver(saveHandler);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\n// Importing local_storage and indexed_db is necessary for the routers
 to be\n// registered.\nimport './indexed_db';\nimport './local_storage';\n\nimport {browserFiles} from './browser_files';\nimport {browserHTTPRequest, http, isHTTPScheme} from './http';\nimport {concatenateArrayBuffers, decodeWeights, encodeWeights, getModelArtifactsInfoForJSON} from './io_utils';\nimport {fromMemory, withSaveHandler} from './passthrough';\nimport {getLoadHandlers, getSaveHandlers, registerLoadRouter, registerSaveRouter} from './router_registry';\nimport {IOHandler, LoadHandler, LoadOptions, ModelArtifacts, ModelArtifactsInfo, ModelJSON, ModelStoreManager, OnProgressCallback, RequestDetails, SaveConfig, SaveHandler, SaveResult, WeightGroup, WeightsManifestConfig, WeightsManifestEntry} from './types';\nimport {loadWeights, weightsLoaderFactory} from './weights_loader';\n\nexport {copyModel, listModels, moveModel, removeModel} from './model_management';\nexport {\n browserFiles,\n browserHTTPRequest,\n concatenateArrayBuffers,\n decodeWeights,\n encodeWeights,\n
 fromMemory,\n getLoadHandlers,\n getModelArtifactsInfoForJSON,\n getSaveHandlers,\n http,\n IOHandler,\n isHTTPScheme,\n LoadHandler,\n LoadOptions,\n loadWeights,\n ModelArtifacts,\n ModelArtifactsInfo,\n ModelJSON,\n ModelStoreManager,\n OnProgressCallback,\n registerLoadRouter,\n registerSaveRouter,\n RequestDetails,\n SaveConfig,\n SaveHandler,\n SaveResult,\n WeightGroup,\n weightsLoaderFactory,\n WeightsManifestConfig,\n WeightsManifestEntry,\n withSaveHandler\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY
 KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the dot product of two matrices, A * B. These must be matrices.\n *\n * ```js\n * const a = tf.tensor2d([1, 2], [1, 2]);\n * const b = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * a.matMul(b).print(); // or tf.matMul(a, b)\n * ```\n * @param a First matrix in dot product operation.\n * @param b Second matrix in dot product operation.\n
 * @param transposeA If true, `a` is transposed before multiplication.\n * @param transposeB If true, `b` is transposed before multiplication.\n *\n * @doc {heading: 'Operations', subheading: 'Matrices'}\n */\nfunction matMul_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike, transposeA = false,\n   transposeB = false): T {\n let $a = convertToTensor(a, 'a', 'matMul');\n let $b = convertToTensor(b, 'b', 'matMul');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: BatchMatMulInputs = {a: $a, b: $b};\n const attrs: BatchMatMulAttrs = {transposeA, transposeB};\n\n return ENGINE.runKernel(\n   BatchMatMul, inputs as {} as NamedTensorMap,

attrs as {} as NamedAttrMap);\n}\n\nexport const matMul = op({matMul_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {OneHot, OneHotAttrs, OneHotInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Creates a one-hot `tf.Tensor`. The locations represented by `indices` take\n * value `onValue` (defaults to 1), while all other locations take value\n * `offValue` (defaults to 0). If `indices` is rank `R`, the output has rank\n * `R+1` with the last axis of size `depth`.\n *\n * ```js\n * tf.oneHot(tf.tensor1d([0, 1], 'int32'), 3).print();\n * ```\n *\n * @param indices `tf.Tensor` of indices with dtype `int32`.\n * @param depth The depth of the one hot dimension.\n * @param onValue A number used to fill in the output when the index matches\n * the location.\n * @param offValue A number used to fill in the output when the index does\n *   not match the location.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction oneHot_(\n   indices: Tensor|TensorLike, depth: number, onValue = 1,\n   offValue = 0): Tensor {\n if (depth < 2) {\n   throw new Error(`Error in oneHot: depth must be >=2, but it is ${depth}`);\n }\n const $indices = convertToTensor(indices, 'indices', 'oneHot', 'int32');\n\n const inputs: OneHotInputs = {indices: $indices};\n const attrs: OneHotAttrs = {depth, onValue, offValue};\n\n\n return ENGINE.runKernel(\n   OneHot, inputs as unknown as NamedTensorMap,\n   attrs as unknown as NamedAttrMap);\n}\n\nexport const oneHot = op({oneHot_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {Transpose, TransposeAttrs, TransposeInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Transposes the `tf.Tensor`. Permutes the dimensions according to `perm`.\n *\n * The returned `tf.Tensor`'s dimension `i` will correspond to the input\n * dimension `perm[i]`. If `perm` is not given, it is set to `[n-1...0]`,\n * where `n` is the rank of the input `tf.Tensor`. Hence by default, this\n * operation performs a regular matrix transpose on 2-D input `tf.Tensor`s.\n *\n * ```js\n * const a = tf.tensor2d([1, 2, 3, 4, 5, 6], [2, 3]);\n *\n * a.transpose().print(); // or tf.transpose(a)\n * ```\n *\n * @param x The tensor to transpose.\n * @param perm The permutation of the dimensions of a.\n *\n * @doc {heading: 'Operations', subheading: 'Matrices'}\n */\nfunction transpose_<T extends Tensor>(x: T|TensorLike, perm?: number[]): T {\n const $x = convertToTensor(x, 'x', 'transpose');\n\n if (perm == null) {\n   perm = $x.shape.map((s, i) => i).reverse();\n }\n util.assert(\n $x.rank === perm.length,\n   () => `Error in transpose: rank of input ${$x.rank} ` +\n   `must match length of perm ${perm}.`);\n perm.forEach(axis => {\n   util.assert(\n   axis >= 0 && axis < $x.rank,\n   () => `All entries in 'perm' must be between 0 and ${$x.rank - 1}` +\n   ` but got ${perm}`);\n });\n\n if ($x.rank <= 1) {\n   return $x.clone();\n }\n\n const inputs: TransposeInputs = {x: $x};\n const attrs: TransposeAttrs = {perm};\n\n return

ENGINE.runKernel(\n Transpose, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const transpose = op({transpose_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {Tensor1D, Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {cast} from './cast';\nimport {matMul} from './mat_mul';\nimport {oneHot} from './one_hot';\nimport {op} from './operation';\nimport {transpose} from './transpose';\n\n/**\n * Computes the confusion matrix from true labels and predicted labels.\n *\n * ```js\n * const labels = tf.tensor1d([0, 1, 2, 1, 0], 'int32');\n * const predictions = tf.tensor1d([0, 2, 2, 1, 0], 'int32');\n * const numClasses = 3;\n * const out = tf.math.confusionMatrix(labels, predictions, numClasses);\n * out.print();\n * // Expected output matrix:\n * // [[2, 0, 0],\n * // [0, 1, 1],\n * // [0, 0, 1]]\n * ```\n *\n * @param labels The target labels, assumed to be 0-based integers\n * for the classes. The shape is `[numExamples]`, where\n * `numExamples` is the number of examples included.\n * @param predictions The predicted classes, assumed to be\n * 0-based integers for the classes. Must have the same shape as `labels`.\n * @param numClasses Number of all classes, as an integer.\n * Its value must be larger than the largest element in `labels` and\n * `predictions`.\n * @returns The confusion matrix as a int32-type 2D tensor. The value at\n * row `r` and column `c` is the number of times examples of actual class\n * `r` were predicted as class `c`.\n *\n * @doc {heading: 'Operations', subheading: 'Evaluation'}\n */\nexport function confusionMatrix_(\n labels: Tensor1D|TensorLike, predictions: Tensor1D|TensorLike,\n numClasses: number): Tensor2D {\n const $labels = convertToTensor(labels, 'labels', 'confusionMatrix');\n const $predictions =\n convertToTensor(predictions, 'predictions', 'confusionMatrix');\n\n util.assert(\n numClasses == null || numClasses > 0 && Number.isInteger(numClasses),\n () => `If provided, numClasses must be a positive integer, ` +\n `but got ${numClasses}`);\n util.assert(\n $labels.rank === 1,\n () => `Expected the rank of labels to be 1, but got ${$labels.rank}`);\n util.assert(\n $predictions.rank === 1,\n () => `Expected the rank of predictions to be 1, ` +\n `but got ${$predictions.rank}`);\n util.assert(\n $labels.shape[0] === $predictions.shape[0],\n () => `Mismatch in the number of examples: ` +\n `${$labels.shape[0]} vs. ${$predictions.shape[0]}. ` +\n `Labels and predictions should have the same number of elements.`);\n util.assert(\n numClasses > 0 && Number.isInteger(numClasses),\n () => `numClasses is required to be a positive integer, but got ` +\n `${numClasses}`);\n // TODO(cais): In the future, if oneHot supports tensors inputs for\n // `numClasses`, `confusionMatrix` can make `numClasses` optional.\n\n const oneHotLabels = oneHot(cast($labels, 'int32'), numClasses) as Tensor2D;\n const oneHotPredictions =\n oneHot(cast($predictions, 'int32'), numClasses) as Tensor2D;\n const oneHotLabelsT: Tensor2D = transpose(oneHotLabels);\n const product: Tensor2D = matMul(oneHotLabelsT, oneHotPredictions);\n return cast(product, 'int32');\n}\n\nexport const confusionMatrix = op({confusionMatrix_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\n/**\n * Exports under the tf.math.* namespace.\n */\n\nimport {confusionMatrix} from

'./ops/confusion_matrix';\n\nexport {confusionMatrix};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor3D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike3D} from '../types';\nimport {DataType} from '../types';\nimport {assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-3 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor3d` as it makes the code more readable.\n *\n * ```js\n * // Pass a nested array.\n * tf.tensor3d([[[1], [2]], [[3], [4]]]).print();\n * ```\n * ```js\n * // Pass a flat array and specify a shape.\n * tf.tensor3d([1, 2, 3, 4], [2, 2, 1]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n * or a flat array, or a `TypedArray`.\n * @param shape The shape of the tensor. If not provided, it is inferred from\n * `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor3d(\n values: TensorLike3D, shape?: [number, number, number],\n dtype?: DataType): Tensor3D {\n assertNonNull(values);\n if (shape != null && shape.length !== 3) {\n throw new Error('tensor3d() requires shape to have three numbers');\n }\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 3 && inferredShape.length !== 1) {\n throw new Error(\n 'tensor3d() requires values to be number[][][] or flat/TypedArray');\n }\n if (inferredShape.length === 1 && shape == null) {\n throw new Error(\n 'tensor3d() requires shape to be provided when `values` ' +\n 'are a flat array');\n }\n return makeTensor(values, shape, inferredShape, dtype) as Tensor3D;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {FromPixels, FromPixelsAttrs, FromPixelsInputs} from '../kernel_names';\nimport {getKernel, NamedAttrMap} from '../kernel_registry';\nimport {Tensor, Tensor2D, Tensor3D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {PixelData, TensorLike} from '../types';\n\nimport {cast} from './cast';\nimport {op} from './operation';\nimport {tensor3d} from './tensor3d';\n\nlet fromPixels2DContext: CanvasRenderingContext2D;\n\n/**\n * Creates a `tf.Tensor` from an image.\n *\n * ```js\n * const image = new ImageData(1, 1);\n * image.data[0] = 100;\n * image.data[1] = 150;\n * image.data[2] = 200;\n * image.data[3] = 255;\n *\n * tf.browser.fromPixels(image).print();\n * ```\n *\n * @param pixels The input image to construct the tensor from. The\n * supported image types are all 4-channel. You can also pass in an image\n * object with following attributes:\n * `{data: Uint8Array; width: number; height: number}`\n * @param numChannels The number of channels of the output tensor. A\n * numChannels value less than 4 allows you to ignore channels. Defaults to\n * 3 (ignores alpha channel of input image).\n *\n * @doc {heading: 'Browser', namespace: 'browser', ignoreCI: true}\n */\nfunction fromPixels_(\n pixels: PixelData|ImageData|HTMLImageElement|HTMLCanvasElement|\n HTMLVideoElement|ImageBitmap,\n numChannels = 3): Tensor3D {\n // Sanity checks.\n if (numChannels > 4) {\n throw new Error(\n 'Cannot construct Tensor with more than 4 channels from pixels.');\n }\n if (pixels == null) {\n throw new Error('pixels passed to tf.browser.fromPixels() can not be null');\n }\n let isPixelData = false;\n let isImageData = false;\n let

```
isVideo = false;\n  let isImage = false;\n  let isCanvasLike = false;\n  let isImageBitmap = false;\n  if ((pixels as PixelData).data instanceof Uint8Array) {\n    isPixelData = true;\n  } else if (\n      typeof (ImageData) !== 'undefined' && pixels
 instanceof ImageData) {\n    isImageData = true;\n  } else if (\n      typeof (HTMLVideoElement) !== 'undefined' &&\n      pixels instanceof HTMLVideoElement) {\n    isVideo = true;\n  } else if (\n      typeof (HTMLImageElement) !== 'undefined' &&\n      pixels instanceof HTMLImageElement) {\n    isImage = true;\n    // tslint:disable-next-line: no-any\n  } else if ((pixels as any).getContext != null) {\n    isCanvasLike = true;\n  } else if (\n      typeof (ImageBitmap) !== 'undefined' &&\n      pixels instanceof ImageBitmap) {\n    isImageBitmap = true;\n  } else {\n    throw new Error(\n        'pixels passed to tf.browser.fromPixels() must be either an ' +\n        `HTMLVideoElement, HTMLImageElement, HTMLCanvasElement, ImageData ` +\n        `in browser, or OffscreenCanvas, ImageData in webworker` +\n        ` or {data: Uint32Array, width: number, height: number}, ` +\n        `but was ${(pixels as {}).constructor.name}`);\n  }\n  if (isVideo) {\n    const HAVE_CURRENT_DATA_READY_STATE
 = 2;\n    if (isVideo &&\n        (pixels as HTMLVideoElement).readyState <\n        HAVE_CURRENT_DATA_READY_STATE) {\n      throw new Error(\n          'The video element has not loaded data yet. Please wait for ' +\n          '`loadeddata` event on the <video> element.');\n    }\n  }\n  // If the current backend has 'FromPixels' registered, it has a more\n  // efficient way of handling pixel uploads, so we call that.\n  const kernel = getKernel(FromPixels, ENGINE.backendName);\n  if (kernel != null) {\n    const inputs: FromPixelsInputs = {pixels};\n    const attrs: FromPixelsAttrs = {numChannels};\n    return ENGINE.runKernel(\n        FromPixels, inputs as {} as NamedTensorMap,\n        attrs as {} as NamedAttrMap);\n  }\n\n  const [width, height] = isVideo ?\n      [\n        (pixels as HTMLVideoElement).videoWidth,\n        (pixels as HTMLVideoElement).videoHeight\n      ] :\n      [pixels.width, pixels.height];\n  let vals: Uint8ClampedArray|Uint8Array;\n\n  if (isCanvasLike)
 {\n    vals =\n        // tslint:disable-next-line:no-any\n        (pixels as any).getContext('2d').getImageData(0, 0, width, height).data;\n  } else if (isImageData || isPixelData) {\n    vals = (pixels as PixelData | ImageData).data;\n  } else if (isImage || isVideo || isImageBitmap) {\n    if (fromPixels2DContext == null) {\n      fromPixels2DContext = document.createElement('canvas').getContext('2d');\n    }\n    fromPixels2DContext.canvas.width = width;\n    fromPixels2DContext.canvas.height = height;\n    fromPixels2DContext.drawImage(\n        pixels as HTMLVideoElement, 0, 0, width, height);\n    vals = fromPixels2DContext.getImageData(0, 0, width, height).data;\n  }\n  let values: Int32Array;\n  if (numChannels === 4) {\n    values = new Int32Array(vals);\n  } else {\n    const numPixels = width * height;\n    values = new Int32Array(numPixels * numChannels);\n    for (let i = 0; i < numPixels; i++) {\n      for (let channel = 0; channel < numChannels; ++channel) {\n        values[i * numChannels + channel] = vals[i * 4 + channel];\n      }\n    }\n  }\n  const outShape: [number, number, number] = [height, width, numChannels];\n  return tensor3d(values, outShape, 'int32');\n}\n\n/**\n * Draws a `tf.Tensor` of pixel values to a byte array or optionally a\n * canvas.\n *\n * When the dtype of the input is 'float32', we assume values in the range\n * [0-1]. Otherwise, when input is 'int32', we assume values in the range\n * [0-255].\n *\n * Returns a promise that resolves when the canvas has been drawn to.\n *\n * @param img A rank-2 or rank-3 tensor. If rank-2, draws grayscale. If\n *     rank-3, must have depth of 1, 3 or 4. When depth of 1, draws\n * grayscale. When depth of 3, we draw with the first three components of\n * the depth dimension corresponding to r, g, b and alpha = 1. When depth of\n * 4, all four components of the depth dimension correspond to r, g, b, a.\n * @param canvas The canvas to draw to.\n *\n * @doc {heading: 'Browser', namespace:
 'browser'}\n */\nexport async function toPixels(\n    img: Tensor2D|Tensor3D|TensorLike,\n    canvas?:
HTMLCanvasElement): Promise<Uint8ClampedArray> {\n  let $img = convertToTensor(img, 'img', 'toPixels');\n  if (!(img instanceof Tensor)) {\n    // Assume int32 if user passed a native array.\n    const originalImgTensor = $img;\n    $img = cast(originalImgTensor, 'int32');\n    originalImgTensor.dispose();\n  }\n  if ($img.rank !== 2 && $img.rank !== 3) {\n    throw new Error(\n        `toPixels only supports rank 2 or 3 tensors, got rank ${$img.rank}.`);\n  }\n  const [height, width] = $img.shape.slice(0, 2);\n  const depth = $img.rank === 2 ? 1 : $img.shape[2];\n\n  if (depth > 4 || depth === 2) {\n    throw new Error(\n        `toPixels only supports depth of size `
```

+\n `1, 3 or 4 but got ${depth}`);\n }\n\n if ($img.dtype !== 'float32' && $img.dtype !== 'int32') {\n throw new Error(\n `Unsupported type for toPixels: ${$img.dtype}.` +\n ` Please use float32 or int32 tensors.`);\n }\n\n const data = await $img.data();\n const multiplier = $img.dtype === 'float32' ? 255 : 1;\n const bytes = new Uint8ClampedArray(width * height * 4);\n\n for (let i = 0; i < height * width; ++i) {\n const rgba = [0, 0, 0, 255];\n\n for (let d = 0; d < depth; d++) {\n const value = data[i * depth + d];\n\n if ($img.dtype === 'float32') {\n if (value < 0 || value > 1) {\n throw new Error(\n `Tensor values for a float32 Tensor must be in the ` +\n `range [0 - 1] but encountered ${value}.`);\n }\n } else if ($img.dtype === 'int32') {\n if (value < 0 || value > 255) {\n throw new Error(\n `Tensor values for a int32 Tensor must be in the ` +\n `range [0 - 255] but encountered ${value}.`);\n }\n }\n\n if (depth === 1) {\n rgba[0] = value * multiplier;\n rgba[1] = value * multiplier;\n rgba[2] = value * multiplier;\n } else {\n rgba[d] = value * multiplier;\n }\n }\n\n const j = i * 4;\n bytes[j + 0] = Math.round(rgba[0]);\n bytes[j + 1] = Math.round(rgba[1]);\n bytes[j + 2] = Math.round(rgba[2]);\n bytes[j + 3] = Math.round(rgba[3]);\n }\n\n if (canvas != null) {\n canvas.width = width;\n canvas.height = height;\n const ctx = canvas.getContext('2d');\n const imageData = new ImageData(bytes, width, height);\n ctx.putImageData(imageData, 0, 0);\n }\n if ($img !== img) {\n $img.dispose();\n }\n return bytes;\n}\n\nexport const fromPixels = op({fromPixels_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {TensorInfo} from '../kernel_registry';\nimport {computeStrides, sizeFromShape} from '../util';\n\n/**\n * Validate gather nd inputs.\n *\n * @param tensor The tensor contains the source values.\n * @param indices The tensor contains the indices to slice the source.\n *\n * @returns [resultShape, numUpdates, sliceSize, strides]\n */\nexport function prepareAndValidate(tensor: TensorInfo, indices: TensorInfo):\n [number[], number, number, number[]] {\n const tensorRank = tensor.shape.length;\n const indicesRank = indices.shape.length;\n if (tensorRank < 1) {\n throw new Error(\n 'tf.gatherND() expects the input to be rank 1 or higher,' +\n ` but the rank was ${tensorRank}.`);\n }\n if (indicesRank < 1) {\n throw new Error(\n 'tf.gatherND() expects the indices to be rank 1 or higher,' +\n ` but the rank was ${indicesRank}.`);\n }\n if (indices.dtype !== 'int32') {\n throw new Error(\n 'tf.gatherND() expects the indices to be int32 type,' +\n ` but the dtype was ${indices.dtype}.`);\n }\n if (indices.shape[indicesRank - 1] > tensorRank) {\n throw new Error(\n 'index innermost dimension length must be <= tensor rank; saw: ' +\n `${indices.shape[indicesRank - 1]} vs. ${tensorRank}`);\n }\n\n if (sizeFromShape(tensor.shape) === 0) {\n throw new Error(\n 'Requested more than 0 entries, but input is empty.' +\n ` Input shape: ${tensor.shape}.`);\n }\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n // The result shape is\n // indices.shape[:-1] + params.shape[indices.shape[-1]:]\n let nResult = 1;\n for (let i = 0; i < indicesShape.length - 1; ++i) {\n nResult *= indicesShape[i];\n }\n\n const inputShape = tensor.shape;\n\n const resultShape = indicesShape.slice();\n resultShape.pop();\n\n let sliceSize = 1;\n for (let i = sliceRank; i < tensorRank; ++i) {\n sliceSize *= inputShape[i];\n resultShape.push(inputShape[i]);\n }\n\n const strides =\n [...computeStrides(tensor.shape).map(stride => stride / sliceSize),\n 1].slice(0, sliceRank);\n\n return [resultShape, nResult, sliceSize, strides];\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a

```
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
 on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\nimport {TensorInfo} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {computeStrides, sizeFromShape} from '../util';\n\n/**\n * Check whether updates.shape = indices.shape[:batchDim] +\n * shape[sliceDim:]\n *\n * @param x The input tensor.\n */\nexport function validateUpdateShape(\n    shape: number[], indices: Tensor, updates: Tensor) {\n  const sliceDim = (indices.rank > 1) ? indices.shape[indices.rank - 1] : 1;\n  const batchDim = (indices.rank > 1) ? indices.rank - 1 : 1;\n\n  const shapeError = 'Must have updates.shape = indices.shape[:batchDim] + ' +\n      `shape[sliceDim:], got updates.shape: ${updates.shape}` +\n      `, indices.shape: ${indices.shape}, shape: ${shape}`
 +\n      `, sliceDim: ${sliceDim}, and batchDim: ${batchDim}.`;\n\n  if (updates.rank < batchDim) {\n    throw new Error(shapeError + ` update.rank < ${batchDim}. `);\n  }\n  if (shape.length < sliceDim + (updates.rank - batchDim)) {\n    throw new Error(\n        shapeError +\n        ` Output shape length < ${sliceDim + (updates.rank - batchDim)}`);\n  }\n  if (updates.rank !== batchDim + shape.length - sliceDim) {\n    throw new Error(\n shapeError + ` update.rank != ${batchDim + shape.length - sliceDim}`);\n  }\n  for (let d = 0; d < batchDim; ++d) {\n    if (updates.shape[d] !== indices.shape[d]) {\n      throw new Error(\n          shapeError +\n          ` updates.shape[${d}] (${updates.shape[d]}) != indices.shape[${d}] (${\n              indices.shape[d]}).`);\n    }\n  }\n  for (let d = 0; d < updates.rank - batchDim; ++d) {\n    if (updates.shape[d + batchDim] !== shape[d + sliceDim]) {\n      throw new Error(\n          shapeError +\n          ` updates.shape[${d
 + batchDim}] (${\n              updates.shape[d + batchDim]}) != shape[${d + batchDim}] (${\n              shape[d + batchDim]})`);\n    }\n  }\n}\n\nexport interface ScatterShapeInfo {\n  sliceRank: number;\n  numUpdates: number;\n  sliceSize: number;\n  strides: number[];\n  outputSize: number;\n}\n/**\n * Validate scatter nd inputs.\n *\n * @param update The tensor contains the update values.\n * @param indices The tensor contains the indices for the update values.\n * @param shape The shape of the output tensor.\n */\nexport function validateInput(\n updates: Tensor, indices: Tensor, shape: number[]) {\n  if (indices.rank < 1) {\n    throw new Error(\n 'tf.scatterND() expects the indices to be rank 1 or higher,' +\n        ` but the rank was ${indices.rank}.`);\n  }\n  if (updates.rank < 1) {\n    throw new Error(\n        'tf.scatterND() expects the updates to be rank 1 or higher,' +\n        ` but the rank was ${updates.rank}.`);\n  }\n  if (indices.dtype !== 'int32')
 {\n    throw new Error(`The dtype of 'indices' should be int32, but got dtype: ${\n        indices.dtype}`);\n  }\n  if (shape.length < 1) {\n    throw new Error(\n        `Output rank must be greater or equal to 1, but got shape: ${shape}`);\n  }\n\n  if (shape.length === 0) {\n    if (indices.size === 0) {\n      throw new Error(`Indices specified for empty output. indices shape: ${\n          indices.shape}`);\n    }\n    if (updates.size === 0) {\n      throw new Error(`Updates specified for empty output. updates shape: ${\n          updates.shape}`);\n    }\n  }\n\n validateUpdateShape(shape, indices, updates);\n}\n\n/**\n * Calculate the shape information for the output.\n *\n * @param update The tensor contains the update values.\n * @param indices The tensor contains the indices for the update values.\n * @param shape The shape of the output tensor.\n *\n * @returns ScatterShapeInfo\n */\nexport function calculateShapes(\n    updates: TensorInfo, indices: TensorInfo,\n    shape:
 number[]): ScatterShapeInfo {\n  // Calculate the number of dimensions in indices\n  const indicesRank = indices.shape.length;\n  const sliceRank = (indicesRank > 1) ? indices.shape[indicesRank - 1] : 1;\n\n  // Calculate the number of elements that make up each slice of our updated\n  // tensor. This allows us to work with flattened tensors and copy over whole\n  // slices at a time.\n  const totalNd = shape.length;\n\n  let sliceSize = 1;\n  for (let i = sliceRank; i < totalNd; ++i) {\n    sliceSize *= shape[i];\n  }\n\n  const safeSliceDim = (sliceRank < 1) ? 1 : sliceRank;\n  const numUpdates = sizeFromShape(indices.shape) / safeSliceDim;\n\n  const strides = [...computeStrides(shape.slice(0, sliceRank)), 1];\n  const outputSize = sizeFromShape(shape);\n  return {sliceRank, numUpdates, sliceSize, strides, outputSize};\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights
```

```
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
 use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {TensorInfo} from '../kernel_registry';\nimport * as util from '../util';\n\nexport type SliceInfo = {\n
nonStrided: boolean,\n  $begin: number[],\n  $end: number[],\n  $strides: number[],\n  size: number[],\n  newShape:
number[],\n  outShape: number[]\n};\n\nexport function assertParamsValid(\n    input: TensorInfo, begin: number[],
size: number[]): void {\n  const inputRank = input.shape.length;\n  util.assert(\n
   inputRank === begin.length,\n      () => `Error in slice${inputRank}D: Length of begin ${begin} must ` +\n
`match the rank of the array (${inputRank}).`);\n  util.assert(\n      inputRank === size.length,\n      () => `Error in
slice${inputRank}D: Length of size ${size} must ` +\n          `match the rank of the array (${inputRank}).`);\n\n  for
(let i = 0; i < inputRank; ++i) {\n    util.assert(\n        begin[i] + size[i] <= input.shape[i],\n        () => `Error in
slice${inputRank}D: begin[${i}] + size[${i}] ` +\n            `(${begin[i] + size[i]}) would overflow input.shape[${i}]
(${\n                input.shape[i]})`);\n  }\n}\n\n/** Converts a binary mask to an array of axes. Used in stridedSlice().
*/\nexport function maskToAxes(mask: number): number[] {\n  const axes = [];\n  let axis = 0;\n  while (mask > 0)
{\n    if (mask & 1) {\n      axes.push(axis);\n    }\n    mask /= 2;\n    axis++;\n  }\n  return axes;\n}\n\n/** Computes
the output shape given the strided
 slice params. */\nexport function computeOutShape(\n    begin: number[], end: number[], strides: number[]):
number[] {\n  const size = [];\n  for (let axis = 0; axis < begin.length; axis++) {\n    size[axis] = Math.ceil((end[axis]
- begin[axis]) / strides[axis]);\n  }\n  return size;\n}\n\n// Creates full selection at the elided dimensions. If the
dimension matches\n// the ellipsis mask, override the current stride value. Otherwise, insert.\nexport function
stridesWithElidedDims(\n    strides: number[], ellipsisInsertionIndex: number, numElidedAxes: number,\n
inputShape: number[]): number[] {\n  const newStrides = [...strides];\n  for (let i = newStrides.length; i <
inputShape.length; i++) {\n    newStrides.push(1);\n  }\n  for (let i = 0; i < numElidedAxes; i++) {\n    if (i === 0)
{\n      newStrides[ellipsisInsertionIndex] = 1;\n    } else {\n      newStrides.splice(\n          ellipsisInsertionIndex, 0 /*
num elements to delete */,\n          1 /* element to add */);\n      newStrides.pop();\n
   }\n  }\n  return newStrides;\n}\n\nfunction unnormalizeAxis(\n    ellipsisInsertionIndex: number, numElidedAxes:
number,\n    normalizedAxis: number): number {\n  if (normalizedAxis <= ellipsisInsertionIndex) {\n    return
normalizedAxis;\n  }\n\n  return normalizedAxis - (numElidedAxes - 1);\n}\n\nfunction
getElidedAxes(numElidedAxes: number, ellipsisInsertionIndex: number) {\n  const elidedAxes = [];\n  for (let i = 0;
i < numElidedAxes; i++) {\n    elidedAxes.push(ellipsisInsertionIndex + i);\n  }\n  return elidedAxes;\n}\n\n//
Normalize the start, end and strides.\nexport function getNormalizedAxes(\n    inputShape: number[], ellipsisAxes:
number[], numInterpolatedAxes: number,\n    begin: number[], end: number[], strides: number[], beginMask:
number,\n    endMask: number,\n    ellipsisMask: number): {begin: number[], end: number[], strides: number[]} {\n
const inputRank = inputShape.length;\n  let normalizedBegin = new Array(inputRank),\n      normalizedEnd =
 new Array(inputRank),\n      normalizedStrides = new Array(inputRank);\n  if (ellipsisAxes.length &&
numInterpolatedAxes > 0) {\n    const fullIndex = ellipsisAxes[0];\n\n    // The ellipsis applies to the masked index
as well as any dimensions\n    // that are interpolated.\n    const numElidedAxes = numInterpolatedAxes + 1;\n
normalizedBegin = startIndicesWithElidedDims(\n        beginMask, fullIndex, numElidedAxes, begin,
inputShape);\n    normalizedEnd = stopIndicesWithElidedDims(\n        endMask, fullIndex, numElidedAxes, end,
inputShape);\n    normalizedStrides =\n        stridesWithElidedDims(strides, fullIndex, numElidedAxes,
inputShape);\n  } else {\n    for (let axis = 0; axis < inputRank; axis++) {\n      normalizedBegin[axis] =
startForAxis(\n          beginMask, begin, strides, inputShape, axis, ellipsisMask);\n      normalizedEnd[axis] =\n
stopForAxis(endMask, end, strides, inputShape, axis, ellipsisMask);\n      normalizedStrides[axis] =
stridesForAxis(strides,
```

```
 axis, ellipsisMask);\n    }\n  }\n\n  return {\n    begin: normalizedBegin,\n    end: normalizedEnd,\n    strides: normalizedStrides\n  };\n}\n\n// Creates full selection at the elided dimensions. If the dimension matches\n// the ellipsis mask, override the current start value. Otherwise, insert.\nexport function startIndicesWithElidedDims(\n beginMask: number, ellipsisInsertionIndex: number, numElidedAxes: number,\n    originalBegin: number[], inputShape: number[]): number[] {\n  const newIndices = [...inputShape];\n  const elidedAxes = getElidedAxes(numElidedAxes, ellipsisInsertionIndex);\n\n  for (let axis = 0; axis < newIndices.length; axis++) {\n if (elidedAxes.indexOf(axis) > -1) {\n      newIndices[axis] = 0;\n    } else {\n      const originalAxis =\n unnormalizeAxis(ellipsisInsertionIndex, numElidedAxes, axis);\n      let originalValue = originalBegin[originalAxis];\n      if (beginMask & 1 << originalAxis) {\n        originalValue = 0;\n      }\n\n newIndices[axis]
 = originalValue;\n    }\n  }\n  return newIndices;\n}\n\n// Creates full selection at the elided dimensions. If the dimension matches\n// the ellipsis mask, override the current stop value. Otherwise, insert.\nexport function stopIndicesWithElidedDims(\n    endMask: number, ellipsisInsertionIndex: number, numElidedAxes: number,\n originalEnd: number[], inputShape: number[]): number[] {\n  const newIndices = [...inputShape];\n  const elidedAxes = getElidedAxes(numElidedAxes, ellipsisInsertionIndex);\n\n  for (let axis = 0; axis < newIndices.length; axis++) {\n    if (elidedAxes.indexOf(axis) > -1) {\n      newIndices[axis] = Number.MAX_SAFE_INTEGER;\n    } else {\n      const originalAxis =\n unnormalizeAxis(ellipsisInsertionIndex, numElidedAxes, axis);\n      let originalValue = originalEnd[originalAxis];\n      if (endMask & 1 << originalAxis) {\n        originalValue = Number.MAX_SAFE_INTEGER;\n      }\n      newIndices[axis] = originalValue;\n    }\n  }\n\n
  for (let i = 0; i < newIndices.length; i++) {\n    // Handle negative indices\n    const axisSize = inputShape[i];\n    if (newIndices[i] < 0) {\n      newIndices[i] += axisSize;\n    }\n    newIndices[i] = util.clamp(0, newIndices[i], inputShape[i]);\n  }\n  return newIndices;\n}\n\nexport function stridesForAxis(\n    strides: number[], axis: number, ellipsisMask: number): number {\n  let stride = strides[axis];\n  if (ellipsisMask & (1 << axis) || stride == null) {\n stride = 1;\n  }\n\n  return stride;\n}\n\nexport function startForAxis(\n    beginMask: number, startIndices: number[], strides: number[],\n    inputShape: number[], axis: number, ellipsisMask: number): number {\n  // Begin with the specified index\n  let start = startIndices[axis];\n  const stride = strides[axis] || 1;\n\n  // Check the axis bit from right of masked axes, or the begin index is not set\n  // for the axis.\n  if (beginMask & 1 << axis || ellipsisMask & 1 << axis || start == null) {\n    if (stride
 > 0) {\n      // Forward iteration - use the first element. These values will get\n      // clamped below (Note: We could have set them to 0 and axis_size-1, but\n      // use lowest() and max() to maintain symmetry with StopForAxis())\n start = Number.MIN_SAFE_INTEGER;\n    } else {\n      // Backward iteration - use the last element.\n      start = Number.MAX_SAFE_INTEGER;\n    }\n  }\n\n  // Handle negative indices\n  const axisSize = inputShape[axis];\n  if (start < 0) {\n    start += axisSize;\n  }\n\n  // Clamping\n  start = util.clamp(0, start, axisSize - 1);\n\n  return start;\n}\n\nexport function stopForAxis(\n    endMask: number, stopIndices: number[], strides: number[],\n inputShape: number[], axis: number, ellipsisMask: number): number {\n  // Begin with the specified index\n  let stop = stopIndices[axis];\n  const stride = strides[axis] || 1;\n\n  // Check the axis bit from right of masked axes, or if the stop index is not\n  // set for this axis.\n  if (endMask &
 (1 << axis) || ellipsisMask & (1 << axis) || stop == null) {\n    if (stride > 0) {\n      // Forward iteration - use the last element. These values will get\n      // clamped below\n      stop = Number.MAX_SAFE_INTEGER;\n    } else {\n      // Backward iteration - use the first element.\n      stop = Number.MIN_SAFE_INTEGER;\n    }\n  }\n\n  // Handle negative indices\n  const axisSize = inputShape[axis];\n  if (stop < 0) {\n    stop += axisSize;\n  }\n\n  // Clamping\n  // Because the end index points one past the last element, we need slightly\n  // different clamping ranges depending on the direction.\n  if (stride > 0) {\n    // Forward iteration\n    stop = util.clamp(0, stop, axisSize);\n  } else {\n    // Backward iteration\n    stop = util.clamp(-1, stop, axisSize - 1);\n  }\n\n  return stop;\n}\n\n/**\n * Returns true if the slice occupies a continous set of elements in the\n * 'flat' space.\n */\nexport function isSliceContinous(\n    shape: number[], begin: number[], size:
```

number[]) {\n // Index of the first axis that has size > 1.\n let firstNonOneAxis = size.length;\n for (let i = 0; i < size.length; i++) {\n   if (size[i] > 1) {\n   firstNonOneAxis = i;\n   break;\n   }\n }\n\n for (let i = firstNonOneAxis + 1; i < size.length; i++) {\n   if (begin[i] > 0 || size[i] !== shape[i]) {\n   return false;\n   }\n }\n return true;\n}\n\nexport function computeFlatOffset(begin: number[], strides: number[]): number {\n let flatOffset = begin.length > 0 ? begin[begin.length - 1] : 1;\n for (let i = 0; i < begin.length - 1; i++) {\n   flatOffset += begin[i] * strides[i];\n }\n return flatOffset;\n}\n\nexport function parseSliceParams(\n   x: TensorInfo, begin: number|number[], size?: number|number[]) {\n // The following logic allows for more ergonomic calls.\n let begin_: number[];\n const xRank = x.shape.length;\n if (typeof begin === 'number') {\n   begin_ = [begin, ...new Array(xRank - 1).fill(0)];\n } else if (begin.length < xRank) {\n   begin_ = begin.concat(new Array(xRank - begin.length).fill(0));\n } else {\n   begin_ = begin.slice();\n }\n begin_.forEach(d => {\n   util.assert(\n   d !== -1, () => 'slice() does not support negative begin indexing.');\n });\n let size_: number[];\n if (size == null) {\n   size_ = new Array(xRank).fill(-1);\n } else if (typeof size === 'number') {\n   size_ = [size, ...new Array(xRank - 1).fill(-1)];\n } else if (size.length < xRank) {\n   size_ = size.concat(new Array(xRank - size.length).fill(-1));\n } else {\n   size_ = size;\n }\n size_ = size_.map((d, i) => {\n   if (d >= 0) {\n   return d;\n   } else {\n   util.assert(\n   d === -1,\n   () => `Negative size values should be exactly -1 but got ` +\n   `${d} for the slice() size at index ${i}.`);\n   return x.shape[i] - begin_[i];\n   }\n });\n return [begin_, size_];\n}\n\nexport function sliceInfo(\n   xShape: number[], begin: number[], end: number[],
 strides: number[],\n   beginMask: number, endMask: number, ellipsisMask: number,\n   newAxisMask: number, shrinkAxisMask: number): SliceInfo {\n // make a copy because it may be modified further down.\n let $begin = begin.slice();\n let $end = end.slice();\n let $strides = strides;\n\n if (strides == null) {\n $strides = new Array($begin.length);\n }\n\n const ellipsisAxes = maskToAxes(ellipsisMask);\n if (ellipsisAxes.length > 1) {\n   throw new Error('Multiple ellipses in slice is not allowed.');\n }\n\n if (ellipsisMask !== 0 && newAxisMask !== 0) {\n   throw new Error(\n   'Using both ellipsisMask and newAxisMask is not yet supported.');\n }\n\n if (ellipsisMask !== 0 && shrinkAxisMask !== 0) {\n   throw new Error(\n   'Using both ellipsisMask and shrinkAxisMask is not yet supported.');\n }\n\n const numInterpolatedAxes = xShape.length - $begin.length;\n\n // Expand the dims of x based on the newAxisMask.\n const expandAxes = maskToAxes(newAxisMask);\n
  const newShape = xShape.slice();\n expandAxes.forEach(axis => {\n $begin[axis] = 0;\n $end[axis] = 1;\n   newShape.splice(axis, 0, 1);\n });\n\n const {\n   begin: normalizedBegin,\n   end: normalizedEnd,\n   strides: normalizedStrides\n } =\n   getNormalizedAxes(\n   newShape, ellipsisAxes, numInterpolatedAxes, $begin, $end, $strides,\n   beginMask, endMask, ellipsisMask);\n $begin = normalizedBegin;\n $end = normalizedEnd;\n $strides = normalizedStrides;\n\n const shrinkAxes = maskToAxes(shrinkAxisMask);\n // Adjust the ends based on the shrink mask.\n shrinkAxes.forEach(axis => {\n $end[axis] = $begin[axis] + 1;\n $strides[axis] = 1;\n });\n\n // Figure out the output shape.\n const size = computeOutShape($begin, $end, $strides);\n // Remove the axes based on shrinkMask.\n const outShape = size.filter((_, axis) => shrinkAxes.indexOf(axis) === -1);\n\n const nonStrided = $strides.every(v => v === 1);\n\n return {nonStrided, $begin,
 $end, $strides, size, newShape, outShape};\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {assert} from './util';\n\n/**\n * Types to support JSON-esque data structures internally.\n *\n * Internally ConfigDict's use camelCase keys and values where the\n * values are class names to be instantiated. On

the python side, these\n * will be snake_case. Internally we allow Enums into the values for better\n * type safety, but these need to be converted to raw primitives (usually\n * strings) for round-tripping with python.\n *\n * toConfig returns the TS-friendly representation. model.toJSON() returns\n * the pythonic version as that's the portable format. If you need to\n * python-ify a non-model level toConfig output, you'll need to use a\n * convertTsToPythonic from serialization_utils in -Layers.\n *\n */\nexport declare type ConfigDictValue =\n boolean | number | string | null | ConfigDictArray | ConfigDict;\nexport declare interface ConfigDict {\n [key: string]: ConfigDictValue;\n}\nexport declare interface ConfigDictArray extends Array<ConfigDictValue> {}\n\n/**\n * Type to represent the class-type of Serializable objects.\n *\n * Ie the class prototype with access to the constructor and any\n * static members/methods. Instance methods are not listed here.\n *\n * Source for this idea: https://stackoverflow.com/a/43607255\n */\nexport declare type SerializableConstructor<T extends Serializable> = {\n // tslint:disable-next-line:no-any\n new (...args: any[]): T; className: string; fromConfig: FromConfigMethod<T>;\n};\nexport declare type FromConfigMethod<T extends Serializable> =\n (cls: SerializableConstructor<T>, config: ConfigDict) => T;\n\n/**\n * Serializable defines the serialization contract.\n *\n * TFJS requires serializable classes to return their className when asked\n * to avoid issues with minification.\n */\nexport abstract class Serializable {\n /**\n * Return the class name for this class to use in serialization contexts.\n *\n * Generally speaking this will be the same thing that constructor.name\n * would have returned. However, the class name needs to be robust\n * against minification for serialization/deserialization to work properly.\n *\n * There's also places such as initializers.VarianceScaling, where\n * implementation details between different languages led to different\n * class hierarchies and a non-leaf node is used for serialization purposes.\n */\n getClassName(): string {\n return (this.constructor as SerializableConstructor<Serializable>)\n .className;\n }\n\n /**\n * Return all the non-weight state needed to serialize this object.\n */\n abstract getConfig(): ConfigDict;\n\n /**\n * Creates an instance of T from a ConfigDict.\n *\n * This works for most descendants of serializable. A few need to\n * provide special handling.\n * @param cls A Constructor for the class to instantiate.\n * @param config The Configuration for the object.\n */\n /** @nocollapse */\n static fromConfig<T extends Serializable>(\n cls: SerializableConstructor<T>, config: ConfigDict): T {\n return new cls(config);\n }\n}\n\n/**\n * Maps string keys to class constructors.\n *\n * Used during (de)serialization from the cross-language JSON format, which\n * requires the class name in the serialization format matches the class\n * names as used in Python, should it exist.\n */\nexport class SerializationMap {\n private static instance: SerializationMap;\n classNameMap: {\n [className: string]:\n [SerializableConstructor<Serializable>, FromConfigMethod<Serializable>]\n };\n\n private constructor() {\n this.classNameMap = {};\n }\n\n /**\n * Returns the singleton instance of the map.\n */\n static getMap(): SerializationMap {\n if (SerializationMap.instance == null) {\n SerializationMap.instance = new SerializationMap();\n }\n return SerializationMap.instance;\n }\n\n /**\n * Registers the class as serializable.\n */\n static register<T extends Serializable>(cls: SerializableConstructor<T>) {\n SerializationMap.getMap().classNameMap[cls.className] =\n [cls, cls.fromConfig];\n }\n}\n\n/**\n * Register a class with the serialization map of TensorFlow.js.\n *\n * This is often used for registering custom Layers, so they can be\n * serialized and deserialized.\n *\n * Example:\n *\n * ```js\n * class MyCustomLayer extends tf.layers.Layer {\n * static className = 'MyCustomLayer';\n *\n * constructor(config) {\n * super(config);\n * }\n * }\n * tf.serialization.registerClass(MyCustomLayer);\n * ```\n *\n * @param cls The class to be registered. It must have a public static member\n * called `className` defined and the value must be a non-empty string.\n *\n * @doc {heading: 'Models', subheading: 'Serialization', ignoreCI: true}\n */\nexport function registerClass<T extends Serializable>(\n cls: SerializableConstructor<T>) {\n assert(\n cls.className != null,\n () => `Class being registered does not have the static className ` +\n `property defined.`);\n assert(\n typeof cls.className === 'string',\n () => `className is required to be a string, but got type ` +\n typeof cls.className);\n assert(\n cls.className.length > 0,\n () => `Class being registered has an empty-string as its className, ` +\n `which is disallowed.`);\n\n SerializationMap.register(cls);\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n *

Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from './engine';\nimport {inferShape} from './tensor_util_env';\nimport {RecursiveArray, TensorLike,
TypedArray} from './types';\nimport {arraysEqual, encodeString, flatten, isString, isTypedArray} from './util';\n\nconst TEST_EPSILON_FLOAT32 = 1e-3;\nexport const TEST_EPSILON_FLOAT16 = 1e-1;\n\nexport function expectArraysClose(\n actual: TypedArray|number|RecursiveArray<number>,\n expected: TypedArray|number|RecursiveArray<number>, epsilon?: number) {\n if (epsilon == null) {\n epsilon = testEpsilon();\n }\n return expectArraysPredicate(\n actual, expected, (a, b) => areClose(a as number, b as number, epsilon));\n}\n\nexport function testEpsilon() {\n return ENGINE.backend.floatPrecision() === 32 ? TEST_EPSILON_FLOAT32 :\n TEST_EPSILON_FLOAT16;\n}\n\nfunction expectArraysPredicate(\n actual: TensorLike, expected: TensorLike,\n predicate: (a: {}, b: {}) => boolean) {\n let checkClassType = true;\n if (isTypedArray(actual) || isTypedArray(expected)) {\n checkClassType = false;\n }\n if (isTypedArray(actual)
&& isTypedArray(expected)) {\n checkClassType = true;\n }\n if (checkClassType) {\n const aType = actual.constructor.name;\n const bType = expected.constructor.name;\n\n if (aType !== bType) {\n throw new Error(\n `Arrays are of different type. Actual: ${aType}. ` +\n `Expected: ${bType}`);\n }\n }\n\n if (Array.isArray(actual) && Array.isArray(expected)) {\n const actualShape = inferShape(actual);\n const expectedShape = inferShape(expected);\n if (!arraysEqual(actualShape, expectedShape)) {\n throw new Error(\n `Arrays have different shapes. ` +\n `Actual: [${actualShape}]. Expected: [${expectedShape}]`);\n }\n }\n\n const actualFlat =\n isTypedArray(actual) ? actual : flatten(actual as RecursiveArray<number>);\n const expectedFlat = isTypedArray(expected) ?\n expected :\n flatten(expected as RecursiveArray<number>);\n\n if (actualFlat.length !== expectedFlat.length) {\n throw
new Error(\n `Arrays have different lengths actual: ${actualFlat.length} vs ` +\n `expected: ${expectedFlat.length}.\\n` +\n `Actual: ${actualFlat}.\\n` +\n `Expected: ${expectedFlat}.`);\n }\n for (let i = 0; i < expectedFlat.length; ++i) {\n const a = actualFlat[i];\n const e = expectedFlat[i];\n\n if (!predicate(a, e)) {\n throw new Error(\n `Arrays differ: actual[${i}] = ${a}, expected[${i}] = ${e}.\\n` +\n `Actual: ${actualFlat}.\\n` +\n `Expected: ${expectedFlat}.`);\n }\n }\n}\n\nexport interface DoneFn {\n (): void;\n fail: (message?: Error|string) => void;\n}\n\nexport function expectPromiseToFail(fn: () => Promise<{}>, done: DoneFn): void {\n fn().then(() => done.fail(), () => done());\n}\n\nexport function expectArraysEqual(actual: TensorLike, expected: TensorLike) {\n const exp = typeof expected === 'string' || typeof expected === 'number' ||\n typeof expected === 'boolean' ?\n [expected] as number[] :\n expected as number[];\n if (isString(actual) || isString((actual as string[])[0]) ||\n isString(expected) || isString((expected as string[])[0])) {\n // tslint:disable-next-line: triple-equals\n return expectArraysPredicate(actual, exp, (a, b) => a == b);\n }\n return expectArraysPredicate(\n actual, expected, (a, b) => areClose(a as number, b as number, 0));\n}\n\nexport function expectNumbersClose(a: number, e: number, epsilon?: number) {\n if (epsilon == null) {\n epsilon = testEpsilon();\n }\n if (!areClose(a, e, epsilon)) {\n throw new Error(`Numbers differ: actual === ${a}, expected === ${e}`);\n }\n}\n\nfunction areClose(a: number, e: number, epsilon: number): boolean {\n if (!isFinite(a) && !isFinite(e)) {\n return true;\n }\n if (isNaN(a) || isNaN(e) || Math.abs(a - e) > epsilon) {\n return false;\n }\n return true;\n}\n\nexport function expectValuesInRange(\n actual: TypedArray|number[], low: number,
high: number) {\n for (let i = 0; i < actual.length; i++) {\n if (actual[i] < low || actual[i] > high) {\n throw new Error(\n `Value out of range:${actual[i]} low: ${low}, high: ${high}`);\n }\n }\n}\n\nexport function

expectArrayBuffersEqual(\n   actual: ArrayBuffer, expected: ArrayBuffer) {\n // Safari & Jasmine don't like comparing ArrayBuffers directly. Wrapping in\n // a Float32Array solves this issue.\n expect(new Float32Array(actual)).toEqual(new Float32Array(expected));\n}\n\n/** Encodes strings into utf-8 bytes. */\nexport function encodeStrings(a: RecursiveArray<{}>):\n   RecursiveArray<Uint8Array> {\n for (let i = 0; i < (a as Array<{}>).length; i++) {\n   const val = a[i];\n   if (Array.isArray(val)) {\n   encodeStrings(val);\n   } else {\n   a[i] = encodeString(val as string);\n   }\n }\n return a as RecursiveArray<Uint8Array>;\n}\n","/** @license See the LICENSE file. */\n\n// This code is auto-generated, do not modify this file!\nconst
 version = '3.1.0';\nexport {version};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelBackend} from './backends/backend';\nimport {ENGINE, Engine, MemoryInfo, ProfileInfo, ScopeFn, TimingInfo} from './engine';\nimport {env} from './environment';\n\nimport {Platform} from './platforms/platform';\nimport
 {setDeprecationWarningFn, Tensor} from './tensor';\nimport {TensorContainer} from './tensor_types';\nimport {getTensorsInContainer} from './tensor_util';\n\n/**\n * Enables production mode which disables correctness checks in favor of\n * performance.\n *\n * @doc {heading: 'Environment'}\n */\nexport function enableProdMode(): void {\n env().set('PROD', true);\n}\n\n/**\n * Enables debug mode which will log information about all executed kernels:\n * the elapsed time of the kernel execution, as well as the rank, shape, and\n * size of the output tensor.\n *\n * Debug mode will significantly slow down your application as it will\n * download the result of every operation to the CPU. This should not be used in\n * production. Debug mode does not affect the timing information of the kernel\n * execution as we do not measure download time in the kernel execution time.\n *\n * See also: `tf.profile`, `tf.memory`.\n *\n * @doc {heading: 'Environment'}\n */\nexport function enableDebugMode():
 void {\n env().set('DEBUG', true);\n}\n\n/** Globally disables deprecation warnings */\nexport function disableDeprecationWarnings(): void {\n env().set('DEPRECATION_WARNINGS_ENABLED', false);\n console.warn(`TensorFlow.js deprecation warnings have been disabled.`);\n}\n\n/** Warn users about deprecated functionality. */\nexport function deprecationWarn(msg: string) {\n if (env().getBool('DEPRECATION_WARNINGS_ENABLED')) {\n   console.warn(\n   msg + ' You can disable deprecation warnings with ' +\n   'tf.disableDeprecationWarnings().');\n }\n}\nsetDeprecationWarningFn(deprecationWarn);\n\n/**\n * Dispose all variables kept in backend engine.\n *\n * @doc {heading: 'Environment'}\n */\nexport function disposeVariables(): void {\n ENGINE.disposeVariables();\n}\n\n/**\n * It returns the global engine that keeps track of all tensors and backends.\n *\n * @doc {heading: 'Environment'}\n */\nexport function engine(): Engine {\n return ENGINE;\n}\n\n/**\n * Returns memory
 info at the current time in the program. The result is an\n * object with the following properties:\n *\n * - `numBytes`: Number of bytes allocated (undisposed) at this time.\n * - `numTensors`: Number of unique tensors allocated.\n * - `numDataBuffers`: Number of unique data buffers allocated\n *   (undisposed) at this time, which is the number of tensors\n *   (e.g. `a.reshape(newShape)` makes a new Tensor that shares the same\n *   data buffer with `a`).\n * - `unreliable`: True if the memory usage is unreliable. See `reasons` when\n *   `unreliable` is true.\n * - `reasons`: `string[]`, reasons why the memory is unreliable, present if\n *   `unreliable` is true.\n *\n * WebGL Properties:\n * - `numBytesInGPU`: Number of bytes allocated (undisposed) in the GPU only at\n *   this time.\n *\n * @doc {heading: 'Performance', subheading: 'Memory'}\n */\nexport function memory(): MemoryInfo {\n return ENGINE.memory();\n}\n\n/**\n * Executes the provided function `f()` and returns

a promise that resolves\n * with information about the function's memory use:\n * - `newBytes`: the number of new bytes allocated\n * - `newTensors`: the number of new tensors created\n * - `peakBytes`: the peak number of bytes allocated\n * - `kernels`: an array of objects for each kernel involved that reports\n * their input and output shapes, number of bytes used, and number of new\n * tensors created.\n * - `kernelNames`: an array of unique strings with just the names of the\n * kernels in the `kernels` array.\n *\n * ```js\n * const profile = await tf.profile(() => {\n * const x = tf.tensor1d([1, 2, 3]);\n * let x2 = x.square();\n * x2.dispose();\n * x2 = x.square();\n * x2.dispose();\n * return x;\n * });\n *\n * console.log(`newBytes: ${profile.newBytes}`);\n * console.log(`newTensors: ${profile.newTensors}`);\n * console.log(`byte usage over all kernels: ${profile.kernels.map(k =>\n * k.totalBytesSnapshot)}`);\n * ```\n *\n *\n * @doc {heading: 'Performance', subheading: 'Profile'}\n */\nexport function profile(f: () => (TensorContainer | Promise<TensorContainer>)):\n Promise<ProfileInfo> {\n return ENGINE.profile(f);\n}\n\n/**\n * Executes the provided function `fn` and after it is executed, cleans up all\n * intermediate tensors allocated by `fn` except those returned by `fn`.\n * `fn` must not return a Promise (async functions not allowed). The returned\n * result can be a complex object.\n *\n * Using this method helps avoid memory leaks. In general, wrap calls to\n * operations in `tf.tidy` for automatic memory cleanup.\n *\n * NOTE: Variables do *not* get cleaned up when inside a tidy(). If you want to\n * dispose variables, please use `tf.disposeVariables` or call dispose()\n * directly on variables.\n *\n * ```js\n * // y = 2 ^ 2 + 1\n * const y = tf.tidy(() => {\n * // a, b, and one will be cleaned up when the tidy ends.\n * const one = tf.scalar(1);\n * const a = tf.scalar(2);\n * const b = a.square();\n *\n * console.log('numTensors (in tidy): ' + tf.memory().numTensors);\n *\n * // The value returned inside the tidy function will return\n * // through the tidy, in this case to the variable y.\n * return b.add(one);\n * });\n *\n * console.log('numTensors (outside tidy): ' + tf.memory().numTensors);\n * y.print();\n * ```\n *\n * @param nameOrFn The name of the closure, or the function to execute.\n *   If a name is provided, the 2nd argument should be the function.\n *   If debug mode is on, the timing and the memory usage of the function\n *   will be tracked and displayed on the console using the provided name.\n * @param fn The function to execute.\n *\n * @doc {heading: 'Performance', subheading: 'Memory'}\n */\nexport function tidy<T extends TensorContainer>(\n nameOrFn: string|ScopeFn<T>, fn?: ScopeFn<T>): T {\n return ENGINE.tidy(nameOrFn, fn);\n}\n\n/**\n * Disposes any `tf.Tensor`s found within the provided object.\n *\n * @param container an object that may be a `tf.Tensor`
 or may directly\n *   contain `tf.Tensor`s, such as a `Tensor[]` or `{key: Tensor, ...}`. If\n *   the object is not a `tf.Tensor` or does not contain `Tensors`, nothing\n *   happens. In general it is safe to pass any object here, except that\n *   `Promise`s are not supported.\n *\n * @doc {heading: 'Performance', subheading: 'Memory'}\n */\nexport function dispose(container: TensorContainer) {\n const tensors = getTensorsInContainer(container);\n tensors.forEach(tensor => tensor.dispose());\n}\n\n/**\n * Keeps a `tf.Tensor` generated inside a `tf.tidy` from being disposed\n * automatically.\n *\n * ```js\n * let b;\n * const y = tf.tidy(() => {\n * const one = tf.scalar(1);\n * const a = tf.scalar(2);\n *\n * // b will not be cleaned up by the tidy. a and one will be cleaned up\n * // when the tidy ends.\n * b = tf.keep(a.square());\n *\n * console.log('numTensors (in tidy): ' + tf.memory().numTensors);\n *\n * // The value returned inside the tidy function
 will return\n * // through the tidy, in this case to the variable y.\n * return b.add(one);\n * });\n *\n * console.log('numTensors (outside tidy): ' + tf.memory().numTensors);\n * console.log('y:');\n * y.print();\n * console.log('b:');\n * b.print();\n * ```\n *\n * @param result The tensor to keep from being disposed.\n *\n * @doc {heading: 'Performance', subheading: 'Memory'}\n */\nexport function keep<T extends Tensor>(result: T): T {\n return ENGINE.keep(result);\n}\n\n/**\n * Executes `f()` and returns a promise that resolves with timing\n * information.\n *\n * The result is an object with the following properties:\n *\n * - `wallMs`: Wall execution time.\n * - `kernelMs`: Kernel execution time, ignoring data transfer. If using the\n * WebGL backend and the query timer extension is not available, this will\n * return an error object.\n * - On `WebGL` The following additional properties exist:\n * - `uploadWaitMs`: CPU blocking time on texture uploads.\n * - `downloadWaitMs`:
 CPU blocking time on texture downloads (readPixels).\n *\n * ```js\n * const x = tf.randomNormal([20, 20]);\n * const time = await tf.time(() => x.matMul(x));\n *\n * console.log(`kernelMs: ${time.kernelMs}, wallTimeMs: ${time.wallMs}`);\n * ```\n *\n * @param f The function to execute and time.\n *\n * @doc {heading:

'Performance', subheading: 'Timing'}\n */\nexport function time(f: () => void): Promise<TimingInfo> {\n return ENGINE.time(f);\n}\n\n/**\n * Sets the backend (cpu, webgl, wasm, etc) responsible for creating tensors and\n * executing operations on those tensors. Returns a promise that resolves\n * to a boolean if the backend initialization was successful.\n *\n * Note this disposes the current backend, if any, as well as any tensors\n * associated with it. A new backend is initialized, even if it is of the\n * same type as the previous one.\n *\n * @param backendName The name of the backend. Currently supports\n *   `'webgl'|'cpu'` in the browser, `'tensorflow'`
 under node.js\n *   (requires tfjs-node), and `'wasm'` (requires tfjs-backend-wasm).\n *\n * @doc {heading: 'Backends'}\n */\nexport function setBackend(backendName: string): Promise<boolean> {\n return ENGINE.setBackend(backendName);\n}\n\n/**\n * Returns a promise that resolves when the currently selected backend (or the\n * highest priority one) has initialized. Await this promise when you are using\n * a backend that has async initialization.\n *\n * @doc {heading: 'Backends'}\n */\nexport function ready(): Promise<void> {\n return ENGINE.ready();\n}\n\n/**\n * Returns the current backend name (cpu, webgl, etc). The backend is\n * responsible for creating tensors and executing operations on those tensors.\n *\n * @doc {heading: 'Backends'}\n */\nexport function getBackend(): string {\n return ENGINE.backendName;\n}\n\n/**\n * Removes a backend and the registered factory.\n *\n * @doc {heading: 'Backends'}\n */\nexport function removeBackend(name: string): void {\n ENGINE.removeBackend(name);\n}\n\n/**\n
 * Finds the backend registered under the provided name. Returns null if the\n * name is not in the registry, or the registration hasn't finished yet.\n */\nexport function findBackend(name: string): KernelBackend {\n return ENGINE.findBackend(name);\n}\n\n/**\n * Finds the backend factory registered under the provided name. Returns a\n * function that produces a new backend when called. Returns null if the name\n * is not in the registry.\n */\nexport function findBackendFactory(name: string): () =>\n   KernelBackend | Promise<KernelBackend> {\n return ENGINE.findBackendFactory(name);\n}\n\n/**\n * Registers a global backend. The registration should happen when importing\n * a module file (e.g. when importing `backend_webgl.ts`), and is used for\n * modular builds (e.g. custom tfjs bundle with only webgl support).\n *\n * @param factory The backend factory function. When called, it should\n * return a backend instance, or a promise of an instance.\n *
 @param priority The priority of the backend (higher = more important).\n *   In case multiple backends are registered, the priority is used to find\n *   the best backend. Defaults to 1.\n * @return False if there is already a registered backend under this name, true\n *   if not.\n *\n * @doc {heading: 'Backends'}\n */\nexport function registerBackend(\n   name: string, factory: () => KernelBackend | Promise<KernelBackend>,\n   priority = 1): boolean {\n return ENGINE.registerBackend(name, factory, priority);\n}\n\n/**\n * Gets the current backend. If no backends have been initialized, this will\n * attempt to initialize the best backend. Will throw an error if the highest\n * priority backend has async initialization, in which case, you should call\n * 'await tf.ready()' before running other code.\n *\n * @doc {heading: 'Backends'}\n */\nexport function backend(): KernelBackend {\n return ENGINE.backend;\n}\n\n/**\n * Sets the global platform.\n *\n * @param platformName The
 name of this platform.\n * @param platform A platform implementation.\n */\nexport function setPlatform(platformName: string, platform: Platform) {\n env().setPlatform(platformName, platform);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
*/\nimport {ENGINE} from '../engine';\nimport {Add, AddInputs} from '../kernel_names';\nimport
 {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Adds two `tf.Tensor`s element-wise, A + B. Supports broadcasting.\n *\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3, 4]);\n * const b = tf.tensor1d([10, 20, 30, 40]);\n *\n * a.add(b).print(); // or

tf.add(a, b)\n * ```\n *\n * ```js\n * // Broadcast add a with b.\n * const a = tf.scalar(5);\n * const b = tf.tensor1d([10, 20, 30, 40]);\n *\n * a.add(b).print(); // or tf.add(a, b)\n * ```\n * @param a The first `tf.Tensor` to add.\n * @param b The second `tf.Tensor` to add. Must have the same type as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction add_<T extends Tensor>(a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'add');\n let $b =
 convertToTensor(b, 'b', 'add');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: AddInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Add, inputs as {} as NamedTensorMap);\n}\n\nexport const add = op({add_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {FloorDiv,
 FloorDivInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Divides two `tf.Tensor`s element-wise, A / B. Supports broadcasting.\n * The result is rounded with floor function.\n *\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 9, 16]);\n * const b = tf.tensor1d([1, 2, 3, 4]);\n *\n * a.floorDiv(b).print(); // or tf.div(a, b)\n * ```\n *\n * ```js\n * // Broadcast div a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(2);\n *\n * a.floorDiv(b).print(); // or tf.floorDiv(a, b)\n * ```\n *\n * @param a The first tensor as the numerator.\n * @param b The second tensor as the denominator. Must have the same dtype as\n * `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction floorDiv_<T extends
 Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'floorDiv');\n let $b = convertToTensor(b, 'b', 'floorDiv');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: FloorDivInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(FloorDiv, inputs as {} as NamedTensorMap);\n}\n\nexport const floorDiv = op({floorDiv_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
 the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {RealDiv, RealDivInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {floorDiv} from './floorDiv';\nimport {op} from './operation';\n\n/**\n * Divides two `tf.Tensor`s element-wise, A / B. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 9, 16]);\n * const b = tf.tensor1d([1, 2, 3, 4]);\n *\n * a.div(b).print(); // or tf.div(a, b)\n * ```\n *\n * ```js\n * // Broadcast div a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(2);\n *\n * a.div(b).print(); // or tf.div(a, b)\n * ```\n *\n * @param a The first tensor as the numerator.\n * @param b The second tensor as the denominator. Must have
 the same dtype as\n * `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction div_<T extends Tensor>(a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'div');\n let $b = convertToTensor(b, 'b', 'div');\n [$a, $b] = makeTypesMatch($a, $b);\n\n if ($a.dtype === 'int32' && $b.dtype

=== 'int32') {\n return floorDiv($a, $b);\n }\n\n const inputs: RealDivInputs = {a: $a, b: $b};\n const attrs = {};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n return ENGINE.runKernel(RealDiv, inputs as {} as NamedTensorMap, attrs) as T;\n}\n\nexport const div = op({div_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Multiply, MultiplyInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Multiplies two `tf.Tensor`s element-wise, A * B. Supports broadcasting.\n *\n * We also expose `tf.mulStrict` which has the same signature as this op and\n * asserts that `a` and `b` are the same shape (does not broadcast).\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3, 4]);\n * const b = tf.tensor1d([2, 3, 4, 5]);\n *\n * a.mul(b).print(); // or tf.mul(a, b)\n * ```\n *\n * ```js\n * // Broadcast mul a with b.\n * const a = tf.tensor1d([1, 2, 3, 4]);\n * const b = tf.scalar(5);\n *\n * a.mul(b).print(); // or tf.mul(a, b)\n * ```\n * @param a The first tensor to multiply.\n * @param b The second tensor to multiply. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction mul_<T extends Tensor>(a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'mul');\n let $b = convertToTensor(b, 'b', 'mul');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: MultiplyInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Multiply, inputs as {} as NamedTensorMap);\n}\nexport const mul = op({mul_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Abs, AbsInputs, ComplexAbs, ComplexAbsInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes absolute value element-wise: `abs(x)`\n *\n * ```js\n * const x = tf.tensor1d([-1, 2, -3, 4]);\n *\n * x.abs().print(); // or tf.abs(x)\n * ```\n * @param x The input `tf.Tensor`.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction abs_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'abs');\n\n if ($x.dtype === 'complex64') {\n const inputs: ComplexAbsInputs = {x: $x};\n return ENGINE.runKernel(ComplexAbs, inputs as {} as NamedTensorMap);\n } else {\n const inputs: AbsInputs = {x: $x};\n return ENGINE.runKernel(Abs, inputs as {} as NamedTensorMap);\n }\n}\n\nexport const abs = op({abs_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\nimport {ENGINE} from '../engine';\nimport {Acos, AcosInputs} from '../kernel_names';\nimport {Tensor} from
'../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
acos of the input `tf.Tensor` element-wise: `acos(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n *
x.acos().print();  // or tf.acos(x)\n * ```\n * @param x The input tensor.\n * @doc {heading: 'Operations',
subheading: 'Basic math'}\n */\nfunction acos_<T extends Tensor>(x: T|TensorLike): T {\n  const $x =
convertToTensor(x, 'x', 'acos');\n  const inputs:
 AcosInputs = {x: $x};\n\n  return ENGINE.runKernel(Acos, inputs as {} as NamedTensorMap);\n}\nexport const
acos = op({acos_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Acosh, AcoshInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap}
 from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from
'../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the inverse hyperbolic cos of the input `tf.Tensor`
element-wise:\n * `acosh(x)`\n *\n * ```js\n * const x = tf.tensor1d([10, 1, 3, 5.7]);\n *\n * x.acosh().print();  // or
tf.acosh(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n
*/\nfunction acosh_<T extends Tensor>(x: T|TensorLike): T {\n  const $x = convertToTensor(x, 'x', 'acosh');\n
const inputs: AcoshInputs = {x: $x};\n\n  return ENGINE.runKernel(Acosh, inputs as {} as
NamedTensorMap);\n}\nexport const acosh = op({acosh_});\n","/**\n * @license\n * Copyright 2020 Google LLC.
All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========================================================================\n
*/\nimport {ENGINE} from '../engine';\nimport {AddN, AddNInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from
'./operation';\n\n/**\n * Adds a list of `tf.Tensor`s element-wise, each with the same shape and dtype.\n *\n * ```js\n
* const a = tf.tensor1d([1, 2]);\n * const b = tf.tensor1d([3, 4]);\n * const c = tf.tensor1d([5, 6]);\n *\n * tf.addN([a,
 b, c]).print();\n * ```\n * @param tensors A list of tensors with the same shape and dtype.\n * @doc {heading:
'Operations', subheading: 'Arithmetic'}\n */\nfunction addN_<T extends Tensor>(tensors: Array<T|TensorLike>): T
{\n  util.assert(\n      Array.isArray(tensors),\n      () => 'The argument passed to tf.addN() must be a list of
tensors');\n  util.assert(\n      tensors.length >= 1,\n      () => `Must pass at least one tensor to tf.addN(), but got ` +\n
    `${tensors.length}`);\n\n  const $tensors =\n      tensors.map((t, i) => convertToTensor(t, `tensors${i}`,
'addN'));\n\n  const firstTensor = $tensors[0];\n  $tensors.forEach(t => {\n    if (t.dtype !== firstTensor.dtype) {\n
throw new Error(\n          'All tensors passed to tf.addN() must have the same dtype');\n    }\n  });\n\n
$tensors.forEach(t => {\n    if (!util.arraysEqual(t.shape, firstTensor.shape)) {\n      throw new Error(\n          'All
tensors passed to tf.addN() must have the same shape');\n    }\n
```

});\n\n const inputs: AddNInputs = $tensors;\n\n return ENGINE.runKernel(AddN, inputs as {} as NamedTensorMap);\n}\n\nexport const addN = op({addN_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {All, AllAttrs, AllInputs} from '../kernel_names';\nimport {NamedAttrMap}
 from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the logical and of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the `tf.Tensor` is reduced by 1 for each entry in\n * `axes`. If `keepDims` is true, the reduced dimensions are retained with\n * length 1. If `axes` has no entries, all dimensions are reduced, and an\n * `tf.Tensor` with a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 1, 1], 'bool');\n *\n * x.all().print(); // or tf.all(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 1, 0, 0], [2, 2], 'bool');\n *\n * const axis = 1;\n * x.all(axis).print(); // or tf.all(x, axis)\n * ```\n *\n * @param x The input tensor. Must be of dtype bool.\n
 * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction all_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'all', 'bool');\n\n const inputs: AllInputs = {x: $x};\n const attrs: AllAttrs = {axis, keepDims};\n\n return ENGINE.runKernel(\n   All, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const all = op({all_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Any, AnyAttrs, AnyInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the logical or of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the `tf.Tensor` is reduced by 1 for each entry in\n * `axes`. If `keepDims` is true, the reduced dimensions are
 retained with\n * length 1. If `axes` has no entries, all dimensions are reduced, and an\n * `tf.Tensor` with a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 1, 1], 'bool');\n *\n * x.any().print(); // or tf.any(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 1, 0, 0], [2, 2], 'bool');\n *\n * const axis = 1;\n * x.any(axis).print(); // or tf.any(x, axis)\n * ```\n *\n * @param x The input tensor. Must be of dtype bool.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction any_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'any', 'bool');\n\n const inputs: AnyInputs = {x: $x};\n const attrs: AnyAttrs = {axis,

keepDims};\n\n return ENGINE.runKernel(\n   Any, inputs as {} as NamedTensorMap,
 attrs as {} as NamedAttrMap);\n}\n\n// tslint:disable-next-line:variable-name\nexport const any =
op({any_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs} from
'../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport
 {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Returns the
indices of the maximum values along an `axis`.\n *\n * The result has the same shape as `input` with the dimension
along `axis`\n * removed.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.argMax().print(); // or
tf.argMax(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 4, 3], [2, 2]);\n *\n * const axis = 1;\n *
x.argMax(axis).print(); // or tf.argMax(x, axis)\n * ```\n *\n * @param x The input tensor.\n * @param axis The
dimension to reduce. Defaults to 0 (outer-most dimension).\n *\n * @doc {heading: 'Operations', subheading:
'Reduction'}\n */\nfunction argMax_<T extends Tensor>(x: Tensor|TensorLike, axis = 0): T {\n const $x =
convertToTensor(x, 'x', 'argMax');\n\n const inputs: ArgMaxInputs = {x: $x};\n const attrs: ArgMaxAttrs
 = {axis};\n\n return ENGINE.runKernel(\n   ArgMax, inputs as {} as NamedTensorMap, attrs as {} as
NamedAttrMap);\n}\n\nexport const argMax = op({argMax_});\n","/**\n * @license\n * Copyright 2020 Google
Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {ArgMin, ArgMinAttrs, ArgMinInputs} from
'../kernel_names';\nimport
 {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from
'../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from
'../types';\n\nimport {op} from './operation';\n\n/**\n * Returns the indices of the minimum values along an `axis`.\n
*\n * The result has the same shape as `input` with the dimension along `axis`\n * removed.\n *\n * ```js\n * const x
= tf.tensor1d([1, 2, 3]);\n *\n * x.argMin().print(); // or tf.argMin(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1,
2, 4, 3], [2, 2]);\n *\n * const axis = 1;\n * x.argMin(axis).print(); // or tf.argMin(x, axis)\n * ```\n *\n * @param x
The input tensor.\n * @param axis The dimension to reduce. Defaults to 0 (outer-most dimension).\n *\n * @doc
{heading: 'Operations', subheading: 'Reduction'}\n */\nfunction argMin_<T extends Tensor>(x: Tensor|TensorLike,
axis = 0): T {\n const $x = convertToTensor(x, 'x', 'argMin');\n\n const inputs:
 ArgMinInputs = {x: $x};\n const attrs: ArgMinAttrs = {axis};\n\n return ENGINE.runKernel(\n   ArgMin,
inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const argMin =
op({argMin_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Asin, AsinInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes asin of the input `tf.Tensor` element-wise: `asin(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.asin().print(); // or tf.asin(x)\n * ```\n * @param x The input tensor.\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction asin_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'asin');\n const inputs: AsinInputs = {x: $x};\n\n return ENGINE.runKernel(Asin, inputs as {} as NamedTensorMap);\n}\nexport const asin = op({asin_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy
of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Asinh, AsinhInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes inverse hyperbolic sin of the input `tf.Tensor` element-wise:\n * `asinh(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.asinh().print(); // or tf.asinh(x)\n * ```\n
* @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction asinh_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'asinh');\n\n const inputs: AsinhInputs = {x: $x};\n\n return ENGINE.runKernel(Asinh, inputs as {} as NamedTensorMap);\n}\nexport const asinh = op({asinh_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Atan, AtanInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes atan of the input `tf.Tensor` element-wise: `atan(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.atan().print(); // or tf.atan(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction atan_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'atan');\n\n const inputs: AtanInputs = {x: $x};\n\n return ENGINE.runKernel(Atan, inputs as {} as NamedTensorMap);\n}\nexport const atan = op({atan_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Atan2, Atan2Inputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
arctangent of `tf.Tensor`s a / b element-wise: `atan2(a, b)`.\n * Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1.0, 1.0, -1.0, .7]);\n * const b = tf.tensor1d([2.0, 13.0, 3.5, .21]);\n *\n * tf.atan2(a, b).print()\n * ```\n *\n * @param a The first tensor.\n * @param b The second tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction atan2_<T extends Tensor>(\n a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'atan2');\n let $b = convertToTensor(b, 'b', 'atan2');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: Atan2Inputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Atan2, inputs as {} as NamedTensorMap);\n}\n\nexport const atan2 = op({atan2_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
* You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Atanh, AtanhInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes inverse hyperbolic tan of the input `tf.Tensor` element-wise:\n * `atanh(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, .1, -.1, .7]);\n *\n * x.atanh().print();
// or tf.atanh(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction atanh_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'atanh');\n\n const inputs: AtanhInputs = {x: $x};\n\n return ENGINE.runKernel(Atanh, inputs as {} as NamedTensorMap);\n}\nexport const atanh = op({atanh_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
under the License.\n *
==========\n */\n\ntype PadType = 'SAME'|'VALID'|'NUMBER'|'EXPLICIT';\n\n// For NHWC should be in the following form:\n// [[0, 0], [pad_top,pad_bottom], [pad_left, pad_right], [0, 0]]\n// For NCHW should be in the following form:\n// [[0, 0], [0, 0], [pad_top,pad_bottom], [pad_left, pad_right]]\n// Reference: https://www.tensorflow.org/api_docs/python/tf/nn/conv2d\nexport type ExplicitPadding =\n [[number, number], [number, number], [number, number], [number, number]];\n\nexport type PadInfo = {\n top: number,\n left: number,\n right: number,\n bottom: number,\n type: PadType\n};\n\nexport type PadInfo3D = {\n top: number,\n left: number,\n right: number,\n bottom: number,\n front: number,\n back: number,\n type: PadType\n};\n\n/**\n * Information about the forward pass of a convolution/pooling operation.\n * It includes input and output shape, strides, filter size and padding\n

```
 * information.\n */\nexport type Conv2DInfo = {\n  batchSize: number,\n  inHeight: number,\n  inWidth: number,\n inChannels: number,\n  outHeight: number,\n  outWidth: number,\n  outChannels: number,\n  dataFormat: 'channelsFirst'|'channelsLast',\n  strideHeight: number,\n  strideWidth: number,\n  dilationHeight: number,\n dilationWidth: number,\n  filterHeight: number,\n  filterWidth: number,\n  effectiveFilterHeight: number,\n effectiveFilterWidth: number,\n  padInfo: PadInfo,\n  inShape: [number, number, number, number],\n  outShape: [number, number, number, number],\n  filterShape: [number, number, number, number]\n};\n\n/**\n *\n * @param inputShape Input tensor shape is of the following dimensions:\n *     `[batch, height, width, inChannels]`.\n * @param filterShape The filter shape is of the following dimensions:\n *     `[filterHeight, filterWidth, depth]`.\n * @param strides The strides of the sliding window for each dimension of the\n *     input tensor: `[strideHeight, strideWidth]`.\n
 *     If `strides` is a single number,\n *     then `strideHeight == strideWidth`.\n * @param pad The type of padding algorithm.\n *    - `same` and stride 1: output will be of same size as input,\n *       regardless of filter size.\n *    - `valid`: output will be smaller than input if filter is larger\n *       than 1*1x1.\n *    - For more info, see this guide:\n *     [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat The data format of the input and output data.\n *     Defaults to 'NHWC'.\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`.\n *     Defaults to `[1, 1]`. If `dilations` is a single number, then\n *     `dilationHeight == dilationWidth`.\n */\nexport function computeDilation2DInfo(\n    inputShape: [number, number, number, number],\n    filterShape: [number, number, number], strides: number|[number, number],\n    pad: 'same'|'valid'|number,
 dataFormat: 'NHWC' = 'NHWC',\n    dilations: number|[number, number]) {\n  // `computerConv2DInfo` require filterShape to be in the dimension of:\n  // `[filterHeight, filterWidth, depth, outDepth]`, dilation2d doesn't have\n  // outDepth, it should have the same depth as the input.\n  // Input shape: [batch, height, width, inChannels]\n  const inputChannels = inputShape[3];\n  const $filterShape =\n      [...filterShape, inputChannels] as [number, number, number, number];\n  const $dataFormat = convertConv2DDataFormat(dataFormat);\n\n  return computeConv2DInfo(\n      inputShape, $filterShape, strides, dilations, pad,\n      null /* roundingMode */, null /* depthWise */, $dataFormat);\n}\n\nexport function computePool2DInfo(\n    inShape: [number, number, number, number],\n    filterSize: [number, number]|number, strides: number|[number, number],\n    dilations: number|[number, number], pad: 'same'|'valid'|number,\n    roundingMode?: 'floor'|'round'|'ceil',\n    dataFormat:
 'channelsFirst'|'channelsLast' = 'channelsLast'): Conv2DInfo {\n  const [filterHeight, filterWidth] = parseTupleParam(filterSize);\n\n  let filterShape: [number, number, number, number];\n  if (dataFormat === 'channelsLast') {\n    filterShape = [filterHeight, filterWidth, inShape[3], inShape[3]];\n  } else if (dataFormat === 'channelsFirst') {\n    filterShape = [filterHeight, filterWidth, inShape[1], inShape[1]];\n  } else {\n    throw new Error(`Unknown dataFormat ${dataFormat}`);\n  }\n\n  return computeConv2DInfo(\n      inShape, filterShape, strides, dilations, pad, roundingMode, false,\n      dataFormat);\n}\n\n/**\n * Computes the information for a forward pass of a pooling3D operation.\n */\nexport function computePool3DInfo(\n    inShape: [number, number, number, number, number],\n    filterSize: number|[number, number, number],\n    strides: number|[number, number, number],\n    dilations: number|[number, number, number], pad: 'same'|'valid'|number,\n    roundingMode?:
 'floor'|'round'|'ceil',\n    dataFormat: 'NDHWC'|'NCDHW' = 'NDHWC'): Conv3DInfo {\n  const [filterDepth, filterHeight, filterWidth] = parse3TupleParam(filterSize);\n\n  let filterShape: [number, number, number, number, number];\n  let $dataFormat: 'channelsFirst'|'channelsLast';\n  if (dataFormat === 'NDHWC') {\n    $dataFormat = 'channelsLast';\n    filterShape =\n        [filterDepth, filterHeight, filterWidth, inShape[4], inShape[4]];\n  } else if (dataFormat === 'NCDHW') {\n    $dataFormat = 'channelsFirst';\n    filterShape =\n        [filterDepth, filterHeight, filterWidth, inShape[1], inShape[1]];\n  } else {\n    throw new Error(`Unknown dataFormat ${dataFormat}`);\n  }\n\n  return computeConv3DInfo(\n      inShape, filterShape, strides, dilations, pad, false, $dataFormat,\n roundingMode);\n}\n\n/**\n * Computes the information for a forward pass of a convolution/pooling\n * operation.\n */\nexport function computeConv2DInfo(\n    inShape: [number, number, number, number],\n
```

```
 filterShape: [number, number, number, number],\n  strides: number|[number, number], dilations:
number|[number, number],\n  pad: 'same'|'valid'|number|ExplicitPadding,\n  roundingMode?: 'floor'|'round'|'ceil',
depthwise = false,\n  dataFormat: 'channelsFirst'|'channelsLast' = 'channelsLast'): Conv2DInfo {\n  let [batchSize,
inHeight, inWidth, inChannels] = [-1, -1, -1, -1];\n  if (dataFormat === 'channelsLast') {\n  [batchSize, inHeight,
inWidth, inChannels] = inShape;\n  } else if (dataFormat === 'channelsFirst') {\n  [batchSize, inChannels,
inHeight, inWidth] = inShape;\n  } else {\n  throw new Error(`Unknown dataFormat ${dataFormat}`);\n  }\n\n
const [filterHeight, filterWidth, , filterChannels] = filterShape;\n  const [strideHeight, strideWidth] =
parseTupleParam(strides);\n  const [dilationHeight, dilationWidth] = parseTupleParam(dilations);\n\n  const
effectiveFilterHeight =\n  getEffectiveFilterSize(filterHeight, dilationHeight);\n  const effectiveFilterWidth
 =\n  getEffectiveFilterSize(filterWidth, dilationWidth);\n  const {padInfo, outHeight, outWidth} =
getPadAndOutInfo(\n  pad, inHeight, inWidth, strideHeight, strideWidth, effectiveFilterHeight,\n
effectiveFilterWidth, roundingMode, dataFormat);\n\n  const outChannels = depthwise ? filterChannels *
inChannels : filterChannels;\n\n  let outShape: [number, number, number, number];\n  if (dataFormat ===
'channelsFirst') {\n  outShape = [batchSize, outChannels, outHeight, outWidth];\n  } else if (dataFormat ===
'channelsLast') {\n  outShape = [batchSize, outHeight, outWidth, outChannels];\n  }\n\n  return {\n  batchSize,\n
dataFormat,\n  inHeight,\n  inWidth,\n  inChannels,\n  outHeight,\n  outWidth,\n  outChannels,\n
padInfo,\n  strideHeight,\n  strideWidth,\n  filterHeight,\n  filterWidth,\n  effectiveFilterHeight,\n
effectiveFilterWidth,\n  dilationHeight,\n  dilationWidth,\n  inShape,\n  outShape,\n  filterShape\n
};\n}\n\n/**\n
 * Information about the forward pass of a 3D convolution/pooling operation.\n * It includes input and output shape,
strides, filter size and padding\n * information.\n */\nexport type Conv3DInfo = {\n  batchSize: number,\n  inDepth:
number,\n  inHeight: number,\n  inWidth: number,\n  inChannels: number,\n  outDepth: number,\n  outHeight:
number,\n  outWidth: number,\n  outChannels: number,\n  dataFormat: 'channelsFirst'|'channelsLast',\n  strideDepth:
number,\n  strideHeight: number,\n  strideWidth: number,\n  dilationDepth: number,\n  dilationHeight: number,\n
dilationWidth: number,\n  filterDepth: number,\n  filterHeight: number,\n  filterWidth: number,\n
effectiveFilterDepth: number,\n  effectiveFilterHeight: number,\n  effectiveFilterWidth: number,\n  padInfo:
PadInfo3D,\n  inShape: [number, number, number, number, number],\n  outShape: [number, number, number,
number, number],\n  filterShape: [number, number, number, number, number]\n};\n\n/**\n * Computes the
information
 for a forward pass of a 3D convolution/pooling\n * operation.\n */\nexport function computeConv3DInfo(\n
inShape: [number, number, number, number, number],\n  filterShape: [number, number, number, number,
number],\n  strides: number|[number, number, number],\n  dilations: number|[number, number, number], pad:
'same'|'valid'|number,\n  depthwise = false,\n  dataFormat: 'channelsFirst'|'channelsLast' = 'channelsLast',\n
roundingMode?: 'floor'|'round'|'ceil'): Conv3DInfo {\n  let [batchSize, inDepth, inHeight, inWidth, inChannels] =\n
 [-1, -1, -1, -1, -1];\n  if (dataFormat === 'channelsLast') {\n  [batchSize, inDepth, inHeight, inWidth, inChannels]
= inShape;\n  } else if (dataFormat === 'channelsFirst') {\n  [batchSize, inChannels, inDepth, inHeight, inWidth] =
inShape;\n  } else {\n  throw new Error(`Unknown dataFormat ${dataFormat}`);\n  }\n\n  const [filterDepth,
filterHeight, filterWidth, , filterChannels] =\n  filterShape;\n  const [strideDepth,
 strideHeight, strideWidth] = parse3TupleParam(strides);\n  const [dilationDepth, dilationHeight, dilationWidth] =\n
  parse3TupleParam(dilations);\n\n  const effectiveFilterDepth =\n  getEffectiveFilterSize(filterDepth,
dilationDepth);\n  const effectiveFilterHeight =\n  getEffectiveFilterSize(filterHeight, dilationHeight);\n  const
effectiveFilterWidth =\n  getEffectiveFilterSize(filterWidth, dilationWidth);\n  const {padInfo, outDepth,
outHeight, outWidth} = get3DPadAndOutInfo(\n  pad, inDepth, inHeight, inWidth, strideDepth, strideHeight,
strideWidth,\n  effectiveFilterDepth, effectiveFilterHeight, effectiveFilterWidth,\n  roundingMode);\n\n  const
outChannels = depthwise ? filterChannels * inChannels : filterChannels;\n\n  let outShape: [number, number,
number, number, number];\n  if (dataFormat === 'channelsFirst') {\n  outShape = [batchSize, outChannels,
outDepth, outHeight, outWidth];\n  } else if (dataFormat === 'channelsLast') {\n  outShape = [batchSize,
```

```
outDepth, outHeight, outWidth, outChannels];\n  }\n\n  return {\n    batchSize,\n    dataFormat,\n    inDepth,\n
inHeight,\n    inWidth,\n    inChannels,\n    outDepth,\n    outHeight,\n    outWidth,\n    outChannels,\n    padInfo,\n
strideDepth,\n    strideHeight,\n    strideWidth,\n    filterDepth,\n    filterHeight,\n    filterWidth,\n
effectiveFilterDepth,\n    effectiveFilterHeight,\n    effectiveFilterWidth,\n    dilationDepth,\n    dilationHeight,\n
dilationWidth,\n    inShape,\n    outShape,\n    filterShape\n  };\n}\n\nfunction computeOutputShape2D(\n
inShape: [number, number], fieldSize: number, stride: number,\n    zeroPad?: number, roundingMode?:
'floor'|'round'|'ceil'): [number, number] {\n  if (zeroPad == null) {\n    zeroPad = computeDefaultPad(inShape,
fieldSize, stride);\n  }\n  const inputRows = inShape[0];\n  const inputCols = inShape[1];\n\n  const outputRows =\n
    round((inputRows - fieldSize + 2 * zeroPad) / stride + 1, roundingMode);\n
  const outputCols =\n      round((inputCols - fieldSize + 2 * zeroPad) / stride + 1, roundingMode);\n\n  return
[outputRows, outputCols];\n}\n\nfunction computeOutputShape4D(\n    inShape: [number, number, number,
number], fieldSize: number,\n    outChannels: number, stride: number, zeroPad?: number,\n    roundingMode?:
'floor'|'round'|'ceil'): [number, number, number, number] {\n  if (zeroPad == null) {\n    zeroPad =
computeDefaultPad(inShape, fieldSize, stride);\n  }\n  const inputDepth = inShape[0];\n  const inputRows =
inShape[1];\n  const inputCols = inShape[2];\n\n  const outputDepths =\n      round((inputDepth - fieldSize + 2 *
zeroPad) / stride + 1, roundingMode);\n  const outputRows =\n      round((inputRows - fieldSize + 2 * zeroPad) /
stride + 1, roundingMode);\n  const outputCols =\n      round((inputCols - fieldSize + 2 * zeroPad) / stride + 1,
roundingMode);\n\n  return [outputDepths, outputRows, outputCols, outChannels];\n}\n\nexport function
computeDefaultPad(\n    inputShape:
 [number, number]|[number, number, number, number],\n    fieldSize: number, stride: number, dilation = 1): number
{\n  const effectiveFieldSize = getEffectiveFilterSize(fieldSize, dilation);\n  return Math.floor(\n      (inputShape[0]
* (stride - 1) - stride + effectiveFieldSize) / 2);\n}\n\nfunction parseTupleParam(param: number|number[]):
[number, number, number] {\n  if (typeof param === 'number') {\n    return [param, param, param];\n  }\n  if
(param.length === 2) {\n    return [param[0], param[1], 1];\n  }\n  return param as [number, number,
number];\n}\n\nfunction parse3TupleParam(param: number|[number, number, number]):\n    [number, number,
number] {\n  return typeof param === 'number' ? [param, param, param] : param;\n}\n\n/* See
https://www.tensorflow.org/api_docs/python/tf/nn/atrous_conv2d\n * Atrous convolution is equivalent to standard
convolution with upsampled\n * filters with effective_filter_height =\n * filter_height + (filter_height - 1) * (dilation
- 1)\n
 * and effective_filter_width =\n * filter_width + (filter_width - 1) * (dilation - 1),\n * produced by inserting dilation
- 1 zeros along consecutive elements across\n * the filters' spatial dimensions.\n * When there is a dilation, this
converts a filter dimension to the\n * effective filter dimension, so it can be used in a standard convolution.\n
*/\nfunction getEffectiveFilterSize(filterSize: number, dilation: number) {\n  if (dilation <= 1) {\n    return
filterSize;\n  }\n\n  return filterSize + (filterSize - 1) * (dilation - 1);\n}\n\nfunction getPadAndOutInfo(\n    pad:
'same'|'valid'|number|ExplicitPadding, inHeight: number,\n    inWidth: number, strideHeight: number, strideWidth:
number,\n    filterHeight: number, filterWidth: number,\n    roundingMode: 'floor'|'round'|'ceil',\n    dataFormat:
'channelsFirst'|\n    'channelsLast'): {padInfo: PadInfo, outHeight: number, outWidth: number} {\n  let padInfo:
PadInfo;\n  let outHeight: number;\n  let outWidth: number;\n\n  if (typeof
 pad === 'number') {\n    const padType = (pad === 0) ? 'VALID' : 'NUMBER';\n    padInfo = {top: pad, bottom:
pad, left: pad, right: pad, type: padType};\n    const outShape = computeOutputShape2D(\n        [inHeight, inWidth],
filterHeight, strideHeight, pad, roundingMode);\n    outHeight = outShape[0];\n    outWidth = outShape[1];\n  } else
if (pad === 'same') {\n    outHeight = Math.ceil(inHeight / strideHeight);\n    outWidth = Math.ceil(inWidth /
strideWidth);\n    const padAlongHeight =\n        Math.max(0, (outHeight - 1) * strideHeight + filterHeight -
inHeight);\n    const padAlongWidth =\n        Math.max(0, (outWidth - 1) * strideWidth + filterWidth - inWidth);\n
const top = Math.floor(padAlongHeight / 2);\n    const bottom = padAlongHeight - top;\n    const left =
Math.floor(padAlongWidth / 2);\n    const right = padAlongWidth - left;\n    padInfo = {top, bottom, left, right, type:
'SAME'};\n  } else if (pad === 'valid') {\n    padInfo = {top: 0, bottom: 0, left: 0, right:
```

0, type: 'VALID'};\n outHeight = Math.ceil((inHeight - filterHeight + 1) / strideHeight);\n outWidth = Math.ceil((inWidth - filterWidth + 1) / strideWidth);\n } else if (typeof pad === 'object') {\n const top = dataFormat === 'channelsLast' ? pad[1][0] : pad[2][0];\n const bottom = dataFormat === 'channelsLast' ? pad[1][1] : pad[2][1];\n const left = dataFormat === 'channelsLast' ? pad[2][0] : pad[3][0];\n const right = dataFormat === 'channelsLast' ? pad[2][1] : pad[3][1];\n const padType = (top === 0 && bottom === 0 && left === 0 && right === 0) ?\n 'VALID' :\n 'EXPLICIT';\n padInfo = {top, bottom, left, right, type: padType};\n outHeight = round(\n (inHeight - filterHeight + top + bottom) / strideHeight + 1,\n roundingMode);\n outWidth = round(\n (inWidth - filterWidth + left + right) / strideWidth + 1, roundingMode);\n } else {\n throw Error(`Unknown padding parameter: ${pad}`);\n }\n return {padInfo, outHeight,
outWidth};\n}\n\nfunction get3DPadAndOutInfo(\n pad: 'same'|'valid'|number, inDepth: number, inHeight: number,\n inWidth: number, strideDepth: number, strideHeight: number,\n strideWidth: number, filterDepth: number, filterHeight: number,\n filterWidth: number, roundingMode?: 'floor'|'round'|'ceil'): {\n padInfo: PadInfo3D,\n outDepth: number,\n outHeight: number,\n outWidth: number\n} {\n let padInfo: PadInfo3D;\n let outDepth: number;\n let outHeight: number;\n let outWidth: number;\n\n if (typeof pad === 'number') {\n const padType = (pad === 0) ? 'VALID' : 'NUMBER';\n padInfo = {\n top: pad,\n bottom: pad,\n left: pad,\n right: pad,\n front: pad,\n back: pad,\n type: padType\n };\n const outShape = computeOutputShape4D(\n [inDepth, inHeight, inWidth, 1], filterDepth, 1, strideDepth, pad,\n roundingMode);\n outDepth = outShape[0];\n outHeight = outShape[1];\n outWidth = outShape[2];\n } else if (pad === 'same') {\n outDepth = Math.ceil(inDepth / strideDepth);\n outHeight = Math.ceil(inHeight / strideHeight);\n outWidth = Math.ceil(inWidth / strideWidth);\n const padAlongDepth = (outDepth - 1) * strideDepth + filterDepth - inDepth;\n const padAlongHeight =\n (outHeight - 1) * strideHeight + filterHeight - inHeight;\n const padAlongWidth = (outWidth - 1) * strideWidth + filterWidth - inWidth;\n const front = Math.floor(padAlongDepth / 2);\n const back = padAlongDepth - front;\n const top = Math.floor(padAlongHeight / 2);\n const bottom = padAlongHeight - top;\n const left = Math.floor(padAlongWidth / 2);\n const right = padAlongWidth - left;\n\n padInfo = {top, bottom, left, right, front, back, type: 'SAME'};\n } else if (pad === 'valid') {\n padInfo = {\n top: 0,\n bottom: 0,\n left: 0,\n right: 0,\n front: 0,\n back: 0,\n type: 'VALID'\n };\n outDepth = Math.ceil((inDepth - filterDepth + 1) / strideDepth);\n outHeight = Math.ceil((inHeight - filterHeight + 1) / strideHeight);\n outWidth = Math.ceil((inWidth - filterWidth + 1) / strideWidth);\n } else {\n throw Error(`Unknown padding parameter: ${pad}`);\n }\n return {padInfo, outDepth, outHeight, outWidth};\n}\n\n/**\n * Rounds a value depending on the rounding mode\n * @param value\n * @param roundingMode A string from: 'ceil', 'round', 'floor'. If none is\n * provided, it will default to truncate.\n */\nfunction round(value: number, roundingMode?: 'floor'|'round'|'ceil') {\n if (!roundingMode) {\n return Math.trunc(value);\n }\n switch (roundingMode) {\n case 'round':\n // used for Caffe Conv\n return Math.round(value);\n case 'ceil':\n // used for Caffe Pool\n return Math.ceil(value);\n case 'floor':\n return Math.floor(value);\n default:\n throw new Error(`Unknown roundingMode ${roundingMode}`);\n }\n}\n\nexport function tupleValuesAreOne(param: number|number[]): boolean {\n const [dimA, dimB, dimC] = parseTupleParam(param);\n return dimA === 1 && dimB === 1 && dimC === 1;\n}\n\nexport function eitherStridesOrDilationsAreOne(\n strides: number|number[], dilations: number|number[]): boolean {\n return tupleValuesAreOne(strides) || tupleValuesAreOne(dilations);\n}\n\n/**\n * Convert Conv2D dataFormat from 'NHWC'|'NCHW' to\n * 'channelsLast'|'channelsFirst'\n * @param dataFormat in 'NHWC'|'NCHW' mode\n * @return dataFormat in 'channelsLast'|'channelsFirst' mode\n * @throws unknown dataFormat\n */\nexport function convertConv2DDataFormat(dataFormat: 'NHWC'|'NCHW'):\n 'channelsLast'|'channelsFirst' {\n if (dataFormat === 'NHWC') {\n return 'channelsLast';\n } else if (dataFormat === 'NCHW') {\n return 'channelsFirst';\n } else {\n throw new Error(`Unknown dataFormat ${dataFormat}`);\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,

Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Reshape, ReshapeAttrs, ReshapeInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, ShapeMap, TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Reshapes a `tf.Tensor` to a given shape.\n *\n * Given an input tensor, returns a new tensor with the same values as the\n * input tensor with shape `shape`.\n *\n * If one component of shape is the special value -1, the size of that\n * dimension is computed so that the total size remains constant. In\n * particular, a shape of [-1] flattens into 1-D. At most one component of\n * shape can be -1.\n *\n * If shape is 1-D or higher, then the operation returns a tensor with shape\n * shape filled with the values of tensor. In this case, the number of\n * elements implied by shape must be the same as the number of elements in\n * tensor.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n * x.reshape([2, 2]).print();\n * ```\n *\n * @param x The input tensor to be reshaped.\n * @param shape An array of integers defining the output tensor shape.\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction reshape_<R extends Rank>(\n x: Tensor|TensorLike,
 shape: ShapeMap[R]): Tensor<R> {\n const $x = convertToTensor(x, 'x', 'reshape', 'string_or_numeric');\n\n const inputs: ReshapeInputs = {x: $x};\n const attrs: ReshapeAttrs = {shape};\n return ENGINE.runKernel(\n Reshape, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\nexport const reshape = op({reshape_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {cast} from './cast';\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the 2D average pooling of an image.\n *\n * @param x The input tensor, of rank 4 or rank 3 of shape\n * `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param filterSize The filter size: `[filterHeight, filterWidth]`. If\n * `filterSize` is a single number, then `filterHeight == filterWidth`.\n * @param strides The strides of the pooling: `[strideHeight,
 strideWidth]`. If\n * `strides` is a single number, then `strideHeight == strideWidth`.\n * @param pad The type of padding algorithm:\n * - `same` and stride 1: output will be of same size as input,\n * regardless of filter size.\n * - `valid`: output will be smaller than input if filter is larger\n * than 1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n * provided, it will default to truncate.\n */\nfunction avgPool_<T extends Tensor3D|Tensor4D>(\n x: T|TensorLike, filterSize: [number, number]|number,\n strides: [number, number]|number, pad: 'valid'|'same'|number,\n dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n const $x = convertToTensor(x, 'x', 'avgPool', 'float32');\n const dilations = 1;\n\n util.assert(\n

```
conv_util.eitherStridesOrDilationsAreOne(strides,
 dilations),\n      () => 'Error in avgPool: Either strides or dilations must be 1. ' +\n          `Got strides ${strides} and
dilations '${dilations}'`);\n\n  let x4D = $x as Tensor4D;\n  let reshapedTo4D = false;\n  if ($x.rank === 3) {\n
reshapedTo4D = true;\n    x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n  }\n\n  util.assert(\n
x4D.rank === 4,\n      () => `Error in avgPool: x must be rank 4 but got rank ${x4D.rank}.`);\n\n  if
(dimRoundingMode != null) {\n    util.assert(\n        util.isInt(pad as number),\n        () => `Error in avgPool: pad
must be an integer when using, ` +\n            `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n
}\n\n  const inputs: AvgPoolInputs = {x: x4D};\n\n  const attrs: AvgPoolAttrs = {filterSize, strides, pad,
dimRoundingMode};\n\n  // tslint:disable-next-line: no-unnecessary-type-assertion\n  let res =
ENGINE.runKernel(\n              AvgPool, inputs as {} as NamedTensorMap,\n
          attrs as {} as NamedAttrMap) as T;\n\n  res = cast(res, $x.dtype);\n\n  if (reshapedTo4D) {\n    return
reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n  }\n\n  return res;\n}\n\nexport const avgPool =
op({avgPool_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========================================================================\n
*/\n\nimport {ENGINE}
 from '../engine';\nimport {AvgPool3D, AvgPool3DAttrs, AvgPool3DInputs} from '../kernel_names';\nimport
{NamedAttrMap} from '../kernel_registry';\nimport {Tensor4D, Tensor5D} from '../tensor';\nimport
{NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {cast} from './cast';\nimport {op} from
'./operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the 3D average pooling.\n *\n * ```js\n * const
x = tf.tensor5d([1, 2, 3, 4, 5, 6, 7, 8], [1, 2, 2, 2, 1]);\n * const result = tf.avgPool3d(x, 2, 1, 'valid');\n *
result.print();\n * ```\n *\n * @param x The input tensor, of rank 5 or rank 4 of shape\n *     `[batch, depth, height,
width, inChannels]`.\n * @param filterSize The filter size:\n *     `[filterDepth, filterHeight, filterWidth]`.\n *     If
`filterSize` is a single number,\n *     then `filterDepth == filterHeight == filterWidth`.\n * @param
 strides The strides of the pooling:\n *     `[strideDepth, strideHeight, strideWidth]`.\n *     If `strides` is a single
number,\n *     then `strideDepth == strideHeight == strideWidth`.\n * @param pad The type of padding
algorithm.\n *    - `same` and stride 1: output will be of same size as input,\n *       regardless of filter size.\n *    -
`valid`: output will be smaller than input if filter is larger\n *       than 1*1x1.\n *    - For more info, see this guide:\n
*     [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *
https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dimRoundingMode A string from:
'ceil', 'round', 'floor'. If none is\n *     provided, it will default to truncate.\n * @param dataFormat An optional string
from: \"NDHWC\", \"NCDHW\". Defaults to\n *     \"NDHWC\". Specify the data format of the input and output
data. With the\n *     default format \"NDHWC\", the data is stored in the order of: [batch,\n *     depth,
 height, width, channels]. Only \"NDHWC\" is currently supported.\n *\n * @doc {heading: 'Operations',
subheading: 'Convolution'}\n */\nfunction avgPool3d_<T extends Tensor4D|Tensor5D>(\n    x: T|TensorLike,
filterSize: [number, number, number]|number,\n    strides: [number, number, number]|number, pad:
'valid'|'same'|number,\n    dimRoundingMode?: 'floor'|'round'|'ceil',\n    dataFormat: 'NDHWC'|'NCDHW' =
'NDHWC'): T {\n  const $x = convertToTensor(x, 'x', 'avgPool3d', 'float32');\n\n  let x5D = $x as Tensor5D;\n  let
reshapedTo5D = false;\n  if ($x.rank === 4) {\n    reshapedTo5D = true;\n    x5D = reshape($x, [1, $x.shape[0],
$x.shape[1], $x.shape[2], $x.shape[3]]);\n  }\n\n  util.assert(\n      x5D.rank === 5,\n      () => `Error in avgPool3d: x
must be rank 5 but got rank ${x5D.rank}.`);\n  util.assert(\n      dataFormat === 'NDHWC',\n      () => `Error in
avgPool3d: Only NDHWC is currently supported, ` +\n          `but got dataFormat of ${dataFormat}`);\n\n  if
```

(dimRoundingMode
!= null) {\n util.assert(\n util.isInt(pad as number),\n () => `Error in avgPool3d: pad must be an integer when using, ` +\n `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n const inputs: AvgPool3DInputs = {x: x5D};\n\n const attrs:\n AvgPool3DAttrs = {filterSize, strides, pad, dimRoundingMode, dataFormat};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n let res = ENGINE.runKernel(\n AvgPool3D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n res = cast(res, x5D.dtype);\n\n if (reshapedTo5D) {\n return reshape(\n res, [res.shape[1], res.shape[2], res.shape[3], res.shape[4]]) as\n T;\n }\n\n return res;\n}\n\nexport const avgPool3d = op({avgPool3d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {Concat, ConcatAttrs, ConcatInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensorArray} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assert} from '../util';\n\nimport {clone} from './clone';\nimport {op} from './operation';\n\n/**\n * Concatenates a list
of `tf.Tensor`s along a given axis.\n *\n * The tensors ranks and types must match, and their sizes must match in all\n * dimensions except `axis`.\n *\n * Also available are stricter rank-specific methods that assert that\n * `tensors` are of the given rank:\n * - `tf.concat1d`\n * - `tf.concat2d`\n * - `tf.concat3d`\n * - `tf.concat4d`\n *\n * Except `tf.concat1d` (which does not have axis param), all methods have\n * same signature as this method.\n *\n * ```js\n * const a = tf.tensor1d([1, 2]);\n * const b = tf.tensor1d([3, 4]);\n * a.concat(b).print(); // or a.concat(b)\n * ```\n *\n * ```js\n * const a = tf.tensor1d([1, 2]);\n * const b = tf.tensor1d([3, 4]);\n * const c = tf.tensor1d([5, 6]);\n * tf.concat([a, b, c]).print();\n * ```\n *\n * ```js\n * const a = tf.tensor2d([[1, 2], [10, 20]]);\n * const b = tf.tensor2d([[3, 4], [30, 40]]);\n * const axis = 1;\n * tf.concat([a, b], axis).print();\n * ```\n * @param tensors A list of tensors to concatenate.\n * @param
axis The axis to concate along. Defaults to 0 (the first dim).\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction concat_<T extends Tensor>(tensors: Array<T|TensorLike>, axis = 0): T {\n assert(tensors.length >= 1, () => 'Pass at least one tensor to concat');\n\n const $tensors =\n convertToTensorArray(tensors, 'tensors', 'concat', 'string_or_numeric');\n\n if ($tensors[0].dtype === 'complex64') {\n $tensors.forEach(tensor => {\n if (tensor.dtype !== 'complex64') {\n throw new Error(`Cannot concatenate complex64 tensors with a tensor\n with dtype ${tensor.dtype}. `);\n }\n });\n }\n\n if ($tensors.length === 1) {\n return clone($tensors[0]);\n }\n\n const inputs: ConcatInputs = $tensors;\n const attr: ConcatAttrs = {axis};\n\n return ENGINE.runKernel(\n Concat, inputs as {} as NamedTensorMap, attr as {} as NamedAttrMap);\n}\n\nexport const concat = op({concat_});\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Sigmoid, SigmoidInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from

'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes sigmoid element-wise, `1 / (1 + exp(-x))`\n *\n * ```js\n * const x = tf.tensor1d([0, -1, 2, -3]);\n *\n * x.sigmoid().print(); // or tf.sigmoid(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction sigmoid_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'sigmoid');\n\n const inputs: SigmoidInputs = {x: $x};\n\n return ENGINE.runKernel(Sigmoid, inputs as {} as NamedTensorMap);\n}\nexport const sigmoid = op({sigmoid_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
 WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Slice, SliceAttrs, SliceInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Extracts a slice from a `tf.Tensor` starting at coordinates `begin`\n * and is of size `size`.\n *\n * Also available are stricter rank-specific methods with the same signature\n * as this method that assert that `x` is of the given rank:\n *   - `tf.slice1d`\n *   - `tf.slice2d`\n *   - `tf.slice3d`\n *   - `tf.slice4d`\n *\n * ```js\n * const x = tf.tensor1d([1,
 2, 3, 4]);\n *\n * x.slice([1], [2]).print();\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * x.slice([1, 0], [1, 2]).print();\n * ```\n * @param x The input `tf.Tensor` to slice from.\n * @param begin The coordinates to start the slice from. The length can be\n *   less than the rank of x - the rest of the axes will have implicit 0 as\n *   start. Can also be a single number, in which case it specifies the\n *   first axis.\n * @param size The size of the slice. The length can be less than the rank of\n *   x - the rest of the axes will have implicit -1. A value of -1 requests\n *   the rest of the dimensions in the axis. Can also be a single number,\n *   in which case it specifies the size of the first axis.\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction slice_<R extends Rank, T extends Tensor<R>>(\n   x: T|TensorLike, begin: number|number[], size?: number|number[]): T {\n const $x = convertToTensor(x,
 'x', 'slice', 'string_or_numeric');\n\n if ($x.rank === 0) {\n   throw new Error('Slicing scalar is not possible');\n }\n\n const inputs: SliceInputs = {x: $x};\n const attrs: SliceAttrs = {begin, size};\n\n return ENGINE.runKernel(\n   Slice, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const slice = op({slice_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Tanh, TanhInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes hyperbolic tangent of the input `tf.Tensor` element-wise: `tanh(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, 70]);\n *\n * x.tanh().print(); // or tf.tanh(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction tanh_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'tanh');\n\n const inputs: TanhInputs = {x: $x};\n\n return ENGINE.runKernel(Tanh, inputs

as {} as NamedTensorMap);\n}\nexport const tanh = op({tanh_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Scalar, Tensor1D, Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {add} from './add';\nimport {concat} from './concat';\nimport {matMul} from './mat_mul';\nimport {mul} from './mul';\nimport {op} from './operation';\nimport {sigmoid} from './sigmoid';\nimport
 {slice} from './slice';\nimport {tanh} from './tanh';\n\n/**\n * Computes the next state and output of a BasicLSTMCell.\n *\n * Returns `[newC, newH]`.\n *\n * Derived from tf.contrib.rnn.BasicLSTMCell.\n *\n * @param forgetBias Forget bias for the cell.\n * @param lstmKernel The weights for the cell.\n * @param lstmBias The bias for the cell.\n * @param data The input to the cell.\n * @param c Previous cell state.\n * @param h Previous cell output.\n *\n * @doc {heading: 'Operations', subheading: 'RNN'}\n */\nfunction basicLSTMCell_(\n forgetBias: Scalar|TensorLike, lstmKernel: Tensor2D|TensorLike,\n   lstmBias: Tensor1D|TensorLike, data: Tensor2D|TensorLike,\n   c: Tensor2D|TensorLike, h: Tensor2D|TensorLike): [Tensor2D, Tensor2D] {\n const $forgetBias =\n   convertToTensor(forgetBias, 'forgetBias', 'basicLSTMCell');\n const $lstmKernel =\n convertToTensor(lstmKernel, 'lstmKernel', 'basicLSTMCell');\n const $lstmBias = convertToTensor(lstmBias, 'lstmBias',
 'basicLSTMCell');\n const $data = convertToTensor(data, 'data', 'basicLSTMCell');\n const $c = convertToTensor(c, 'c', 'basicLSTMCell');\n const $h = convertToTensor(h, 'h', 'basicLSTMCell');\n\n const combined = concat([$data, $h], 1);\n const weighted = matMul(combined, $lstmKernel);\n const res: Tensor2D = add(weighted, $lstmBias);\n\n // i = input_gate, j = new_input, f = forget_gate, o = output_gate\n const batchSize = res.shape[0];\n const sliceCols = res.shape[1] / 4;\n const sliceSize: [number, number] = [batchSize, sliceCols];\n const i = slice(res, [0, 0], sliceSize);\n const j = slice(res, [0, sliceCols], sliceSize);\n const f = slice(res, [0, sliceCols * 2], sliceSize);\n const o = slice(res, [0, sliceCols * 3], sliceSize);\n\n const newC: Tensor2D =\n add(mul(sigmoid(i), tanh(j)),\n   mul($c, sigmoid(add($forgetBias, f)) as Tensor2D));\n const newH: Tensor2D = mul(tanh(newC), sigmoid(o));\n return [newC, newH];\n}\n\nexport const basicLSTMCell
 = op({basicLSTMCell_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport
 {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * This operation reshapes the \"batch\" dimension 0 into `M + 1` dimensions of\n * shape `blockShape + [batch]`, interleaves these blocks back into the grid\n * defined by the spatial dimensions `[1, ..., M]`, to obtain a result with\n * the same rank as the input. The spatial dimensions of this intermediate\n * result are then optionally cropped according to `crops` to produce the\n * output. This is the reverse

of `tf.spaceToBatchND`. See below for a precise\n * description.\n *\n * ```js\n * const x = tf.tensor4d([1, 2, 3, 4], [4, 1, 1, 1]);\n * const blockShape = [2, 2];\n * const crops = [[0, 0], [0, 0]];\n *\n * x.batchToSpaceND(blockShape, crops).print();\n * ```\n *\n * @param x A `tf.Tensor`. N-D with `x.shape` = `[batch] + spatialShape +\n * remainingShape`, where spatialShape has `M` dimensions.\n
 * @param blockShape A 1-D array. Must have shape `[M]`, all values must\n * be >= 1.\n * @param crops A 2-D array. Must have shape `[M, 2]`, all values must be >= 0.\n * `crops[i] = [cropStart, cropEnd]` specifies the amount to crop from input\n * dimension `i + 1`, which corresponds to spatial dimension `i`. It is required\n * that `cropStart[i] + cropEnd[i] <= blockShape[i] * inputShape[i + 1]`\n *\n * This operation is equivalent to the following steps:\n *\n * 1. Reshape `x` to `reshaped` of shape: `[blockShape[0], ...,\n * blockShape[M-1], batch / prod(blockShape), x.shape[1], ...,\n * x.shape[N-1]]`\n *\n * 2. Permute dimensions of `reshaped`to produce `permuted` of shape `[batch /\n * prod(blockShape),x.shape[1], blockShape[0], ..., x.shape[M],\n * blockShape[M-1],x.shape[M+1], ..., x.shape[N-1]]`\n *\n * 3. Reshape `permuted` to produce `reshapedPermuted` of shape `[batch /\n * prod(blockShape),x.shape[1] * blockShape[0], ..., x.shape[M] *\n * blockShape[M-1],x.shape[M+1],
 ..., x.shape[N-1]]`\n *\n * 4. Crop the start and end of dimensions `[1, ..., M]` of `reshapedPermuted`\n * according to `crops` to produce the output of shape: `[batch /\n * prod(blockShape),x.shape[1] * blockShape[0] - crops[0,0] - crops[0,1],\n * ..., x.shape[M] * blockShape[M-1] - crops[M-1,0] -\n * crops[M-1,1],x.shape[M+1], ..., x.shape[N-1]]`\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction batchToSpaceND_<T extends Tensor>(\n   x: T|TensorLike, blockShape: number[], crops: number[][]): T {\n const $x = convertToTensor(x, 'x', 'batchToSpaceND');\n const prod = blockShape.reduce((a, b) => a * b);\n\n util.assert(\n $x.rank >= 1 + blockShape.length,\n   () => `input rank is ${$x.rank} but should be > than blockShape.length ${\n blockShape.length}`);\n\n util.assert(\n   crops.length === blockShape.length,\n   () => `crops.length is ${\n  crops.length} but should be equal to blockShape.length  ${\n          blockShape.length}`);\n\n
  util.assert(\n $x.shape[0] % prod === 0,\n   () => `input tensor batch is ${\n              $x.shape[0]} but is not divisible by the product of ` +\n   `the elements of blockShape ${blockShape.join(' * ')} === ${prod}`);\n\n
 const inputs: BatchToSpaceNDInputs = {x: $x};\n const attrs: BatchToSpaceNDAttrs = {blockShape, crops};\n\n
 return ENGINE.runKernel(\n   BatchToSpaceND, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap);\n}\n\nexport const batchToSpaceND = op({batchToSpaceND_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
 */\nimport {Tensor, Tensor4D} from '../tensor';\nimport {Rank} from '../types';\nimport {reshape} from './reshape';\n\nexport function xAs4D<R extends Rank>(x: Tensor<R>) {\n let x4D: Tensor4D;\n if (x.rank === 0 || x.rank === 1) {\n   x4D = reshape(x, [1, 1, 1, x.size]);\n } else if (x.rank === 2) {\n   x4D = reshape(x, [1, 1, x.shape[0], x.shape[1]]);\n } else if (x.rank === 3) {\n   x4D = reshape(x, [1, x.shape[0], x.shape[1], x.shape[2]]);\n } else {\n   x4D = x as Tensor4D;\n }\n\n return x4D;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
 */\n\nimport {ENGINE} from '../engine';\nimport {FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport

{Tensor, Tensor1D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {xAs4D} from './batchnorm_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Batch normalization.\n *\n * As described in\n * http://arxiv.org/abs/1502.03167.\n *\n * Mean, variance, scale, and offset can be of two shapes:\n *   - The same shape as the input.\n *   - In the common case, the depth dimension is the last dimension of x, so\n *   the values would be an `tf.Tensor1D` of shape [depth].\n *\n * Also available are stricter rank-specific methods with the same signature\n * as this method that assert that parameters passed are of given rank\n *   - `tf.batchNorm2d`\n *   - `tf.batchNorm3d`\n *   - `tf.batchNorm4d`\n *\n * @param x The input Tensor.\n * @param mean A mean Tensor.\n * @param variance A variance Tensor.\n * @param offset An offset Tensor.\n * @param scale A scale Tensor.\n * @param varianceEpsilon A small float number to avoid dividing by 0.\n *\n * @doc {heading: 'Operations', subheading: 'Normalization'}\n */\nfunction batchNorm_<R extends Rank>(\n x: Tensor<R>|TensorLike, mean: Tensor<R>|Tensor1D|TensorLike,\n   variance: Tensor<R>|Tensor1D|TensorLike,\n   offset?: Tensor<R>|Tensor1D|TensorLike,\n   scale?: Tensor<R>|Tensor1D|TensorLike,\n   varianceEpsilon?: number): Tensor<R> {\n if (varianceEpsilon == null) {\n   varianceEpsilon = 0.001;\n }\n const $x = convertToTensor(x, 'x', 'batchNorm');\n const $mean = convertToTensor(mean, 'mean', 'batchNorm');\n const $variance = convertToTensor(variance, 'variance', 'batchNorm');\n let $scale: Tensor<R>|Tensor1D;\n if (scale != null) {\n $scale = convertToTensor(scale, 'scale', 'batchNorm');\n }\n let $offset: Tensor<R>|Tensor1D;\n if (offset != null) {\n $offset = convertToTensor(offset, 'offset', 'batchNorm');\n }\n\n util.assert(\n $mean.rank === $variance.rank,\n   () => 'Batch normalization gradient requires mean and variance to have ' +\n   'equal ranks.');\n util.assert(\n $offset == null || $mean.rank === $offset.rank,\n   () =>
'Batch normalization gradient requires mean and offset to have ' +\n   'equal ranks.');\n util.assert(\n $scale == null || $mean.rank === $scale.rank,\n   () => 'Batch normalization gradient requires mean and scale to have ' +\n   'equal ranks.');\n\n const x4D: Tensor4D = xAs4D($x);\n\n const inputs: FusedBatchNormInputs = {\n   x: x4D,\n   scale: $scale,\n   offset: $offset,\n   mean: $mean,\n   variance: $variance\n };\n\n const attrs: FusedBatchNormAttrs = {varianceEpsilon};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   FusedBatchNorm, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as Tensor<R>;\n\n return reshape(res, $x.shape);\n}\n\nexport const batchNorm = op({batchNorm_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {Tensor1D, Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {batchNorm} from './batchnorm';\nimport {op} from './operation';\n\n/**\n * Batch normalization, strictly for 2D. For the more relaxed version, see\n * `tf.batchNorm`.\n *\n * @param x The input Tensor.\n * @param mean A mean Tensor.\n * @param variance A variance
Tensor.\n * @param offset An offset Tensor.\n * @param scale A scale Tensor.\n * @param varianceEpsilon A small float number to avoid dividing by 0.\n */\nfunction batchNorm2d_(\n   x: Tensor2D|TensorLike, mean: Tensor2D|Tensor1D|TensorLike,\n   variance: Tensor2D|Tensor1D|TensorLike,\n   offset?: Tensor2D|Tensor1D|TensorLike, scale?: Tensor2D|Tensor1D|TensorLike,\n   varianceEpsilon?: number): Tensor2D {\n const $x = convertToTensor(x, 'x', 'batchNorm');\n const $mean = convertToTensor(mean, 'mean',

'batchNorm');\n const $variance = convertToTensor(variance, 'variance', 'batchNorm');\n let $scale: Tensor2D|Tensor1D;\n if (scale != null) {\n $scale = convertToTensor(scale, 'scale', 'batchNorm');\n }\n let $offset: Tensor2D|Tensor1D;\n if (offset != null) {\n $offset = convertToTensor(offset, 'offset', 'batchNorm');\n }\n util.assert(\n $x.rank === 2,\n   () => `Error in batchNorm2D: x must be rank 2 but got rank ` +\n   `${$x.rank}.`);\n util.assert(\n $mean.rank === 2 || $mean.rank === 1,\n   () => `Error in batchNorm2D: mean must be rank 2 or rank 1 but ` +\n   `got rank ${$mean.rank}.`);\n util.assert(\n $variance.rank === 2 || $variance.rank === 1,\n   () => `Error in batchNorm2D: variance must be rank 2 or rank 1 ` +\n   `but got rank ${$variance.rank}.`);\n if ($scale != null) {\n   util.assert(\n $scale.rank === 2 || $scale.rank === 1,\n   () => `Error in batchNorm2D: scale must be rank 2 or rank 1 ` +\n   `but got rank ${$scale.rank}.`);\n }\n if ($offset != null) {\n   util.assert(\n $offset.rank === 2 || $offset.rank === 1,\n   () => `Error in batchNorm2D: offset must be rank 2 or rank 1 ` +\n   `but got rank ${$offset.rank}.`);\n }\n\n return batchNorm($x, $mean, $variance, $offset, $scale, varianceEpsilon);\n}\n\nexport const batchNorm2d = op({batchNorm2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
 under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {Tensor1D, Tensor3D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {batchNorm} from './batchnorm';\nimport {op} from './operation';\n\n/**\n * Batch normalization, strictly for 3D. For the more relaxed version, see\n * `tf.batchNorm`.\n *\n
 * @param x The input Tensor.\n * @param mean A mean Tensor.\n * @param variance A variance Tensor.\n * @param offset An offset Tensor.\n * @param scale A scale Tensor.\n * @param varianceEpsilon A small float number to avoid dividing by 0.\n */\nfunction batchNorm3d_(\n   x: Tensor3D|TensorLike, mean: Tensor3D|Tensor1D|TensorLike,\n   variance: Tensor3D|Tensor1D|TensorLike,\n   offset?: Tensor3D|Tensor1D|TensorLike, scale?: Tensor3D|Tensor1D|TensorLike,\n   varianceEpsilon?: number): Tensor3D {\n const $x = convertToTensor(x, 'x', 'batchNorm');\n const $mean = convertToTensor(mean, 'mean', 'batchNorm');\n const $variance = convertToTensor(variance, 'variance', 'batchNorm');\n let $scale: Tensor3D|Tensor1D;\n if (scale != null) {\n $scale = convertToTensor(scale, 'scale', 'batchNorm');\n }\n let $offset: Tensor3D|Tensor1D;\n if (offset != null) {\n $offset = convertToTensor(offset, 'offset', 'batchNorm');\n }\n util.assert(\n $x.rank === 3,\n   () => `Error
 in batchNorm3D: x must be rank 3 but got rank ` +\n          `${$x.rank}.`);\n  util.assert(\n      $mean.rank === 3 || $mean.rank === 1,\n      () => `Error in batchNorm3D: mean must be rank 3 or rank 1 but ` +\n          `got rank ${$mean.rank}.`);\n  util.assert(\n      $variance.rank === 3 || $variance.rank === 1,\n      () => `Error in batchNorm3D: variance must be rank 3 or rank 1 ` +\n          `but got rank ${$variance.rank}.`);\n  if ($scale != null) {\n    util.assert(\n        $scale.rank === 3 || $scale.rank === 1,\n        () => `Error in batchNorm3D: scale must be rank 3 or rank 1 ` +\n            `but got rank ${$scale.rank}.`);\n  }\n  if ($offset != null) {\n    util.assert(\n        $offset.rank === 3 || $offset.rank === 1,\n        () => `Error in batchNorm3D: offset must be rank 3 or rank 1 ` +\n            `but got rank ${$offset.rank}.`);\n }\n\n return batchNorm($x, $mean, $variance, $offset, $scale, varianceEpsilon);\n}\n\nexport const batchNorm3d = op({batchNorm3d_});\n","/**\n
 * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Tensor1D, Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {batchNorm} from './batchnorm';\nimport {op} from './operation';\n\n/**\n * Batch
normalization, strictly for 4D. For the more relaxed version, see\n * `tf.batchNorm`.\n *\n * @param x The input Tensor.\n * @param mean A mean Tensor.\n * @param variance A variance Tensor.\n * @param offset An offset Tensor.\n * @param scale A scale Tensor.\n * @param varianceEpsilon A small float number to avoid dividing by 0.\n */\nfunction batchNorm4d_(\n x: Tensor4D|TensorLike, mean: Tensor4D|Tensor1D|TensorLike,\n variance: Tensor4D|Tensor1D|TensorLike,\n offset?: Tensor4D|Tensor1D|TensorLike, scale?: Tensor4D|Tensor1D|TensorLike,\n varianceEpsilon?: number): Tensor4D {\n const $x = convertToTensor(x, 'x', 'batchNorm');\n const $mean = convertToTensor(mean, 'mean', 'batchNorm');\n const $variance = convertToTensor(variance, 'variance', 'batchNorm');\n let $scale: Tensor4D|Tensor1D;\n if (scale != null) {\n $scale = convertToTensor(scale, 'scale', 'batchNorm');\n }\n let $offset: Tensor4D|Tensor1D;\n if (offset != null) {\n $offset = convertToTensor(offset,
'offset', 'batchNorm');\n }\n util.assert(\n $x.rank === 4,\n () => `Error in batchNorm4D: x must be rank 4 but got rank ` +\n `${$x.rank}.`);\n util.assert(\n $mean.rank === 4 || $mean.rank === 1,\n () => `Error in batchNorm4D: mean must be rank 4 or rank 1 but ` +\n `got rank ${$mean.rank}.`);\n util.assert(\n $variance.rank === 4 || $variance.rank === 1,\n () => `Error in batchNorm4D: variance must be rank 4 or rank 1 ` +\n `but got rank ${$variance.rank}.`);\n if ($scale != null) {\n util.assert(\n $scale.rank === 4 || $scale.rank === 1,\n () => `Error in batchNorm4D: scale must be rank 4 or rank 1 ` +\n `but got rank ${$scale.rank}.`);\n }\n if ($offset != null) {\n util.assert(\n $offset.rank === 4 || $offset.rank === 1,\n () => `Error in batchNorm4D: offset must be rank 4 or rank 1 ` +\n `but got rank ${$offset.rank}.`);\n }\n return batchNorm($x, $mean,
$variance, $offset, $scale, varianceEpsilon);\n}\n\nexport const batchNorm4d = op({batchNorm4d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Bincount, BincountAttrs, BincountInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor1D}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Outputs a vector with length `size` and the same dtype as `weights`.\n *\n * If `weights` are empty, then index `i` stores the number of times the value\n * `i` is counted in `x`. If `weights` are non-empty, then index `i` stores the\n * sum of the value in `weights` at each index where the corresponding value in\n * `x` is `i`.\n *\n * Values in `x` outside of the range [0, size) are ignored.\n *\n * @param x The input int tensor, rank 1.\n * @param weights The weights tensor, must have the same shape as x, or a\n * length-0 Tensor, in which case it acts as all weights equal to 1.\n * @param size Non-negative integer.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction bincount_<T extends Tensor1D>(\n x: T|TensorLike,
weights: T|TensorLike, size: number): T {\n const $x = convertToTensor(x, 'x', 'bincount');\n const $weights = convertToTensor(weights, 'weights', 'bincount');\n\n util.assert(\n $x.dtype === 'int32',\n () => `Error in bincount: input ` +\n `dtype must be int32, but got ${$x.dtype}`);\n util.assert(size >= 0, () => `size must be non-negative, but got ${size}.`);\n util.assert(\n $weights.size === $x.size || $weights.size === 0,\n () =>

`Error in bincount: weights must have the same size as input or` +\n `0-length, but got input shape: ${$x.shape}, weights shape: ` +\n `${$weights.shape}.`);\n\n const inputs: BincountInputs = {x: $x, weights: $weights};\n const attrs: BincountAttrs = {size};\n\n return ENGINE.runKernel(\n Bincount, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const bincount = op({bincount_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {Tile, TileAttrs, TileInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, ShapeMap, TensorLike} from '../types';\n\nimport {clone} from './clone';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Broadcast an array to a compatible shape NumPy-style.\n *\n * The tensor's shape is compared to the broadcast shape from end to beginning.\n * Ones are prepended to the tensor's shape until is has the same length as\n * the broadcast shape. If input.shape[i]==shape[i], the (i+1)-th axis is\n * already broadcast-compatible. If input.shape[i]==1 and shape[i]==N, then\n * the input tensor is tiled N times along that axis (using tf.tile).\n *\n * @param input The tensor that is to be broadcasted.\n * @param shape The input is to be broadcast to this shape.\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction broadcastTo_<R extends Rank>(\n x: Tensor|TensorLike, shape: ShapeMap[R]): Tensor<R> {\n let input = convertToTensor(x, 'broadcastTo', 'x');\n const xShape = input.shape;\n\n if (shape.some(d => !(d > 0) || d % 1 !== 0)) {\n throw new Error(`broadcastTo(): Invalid broadcast shape [${shape}].`);\n }\n\n if (shape.length < input.rank) {\n throw new Error(`broadcastTo(): shape.length=${shape.length} < input.rank=${\n input.rank}.`);\n }\n\n if (shape.length > input.rank) {\n const newShape = input.shape.slice();\n while (newShape.length < shape.length) {\n newShape.unshift(1);\n }\n input = reshape(input, newShape);\n }\n\n const inputShape = input.shape;\n const reps: number[] = Array.from(shape);\n for (let i = shape.length - 1; i >= 0; i--) {\n if (inputShape[i] === shape[i]) {\n reps[i] = 1;\n } else if (input.shape[i] !== 1) {\n throw new Error(\n `broadcastTo(): [${xShape}] cannot be broadcast to [${shape}].`);\n }\n }\n const axes = reps.map((n, i) => n > 1 ? i : -1).filter(i => i >= 0);\n\n if (axes.length === 0) {\n return clone(input) as Tensor<R>;\n }\n\n // TODO call broadcastTo kernel directly once backends implement broadcstTo\n const inputs: TileInputs = {x: input};\n const attrs: TileAttrs = {reps};\n return ENGINE.runKernel(\n Tile, inputs as {} as NamedTensorMap, attrs as unknown as NamedAttrMap);\n}\n\nexport const broadcastTo = op({broadcastTo_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {Ceil, CeilInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from

'./operation';\n\n/**\n * Computes ceiling of input `tf.Tensor` element-wise: `ceil(x)`\n *\n * ```js\n * const x = tf.tensor1d([.6, 1.1, -3.3]);\n *\n * x.ceil().print(); // or tf.ceil(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction ceil_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'ceil');\n\n const inputs: CeilInputs = {x: $x};\n return ENGINE.runKernel(Ceil, inputs as {} as NamedTensorMap);\n}\nexport const ceil = op({ceil_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of
the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {ENGINE} from '../engine';\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Clips values element-wise. `max(min(x, clipValueMax), clipValueMin)`\n *\n * ```js\n * const
x = tf.tensor1d([-1, 2, -3, 4]);\n *\n * x.clipByValue(-2, 3).print(); // or tf.clipByValue(x, -2, 3)\n * ```\n * @param x The input tensor.\n * @param clipValueMin Lower-bound of range to be clipped to.\n * @param clipValueMax Upper-bound of range to be clipped to.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction clipByValue_<T extends Tensor>(\n   x: T|TensorLike, clipValueMin: number, clipValueMax: number): T {\n const $x = convertToTensor(x, 'x', 'clipByValue');\n util.assert(\n   (clipValueMin <= clipValueMax),\n   () => `Error in clip: min (${clipValueMin}) must be ` +\n   `less than or equal to max (${clipValueMax}).`);\n\n const inputs: ClipByValueInputs = {x: $x};\n const attrs: ClipByValueAttrs = {clipValueMin, clipValueMax};\n\n return ENGINE.runKernel(\n   ClipByValue, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const clipByValue = op({clipByValue_});\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {Tensor1D} from '../tensor';\nimport {TensorLike} from '../types';\n\nimport {concat} from './concat';\nimport {op} from './operation';\n\n/**\n * Concatenates a list of`tf.Tensor1D`s along an axis. See `concat` for details.\n *\n * For example, if:\n * A: shape(3) = |r1, g1, b1|\n * B: shape(2) = |r2,
g2|\n * C = tf.concat1d([A, B]) == |r1, g1, b1, r2, g2|\n *\n * @param tensors A list of`tf.Tensor`s to concatenate.\n * @return The concatenated array.\n */\nfunction concat1d_(tensors: Array<Tensor1D|TensorLike>): Tensor1D {\n return concat(tensors, 0 /* axis */);\n}\n\nexport const concat1d = op({concat1d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\nimport {Tensor2D} from '../tensor';\nimport {TensorLike} from '../types';\n\nimport {concat} from './concat';\nimport {op} from './operation';\n\n/**\n * Concatenates a list of`tf.Tensor2D`s along an axis. See `concat` for details.\n *\n * For example, if:\n * A: shape(2, 3) = | r1, g1, b1 |\n * | r2, g2, b2 |\n *\n * B: shape(2, 3) = | r3, g3, b3 |\n * | r4, g4, b4 |\n *\n * C = tf.concat2d([A, B], axis)\n *\n * if axis = 0:\n * C: shape(4, 3) = | r1, g1, b1 |\n * | r2, g2, b2 |\n * | r3, g3, b3 |\n * | r4, g4, b4 |\n *\n * if axis = 1:\n * C = shape(2, 6) = | r1, g1, b1, r3, g3, b3 |\n * | r2, g2, b2, r4, g4, b4 |\n *\n *\n * @param tensors A list of `tf.Tensor`s to concatenate.\n * @param axis The axis to concatenate along.\n * @return The concatenated array.\n */\nfunction concat2d_(\n tensors: Array<Tensor2D|TensorLike>, axis: number): Tensor2D {\n return concat(tensors, axis);\n}\n\nexport const concat2d = op({concat2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\nimport {Tensor3D} from '../tensor';\nimport {TensorLike} from '../types';\n\nimport {concat} from './concat';\nimport {op} from './operation';\n\n/**\n * Concatenates a list of `tf.Tensor3D`s along an axis.\n * See `concat` for details.\n *\n * For example, if:\n * A: shape(2, 1, 3) = | r1, g1, b1 |\n * | r2, g2, b2 |\n *\n * B: shape(2, 1, 3) = | r3, g3, b3 |\n * | r4, g4, b4 |\n *\n * C = tf.concat3d([A, B], axis)\n *\n * if axis = 0:\n * C: shape(4, 1, 3) = | r1, g1, b1 |\n * | r2, g2, b2 |\n * | r3, g3, b3 |\n * | r4, g4, b4 |\n *\n * if axis = 1:\n * C: shape(2, 2, 3) = | r1, g1, b1, r3, g3, b3 |\n * | r2, g2, b2, r4, g4, b4 |\n *\n * if axis = 2:\n * C = shape(2, 1, 6) = | r1, g1, b1, r3, g3, b3 |\n * | r2, g2, b2, r4, g4, b4 |\n *\n *\n * @param tensors A list of`tf.Tensor`s to concatenate.\n * @param axis The axis to concate along.\n * @return The concatenated array.\n */\nfunction concat3d_(\n tensors: Array<Tensor3D|TensorLike>, axis: number): Tensor3D {\n return concat(tensors, axis);\n}\n\nexport const concat3d = op({concat3d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\nimport {Tensor4D} from '../tensor';\nimport {TensorLike} from '../types';\n\nimport {concat} from './concat';\nimport {op} from './operation';\n\n/**\n * Concatenates a list of `tf.Tensor4D`s along an axis.\n * See `concat` for details.\n *\n * @param tensors
A list of `tf.Tensor`s to concatenate.\n * @param axis The axis to concate along.\n * @return The concatenated array.\n */\nfunction concat4d_(\n tensors: Array<Tensor4D|TensorLike>, axis: number): Tensor4D {\n return concat(tensors, axis);\n}\n\nexport const concat4d = op({concat4d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */

```
*/\nimport {ENGINE} from '../engine';\nimport {Conv2D, Conv2DAttrs, Conv2DInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes a 2D convolution over the input x.\n *\n * @param x The input tensor, of rank 4 or rank 3, of shape\n *     `[batch, height, width, inChannels]`. If rank 3, batch of 1 is\n * assumed.\n * @param filter The filter, rank 4, of shape\n *     `[filterHeight, filterWidth, inDepth, outDepth]`.\n * @param strides The strides of the convolution: `[strideHeight,\n * strideWidth]`.\n * @param pad The type of padding algorithm.\n *    - `same` and stride 1: output will be of same size as input,\n *       regardless of filter size.\n *    - `valid`: output will be smaller than input if filter is larger\n *       than 1x1.\n *    - For more info, see this guide:\n *     [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *     https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\". Defaults to\n *     \"NHWC\". Specify the data format of the input and output data. With the\n *     default format \"NHWC\", the data is stored in the order of: [batch,\n *     height, width, channels].\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n *     in which we sample input values across the height and width dimensions\n *     in atrous convolution. Defaults to `[1, 1]`. If `dilations` is a single\n *     number, then `dilationHeight == dilationWidth`. If it is greater than\n *     1, then all values of `strides` must be 1.\n * @param dimRoundingMode A string
 from: 'ceil', 'round', 'floor'. If none is\n *     provided, it will default to truncate.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction conv2d_<T extends Tensor3D|Tensor4D>(\n    x: T|TensorLike, filter: Tensor4D|TensorLike,\n    strides: [number, number]|number,\n    pad: 'valid'|'same'|number|conv_util.ExplicitPadding,\n    dataFormat: 'NHWC'|'NCHW' = 'NHWC',\n    dilations: [number, number]|number = [1, 1],\n    dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n  const $x = convertToTensor(x, 'x', 'conv2d');\n  const $filter = convertToTensor(filter, 'filter', 'conv2d');\n\n  let x4D = $x as Tensor4D;\n  let reshapedTo4D = false;\n\n  if ($x.rank === 3) {\n    reshapedTo4D = true;\n    x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n  }\n\n  util.assert(\n      x4D.rank === 4,\n      () => `Error in conv2d: input must be rank 4, but got rank ${x4D.rank}.`);\n  util.assert(\n      $filter.rank === 4,\n      () => `Error in conv2d: filter
 must be rank 4, but got rank ` +\n          `${$filter.rank}.`);\n  if (dimRoundingMode != null) {\n    util.assert(\n        util.isInt(pad as number),\n        () => `Error in conv2d: pad must be an integer when using, ` +\n            `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n  }\n\n  const inDepth = dataFormat === 'NHWC' ? x4D.shape[3] : x4D.shape[1];\n  util.assert(\n      inDepth === $filter.shape[2],\n      () => `Error in conv2d: depth of input (${inDepth}) must match ` +\n          `input depth for filter ${$filter.shape[2]}.`);\n  util.assert(\n      conv_util.eitherStridesOrDilationsAreOne(strides, dilations),\n      () => 'Error in conv2D: Either strides or dilations must be 1. ' +\n          `Got strides ${strides} and dilations '${dilations}'`);\n\n  const inputs: Conv2DInputs = {x: x4D, filter: $filter};\n  const attrs:\n      Conv2DAttrs = {strides, pad, dataFormat, dilations, dimRoundingMode};\n\n  // tslint:disable-next-line: no-unnecessary-type-assertion\n
  const res = ENGINE.runKernel(\n                Conv2D, inputs as {} as NamedTensorMap,\n                attrs as {} as NamedAttrMap) as T;\n\n  if (reshapedTo4D) {\n    return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n  }\n  return res;\n}\n\nexport const conv2d = op({conv2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
```

*/\nimport {Tensor2D, Tensor3D, Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {conv2d} from './conv2d';\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes a 1D convolution over the input x.\n *\n * @param x The input tensor, of rank 3 or rank 2, of shape\n *   `[batch, width, inChannels]`. If rank 2, batch of 1 is assumed.\n * @param filter The filter, rank 3, of shape\n *   `[filterWidth, inDepth, outDepth]`.\n * @param stride The number of entries by which the filter is moved right at\n *   each step.\n * @param pad The type of padding algorithm.\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *   than 1x1.\n *   - For more info, see this guide:\n *   [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat An optional string from \"NWC\", \"NCW\". Defaults to \"NWC\",\n *   the data is stored in the order of [batch, in_width, in_channels]. Only\n *   \"NWC\" is currently supported.\n * @param dilation The dilation rate in which we sample input values in\n *   atrous convolution. Defaults to `1`. If it is greater than 1, then\n *   stride must be `1`.\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *   provided, it will default to truncate.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction conv1d_<T extends Tensor2D|Tensor3D>(\n   x: T|TensorLike, filter: Tensor3D|TensorLike, stride: number,\n   pad: 'valid'|'same'|number|conv_util.ExplicitPadding,\n   dataFormat: 'NWC'|'NCW' = 'NWC', dilation = 1,\n dimRoundingMode?:
 'floor'|'round'|'ceil'): T {\n const $x = convertToTensor(x, 'x', 'conv1d');\n const $filter = convertToTensor(filter, 'filter', 'conv1d');\n\n let x3D = $x as Tensor3D;\n let reshapedTo3D = false;\n if ($x.rank === 2) {\n reshapedTo3D = true;\n   x3D = reshape($x, [1, $x.shape[0], $x.shape[1]]);\n }\n\n util.assert(\n   x3D.rank === 3,\n   () => `Error in conv1d: input must be rank 3, but got rank ${x3D.rank}.`);\n util.assert(\n $filter.rank === 3,\n   () => `Error in conv1d: filter must be rank 3, but got rank ` +\n   `${$filter.rank}.`);\n if (dimRoundingMode != null) {\n   util.assert(\n   util.isInt(pad as number),\n   () => `Error in conv1d: pad must be an integer when using, ` +\n   `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n util.assert(\n   x3D.shape[2] === $filter.shape[1],\n   () => `Error in conv1d: depth of input (${x3D.shape[2]}) must match ` +\n   `input depth for filter
 ${$filter.shape[1]}.`);\n  util.assert(\n      conv_util.eitherStridesOrDilationsAreOne(stride, dilation),\n      () => 'Error in conv1D: Either stride or dilation must be 1. ' +\n          `Got stride ${stride} and dilation '${dilation}'`);\n  util.assert(\n      dataFormat === 'NWC',\n      () => `Error in conv1d: got dataFormat of ${\n   dataFormat} but only NWC is currently supported.`);\n\n const filter4D = reshape(\n $filter, [1, $filter.shape[0], $filter.shape[1], $filter.shape[2]]);\n const input4D = reshape(x3D, [x3D.shape[0], 1, x3D.shape[1], x3D.shape[2]]);\n const strides: [number, number] = [1, stride];\n const dilations: [number, number] = [1, dilation];\n\n const conv2dDataFormat = 'NHWC';\n\n const res = conv2d(\n   (input4D as Tensor4D), (filter4D as Tensor4D), strides, pad,\n conv2dDataFormat, dilations, dimRoundingMode);\n\n if (reshapedTo3D) {\n   return reshape(res, [res.shape[2], res.shape[3]]) as T;\n }\n\n return reshape(res, [res.shape[0],
 res.shape[2], res.shape[3]]) as T;\n}\n\nexport const conv1d = op({conv1d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n*/\nimport {ENGINE} from '../engine';\nimport {Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport

{Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport * as util from '../util';\n\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the derivative of the input of a 2D convolution.\n *\n * @param xShape The shape of the input: [batch, height, width, inDepth].\n * If length of 3, batch of 1 is assumed.\n * @param dy The derivative of the output, of rank 4 or rank 3 of shape\n *   `[batch, outHeight, outWidth, outDepth]`. If rank 3, batch of 1 is\n * assumed.\n * @param filter The filter, rank 4, of shape\n *   `[filterHeight, filterWidth, inDepth, outDepth]`.\n * @param strides The strides of the convolution: `[strideHeight,\n * strideWidth]`.\n * @param pad The type of padding algorithm used:\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if
filter is larger\n *   than 1x1.\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\". Defaults to\n *   \"NHWC\". Specify the data format of the input and output data. With the\n *   default format \"NHWC\", the data is stored in the order of: [batch,\n *   height, width, channels].\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *   provided, it will default to truncate.\n */\nfunction conv2DBackpropInput_<T extends Tensor3D|Tensor4D>(\n   xShape: [number, number, number, number]|[number, number, number], dy: T,\n   filter: Tensor4D, strides: [number, number]|number,\n   pad: 'valid'|'same'|number|conv_util.ExplicitPadding,\n   dataFormat: 'NHWC'|'NCHW' = 'NHWC',\n   dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n util.assert(\n   xShape.length === dy.rank,\n   () => `Length of inShape ` +\n   `(${xShape.length}) and rank of dy (${dy.rank}) must match`);\n\n let xShape4D = xShape as [number, number, number,
number];\n let dy4D = dy as Tensor4D;\n let reshapedTo4D = false;\n if (dy.rank === 3) {\n   reshapedTo4D = true;\n   dy4D = reshape(dy, [1, dy.shape[0], dy.shape[1], dy.shape[2]]);\n   xShape4D = [1, xShape[0], xShape[1], xShape[2]];\n }\n\n util.assert(\n   xShape4D.length === 4,\n   () =>\n   `Error in conv2dDerInput: inShape must be length 4, but got length ` +\n   `${xShape4D.length}.`);\n util.assert(\n   dy4D.rank === 4,\n   () => `Error in conv2dDerInput: dy must be rank 4, but got ` +\n   `rank ${dy4D.rank}`);\n util.assert(\n   filter.rank === 4,\n   () => `Error in conv2dDerInput: filter must be rank 4, but got ` +\n   `rank ${filter.rank}`);\n const inDepth = dataFormat === 'NHWC' ? xShape4D[3] : xShape4D[1];\n const outDepth = dataFormat === 'NHWC' ? dy4D.shape[3] : dy4D.shape[1];\n util.assert(\n   inDepth === filter.shape[2],\n   () => `Error in conv2dDerInput: depth of input (${inDepth}) must ` +\n
      `match input depth for filter ${filter.shape[2]}.`);\n util.assert(\n   outDepth === filter.shape[3],\n   () => `Error in conv2dDerInput: depth of output (${outDepth}) must ` +\n   `match output depth for filter ${filter.shape[3]}.`);\n if (dimRoundingMode != null) {\n   util.assert(\n   util.isInt(pad as number),\n   () => `Error in conv2dDerInput: pad must be an integer when using, ` +\n   `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n const inputs: Conv2DBackpropInputInputs = {dy: dy4D, filter};\n\n const attrs: Conv2DBackpropInputAttrs =\n   {strides, pad, dataFormat, dimRoundingMode, inputShape: xShape4D};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   Conv2DBackpropInput, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n   return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const conv2DBackpropInput = op({conv2DBackpropInput_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {conv2DBackpropInput} from './conv2d_backprop_input';\nimport

{op} from './operation';\n\n/**\n * Computes the transposed 2D convolution of an image, also known as a\n * deconvolution.\n *\n * @param x The input image, of rank 4 or rank 3, of shape\n * `[batch, height, width, inDepth]`. If rank 3, batch of 1 is assumed.\n * @param filter The filter, rank 4, of shape\n * `[filterHeight, filterWidth, outDepth, inDepth]`.\n * `inDepth` must match `inDepth` in `x`.\n * @param outputShape Output shape, of rank 4 or rank 3:\n * `[batch, height, width, outDepth]`. If rank 3, batch of 1 is assumed.\n * @param strides The strides of the original convolution:\n * `[strideHeight, strideWidth]`.\n * @param pad The type of padding algorithm used in the non-transpose version\n * of the op.\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n * provided, it will default to truncate.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction conv2dTranspose_<T extends Tensor3D|Tensor4D>(\n x: T|TensorLike, filter: Tensor4D|TensorLike,\n outputShape: [number, number, number, number]|[number, number, number],\n strides: [number, number]|number, pad: 'valid'|'same'|number,\n dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n const $x = convertToTensor(x, 'x', 'conv2dTranspose');\n const $filter = convertToTensor(filter, 'filter', 'conv2dTranspose');\n\n return conv2DBackpropInput(\n outputShape, $x, $filter, strides, pad, 'NHWC', dimRoundingMode);\n}\n\nexport const conv2dTranspose = op({conv2dTranspose_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\nimport {ENGINE} from '../engine';\nimport {Conv3D, Conv3DAttrs, Conv3DInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor4D, Tensor5D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {eitherStridesOrDilationsAreOne} from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes a 3D convolution over the input x.\n *\n * @param x The input tensor, of rank 5 or rank 4, of shape\n * `[batch, depth, height, width, channels]`. If rank 4,\n * batch of 1 is assumed.\n * @param filter The filter, rank 5, of shape\n * `[filterDepth, filterHeight, filterWidth, inChannels, outChannels]`.\n * inChannels must match between input and filter.\n * @param strides The strides of the convolution: `[strideDepth, strideHeight,\n * strideWidth]`.\n * @param pad The type of padding algorithm.\n * - `same` and stride 1: output will be of same size as input,\n * regardless of filter size.\n * - `valid`: output will be smaller than input if filter is larger\n * than 1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat: An optional string from: \"NDHWC\", \"NCDHW\". Defaults to\n * \"NDHWC\". Specify the data format of the input and output data. With the\n * default format \"NDHWC\", the data is stored in the order of: [batch,\n * depth, height, width, channels].\n * Only \"NDHWC\" is currently supported.\n * @param dilations The dilation rates: `[dilationDepth, dilationHeight,\n * dilationWidth]` in which we sample input values across the height\n * and width dimensions in atrous convolution. Defaults to `[1, 1, 1]`.\n * If `dilations` is a single number, then\n * `dilationDepth == dilationHeight == dilationWidth`. If it is greater\n * than 1, then all values of `strides` must be 1.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction conv3d_<T extends Tensor4D|Tensor5D>(\n x: T|TensorLike, filter: Tensor5D|TensorLike,\n strides: [number, number, number]|number, pad: 'valid'|'same',\n dataFormat: 'NDHWC'|'NCDHW' = 'NDHWC',\n dilations: [number, number, number]|number = [1, 1, 1]): T {\n const $x = convertToTensor(x, 'x', 'conv3d');\n const $filter =

convertToTensor(filter, 'filter', 'conv3d');\n\n let x5D = $x as Tensor5D;\n let reshapedTo5D = false;\n\n if ($x.rank === 4) {\n
    reshapedTo5D = true;\n   x5D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2], $x.shape[3]]);\n }\n util.assert(\n   x5D.rank === 5,\n   () => `Error in conv3d: input must be rank 5, but got rank ${x5D.rank}.`);\n util.assert(\n $filter.rank === 5,\n   () => `Error in conv3d: filter must be rank 5, but got rank ` +\n   `${$filter.rank}.`);\n util.assert(\n   x5D.shape[4] === $filter.shape[3],\n   () => `Error in conv3d: depth of input (${x5D.shape[4]}) must match ` +\n   `input depth for filter ${$filter.shape[3]}.`);\n util.assert(\n   eitherStridesOrDilationsAreOne(strides, dilations),\n   () => 'Error in conv3D: Either strides or dilations must be 1. ' +\n   `Got strides ${strides} and dilations '${dilations}'`);\n util.assert(\n   dataFormat === 'NDHWC',\n   () => `Error in conv3d: got dataFormat of ${\n          dataFormat} but only NDHWC is currently supported.`);\n\n const inputs: Conv3DInputs = {x: x5D, filter:
  $filter};\n\n const attrs: Conv3DAttrs = {strides, pad, dataFormat, dilations};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   Conv3D, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo5D) {\n   return reshape(\n   res, [res.shape[1], res.shape[2], res.shape[3], res.shape[4]]) as\n   T;\n }\n return res;\n}\n\nexport const conv3d = op({conv3d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND,
  either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {ENGINE} from '../engine';\nimport {Conv3DBackpropInputV2, Conv3DBackpropInputV2Attrs, Conv3DBackpropInputV2Inputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor4D, Tensor5D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the derivative of the input of a 3D convolution.\n *\n * @param xShape The shape of the input: [batch, depth, height, width,\n * in_channels]. If length of 4, batch of 1 is assumed.\n * @param dy The derivative of the output, of rank 5 or rank 4 of shape\n *   `[batch, outDepth, outHeight, outWidth, in_channels]`.\n * If rank 4, batch of 1 is assumed.\n
 * @param filter The filter, rank 5, of shape\n *   `[filterDepth, filterHeight, filterWidth, inDepth, outDepth]`.\n * @param strides The strides of the convolution: `[strideDepth, strideHeight,\n * strideWidth]`.\n * @param pad The type of padding algorithm used:\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *   than 1x1.\n */\nfunction conv3DBackpropInput_<T extends Tensor4D|Tensor5D>(\n   xShape:\n   [number, number, number, number,\n   number]|[number, number, number, number],\n   dy: T, filter: Tensor5D, strides: [number, number, number]|number,\n   pad: 'valid'|'same'): T {\n util.assert(\n   xShape.length === dy.rank,\n   () => `Length of inShape ` +\n   `(${xShape.length}) and rank of dy (${dy.rank}) must match`);\n\n let xShape5D = xShape as [number, number, number, number, number];\n let dy5D = dy as Tensor5D;\n
  let reshapedTo5D = false;\n if (dy.rank === 4) {\n   reshapedTo5D = true;\n   dy5D = reshape(dy, [1, dy.shape[0], dy.shape[1], dy.shape[2], dy.shape[3]]);\n   xShape5D = [1, xShape[0], xShape[1], xShape[2], xShape[3]];\n }\n\n const inDepth = xShape5D[4];\n const outDepth = dy5D.shape[4];\n util.assert(\n   xShape5D.length === 5,\n   () =>\n   `Error in conv3dDerInput: inShape must be length 5, but got length ` +\n   `${xShape5D.length}.`);\n util.assert(\n   dy5D.rank === 5,\n   () => `Error in conv3dDerInput: dy must be rank 5, but got ` +\n   `rank ${dy5D.rank}`);\n util.assert(\n   filter.rank === 5,\n   () => `Error in conv3dDerInput: filter must be rank 5, but got ` +\n   `rank ${filter.rank}`);\n util.assert(\n   inDepth === filter.shape[3],\n   () => `Error in conv3dDerInput: depth of input (${inDepth}) must ` +\n   `match input

depth for filter ${filter.shape[3]}.`);\n util.assert(\n   outDepth === filter.shape[4],\n
    () => `Error in conv3dDerInput: depth of output (${outDepth}) must ` +\n   `match output depth for filter ${filter.shape[4]}.`);\n\n const inputs: Conv3DBackpropInputV2Inputs = {dy: dy5D, filter};\n\n const attrs:\n Conv3DBackpropInputV2Attrs = {pad, strides, inputShape: xShape5D};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   Conv3DBackpropInputV2, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo5D) {\n   return reshape(\n   res, [res.shape[1], res.shape[2], res.shape[3], res.shape[4]]) as\n   T;\n }\n return res;\n}\n\nexport const conv3DBackpropInput = op({conv3DBackpropInput_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {Tensor4D, Tensor5D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {conv3DBackpropInput} from './conv3d_backprop_input';\nimport {op} from './operation';\n\n/**\n * Computes the transposed 3D convolution of a volume, also known as a\n * deconvolution.\n *\n * @param x The input image, of rank 5 or rank 4, of shape\n *   `[batch, depth, height, width, inDepth]`. If rank 4, batch of 1 is assumed.\n * @param filter The filter, rank 4, of shape\n *   `[depth, filterHeight, filterWidth, outDepth, inDepth]`.\n *   `inDepth` must match `inDepth` in `x`.\n * @param outputShape Output shape, of rank 5 or rank 4:\n *   `[batch, depth, height, width, outDepth]`. If rank 3, batch of 1 is\n *   assumed.\n * @param strides The strides of the original convolution:\n *   `[strideDepth, strideHeight, strideWidth]`.\n * @param pad The type of padding algorithm used in the non-transpose version\n *   of the op.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction conv3dTranspose_<T extends Tensor4D|Tensor5D>(\n   x: T|TensorLike, filter: Tensor5D|TensorLike,\n   outputShape:\n   [number, number, number, number,\n   number]|[number, number, number, number],\n   strides: [number, number, number]|number, pad: 'valid'|'same'): T {\n const $x = convertToTensor(x, 'x', 'conv3dTranspose');\n const $filter = convertToTensor(filter, 'filter', 'conv3dTranspose');\n\n return conv3DBackpropInput(outputShape, $x, $filter, strides, pad);\n}\n\nexport const conv3dTranspose = op({conv3dTranspose_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Cos, CosInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from\n '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes cos of the input `tf.Tensor` element-wise: `cos(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, Math.PI / 2, Math.PI * 3 / 4]);\n *\n * x.cos().print(); // or tf.cos(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction cos_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'cos');\n\n const inputs: CosInputs = {x: $x};\n\n return ENGINE.runKernel(Cos, inputs as {} as NamedTensorMap);\n}\nexport const cos = op({cos_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the

License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {ENGINE} from '../engine';\nimport {Cosh, CoshInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes hyperbolic cos of the input `tf.Tensor` element-wise: `cosh(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.cosh().print(); // or tf.cosh(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction cosh_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'cosh');\n const inputs: CoshInputs = {x: $x};\n\n return ENGINE.runKernel(Cosh, inputs as {} as NamedTensorMap);\n}\nexport const cosh = op({cosh_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {ENGINE} from '../engine';\nimport {Cumsum, CumsumAttrs, CumsumInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the cumulative sum of a `tf.Tensor` along `axis`.\n *\n * ```js\n * const x = tf.tensor([1, 2, 3, 4]);\n * x.cumsum().print();\n * ```\n * ```js\n * const x = tf.tensor([[1, 2], [3, 4]]);\n * x.cumsum().print();\n * ```\n *\n * @param x The input tensor to be summed.\n * @param axis The axis along which to sum. Optional. Defaults to 0.\n * @param exclusive Whether to perform exclusive cumulative sum. Optional.\n *   Defaults to false. If set to true then the sum of each tensor entry\n *   does not include its own value, but only the values previous to it\n *   along the specified axis.\n * @param reverse Whether to sum in the opposite direction. Optional.\n *   Defaults to false.\n *\n * @doc {heading: 'Operations', subheading: 'Scan'}\n */\nfunction cumsum_<T extends Tensor>(\n   x: Tensor|TensorLike, axis = 0, exclusive = false, reverse = false): T {\n const $x = convertToTensor(x, 'x', 'cumsum');\n\n const inputs: CumsumInputs = {x: $x};\n const attrs: CumsumAttrs = {axis, exclusive, reverse};\n\n return ENGINE.runKernel(\n   Cumsum, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const cumsum = op({cumsum_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {ENGINE} from '../engine';\nimport {DenseBincount, DenseBincountAttrs, DenseBincountInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor1D, Tensor2D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from

'../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Outputs a vector with length `size` and the same dtype as `weights`.\n *\n * If `weights` are empty, then index `i` stores the number of times the value\n * `i` is counted in `x`. If `weights` are non-empty, then index `i` stores the\n * sum of the value in `weights` at each index where the corresponding value in\n * `x` is `i`.\n *\n * Values in `x` outside of the range [0, size) are ignored.\n *\n * @param x The input int tensor, rank 1 or rank 2.\n * @param weights The weights tensor, must have the same shape as x, or a\n * length-0 Tensor, in which case it acts as all weights equal to 1.\n * @param size Non-negative integer.\n * @param binaryOutput Optional. Whether the kernel should count the appearance\n * or number of occurrences. Defaults to False.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction denseBincount_<T extends Tensor1D|Tensor2D>(\n x: T|TensorLike, weights: T|TensorLike, size: number,\n binaryOutput = false): T {\n const $x = convertToTensor(x, 'x', 'denseBincount');\n const $weights = convertToTensor(weights, 'weights', 'denseBincount');\n\n util.assert(\n $x.dtype === 'int32',\n () => `Error in denseBincount: input ` +\n `dtype must be int32, but got ${$x.dtype}`);\n util.assert($x.rank <= 2,\n () => `Error in denseBincount: input must be at most rank 2, but got ` +\n `rank ${$x.rank}.`);\n util.assert(size >= 0, () => `size must be non-negative, but got ${size}.`);\n util.assert(\n $weights.size === $x.size || $weights.size === 0,\n () =>\n `Error in denseBincount: weights must have the same shape as x or ` +\n `0-length, but got x shape: ${$x.shape}, weights shape: ` +\n `${$weights.shape}.`);\n\n const inputs: DenseBincountInputs = {x: $x, weights: $weights};\n const attrs: DenseBincountAttrs = {size, binaryOutput};\n\n return ENGINE.runKernel(\n DenseBincount, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n}\n\nexport const denseBincount = op({denseBincount_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {ENGINE} from '../engine';\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike4D} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Rearranges data from depth into blocks of spatial data. More specifically,\n * this op outputs a copy of the input tensor where values from the `depth`\n * dimension are moved in spatial blocks to the `height` and `width` dimensions.\n * The attr `blockSize` indicates the input block size and how the data is\n * moved.\n *\n * - Chunks of data of size `blockSize * blockSize` from depth are rearranged\n * into non-overlapping blocks of size `blockSize x blockSize`\n *\n * - The width the output tensor is `inputWidth * blockSize`, whereas the\n * height is `inputHeight * blockSize`\n *\n * - The Y, X coordinates within each block of the output image are determined\n * by the high order component of the input channel index\n *\n * - The depth of the input tensor must be divisible by `blockSize *\n * blockSize`\n *\n * The `dataFormat` attr specifies the layout of the input and output tensors\n * with the following options: \"NHWC\": [`batch, height, width, channels`]\n * \"NCHW\": [`batch, channels, height, width`]\n *\n * ```js\n * const x = tf.tensor4d([1, 2, 3, 4], [1, 1, 1, 4]);\n * const blockSize = 2;\n * const dataFormat = \"NHWC\";\n *\n * tf.depthToSpace(x, blockSize, dataFormat).print();\n * ```\n *\n * @param x The input tensor of rank 4\n * @param blockSIze An `int` that is `>= 2`. The size of the spatial block\n * @param dataFormat An optional string from: \"NHWC\", \"NCHW\". Defaults to \"NHWC\"\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction depthToSpace_(\n x: Tensor4D|TensorLike4D, blockSize: number,\n dataFormat: 'NHWC'|'NCHW' = 'NHWC'): Tensor4D {\n const $x = convertToTensor(x, 'x', 'depthToSpace') as Tensor4D;\n\n const inputHeight = (dataFormat === 'NHWC') ? $x.shape[1] : $x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ?

$x.shape[2] : $x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? $x.shape[3] : $x.shape[1];\n\n util.assert(\n   inputHeight * blockSize >= 0,\n   () => `Negative dimension size caused by overflow when multiplying\n    ${inputHeight} and ${blockSize}  for depthToSpace with input shape\n    ${$x.shape}`);\n\n util.assert(\n inputWidth * blockSize >= 0,\n   () => `Negative dimension size caused by overflow when multiplying\n ${inputWidth} and ${blockSize} for depthToSpace with input shape\n        ${$x.shape}`);\n\n util.assert(\n (inputDepth % (blockSize * blockSize) === 0),\n   () => `Dimension size must be evenly divisible by ${\n blockSize * blockSize} but is ${\n           inputDepth} for depthToSpace with input shape ${$x.shape}`);\n\n const inputs: DepthToSpaceInputs = {x: $x};\n const attrs: DepthToSpaceAttrs = {blockSize, dataFormat};\n\n return ENGINE.runKernel(\n   DepthToSpace, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap);\n}\n\nexport const depthToSpace = op({depthToSpace_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
 use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {ENGINE} from '../engine';\nimport {DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs, DepthwiseConv2dNativeInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op}
 from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Depthwise 2D convolution.\n *\n * Given a 4D `input` array and a `filter` array of shape\n * `[filterHeight, filterWidth, inChannels, channelMultiplier]` containing\n * `inChannels` convolutional filters of depth 1, this op applies a\n * different filter to each input channel (expanding from 1 channel to\n * `channelMultiplier` channels for each), then concatenates the results\n * together. The output has `inChannels * channelMultiplier` channels.\n *\n * See\n * [https://www.tensorflow.org/api_docs/python/tf/nn/depthwise_conv2d](\n * https://www.tensorflow.org/api_docs/python/tf/nn/depthwise_conv2d)\n * for more details.\n *\n * @param x The input tensor, of rank 4 or rank 3, of shape\n *   `[batch, height, width, inChannels]`. If rank 3, batch of 1 is\n * assumed.\n * @param filter The filter tensor, rank 4, of shape\n *   `[filterHeight, filterWidth, inChannels, channelMultiplier]`.\n * @param strides The
 strides of the convolution: `[strideHeight,\n * strideWidth]`. If strides is a single number, then `strideHeight ==\n * strideWidth`.\n * @param pad The type of padding algorithm.\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *   than 1x1.\n *   - For more info, see this guide:\n *   [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *   https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n *   in which we sample input values across the height and width dimensions\n *   in atrous convolution. Defaults to `[1, 1]`. If `rate` is a single\n *   number, then `dilationHeight == dilationWidth`. If it is greater than\n *   1, then all values of `strides` must be 1.\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\". Defaults to\n
 *   \"NHWC\". Specify the data format of the input and output data. With the\n *   default format \"NHWC\", the data is stored in the order of: [batch,\n *   height, width, channels]. Only \"NHWC\" is currently supported.\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *   provided, it will default to truncate.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction depthwiseConv2d_<T extends Tensor3D|Tensor4D>(\n   x: T|TensorLike, filter: Tensor4D|TensorLike,\n   strides: [number,

number]|number, pad: 'valid'|'same'|number,\n dataFormat: 'NHWC'|'NCHW' = 'NHWC',\n dilations: [number, number]|number = [1, 1],\n dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n const $x = convertToTensor(x, 'x', 'depthwiseConv2d');\n const $filter = convertToTensor(filter, 'filter', 'depthwiseConv2d');\n\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n if ($x.rank === 3) {\n reshapedTo4D = true;\n x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n }\n util.assert(\n x4D.rank === 4,\n () => `Error in depthwiseConv2d: input must be rank 4, but got ` +\n `rank ${x4D.rank}.`);\n util.assert(\n $filter.rank === 4,\n () => `Error in depthwiseConv2d: filter must be rank 4, but got rank ` +\n `${$filter.rank}.`);\n util.assert(\n x4D.shape[3] === $filter.shape[2],\n () => `Error in depthwiseConv2d: number of input channels ` +\n `($x4D.shape[3]}) must match the inChannels dimension in ` +\n `filter ${$filter.shape[2]}.`);\n\n if (dimRoundingMode != null) {\n util.assert(\n util.isInt(pad as number),\n () => `Error in depthwiseConv2d: pad must be an integer when using, ` +\n `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n const inputs: DepthwiseConv2dNativeInputs = {x: x4D, filter: $filter};\n const attrs: DepthwiseConv2dNativeAttrs =\n {strides, pad, dataFormat, dilations, dimRoundingMode};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n DepthwiseConv2dNative, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const depthwiseConv2d = op({depthwiseConv2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Diag, DiagInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\n\nimport {op} from './operation';\n\n/**\n * Returns a diagonal tensor with a given diagonal values.\n *\n * Given a diagonal, this operation returns a tensor with the diagonal and\n * everything else padded with zeros.\n *\n * Assume the input has dimensions `[D1,..., Dk]`, then the output is a tensor\n * of rank 2k with dimensions `[D1,..., Dk, D1,..., Dk]`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n *\n * tf.diag(x).print()\n * ```\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4, 5, 6, 6, 8], [4, 2])\n *\n * tf.diag(x).print()\n * ```\n * @param x The input tensor.\n */\nfunction diag_(x: Tensor): Tensor {\n const $x = convertToTensor(x, 'x', 'diag');\n\n const inputs: DiagInputs = {x: $x};\n\n return ENGINE.runKernel(Diag, inputs as {} as NamedTensorMap);\n}\n\nexport const diag = op({diag_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Dilation2D, Dilation2DAttrs, Dilation2DInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the grayscale dilation over the input `x`.\n *\n * @param x The input tensor, rank 3 or rank 4 of shape\n * `[batch, height, width, inChannels]`. If rank 3, batch

of 1 is assumed.\n * @param filter The filter tensor, rank 3, of shape\n * `[filterHeight, filterWidth, depth]`.\n * @param strides The strides of the sliding window for each dimension of the\n * input tensor: `[strideHeight, strideWidth]`.\n * If `strides` is a single number,\n * then `strideHeight == strideWidth`.\n * @param pad The type of padding algorithm.\n * - `same` and stride 1: output
will be of same size as input,\n * regardless of filter size.\n * - `valid`: output will be smaller than input if filter is larger\n * than 1*1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat Specify the data format of the input and output data.\n * Defaults to 'NHWC'. Only 'NHWC' is currently supported. With the\n * default format \"NHWC\", the data is stored in the order of: [batch,\n * height, width, channels].\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n * in which we sample input values across the height and width dimensions\n * for atrous morphological dilation. Defaults to `[1, 1]`. If `dilations`\n * is a single number, then `dilationHeight == dilationWidth`. If it is\n * greater than 1, then all values of `strides` must be 1.\n *\n * @doc
{heading: 'Operations', subheading: 'Convolution'}\n */\nfunction dilation2d_<T extends Tensor3D|Tensor4D>(\n x: T|TensorLike, filter: Tensor3D|TensorLike,\n strides: [number, number]|number, pad: 'valid'|'same',\n dilations: [number, number]|number = [1, 1],\n dataFormat: 'NHWC' = 'NHWC'): T {\n const $x = convertToTensor(x, 'x', 'dilation2d');\n const $filter = convertToTensor(filter, 'filter', 'dilation2d');\n\n util.assert(\n $x.rank === 3 || $x.rank === 4,\n () => `Error in dilation2d: input must be rank 3 or 4, but got rank ` +\n `${$x.rank}.`);\n util.assert(\n $filter.rank === 3,\n () => `Error in dilation2d: filter must be rank 3, but got rank ` +\n `${$filter.rank}.`);\n util.assert(\n dataFormat === 'NHWC',\n () => `Error in dilation2d: Only NHWC is currently supported, ` +\n `but got dataFormat of ${dataFormat}`);\n\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n\n if ($x.rank === 3) {\n x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n reshapedTo4D = true;\n }\n\n const inputs: Dilation2DInputs = {x: x4D, filter: $filter};\n const attrs: Dilation2DAttrs = {strides, pad, dilations};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n Dilation2D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n\n return res;\n}\n\nexport const dilation2d = op({dilation2d_});\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\n/**\n * Returns the dimensions in the input shape that are broadcasted to\n * produce the provided output shape.\n *\n * The returned dimensions are 0-indexed and sorted. An example:\n * inShape = [4, 1, 3]\n * outShape = [5, 4, 3, 3]\n * result = [1]. Dimension 1 (2nd dimension of input) gets broadcasted 1 => 3.\n */\nexport function getBroadcastDims(\n inShape: number[], outShape: number[]): number[] {\n const inRank = inShape.length;\n const dims: number[] = [];\n for (let i = 0; i < inRank; i++) {\n const dim = inRank - 1 - i;\n const a = inShape[dim] || 1;\n const b = outShape[outShape.length - 1 - i] || 1;\n if (b > 1 && a === 1)
{\n dims.unshift(dim);\n }\n }\n return dims;\n}\n\n/**\n * Returns the axes in the output space that should be reduced to produce\n * the input space.\n */\nexport function getReductionAxes(\n inShape: number[], outShape: number[]): number[] {\n const result: number[] = [];\n for (let i = 0; i < outShape.length; i++) {\n const inDim = inShape[inShape.length - i - 1];\n const outAxis = outShape.length - i - 1;\n const outDim = outShape[outAxis];\n if (inDim == null || (inDim === 1 && outDim > 1)) {\n result.unshift(outAxis);\n }\n }\n return result;\n}\n\nexport function assertAndGetBroadcastShape(\n shapeA: number[], shapeB: number[]):

number[] {\n const result: number[] = [];\n const l = Math.max(shapeA.length, shapeB.length);\n\n for (let i = 0; i < l; i++) {\n   let a = shapeA[shapeA.length - i - 1];\n   if (a == null) {\n   a = 1;\n   }\n   let b = shapeB[shapeB.length - i - 1];\n   if (b == null) {\n   b = 1;\n   }\n   if (a === 1) {\n   result.unshift(b);\n   } else if (b === 1) {\n   result.unshift(a);\n   } else if (a !== b) {\n   const errMsg = `Operands could not be broadcast together with shapes ` +\n   `${shapeA} and ${shapeB}.`;\n   throw Error(errMsg);\n   } else {\n   result.unshift(a);\n   }\n }\n return result;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {ENGINE} from '../engine';\nimport {Equal, EqualInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of (a == b) element-wise. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([2, 2, 2]);\n *\n * a.equal(b).print();\n * ```\n *\n * @param a The first input tensor.\n * @param b The second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction equal_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'equal');\n let $b = convertToTensor(b, 'b', 'equal');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: EqualInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Equal, inputs as {} as NamedTensorMap);\n}\n\nexport const equal = op({equal_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Select, SelectInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assert, assertShapesMatch} from '../util';\n\nimport {broadcastTo} from './broadcast_to';\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the elements, either `a` or `b` depending on the `condition`.\n *\n * If the condition is true, select from `a`, otherwise select from `b`.\n *\n * ```js\n * const cond = tf.tensor1d([false, false, true], 'bool');\n * const a = tf.tensor1d([1 , 2, 3]);\n * const b = tf.tensor1d([-1, -2, -3]);\n *\n * a.where(cond, b).print();\n * ```\n *\n * @param condition The input condition. Must be of dtype bool.\n * @param a If `condition` is rank 1, `a` may have a higher rank but\n *   its first dimension must match the size of `condition`.\n * @param b A tensor with the same dtype as `a` and with shape that is\n * compatible with `a`.\n * @return A tensor with same dtype as `a` and `b`, and shape that is\n *   broadcastable from `a` and `b`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction where_<T extends Tensor>(\n   condition: Tensor|TensorLike, a: T|TensorLike, b: T|TensorLike): T {\n const $a = convertToTensor(a, 'a', 'where');\n const $b = convertToTensor(b, 'b', 'where');\n const $condition = convertToTensor(condition, 'condition', 'where', 'bool');\n // TODO: move this logic to forward function when the broadcastTo op is\n // implemented in WASM.\n // Find the broadcastable shape for $a and $b.\n const

broadcastShape = assertAndGetBroadcastShape($a.shape, $b.shape);\n const $broadcastedA = broadcastTo($a, broadcastShape);\n const $broadcastedB = broadcastTo($b, broadcastShape);\n if ($condition.rank === 1) {\n   // If condition rank is
1, then the first dimension must match the size of\n   // condition.\n   assert(\n $condition.shape[0] === $a.shape[0],\n   () => 'The first dimension of `a` must match the size of `condition`.');\n }\n\n if ($condition.rank !== 1) {\n   // A must have the same shape as condition.\n   assertShapesMatch(\n $condition.shape, $broadcastedB.shape, 'Error in where: ');\n }\n\n const inputs: SelectInputs = {\n   condition: $condition,\n   t: $broadcastedA,\n   e: $broadcastedB\n };\n return ENGINE.runKernel(Select, inputs as unknown as NamedTensorMap);\n}\n\nexport const where = op({where_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {ZerosLike, ZerosLikeInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Creates a `tf.Tensor` with all elements set to 0 with the same shape as the\n * given tensor.\n *\n * ```js\n * const x = tf.tensor([1, 2]);\n * tf.zerosLike(x).print();\n * ```\n *\n * @param x The tensor of required shape.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction zerosLike_<T extends Tensor>(x:
T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'zerosLike');\n const inputs: ZerosLikeInputs = {x: $x};\n return ENGINE.runKernel(ZerosLike, inputs as {} as NamedTensorMap);\n}\nexport const zerosLike = op({zerosLike_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor} from '../tensor';\nimport
{makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {div} from './div';\nimport {equal} from './equal';\nimport {op} from './operation';\nimport {where} from './where';\nimport {zerosLike} from './zeros_like';\n\n/**\n * Divides two `tf.Tensor`s element-wise, A / B. Supports broadcasting. Return 0\n * if denominator is 0.\n *\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 9, 16]);\n * const b = tf.tensor1d([1, 2, 3, 4]);\n * const c = tf.tensor1d([0, 0, 0, 0]);\n *\n * a.divNoNan(b).print(); // or tf.divNoNan(a, b)\n * a.divNoNan(c).print(); // or tf.divNoNan(a, c)\n * ```\n *\n * ```js\n * // Broadcast div a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(2);\n * const c = tf.scalar(0);\n *\n * a.divNoNan(b).print(); // or tf.divNoNan(a, b)\n * a.divNoNan(c).print(); // or tf.divNoNan(a, c)\n * ```\n *\n * @param a The first tensor as the numerator.\n * @param b
The second tensor as the denominator. Must have the same dtype as\n * `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction divNoNan_<T extends Tensor>(\n   a: Tensor|TensorLike, b:
Tensor|TensorLike): T {\n // TODO: Make this into its own kernel.\n let $a = convertToTensor(a, 'a', 'div');\n let $b = convertToTensor(b, 'b', 'div');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const divResult = div($a, $b);\n const zeros = zerosLike(divResult);\n const bEqualsZero = equal($b, zeros);\n return where(bEqualsZero, zeros, divResult) as T;\n}\n\nexport const divNoNan = op({divNoNan_});\n","/**\n * @license\n * Copyright 2020

Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
 * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor,} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {matMul} from './mat_mul';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the dot product of two matrices and/or vectors, `t1` and `t2`.\n *\n * ```js\n * const a = tf.tensor1d([1, 2]);\n * const b = tf.tensor2d([[1, 2], [3, 4]]);\n * const c = tf.tensor2d([[1, 2, 3], [4, 5, 6]]);\n *\n * a.dot(b).print(); // or tf.dot(a, b)\n * b.dot(a).print();\n * b.dot(c).print();\n * ```\n * @param t1 The first tensor in the dot operation.\n *
 @param t2 The second tensor in the dot operation.\n *\n * @doc {heading: 'Operations', subheading: 'Matrices'}\n */\nfunction dot_(t1: Tensor|TensorLike, t2: Tensor|TensorLike): Tensor {\n const $t1 = convertToTensor(t1, 't1', 'dot');\n const $t2 = convertToTensor(t2, 't2', 'dot');\n\n util.assert(\n   ($t1.rank === 1 || $t1.rank === 2) && ($t2.rank === 1 || $t2.rank === 2),\n   () => `Error in dot: inputs must all be rank 1 or 2, but got ranks ` +\n `${$t1.rank} and ${$t2.rank}.`);\n\n const t1Inner = ($t1.rank === 1 ? $t1.size : $t1.shape[1]);\n const t2Inner = ($t2.rank === 1 ? $t2.size : $t2.shape[0]);\n\n util.assert(\n   t1Inner === t2Inner,\n   () => `Error in dot: inner dimensions of inputs must match, but got ` +\n   `${t1Inner} and ${t2Inner}.`);\n\n if ($t1.rank === 1 && $t2.rank === 1) {\n   const t12D = reshape($t1, [1, -1]);\n   const t22D = reshape($t2, [-1, 1]);\n   const t1t2 = matMul(t12D, t22D);\n   return reshape(t1t2, []);\n
 } else if ($t1.rank === 1 && $t2.rank === 2) {\n   const t12D = reshape($t1, [1, -1]);\n   const t22D = reshape($t2, [$t2.shape[0], $t2.shape[1]]);\n   const t1t2 = matMul(t12D, t22D);\n   return reshape(t1t2, [t1t2.size]);\n } else if ($t1.rank === 2 && $t2.rank === 1) {\n   const t22D = reshape($t2, [-1, 1]);\n   const t1t2 = matMul($t1, t22D);\n
 return reshape(t1t2, [t1t2.size]);\n } else {\n   const t22D = reshape($t2, [$t2.shape[0], $t2.shape[1]]);\n   const t1t2 = matMul($t1, t22D);\n   return t1t2;\n }\n}\n\nexport const dot = op({dot_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on
 an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Elu, EluInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes exponential linear element-wise: `x > 0 ? e ^ x - 1 : 0`.\n *\n * ```js\n * const x = tf.tensor1d([-1, 1, -3, 2]);\n *\n * x.elu().print(); // or tf.elu(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction elu_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'elu');\n\n const inputs: EluInputs
 = {x: $x};\n\n return ENGINE.runKernel(Elu, inputs as {} as NamedTensorMap);\n}\n\nexport const elu = op({elu_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed

on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Erf, ErfInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {cast} from './cast';\nimport {op} from './operation';\n\n/**\n * Computes gause error function of the input `tf.Tensor` element-wise:\n * `erf(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, .1, -.1, .7]);\n *\n * x.erf().print(); // or tf.erf(x);\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction erf_<T extends Tensor>(x: T|TensorLike): T {\n let $x = convertToTensor(x, 'x', 'erf');\n util.assert(\n $x.dtype === 'int32' || $x.dtype === 'float32',\n   () => 'Input dtype must be `int32` or `float32`.');\n\n if ($x.dtype === 'int32') {\n $x = cast($x, 'float32');\n }\n\n const inputs: ErfInputs = {x: $x};\n return ENGINE.runKernel(Erf, inputs as {} as NamedTensorMap);\n}\nexport const erf = op({erf_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Exp, ExpInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes exponential of the input `tf.Tensor` element-wise. `e ^ x`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, -3]);\n *\n * x.exp().print(); // or tf.exp(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction exp_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'exp');\n\n const inputs: ExpInputs = {x: $x};\n return ENGINE.runKernel(Exp, inputs as {} as NamedTensorMap);\n}\nexport const exp = op({exp_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Returns a `tf.Tensor` that has expanded rank, by inserting a dimension\n * into the tensor's shape.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n * const axis = 1;\n * x.expandDims(axis).print();\n * ```\n *\n * @param x The input tensor whose dimensions to be expanded.\n * @param axis The dimension index at which to insert shape of `1`. Defaults\n *

to 0 (the first dimension).\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction expandDims_<T extends Tensor>(x: Tensor|TensorLike, axis = 0): T {\n const $x = convertToTensor(x, 'x', 'expandDims', 'string_or_numeric');\n\n util.assert(axis <= $x.rank, () => 'Axis must be <= rank of the tensor');\n\n const inputs: ExpandDimsInputs = {input: $x};\n const attrs: ExpandDimsAttrs = {dim: axis};\n\n return ENGINE.runKernel(\n   ExpandDims, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const expandDims = op({expandDims_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the
License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Expm1, Expm1Inputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes exponential of the input `tf.Tensor` minus one element-wise.\n * `e ^ x - 1`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, -3]);\n *\n * x.expm1().print(); // or tf.expm1(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction expm1_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x,
'x', 'expm1');\n\n const inputs: Expm1Inputs = {x: $x};\n return ENGINE.runKernel(Expm1, inputs as {} as NamedTensorMap);\n}\nexport const expm1 = op({expm1_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Tile, TileAttrs, TileInputs} from '../kernel_names';\nimport
{NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Construct a tensor by repeating it the number of times given by reps.\n *\n * This operation creates a new tensor by replicating `input` `reps`\n * times. The output tensor's i'th dimension has `input.shape[i] *\n * reps[i]` elements, and the values of `input` are replicated\n * `reps[i]` times along the i'th dimension. For example, tiling\n * `[a, b, c, d]` by `[2]` produces `[a, b, c, d, a, b, c, d]`.\n *\n * ```js\n * const a = tf.tensor1d([1, 2]);\n *\n * a.tile([2]).print();   // or a.tile([2])\n * ```\n *\n * ```js\n * const a = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * a.tile([1, 2]).print(); // or a.tile([1, 2])\n * ```\n * @param x The tensor to tile.\n * @param reps Determines
the number of replications per dimension.\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction tile_<T extends Tensor>(x: T|TensorLike, reps: number[]): T {\n const $x = convertToTensor(x, 'x', 'tile', 'string_or_numeric');\n util.assert(\n $x.rank === reps.length,\n   () => `Error in transpose: rank of input ${$x.rank} ` +\n   `must match length of reps ${reps}.`);\n\n const inputs: TileInputs = {x: $x};\n const attrs: TileAttrs = {reps};\n\n return ENGINE.runKernel(\n   Tile, inputs as unknown as NamedTensorMap,\n   attrs as unknown as NamedAttrMap);\n}\n\nexport const tile = op({tile_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor2D} from '../tensor';\nimport {DataType} from '../types';\n\nimport {buffer} from
'./buffer';\nimport {expandDims} from './expand_dims';\nimport {op} from './operation';\nimport {reshape} from
'./reshape';\nimport {tile} from './tile';\n\n/**\n * Create an identity matrix.\n *\n * @param numRows Number of
rows.\n * @param numColumns Number of columns. Defaults to `numRows`.\n * @param batchShape If provided,
will add the batch shape to the beginning\n * of the shape of the returned `tf.Tensor` by repeating the identity\n *
matrix.\n * @param dtype Data type.\n * @returns Identity matrix of
the specified size and data type, possibly\n * with batch repetition if `batchShape` is specified.\n *\n * @doc
{heading: 'Tensors', subheading: 'Creation'}\n */\nfunction eye_(\n numRows: number, numColumns?: number,\n
batchShape?:\n [\n number\n]|[number,\n number]|[number, number, number]|[number,
number, number, number],\n dtype: DataType = 'float32'): Tensor2D {\n if (numColumns == null) {\n
numColumns = numRows;\n }\n const buff = buffer([numRows, numColumns], dtype);\n const n = numRows <=
numColumns ? numRows : numColumns;\n for (let i = 0; i < n; ++i) {\n buff.set(1, i, i);\n }\n const out:
Tensor2D = reshape(buff.toTensor(), [numRows, numColumns]);\n if (batchShape == null) {\n return out;\n }
else {\n if (batchShape.length === 1) {\n return tile(expandDims(out, 0), [batchShape[0], 1, 1]) as Tensor2D;\n
} else if (batchShape.length === 2) {\n // tslint:disable-next-line:no-unnecessary-type-assertion\n
return tile(\n expandDims(expandDims(out, 0), 0),\n [batchShape[0], batchShape[1], 1, 1])
as Tensor2D;\n } else if (batchShape.length === 3) {\n // tslint:disable-next-line:no-unnecessary-type-
assertion\n return tile(expandDims(expandDims(expandDims(out, 0), 0), 0), [\n batchShape[0],
batchShape[1], batchShape[2], 1, 1\n]) as Tensor2D;\n } else {\n throw new Error(\n `eye()
currently supports only 1D and 2D ` +\n // tslint:disable-next-line:no-any\n `batchShapes, but received
${(batchShape as any).length}D.`);\n }\n }\n}\n\nexport const eye = op({eye_});\n","/**\n * @license\n *
Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Fill, FillAttrs} from '../kernel_names';\nimport {NamedAttrMap}
from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from
'../types';\n\n/**\n * Creates a `tf.Tensor` filled with a scalar value.\n *\n * ```js\n * tf.fill([2, 2], 4).print();\n * ```\n
*\n * @param shape An array of integers defining the output tensor shape.\n * @param value The scalar value to fill
the tensor with.\n * @param dtype The type of an element in the resulting tensor. Defaults to\n * 'float'.\n *\n *
@doc {heading: 'Tensors',
subheading: 'Creation'}\n */\nfunction fill<R extends Rank>(\n shape: ShapeMap[R], value: number|string,
dtype?: DataType): Tensor<R> {\n const attrs: FillAttrs = {shape, value, dtype};\n\n return
ENGINE.runKernel(Fill, {}, attrs as {} as NamedAttrMap);\n}\n\nexport {fill};\n","/**\n * @license\n * Copyright
2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n *
you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *

```
=============================================================================\n
 */\nimport {ENGINE} from '../engine';\nimport {Floor, FloorInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
floor of input `tf.Tensor` element-wise: `floor(x)`.\n *\n * ```js\n * const x = tf.tensor1d([.6, 1.1, -3.3]);\n *\n *
x.floor().print();  // or tf.floor(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations',
subheading: 'Basic math'}\n */\nfunction floor_<T extends Tensor>(x: T|TensorLike): T {\n  const $x =
convertToTensor(x, 'x', 'floor');\n\n  const inputs: FloorInputs = {x: $x};\n  return ENGINE.runKernel(Floor, inputs
as {} as NamedTensorMap);\n}\nexport const floor = op({floor_});\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may
 not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {GatherV2, GatherV2Attrs, GatherV2Inputs} from
'../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport
{NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Gather slices from tensor `x`'s axis `axis`
according
 to `indices`.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n * const indices = tf.tensor1d([1, 3, 3], 'int32');\n *\n
* x.gather(indices).print();\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n * const indices =
tf.tensor1d([1, 1, 0], 'int32');\n *\n * x.gather(indices).print();\n * ```\n * @param x The input tensor whose slices to
be gathered.\n * @param indices The indices of the values to extract.\n * @param axis The axis over which to select
values. Defaults to 0.\n * @param batchDims Optional. The number of batch dimensions. It must be less\n *     than
or equal to rank(indices). Defaults to 0.\n *     The output tensor will have shape of\n *     `x.shape[:axis] +
indices.shape[batchDims:] + x.shape[axis + 1:]`\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and
Joining'}\n */\nfunction gather_<T extends Tensor>(\n    x: T|TensorLike, indices: Tensor|TensorLike, axis = 0,
batchDims = 0): T {\n  const $x = convertToTensor(x, 'x',
 'gather');\n  const $indices = convertToTensor(indices, 'indices', 'gather', 'int32');\n\n  const inputs: GatherV2Inputs
= {x: $x, indices: $indices};\n  const attrs: GatherV2Attrs = {axis, batchDims};\n\n  return ENGINE.runKernel(\n
GatherV2, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const gather =
op({gather_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
=============================================================================\n
 */\nimport {ENGINE} from '../engine';\nimport {Greater, GreaterInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from
'../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport
{assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth
value of (a > b) element-wise. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b =
tf.tensor1d([2, 2, 2]);\n *\n * a.greater(b).print();\n * ```\n *\n * @param a The first input tensor.\n * @param b The
```

second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction greater_<T extends Tensor>(\n a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a,
'a', 'greater');\n let $b = convertToTensor(b, 'b', 'greater');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: GreaterInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Greater, inputs as {} as NamedTensorMap);\n}\n\nexport const greater = op({greater_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {GreaterEqual, GreaterEqualInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of (a >= b) element-wise. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([2, 2, 2]);\n *\n * a.greaterEqual(b).print();\n * ```\n *\n * @param a The first input tensor.\n * @param b The second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction greaterEqual_<T extends Tensor>(\n a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a',
'greaterEqual');\n let $b = convertToTensor(b, 'b', 'greaterEqual');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: GreaterEqualInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(GreaterEqual, inputs as {} as NamedTensorMap);\n}\n\nexport const greaterEqual = op({greaterEqual_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Imag, ImagInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {op} from './operation';\n\n/**\n * Returns the imaginary part of a complex (or real) tensor.\n *\n * Given a tensor input, this operation returns a tensor of type float that is\n * the imaginary part of each element in input considered as a complex number.\n * If input is real, a tensor of all zeros is returned.\n *\n * ```js\n * const x = tf.complex([-2.25, 3.25], [4.75, 5.75]);\n * tf.imag(x).print();\n * ```\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction imag_<T extends Tensor>(input: T|TensorLike): T {\n const $input = convertToTensor(input, 'input', 'imag');\n\n const inputs: ImagInputs = {input: $input};\n return
ENGINE.runKernel(Imag, inputs as {} as NamedTensorMap);\n}\n\nexport const imag = op({imag_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {IsFinite, IsFiniteInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Returns which elements of x are finite.\n *\n * ```js\n * const x = tf.tensor1d([NaN, Infinity, -Infinity, 0, 1]);\n *\n * x.isFinite().print(); // or tf.isNaN(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction isFinite_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'isFinite');\n\n const inputs: IsFiniteInputs = {x: $x};\n\n return ENGINE.runKernel(IsFinite, inputs as {} as NamedTensorMap);\n}\nexport const isFinite = op({isFinite_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {IsInf, IsInfInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Returns which elements of x are Infinity or -Infinity.\n *\n * ```js\n * const x = tf.tensor1d([NaN, Infinity, -Infinity, 0, 1]);\n *\n * x.isInf().print(); // or tf.isNaN(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction isInf_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'isInf');\n\n const inputs: IsInfInputs = {x: $x};\n\n return ENGINE.runKernel(IsInf, inputs as {} as NamedTensorMap);\n}\nexport const isInf = op({isInf_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {IsNan, IsNanInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * RReturns which elements of x are NaN.\n *\n * ```js\n * const x = tf.tensor1d([NaN, Infinity, -Infinity, 0, 1]);\n *\n * x.isNaN().print(); // or tf.isNaN(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction isNaN_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'isNaN');\n const inputs: IsNanInputs = {x: $x};\n\n return ENGINE.runKernel(IsNan, inputs as {} as NamedTensorMap);\n}\nexport const isNaN = op({isNaN_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either

express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {LeakyRelu, LeakyReluAttrs, LeakyReluInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes leaky rectified linear element-wise.\n *\n * See\n * [http://web.stanford.edu/~awni/papers/relu_hybrid_icml2013_final.pdf](\n * http://web.stanford.edu/~awni/papers/relu_hybrid_icml2013_final.pdf)\n *\n * ```js\n * const x = tf.tensor1d([-1, 2, -3, 4]);\n *\n * x.leakyRelu(0.1).print(); // or tf.leakyRelu(x, 0.1)\n * ```\n * @param x The input tensor.\n * @param alpha The scaling factor for negative values, defaults to 0.2.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction leakyRelu_<T extends Tensor>(x: T|TensorLike, alpha = 0.2): T {\n const $x = convertToTensor(x, 'x', 'leakyRelu');\n\n const inputs: LeakyReluInputs = {x: $x};\n const attrs: LeakyReluAttrs = {alpha};\n\n return ENGINE.runKernel(\n   LeakyRelu, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const leakyRelu = op({leakyRelu_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {Less, LessInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of (a < b) element-wise.
Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([2, 2, 2]);\n *\n * a.less(b).print();\n * ```\n * @param a The first input tensor.\n * @param b The second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction less_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'less');\n let $b = convertToTensor(b, 'b', 'less');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: LessInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Less, inputs as {} as NamedTensorMap);\n}\n\nexport const less = op({less_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {LessEqual, LessEqualInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of (a <= b) element-wise. Supports broadcasting.\n *\n * ```js\n * const a =

tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([2, 2, 2]);\n *\n * a.lessEqual(b).print();\n * ```\n *\n * @param a The first input tensor.\n * @param b The second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction lessEqual_<T extends Tensor>(\n a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'lessEqual');\n let $b = convertToTensor(b, 'b', 'lessEqual');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: LessEqualInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(LessEqual, inputs as {} as NamedTensorMap);\n}\n\nexport const lessEqual = op({lessEqual_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {LinSpace, LinSpaceAttrs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor1D} from '../tensor';\n\n/**\n * Return an evenly spaced sequence of numbers over the given interval.\n *\n * ```js\n * tf.linspace(0, 9, 10).print();\n * ```\n * @param start The start value of the sequence.\n * @param stop The end value of the sequence.\n * @param num The number of values to generate.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function linspace(start: number, stop: number, num: number): Tensor1D {\n if (num <= 0) {\n throw new Error('The number of values should be positive.');\n }\n\n const attrs: LinSpaceAttrs = {start, stop, num};\n return ENGINE.runKernel(LinSpace, {}, attrs as {} as NamedAttrMap);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {LRN, LRNAttrs, LRNInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Normalizes the activation of a local neighborhood across or within\n * channels.\n *\n * @param x The input tensor. The 4-D input tensor is treated as a 3-D array\n * of 1D vectors (along the last dimension), and each vector is\n * normalized independently.\n * @param depthRadius The number of adjacent channels in the 1D normalization\n * window.\n * @param bias A constant bias term for the basis.\n * @param alpha A scale factor, usually positive.\n * @param beta An exponent.\n *\n * @doc {heading: 'Operations', subheading:\n 'Normalization'}\n */\nfunction localResponseNormalization_<T extends Tensor3D|Tensor4D>(\n x: T|TensorLike, depthRadius = 5, bias = 1, alpha = 1, beta = 0.5): T {\n const $x = convertToTensor(x, 'x', 'localResponseNormalization');\n util.assert(\n $x.rank === 4 || $x.rank === 3,\n () => `Error in localResponseNormalization: x must be rank 3 or 4 but got\n rank ${$x.rank}.`);\n util.assert(\n util.isInt(depthRadius),\n () => `Error in localResponseNormalization: depthRadius must be an ` +\n `integer but got depthRadius ${depthRadius}.`);\n\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n if ($x.rank === 3) {\n reshapedTo4D = true;\n x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n }\n\n const inputs: LRNInputs = {x: x4D};\n\n const attrs: LRNAttrs = {depthRadius, bias, alpha, beta};\n\n //

tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n
    LRN, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n   return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n } else {\n   return res;\n }\n}\n\nexport const localResponseNormalization = op({localResponseNormalization_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
 */\n\nimport {ENGINE} from '../engine';\nimport {Log, LogInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes natural logarithm of the input `tf.Tensor` element-wise: `ln(x)`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, Math.E]);\n *\n * x.log().print(); // or tf.log(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction log_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'log');\n\n const inputs: LogInputs = {x: $x};\n return ENGINE.runKernel(Log, inputs as {} as NamedTensorMap);\n}\nexport const log = op({log_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
 * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Log1p, Log1pInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes natural logarithm of the input `tf.Tensor` plus one\n * element-wise: `ln(1 + x)`\n *\n
 * ```js\n * const x = tf.tensor1d([1, 2, Math.E - 1]);\n *\n * x.log1p().print(); // or tf.log1p(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction log1p_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'log1p');\n\n const inputs: Log1pInputs = {x: $x};\n return ENGINE.runKernel(Log1p, inputs as {} as NamedTensorMap);\n}\nexport const log1p = op({log1p_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
 the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {CustomGradientFunc, ENGINE} from './engine';\nimport {Scalar, Tensor, Variable} from './tensor';\nimport {NamedTensorMap} from './tensor_types';\nimport {convertToTensor, convertToTensorArray} from './tensor_util_env';\nimport {TensorLike} from './types';\nimport * as util from './util';\n\n/**\n * Provided `f(x)`, returns another function `g(x, dy?)`, which gives the\n * gradient of `f(x)` with respect to `x`.\n *\n * If `dy` is provided, the gradient of `f(x).mul(dy).sum()` with respect to\n * `x` is computed instead. `f(x)` must take a single tensor `x` and return a\n * single tensor `y`. If `f()` takes multiple inputs, use `tf.grads` instead.\n *\n * ```js\n * //

```
f(x) = x ^ 2\n * const f = x => x.square();\n * // f'(x) = 2x\n * const g = tf.grad(f);\n *\n * const x = tf.tensor1d([2, 3]);\n
 * g(x).print();\n * ```\n *\n * ```js\n * // f(x) = x ^ 3\n * const f = x => x.pow(tf.scalar(3, 'int32'));\n * // f'(x) = 3x ^ 2\n * const g = tf.grad(f);\n * // f''(x) = 6x\n * const gg = tf.grad(g);\n *\n * const x = tf.tensor1d([2, 3]);\n * gg(x).print();\n * ```\n *\n * @param f The function f(x), to compute gradient for.\n *\n * @doc {heading: 'Training', subheading: 'Gradients'}\n */\nfunction grad(f: (x: Tensor) => Tensor): (\n    x: TensorLike|Tensor, dy?: TensorLike|Tensor) => Tensor {\n  util.assert(\n      util.isFunction(f), () => 'The f passed in grad(f) must be a function');\n  return (x: TensorLike|Tensor, dy?: TensorLike|Tensor): Tensor => {\n    // x can be of any dtype, thus null as the last argument.\n    const $x = convertToTensor(x, 'x', 'tf.grad', 'string_or_numeric');\n    const $dy: Tensor =\n        (dy != null) ? convertToTensor(dy, 'dy', 'tf.grad') : null;\n    return ENGINE.tidy(() => {\n      const {value, grads} = ENGINE.gradients(() => f($x), [$x], $dy);\n
    if ($dy != null) {\n        util.assertShapesMatch(\n            value.shape, $dy.shape,\n            'The shape of dy passed in grad(f)(x, dy) must match the shape ' +\n                'returned by f(x)');\n      }\n      checkGrads(grads);\n      return grads[0];\n    });\n  };\n}\n\n/**\n * Provided `f(x1, x2,...)`, returns another function `g([x1, x2,...], dy?)`,\n * which gives an array of gradients of `f()` with respect to each input\n * [`x1`,`x2`,...].\n *\n * If `dy` is passed when calling `g()`, the gradient of\n * `f(x1,...).mul(dy).sum()` with respect to each input is computed instead.\n * The provided `f` must take one or more tensors and return a single tensor\n * `y`. If `f()` takes a single input, we recommend using `tf.grad` instead.\n *\n * ```js\n * // f(a, b) = a * b\n * const f = (a, b) => a.mul(b);\n * // df / da = b, df / db = a\n * const g = tf.grads(f);\n *\n * const a = tf.tensor1d([2, 3]);\n * const b = tf.tensor1d([-2, -3]);\n * const [da, db] = g([a,
 b]);\n * console.log('da');\n * da.print();\n * console.log('db');\n * db.print();\n * ```\n *\n * @param f The function `f(x1, x2,...)` to compute gradients for.\n *\n * @doc {heading: 'Training', subheading: 'Gradients'}\n */\nfunction grads(f: (...args: Tensor[]) => Tensor): (\n    args: Array<Tensor|TensorLike>, dy?: Tensor|TensorLike) => Tensor[] {\n  util.assert(\n      util.isFunction(f), () => 'The f passed in grads(f) must be a function');\n  return (args: Array<Tensor|TensorLike>, dy?: Tensor|TensorLike): Tensor[] => {\n    util.assert(\n        Array.isArray(args),\n        () => 'The args passed in grads(f)(args) must be an array ' +\n            'of `Tensor`s or `TensorLike`s');\n    // args can be of any dtype, thus null as the last argument.\n    const $args =\n        convertToTensorArray(args, 'args', 'tf.grads', 'string_or_numeric');\n    const $dy: Tensor =\n        (dy != null) ? convertToTensor(dy, 'dy', 'tf.grads') : null;\n    return ENGINE.tidy(() => {\n
   const {value, grads} = ENGINE.gradients(() => f(...$args), $args, $dy);\n      if ($dy != null) {\n        util.assertShapesMatch(\n            value.shape, $dy.shape,\n            'The shape of dy passed in grads(f)([x1,...], dy) must ' +\n                'match the shape returned by f([x1,...])');\n      }\n      checkGrads(grads);\n      return grads;\n    });\n  };\n}\n\n/**\n * Like `tf.grad`, but also returns the value of `f()`. Useful when `f()`\n * returns a metric you want to show.\n *\n * The result is a rich object with the following properties:\n * - grad: The gradient of `f(x)` w.r.t `x` (result of `tf.grad`).\n * - value: The value returned by `f(x)`.\n *\n * ```js\n * // f(x) = x ^ 2\n * const f = x => x.square();\n * // f'(x) = 2x\n * const g = tf.valueAndGrad(f);\n *\n * const x = tf.tensor1d([2, 3]);\n * const {value, grad} = g(x);\n *\n * console.log('value');\n * value.print();\n * console.log('grad');\n * grad.print();\n * ```\n *\n * @doc {heading: 'Training', subheading:
 'Gradients'}\n */\nfunction valueAndGrad<I extends Tensor, O extends Tensor>(f: (x: I) => O): (\n    x: I, dy?: O) => {\n  value: O;\n  grad: I;\n} {\n  util.assert(\n      util.isFunction(f),\n      () => 'The f passed in valueAndGrad(f) must be a function');\n  return (x: I, dy?: O) => {\n    util.assert(\n        x instanceof Tensor,\n        () => 'The x passed in valueAndGrad(f)(x) must be a tensor');\n    util.assert(\n        dy == null || dy instanceof Tensor,\n        () => 'The dy passed in valueAndGrad(f)(x, dy) must be a tensor');\n    const {grads, value} = ENGINE.gradients(() => f(x), [x], dy);\n    checkGrads(grads);\n    return {grad: grads[0] as I, value};\n  };\n}\n\n/**\n * Like `tf.grads`, but returns also the value of `f()`. Useful when `f()`\n * returns a metric you want to show.\n *\n * The result is a rich object with the following properties:\n * - grads: The gradients of `f()` w.r.t each input (result of `tf.grads`).\n * - value: The value returned
```

by `f(x)`.\n *\n * ```js\n * // f(a, b) = a * b\n * const f = (a, b) => a.mul(b);\n * // df/da = b, df/db = a\n * const g = tf.valueAndGrads(f);\n *\n * const a = tf.tensor1d([2, 3]);\n * const b = tf.tensor1d([-2, -3]);\n * const {value, grads} = g([a, b]);\n *\n * const [da, db] = grads;\n *\n * console.log('value');\n * value.print();\n *\n * console.log('da');\n * da.print();\n * console.log('db');\n * db.print();\n * ```\n *\n * @doc {heading: 'Training', subheading: 'Gradients'}\n */\nfunction valueAndGrads<O extends Tensor>(f: (...args: Tensor[]) => O): (\n args: Tensor[], dy?: O) => {\n grads: Tensor[];\n value: O;\n} {\n util.assert(\n util.isFunction(f),\n () => 'The f passed in valueAndGrads(f) must be a function');\n return (args: Tensor[], dy?: O) => {\n util.assert(\n Array.isArray(args) && args.every(arg => arg instanceof Tensor),\n () => 'The args passed in valueAndGrads(f)(args) must be array of ' +\n 'tensors');\n util.assert(\n dy == null || dy instanceof Tensor,\n () => 'The dy passed in valueAndGrads(f)(args, dy) must be a tensor');\n const res = ENGINE.gradients(() => f(...args), args, dy);\n if (dy != null) {\n util.assertShapesMatch(\n res.value.shape, dy.shape,\n 'The shape of dy passed in valueAndGrads(f)([x1,...], dy) must ' +\n 'match the shape returned by f([x1,...])');\n }\n checkGrads(res.grads);\n return res;\n };\n}\n\n/**\n * Computes and returns the gradient of f(x) with respect to the list of\n * trainable variables provided by `varList`. If no list is provided, it\n * defaults to all trainable variables.\n *\n * ```js\n * const a = tf.variable(tf.tensor1d([3, 4]));\n * const b = tf.variable(tf.tensor1d([5, 6]));\n * const x = tf.tensor1d([1, 2]);\n *\n * // f(a, b) = a * x ^ 2 + b * x\n * const f = () => a.mul(x.square()).add(b.mul(x)).sum();\n * // df/da = x ^ 2, df/db = x\n * const {value, grads} = tf.variableGrads(f);\n *\n * Object.keys(grads).forEach(varName => grads[varName].print());\n * ```\n *\n * @param f The function to execute. f() should return a scalar.\n * @param varList The list of variables to compute the gradients with respect\n * to. Defaults to all trainable variables.\n * @returns An object with the following keys and values:\n * - `value`: The value of the function `f`.\n * - `grads`: A map from the names of the variables to the gradients.\n * If the `varList` argument is provided explicitly and contains a subset of\n * non-trainable variables, this map in the return value will contain keys\n * that map the names of the non-trainable variables to `null`.\n *\n * @doc {heading: 'Training', subheading: 'Gradients'}\n */\nfunction variableGrads(f: () => Scalar, varList?: Variable[]):\n {value: Scalar, grads: NamedTensorMap} {\n util.assert(\n util.isFunction(f),\n () => 'The f passed in variableGrads(f) must be a function');\n util.assert(\n varList == null ||\n Array.isArray(varList) && varList.every(v => v instanceof Variable),\n () =>\n 'The varList passed in variableGrads(f, varList) must be an array ' +\n 'of variables');\n\n const specifiedVarList = varList != null;\n if (!specifiedVarList) {\n // Get all of the trainable variables.\n varList = [];\n for (const varName in ENGINE.registeredVariables) {\n varList.push(ENGINE.registeredVariables[varName]);\n }\n }\n\n const specifiedNonTrainable: Variable[] =\n specifiedVarList ? varList.filter(variable => !variable.trainable) : null;\n\n // Prune non-trainable variables.\n const originalVarCount = varList.length;\n varList = varList.filter(variable => variable.trainable);\n util.assert(\n varList.length > 0,\n () => `variableGrads() expects at least one of the input variables to ` +\n `be trainable, but none of the ${originalVarCount} variables is ` +\n `trainable.`);\n\n const allowNoGradients = true;\n const {value, grads} = ENGINE.gradients(f, varList, null, allowNoGradients);\n\n util.assert(\n grads.some(g => g != null),\n () => 'Cannot find a connection between any variable and the result of ' +\n 'the loss function y=f(x). Please make sure the operations that ' +\n 'use variables are inside the function f passed to minimize().');\n util.assert(\n value.rank === 0,\n () => `The f passed in variableGrads(f) must return a scalar, but it ` +\n `returned a rank-${value.rank} tensor`);\n\n const namedGrads: NamedTensorMap = {};\n varList.forEach((v, i) => {\n if (grads[i] != null) {\n namedGrads[v.name] = grads[i];\n }\n });\n if (specifiedNonTrainable != null) {\n // If varList is explicitly provided and contains non-trainable values,\n // add them to the returned gradients with `null` values.\n specifiedNonTrainable.forEach(v => namedGrads[v.name] = null);\n }\n return {value, grads: namedGrads};\n}\n\n/**\n * Overrides the gradient computation of a function `f`.\n *\n * Takes a function\n * `f(...inputs, save) => {value: Tensor, gradFunc: (dy, saved) => Tensor[]}`\n * and returns another function

`g(...inputs)` which takes the same inputs as\n * `f`. When called, `g` returns `f().value`. In backward mode, custom gradients\n * with respect to each input of `f` are computed using `f().gradFunc`.\n *\n * The `save` function passsed to `f` should be used for saving tensors needed\n * in the gradient. And the `saved` passed to the `gradFunc` is a\n * `NamedTensorMap`, which contains those saved tensor.\n *\n * ```js\n * const customOp = tf.customGrad((x, save) => {\n * // Save x to make sure it's available later for the gradient.\n * save([x]);\n * // Override gradient of our custom x ^ 2 op to be dy * abs(x);\n * return {\n * value: x.square(),\n * // Note `saved.x` which points to the `x` we saved earlier.\n * gradFunc: (dy, saved) => [dy.mul(saved[0].abs())]\n * };\n * });\n *\n * const x = tf.tensor1d([-1, -2, 3]);\n * const dx = tf.grad(x => customOp(x));\n *\n * console.log(`f(x):`);\n * customOp(x).print();\n * console.log(`f'(x):`);\n * dx(x).print();\n * ```\n *\n * @param f The function to evaluate in forward mode, which should return\n * `{value: Tensor, gradFunc: (dy, saved) => Tensor[]}`, where `gradFunc`\n * returns the custom gradients of `f` with respect to its inputs.\n *\n * @doc {heading: 'Training', subheading: 'Gradients'}\n */\nfunction customGrad<T extends Tensor>(f: CustomGradientFunc<T>):\n (...args: Tensor[]) => T {\n return ENGINE.customGrad(f);\n}\n\nfunction checkGrads(grads: Tensor[]) {\n const numNullGradients = grads.filter(g => g == null).length;\n if (numNullGradients > 0) {\n throw new Error(\n `Cannot compute gradient of y=f(x) with respect to x. Make sure that\n  the f you passed encloses all operations that lead from x to y.`);\n }\n}\n\nexport {\n customGrad,\n variableGrads,\n valueAndGrad,\n valueAndGrads,\n grad,\n grads,\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Neg, NegInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes `-1 * x` element-wise.\n *\n * ```js\n * const x = tf.tensor2d([1, 2, -2, 0], [2, 2]);\n *\n * x.neg().print(); // or tf.neg(x)\n * ```\n *\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction neg_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'neg');\n\n const inputs: NegInputs = {x: $x};\n return ENGINE.runKernel(Neg, inputs as {} as NamedTensorMap);\n}\nexport const neg = op({neg_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
 under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Softplus, SoftplusInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes softplus of the input `tf.Tensor` element-wise: `log(exp(x) + 1)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.softplus().print(); // or tf.softplus(x)\n * ```\n *\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction softplus_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'softplus');\n\n const inputs: SoftplusInputs = {x: $x};\n return ENGINE.runKernel(Softplus, inputs as {} as NamedTensorMap);\n}\nexport const softplus =

op({softplus_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {customGrad} from '../gradients';\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {mul} from './mul';\nimport {neg} from './neg';\nimport {op} from './operation';\nimport {sigmoid} from './sigmoid';\nimport {softplus} from './softplus';\n\n/**\n * Computes log sigmoid of the input `tf.Tensor` element-wise:\n * `logSigmoid(x)`. For numerical stability, we use `-tf.softplus(-x)`.\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n *\n * x.logSigmoid().print(); // or tf.logSigmoid(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction logSigmoid_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'logSigmoid');\n\n // Use a custom gradient to maintain previous implementation.\n // There is no LogSigmoid kernel in TF so we can't use engine.runKernel\n // directly\n const customOp = customGrad((x: Tensor) => {\n   // TODO(yassogba) we can remove the chained softplus call here only\n   // after backends have modualrized softplus at which point we can call\n   // engine runKernel(..., Sotfplus, ...) directly.\n   const value = neg(softplus(neg(x)));\n\n   const gradFunc = (dy: T) => {\n   const derX = mul(dy, sigmoid(neg(x)));\n   return derX;\n   };\n   return {value, gradFunc};\n });\n\n return customOp($x) as T;\n}\nexport const logSigmoid = op({logSigmoid_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Max, MaxAttrs, MaxInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the maximum of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the `tf.Tensor` is reduced by 1 for each entry in\n * `axes`. If `keepDims` is true, the reduced dimensions are retained with\n * length 1. If `axes` has no entries, all dimensions are reduced, and an\n * `tf.Tensor` with a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.max().print(); // or tf.max(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.max(axis).print(); // or tf.max(x, axis)\n * ```\n *\n * @param x The input tensor.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction max_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'max');\n\n const inputs: MaxInputs = {x: $x};\n const attrs: MaxAttrs = {reductionIndices: axis, keepDims};\n\n return ENGINE.runKernel(\n   Max, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const max = op({max_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in

writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {Sub, SubInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Subtracts two `tf.Tensor`s element-wise, A - B. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([10, 20, 30, 40]);\n * const b = tf.tensor1d([1, 2, 3, 4]);\n *\n * a.sub(b).print(); // or tf.sub(a, b)\n * ```\n *\n * ```js\n * // Broadcast subtract a with b.\n * const a = tf.tensor1d([10, 20, 30, 40]);\n * const b = tf.scalar(5);\n *\n * a.sub(b).print(); // or tf.sub(a, b)\n * ```\n * @param a The first `tf.Tensor` to subtract from.\n * @param b The second `tf.Tensor` to be subtracted. Must have the same dtype as\n * `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction sub_<T extends Tensor>(a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'sub');\n let $b = convertToTensor(b, 'b', 'sub');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: SubInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Sub, inputs as {} as NamedTensorMap);\n}\n\nexport const sub = op({sub_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {Sum, SumAttrs, SumInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {cast} from './cast';\nimport {op} from
'./operation';\n\n/**\n * Computes the sum of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the `tf.Tensor` is reduced by 1 for each entry in\n * `axes`. If `keepDims` is true, the reduced dimensions are retained with\n * length 1. If axes has no entries, all dimensions are reduced, and a\n * `tf.Tensor` with a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.sum().print(); // or tf.sum(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.sum(axis).print(); // or tf.sum(x, axis)\n * ```\n *\n * @param x The input tensor to compute the sum over. If the dtype is `bool`\n *   it will be converted to `int32` and the output dtype will be `int32`.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions
with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction sum_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n let $x = convertToTensor(x, 'x', 'sum');\n if ($x.dtype === 'bool') {\n $x = cast($x, 'int32');\n }\n\n const inputs: SumInputs = {x: $x};\n const attrs: SumAttrs = {axis, keepDims};\n\n return ENGINE.runKernel(\n   Sum, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const sum = op({sum_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {customGrad} from '../gradients';\n\nimport {Tensor} from '../tensor';\nimport {GradSaveFunc} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {cast} from './cast';\nimport {exp} from './exp';\nimport {log} from './log';\nimport {max} from './max';\nimport {mul} from './mul';\nimport {op} from './operation';\nimport {sub} from './sub';\nimport {sum} from './sum';\n\n/**\n * Computes the log softmax.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n *\n * a.logSoftmax().print(); // or tf.logSoftmax(a)\n * ```\n *\n * ```js\n * const a = tf.tensor2d([2, 4, 6, 1, 2, 3], [2, 3]);\n *\n * a.logSoftmax().print(); // or tf.logSoftmax(a)\n * ```\n *\n * @param logits The logits array.\n * @param axis The dimension softmax would be performed on. Defaults to `-1`\n *   which indicates the last dimension.\n *\n * @doc {heading: 'Operations', subheading: 'Normalization'}\n */\nfunction logSoftmax_<T extends Tensor>(logits: T|TensorLike, axis = -1): T {\n const $logits = convertToTensor(logits, 'logits', 'logSoftmax');\n\n if (axis === -1) {\n   axis = $logits.rank - 1;\n }\n if (axis !== $logits.rank - 1) {\n   throw Error(\n   'Log Softmax along a non-last dimension is not yet supported. ' +\n   `Logits was rank ${$logits.rank} and axis was ${axis}`);\n }\n\n // const forward: ForwardFunc<Tensor> = (backend, save) => {\n //   const keepDims = true;\n //   const xMax = max(logits, axis, true);\n //   const shifted = sub(logits, xMax);\n //   const value =\n //   sub(cast(shifted, 'float32'), log(sum(exp(shifted), axis,\n // keepDims)));\n //   save([value]);\n //   return value;\n // };\n\n // Use a custom gradient for numerical stability.\n const customOp = customGrad((logits: Tensor, save: GradSaveFunc) => {\n   const keepDims = true;\n   const xMax = max(logits, axis, true);\n   const shifted = sub(logits, xMax);\n   const value =\n   sub(cast(shifted, 'float32'), log(sum(exp(shifted), axis, keepDims)));\n   save([value]);\n\n   const gradFunc = (dy: Tensor, saved: Tensor[]) => {\n   const [value] = saved;\n   const keepDims = true;\n   const softmax = exp(value);\n   return sub(dy, mul(sum(dy, axis, keepDims), softmax));\n   };\n   return {value, gradFunc};\n });\n\n return customOp($logits) as T;\n\n // TODO Use Engine.runKernel when CPU/WebGL/WASM backends implement this.\n // const inputs: LogSoftmaxInputs = {logits: $logits};\n // const attrs: LogSoftmaxAttrs = {axis};\n // return ENGINE.runKernel(\n //   LogSoftmax, inputs as {} as NamedTensorMap,\n //   attrs as {} as NamedAttrMap);\n}\n\nexport const logSoftmax = op({logSoftmax_});\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport * as util from '../util';\n\n/**\n * Returns true if the axis specifies the inner most dimensions of the\n * array.\n */\nexport function axesAreInnerMostDims(axes: number[], rank: number): boolean {\n for (let i = 0; i < axes.length; ++i) {\n   if (axes[axes.length - i - 1] !== rank - 1 - i) {\n   return false;\n   }\n }\n return true;\n}\n\nexport function combineLocations(\n   outputLoc: number[], reduceLoc: number[], axes: number[]): number[] {\n const rank = outputLoc.length + reduceLoc.length;\n const loc = [];\n let outIdx = 0;\n let reduceIdx = 0;\n for (let dim = 0; dim < rank; dim++) {\n   if (axes.indexOf(dim) === -1) {\n   loc.push(outputLoc[outIdx++]);\n   } else {\n   loc.push(reduceLoc[reduceIdx++]);\n   }\n }\n return loc;\n}\n\nexport function computeOutAndReduceShapes(\n aShape: number[], axes: number[]): [number[], number[]] {\n const outShape = [];\n const rank = aShape.length;\n for (let dim = 0; dim < rank; dim++) {\n   if (axes.indexOf(dim) === -1) {\n   outShape.push(aShape[dim]);\n   }\n }\n const reduceShape = axes.map(dim => aShape[dim]);\n return [outShape, reduceShape];\n}\n\nexport function expandShapeToKeepDim(\n   shape: number[], axes: number[]):

number[]
{\n const reduceSubShape = axes.map(x => 1);\n return combineLocations(shape, reduceSubShape, axes);\n}\n\nexport function assertAxesAreInnerMostDims(\n   msg: string, axes: number[], rank: number): void {\n util.assert(\n   axesAreInnerMostDims(axes, rank),\n   () => `${msg} supports only inner-most axes for now. ` +\n   `Got axes ${axes} and rank-${rank} input.`);\n}\n\n/**\n * Returns the axes permutation to be used with `tf.transpose`, if such\n * permutation is necessary. Otherwise it returns null. This method is used by\n * operations that operate only on inner-most axes.\n */\nexport function getAxesPermutation(axes: number[], rank: number): number[]|\n   null {\n if (axesAreInnerMostDims(axes, rank)) {\n   return null;\n }\n const result: number[] = [];\n for (let i = 0; i < rank; ++i) {\n   if (axes.indexOf(i) === -1) {\n   result.push(i);\n   }\n }\n axes.forEach(axis => result.push(axis));\n return result;\n}\n\n/** Returns the axes permutation
that undoes the original permutation. */\nexport function getUndoAxesPermutation(axes: number[]): number[] {\n return axes.map((axis, i) => [i, axis])\n   .sort((a, b) => a[1] - b[1])\n   .map(x => x[0]);\n}\n\nexport function getInnerMostAxes(numAxes: number, rank: number): number[] {\n const res: number[] = [];\n for (let i = rank - numAxes; i < rank; ++i) {\n   res.push(i);\n }\n return res;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {parseAxisParam} from '../util';\n\nimport {add} from './add';\nimport {expandShapeToKeepDim} from './axis_util';\nimport {exp} from './exp';\nimport {log} from './log';\nimport {max} from './max';\nimport {op} from './operation';\nimport {reshape} from './reshape';\nimport {sub} from './sub';\nimport {sum} from './sum';\n\n/**\n * Computes the log(sum(exp(elements across the reduction dimensions)).\n *\n * Reduces the input along the dimensions given in `axis`. Unless `keepDims`\n * is true, the rank of the array is reduced by 1 for each entry in `axis`.\n * If `keepDims` is true, the reduced dimensions are retained with length 1.\n * If `axis` has no entries, all dimensions are reduced, and an array with a\n * single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.logSumExp().print(); // or tf.logSumExp(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.logSumExp(axis).print(); // or tf.logSumExp(a, axis)\n * ```\n * @param x The input tensor.\n * @param axis The dimension(s) to reduce. If null (the default),\n *   reduces all dimensions.\n * @param keepDims If true, retains reduced dimensions with length\n *   of 1. Defaults to false.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction logSumExp_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'logSumExp');\n\n const axes = parseAxisParam(axis, $x.shape);\n const xMax = max($x, axes, true /* keepDims */);\n const a = sub($x, xMax);\n const b = exp(a);\n const c = sum(b, axes);\n const d = log(c);\n const res = add(reshape(xMax, d.shape), d);\n\n if (keepDims) {\n   const newShape = expandShapeToKeepDim(res.shape, axes);\n   return reshape(res, newShape) as T;\n }\n return res as T;\n}\n\nexport const logSumExp = op({logSumExp_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\nimport {ENGINE} from '../engine';\nimport {LogicalAnd, LogicalAndInputs}
from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from
'../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from
'../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n
* Returns the truth value of `a AND b` element-wise. Supports broadcasting.\n *\n * ```js\n * const a =
tf.tensor1d([false, false, true, true], 'bool');\n * const b = tf.tensor1d([false, true, false, true], 'bool');\n *\n *
a.logicalAnd(b).print();\n * ```\n *\n * @param a The first input tensor. Must be of dtype bool.\n * @param b The
second input tensor. Must be of dtype bool.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n
*/\nfunction logicalAnd_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n const $a =
convertToTensor(a, 'a', 'logicalAnd', 'bool');\n const $b = convertToTensor(b, 'b', 'logicalAnd', 'bool');\n
assertAndGetBroadcastShape($a.shape,
$b.shape);\n\n const inputs: LogicalAndInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(LogicalAnd, inputs
as {} as NamedTensorMap);\n}\n\nexport const logicalAnd = op({logicalAnd_});\n","/**\n * @license\n *
Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {LogicalNot, LogicalNotInputs}
from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from
'../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport
{op} from './operation';\n\n/**\n * Returns the truth value of `NOT x` element-wise.\n *\n * ```js\n * const a =
tf.tensor1d([false, true], 'bool');\n *\n * a.logicalNot().print();\n * ```\n *\n * @param x The input tensor. Must be of
dtype 'bool'.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction logicalNot_<T extends
Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'logicalNot', 'bool');\n const inputs:
LogicalNotInputs = {x: $x};\n return ENGINE.runKernel(LogicalNot, inputs as {} as
NamedTensorMap);\n}\n\nexport const logicalNot = op({logicalNot_});\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {LogicalOr, LogicalOrInputs} from '../kernel_names';\nimport
{Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assertAndGetBroadcastShape} from
'./broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of `a OR b` element-wise.
Supports broadcasting.\n
*\n * ```js\n * const a = tf.tensor1d([false, false, true, true], 'bool');\n * const b = tf.tensor1d([false, true, false, true],
'bool');\n *\n * a.logicalOr(b).print();\n * ```\n * @param a The first input tensor. Must be of dtype bool.\n *
@param b The second input tensor. Must be of dtype bool.\n *\n * @doc {heading: 'Operations', subheading:
'Logical'}\n */\nfunction logicalOr_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n
const $a = convertToTensor(a, 'a', 'logicalOr', 'bool');\n const $b = convertToTensor(b, 'b', 'logicalOr', 'bool');\n
assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: LogicalOrInputs = {a: $a, b: $b};\n return

ENGINE.runKernel(LogicalOr, inputs as {} as NamedTensorMap);\n}\nexport const logicalOr = op({logicalOr_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==========\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {logicalAnd} from './logical_and';\nimport {logicalNot} from './logical_not';\nimport {logicalOr} from './logical_or';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of `a XOR b` element-wise. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([false, false, true, true], 'bool');\n * const b = tf.tensor1d([false, true, false, true], 'bool');\n *\n * a.logicalXor(b).print();\n * ```\n *\n * @param a The first input tensor. Must be of dtype bool.\n * @param b The second input tensor. Must be of dtype bool.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction logicalXor_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n const $a = convertToTensor(a, 'a', 'logicalXor', 'bool');\n const $b = convertToTensor(b, 'b', 'logicalXor', 'bool');\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n // x ^ y = (x | y) & ~(x & y)\n return logicalAnd(logicalOr(a, b), logicalNot(logicalAnd(a, b)));\n}\n\nexport const logicalXor = op({logicalXor_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {MaxPool, MaxPoolAttrs, MaxPoolInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the 2D max pooling of an image.\n *\n * @param x The input tensor, of rank 4 or rank 3 of shape\n *   `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param filterSize The filter size: `[filterHeight, filterWidth]`. If\n *   `filterSize` is a single number, then `filterHeight == filterWidth`.\n * @param strides The strides of the pooling: `[strideHeight, strideWidth]`. If\n *   `strides` is a single number, then `strideHeight == strideWidth`.\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n *   in which we sample input values across the height and width dimensions\n *   in dilated pooling. Defaults to `[1, 1]`. If `dilations` is a single\n *   number, then `dilationHeight == dilationWidth`. If it is greater than\n *   1, then all values of `strides` must be 1.\n * @param pad The type of padding algorithm.\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`:
output will be smaller than input if filter is larger\n *   than 1x1.\n *   - For more info, see this guide:\n *
[https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *
https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dimRoundingMode A string from:
'ceil', 'round', 'floor'. If none is\n *   provided, it will default to truncate.\n */\nfunction maxPool_<T extends Tensor3D|Tensor4D>(\n   x: T|TensorLike, filterSize: [number, number]|number,\n   strides: [number, number]|number, pad: 'valid'|'same'|number,\n   dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n const $x =

convertToTensor(x, 'x', 'maxPool');\n const dilations = 1;\n\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n if ($x.rank === 3) {\n   reshapedTo4D = true;\n   x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n }\n\n util.assert(\n   x4D.rank === 4,\n   () => `Error in maxPool: input must be rank 4 but got rank ${x4D.rank}.`);\n
  util.assert(\n   conv_util.eitherStridesOrDilationsAreOne(strides, dilations),\n   () => 'Error in maxPool: Either strides or dilations must be 1. ' +\n   `Got strides ${strides} and dilations '${dilations}'`);\n if (dimRoundingMode != null) {\n   util.assert(\n   util.isInt(pad as number),\n   () => `Error in maxPool: pad must be an integer when using, ` +\n   `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n const inputs: MaxPoolInputs = {x: x4D};\n\n const attrs: MaxPoolAttrs = {filterSize, strides, pad, dimRoundingMode};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   MaxPool, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n   return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const maxPool = op({maxPool_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {MaxPool3D, MaxPool3DAttrs, MaxPool3DInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor4D, Tensor5D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the 3D max pooling.\n *\n * ```js\n * const x = tf.tensor5d([1, 2, 3, 4, 5, 6, 7, 8], [1, 2, 2, 2, 1]);\n * const result = tf.maxPool3d(x, 2, 1, 'valid');\n * result.print();\n * ```\n *\n * @param x The input tensor, of rank 5 or rank 4 of shape\n *   `[batch, depth, height, width, inChannels]`.\n * @param filterSize The filter size:\n *   `[filterDepth, filterHeight, filterWidth]`.\n *   If `filterSize` is a single number,\n *   then `filterDepth == filterHeight == filterWidth`.\n * @param strides The strides of the pooling:\n *   `[strideDepth, strideHeight, strideWidth]`.\n *   If `strides` is a single number,\n *   then `strideDepth == strideHeight == strideWidth`.\n * @param pad The type of padding algorithm.\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *   than 1*1x1.\n *   - For more info, see this guide:\n *   [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *   https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *   provided, it will default to truncate.\n * @param dataFormat An optional string from: \"NDHWC\", \"NCDHW\". Defaults to\n *   \"NDHWC\". Specify the data format of the input and output data. With the\n *   default format \"NDHWC\", the data is stored in the order of: [batch,\n *   depth, height, width, channels]. Only \"NDHWC\" is currently supported.\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction maxPool3d_<T extends Tensor4D|Tensor5D>(\n   x: T|TensorLike, filterSize: [number, number, number]|number = [1, 1, 1],\n   strides: [number, number, number]|number, pad: 'valid'|'same'|number,\n   dimRoundingMode?: 'floor'|'round'|'ceil',\n   dataFormat: 'NDHWC'|'NCDHW' = 'NDHWC'): T {\n const $x = convertToTensor(x, 'x', 'maxPool3d');\n\n let x5D = $x as Tensor5D;\n let reshapedTo5D = false;\n if ($x.rank === 4) {\n   reshapedTo5D = true;\n   x5D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2], $x.shape[3]]);\n }\n\n util.assert(\n   x5D.rank === 5,\n   () => `Error in maxPool3d: x must be rank 5 but got rank ${x5D.rank}.`);\n util.assert(\n   dataFormat === 'NDHWC',\n   () => `Error in maxPool3d: Only NDHWC

is currently supported, ` +\n `but got dataFormat of ${dataFormat}`);\n if (dimRoundingMode != null) {\n util.assert(\n util.isInt(pad as number),\n () => `Error in maxPool3d: pad must be an integer when using, ` +\n `dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n }\n\n const inputs: MaxPool3DInputs = {x: x5D};\n\n const attrs:\n MaxPool3DAttrs = {filterSize, strides, pad, dimRoundingMode, dataFormat};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n MaxPool3D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo5D) {\n return reshape(\n res, [res.shape[1], res.shape[2], res.shape[3], res.shape[4]]) as\n T;\n }\n\n return res;\n}\n\nexport const maxPool3d = op({maxPool3d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {MaxPoolWithArgmax, MaxPoolWithArgmaxAttrs, MaxPoolWithArgmaxInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the 2D max pooling of an image with Argmax index.\n * The indices in argmax are flattened, so that a maximum value at position `[b,\n * y, x, c]` becomes flattened index: `(y * width + x) * channels + c` if\n * include_batch_in_index is False; `((b * height + y) * width + x) * channels\n * +c` if include_batch_in_index is True.\n *\n * The indices returned are always in `[0, height) x [0, width)` before\n * flattening.\n *\n * @param x The input tensor, of rank 4 or rank 3 of shape\n * `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param filterSize The filter size: `[filterHeight, filterWidth]`. If\n * `filterSize` is a single number, then `filterHeight == filterWidth`.\n * @param strides The strides of the pooling: `[strideHeight, strideWidth]`. If\n * `strides` is a single number, then `strideHeight == strideWidth`.\n * @param dataFormat An optional string from: \"NDHWC\", \"NCDHW\". Defaults to\n * \"NDHWC\". Specify the data format of the input and output data. With the\n * default format \"NDHWC\", the data is stored in the order of: [batch,\n * depth, height, width, channels]. Only \"NDHWC\" is currently supported.\n * @param pad The type of padding algorithm.\n * - `same` and stride 1: output will be of same size as input,\n * regardless of filter size.\n * - `valid`: output will be smaller than input if filter is larger\n * than 1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param includeBatchIndex Defaults to False. Whether to include batch\n * dimension in flattened index of argmax.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction maxPoolWithArgmax_<T extends Tensor4D>(\n x: T|TensorLike, filterSize: [number, number]|number,\n strides: [number, number]|number, pad: 'valid'|'same'|number,\n includeBatchInIndex = false): NamedTensorMap {\n const $x = convertToTensor(x, 'x', 'maxPoolWithArgmax');\n\n const inputs: MaxPoolWithArgmaxInputs = {x: $x};\n const attrs:\n MaxPoolWithArgmaxAttrs = {filterSize, strides, pad, includeBatchInIndex};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const result = ENGINE.runKernel(\n MaxPoolWithArgmax, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as Tensor[];\n\n return {result: result[0], indexes: result[1]};\n}\n\nexport const maxPoolWithArgmax = op({maxPoolWithArgmax_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable

law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Maximum, MaximumInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {cast} from './cast';\nimport {op} from './operation';\n\n/**\n * Returns the max of a and b (`a > b ? a : b`) element-wise.\n * Supports broadcasting.\n *\n * We also expose `tf.maximumStrict` which has the same signature as this op and\n * asserts that `a` and `b` are the same shape (does not broadcast).\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 3, 16]);\n * const b = tf.tensor1d([1, 2, 9, 4]);\n *\n * a.maximum(b).print(); // or tf.maximum(a, b)\n * ```\n *\n * ```js\n * // Broadcast maximum a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(5);\n *\n * a.maximum(b).print(); // or tf.maximum(a, b)\n * ```\n *\n * @param a The first tensor.\n * @param b The second tensor. Must have the same type as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction maximum_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'maximum');\n let $b = convertToTensor(b, 'b', 'maximum');\n [$a, $b] = makeTypesMatch($a, $b);\n\n if ($a.dtype === 'bool') {\n $a = cast($a, 'int32');\n $b = cast($b, 'int32');\n }\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: MaximumInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Maximum, inputs as {} as NamedTensorMap);\n}\n\nexport const maximum = op({maximum_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Mean, MeanAttrs, MeanInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the mean of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces `x` along the dimensions given in `axis`. Unless `keepDims` is\n * true, the rank of the `tf.Tensor` is reduced by 1 for each entry in `axis`.\n * If `keepDims` is true, the reduced dimensions are retained with length 1.\n * If `axis` has no entries, all dimensions are reduced, and a `tf.Tensor` with\n * a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.mean().print(); // or tf.mean(a)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.mean(axis).print(); // or tf.mean(x, axis)\n * ```\n *\n * @param x The input tensor.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction mean_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'mean');\n\n const inputs: MeanInputs = {x: $x};\n const attrs: MeanAttrs = {axis, keepDims};\n\n return ENGINE.runKernel(\n   Mean, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const mean = op({mean_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {ENGINE} from '../engine';\nimport {Min, MinAttrs, MinInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the minimum value from the input.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the array is reduced by 1 for each entry in `axes`.\n * If `keepDims` is true, the reduced dimensions are retained with length 1.\n * If `axes` has no entries, all dimensions are reduced, and an array with a\n * single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.min().print(); // or tf.min(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.min(axis).print(); // or tf.min(x, axis)\n * ```\n *\n * @param x The input Tensor.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction min_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n const $x = convertToTensor(x, 'x', 'min');\n\n const inputs: MinInputs = {x: $x};\n const attrs: MinAttrs = {axis, keepDims};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n return ENGINE.runKernel(\n   Min, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n}\n\nexport const min = op({min_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Minimum, MinimumInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {cast} from './cast';\nimport {op} from './operation';\n\n/**\n * Returns the min of a and b (`a < b ? a : b`) element-wise.\n * Supports broadcasting.\n *\n * We also expose `minimumStrict` which has the same signature as this op and\n * asserts that `a` and `b` are the same shape (does not broadcast).\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 3, 16]);\n * const b = tf.tensor1d([1, 2, 9, 4]);\n *\n * a.minimum(b).print(); // or tf.minimum(a, b)\n * ```\n *\n * ```js\n * // Broadcast minimum a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(5);\n *\n * a.minimum(b).print(); // or tf.minimum(a, b)\n * ```\n *\n * @param a The first tensor.\n * @param b The second tensor. Must have the same type as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction minimum_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'minimum');\n let $b = convertToTensor(b, 'b', 'minimum');\n [$a, $b] = makeTypesMatch($a, $b);\n\n if ($a.dtype === 'bool') {\n $a = cast($a, 'int32');\n $b = cast($b, 'int32');\n }\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: MinimumInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Minimum, inputs as {} as NamedTensorMap);\n}\n\nexport const minimum = op({minimum_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {MirrorPad, MirrorPadAttrs, MirrorPadInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport
{convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Pads a `tf.Tensor` using mirror padding.\n *\n * This operation implements the `REFLECT` and `SYMMETRIC` modes of pad.\n *\n * ```js\n * const x = tf.range(0, 9).reshape([1, 1, 3, 3]);\n * x.mirrorPad([[0, 0], [0, 0], [2, 2], [2, 2]], 'reflect').print();\n * ```\n * @param x The tensor to pad.\n * @param paddings An array of length `R` (the rank of the tensor), where\n * each element is a length-2 tuple of ints `[padBefore, padAfter]`,\n * specifying how much to pad along each dimension of the tensor.\n * In \"reflect\" mode, the padded regions do not include the borders,\n * while in \"symmetric\" mode the padded regions do include the borders.\n * For example, if the input is `[1, 2, 3]` and paddings is `[0, 2]`,\n * then the output is `[1, 2, 3, 2, 1]` in \"reflect\" mode, and\n * `[1, 2, 3, 3, 2]` in \"symmetric\"
mode.\n * If `mode` is \"reflect\" then both `paddings[D, 0]` and `paddings[D, 1]`\n * must be no greater than `x.shape[D] - 1`. If mode is \"symmetric\"\n * then both `paddings[D, 0]` and `paddings[D, 1]` must be no greater than\n * `x.shape[D]`\n * @param mode String to specify padding mode. Can be `'reflect' | 'symmetric'`\n */\n/** @doc {heading: 'Tensors', subheading: 'Transformations'} */\nfunction mirrorPad_<T extends Tensor>(\n x: T|TensorLike, paddings: Array<[number, number]>,\n mode: 'reflect'|'symmetric'): T {\n util.assert(\n mode === 'reflect' || mode === 'symmetric',\n () => `Invalid mode. Mode must be either reflect or symmetric. ` +\n `Got ${mode}.`);\n\n const $x = convertToTensor(x, 'x', 'mirrorPad');\n if ($x.rank === 0) {\n throw new Error(\n 'mirrorPad(scalar) is not defined. ' +\n 'Pass non-scalar to mirrorPad');\n }\n util.assert(\n paddings.length === $x.rank,\n () => `Padding doesn't match input. Must
be ${$x.rank}. ` +\n `Got ${paddings.length}.`);\n const shapeOffset = mode === 'reflect' ? 1 : 0;\n for (let i = 0; i < $x.rank; i++) {\n util.assert(\n paddings[i].length === 2,\n () => `Invalid number of paddings. Must be length of 2 each.`);\n util.assert(\n paddings[i][0] >= 0 && paddings[i][0] <= $x.shape[i] - shapeOffset &&\n paddings[i][1] >= 0 && paddings[i][1] <= $x.shape[i] - shapeOffset,\n () => `Padding in dimension ${i} cannot be greater than or equal ` +\n `to ${$x.shape[i] - shapeOffset} or less than 0 for input of ` +\n `shape ${$x.shape}`);\n }\n\n const attrs: MirrorPadAttrs = {paddings, mode};\n const inputs: MirrorPadInputs = {x: $x};\n return ENGINE.runKernel(\n MirrorPad, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const mirrorPad = op({mirrorPad_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Mod, ModInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Returns the mod of
a and b element-wise.\n * `floor(x / y) * y + mod(x, y) = x`\n * Supports broadcasting.\n *\n * We also expose `tf.modStrict` which has the same signature as this op and\n * asserts that `a` and `b` are the same shape (does not broadcast).\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 3, 16]);\n * const b = tf.tensor1d([1, 2, 9, 4]);\n *\n * a.mod(b).print(); // or tf.mod(a, b)\n * ```\n *\n * ```js\n * // Broadcast a mod b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(5);\n *\n * a.mod(b).print(); // or tf.mod(a, b)\n * ```\n *\n * @param a The first tensor.\n

* @param b The second tensor. Must have the same type as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction mod_<T extends Tensor>(a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'mod');\n let $b = convertToTensor(b, 'b', 'mod');\n [$a, $b] = makeTypesMatch($a, $b);\n\n const inputs: ModInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(Mod,
 inputs as {} as NamedTensorMap);\n}\n\nexport const mod = op({mod_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {op} from './operation';\n\n/**\n
 * Computes square of `x` element-wise: `x ^ 2`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, Math.sqrt(2), -1]);\n *\n * x.square().print(); // or tf.square(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction square_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'square');\n const attrs = {};\n return ENGINE.runKernel('Square', {x: $x}, attrs);\n}\n\nexport const square = op({square_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {parseAxisParam} from '../util';\n\nimport {expandShapeToKeepDim} from './axis_util';\nimport {cast} from './cast';\nimport {mean} from './mean';\nimport {op} from './operation';\nimport {reshape} from './reshape';\nimport {square} from './square';\nimport {sub} from './sub';\n\n/**\n * Calculates the mean and variance of `x`. The mean and variance are\n * calculated by aggregating the contents of `x` across `axes`. If `x` is\n * 1-D and `axes = [0]` this is just the mean and variance of a vector.\n *\n * @param x The input tensor.\n * @param axis The dimension(s) along with to compute mean and\n *   variance. By default
 it reduces all dimensions.\n * @param keepDims If true, the moments have the same dimensionality as the\n * input.\n * @return An object with two keys: `mean` and `variance`.\n *\n * @doc {heading: 'Operations', subheading: 'Normalization'}\n */\nfunction moments_(\n   x: Tensor|TensorLike, axis: number|number[] = null,\n keepDims = false): {mean: Tensor, variance: Tensor} {\n x = convertToTensor(x, 'x', 'moments');\n const axes = parseAxisParam(axis, x.shape);\n const xMean = mean(x, axes, keepDims);\n let keepDimsShape = xMean.shape;\n if (!keepDims) {\n   keepDimsShape = expandShapeToKeepDim(xMean.shape, axes);\n }\n const devSquared =\n   square(sub(cast(x, 'float32'), reshape(xMean, keepDimsShape)));\n const variance = mean(devSquared, axes, keepDims);\n return {mean: xMean, variance};\n}\n\nexport const moments = op({moments_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
 * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific

language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {Tensor2D} from '../tensor';\nimport {convertToTensor, convertToTensorArray} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {op} from './operation';\n\n/**\n * @docalias
(data: Tensor2D, c: Tensor2D, h: Tensor2D): [Tensor2D, Tensor2D]\n */\nexport type LSTMCellFunc = {\n (data:
Tensor2D, c: Tensor2D, h: Tensor2D): [Tensor2D, Tensor2D];\n};\n\n/**\n * Computes the next
states and outputs of a stack of LSTMCells.\n *\n * Each cell output is used as input to the next cell.\n *\n * Returns
`[cellState, cellOutput]`.\n *\n * Derived from tf.contrib.rn.MultiRNNCell.\n *\n * @param lstmCells Array of
LSTMCell functions.\n * @param data The input to the cell.\n * @param c Array of previous cell states.\n *
@param h Array of previous cell outputs.\n *\n * @doc {heading: 'Operations', subheading: 'RNN'}\n */\nfunction
multiRNNCell_(\n lstmCells: LSTMCellFunc[], data: Tensor2D|TensorLike,\n c:
Array<Tensor2D|TensorLike>,\n h: Array<Tensor2D|TensorLike>): [Tensor2D[], Tensor2D[]] {\n const $data =
convertToTensor(data, 'data', 'multiRNNCell');\n const $c = convertToTensorArray(c, 'c', 'multiRNNCell');\n const
$h = convertToTensorArray(h, 'h', 'multiRNNCell');\n\n let input = $data;\n const newStates = [];\n for (let i = 0; i
< lstmCells.length; i++) {\n const output = lstmCells[i](input, $c[i], $h[i]);\n newStates.push(output[0]);\n
newStates.push(output[1]);\n
input = output[1];\n }\n const newC: Tensor2D[] = [];\n const newH: Tensor2D[] = [];\n for (let i = 0; i <
newStates.length; i += 2) {\n newC.push(newStates[i]);\n newH.push(newStates[i + 1]);\n }\n return [newC,
newH];\n}\nexport const multiRNNCell = op({multiRNNCell_});\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Multinomial, MultinomialAttrs, MultinomialInputs} from
'../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor1D, Tensor2D} from
'../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\nimport {reshape} from
'./reshape';\n\n/**\n * Creates a `tf.Tensor` with values drawn from a multinomial distribution.\n *\n * ```js\n * const
probs = tf.tensor([.75, .25]);\n * tf.multinomial(probs, 3).print();\n * ```\n *\n * @param logits 1D array with
unnormalized log-probabilities, or\n * 2D array of shape `[batchSize, numOutcomes]`. See the `normalized`\n *
parameter.\n * @param numSamples Number of samples to draw for each row slice.\n * @param seed The seed
number.\n * @param normalized Whether the provided `logits` are normalized true\n * probabilities
(sum to 1). Defaults to false.\n * @return 1D array of shape `[numSamples]`, or 2D array of shape\n *
`[batchSize, numSamples]`, depending on the rank of the input.\n *\n * @doc {heading: 'Tensors', subheading:
'Random'}\n */\nfunction multinomial_(\n logits: Tensor1D|Tensor2D|TensorLike, numSamples: number, seed?:
number,\n normalized = false): Tensor1D|Tensor2D {\n const $logits = convertToTensor(logits, 'logits',
'multinomial');\n const numOutcomes = $logits.size;\n const origRank = $logits.rank;\n if (numOutcomes < 2) {\n
throw new Error(\n `Error in multinomial: you need at least 2 outcomes, but got ` +\n
`${numOutcomes}.`);\n }\n if (origRank > 2) {\n throw new Error(`Rank of probabilities must be 1 or 2, but is
${origRank}`);\n }\n // TODO(lina128): Investigate correct seed behavior. The code seems not allow\n // setting
see to 0.\n seed = seed || Math.random();\n\n // The kernel only accepts (and returns) rank 2 tensors.\n const
logits2D: Tensor2D =\n origRank === 1 ? reshape($logits, [1, -1]) : $logits as Tensor2D;\n\n const inputs:
MultinomialInputs = {logits: logits2D};\n const attrs: MultinomialAttrs = {numSamples, seed, normalized};\n\n //
tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n Multinomial,
inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as Tensor2D;\n\n // tslint:disable-

next-line:no-unnecessary-type-assertion\n return origRank === 1 ? reshape(res, [res.size]) as Tensor1D : res;\n}\n\nexport const multinomial = op({multinomial_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
 software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {ENGINE} from '../engine';\nimport {NotEqual, NotEqualInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns the truth value of (a != b) element-wise. Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([0, 2, 3]);\n *\n * a.notEqual(b).print();\n * ```\n * @param a
 The first input tensor.\n * @param b The second input tensor. Must have the same dtype as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nfunction notEqual_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'notEqual');\n let $b = convertToTensor(b, 'b', 'notEqual');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: NotEqualInputs = {a: $a, b: $b};\n\n return ENGINE.runKernel(NotEqual, inputs as {} as NamedTensorMap);\n}\n\nexport const notEqual = op({notEqual_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n *
 distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\nimport {makeZerosTypedArray, sizeFromShape} from '../util';\n\nimport {complex} from './complex';\n\n/**\n * Creates a `tf.Tensor` with all elements set to 0.\n *\n * ```js\n * tf.zeros([2, 2]).print();\n * ```\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param dtype The type of an element in the resulting tensor. Can\n *   be 'float32', 'int32' or 'bool'. Defaults to 'float'.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function zeros<R extends Rank>(\n   shape: ShapeMap[R],
 dtype: DataType = 'float32'): Tensor<R> {\n if (dtype === 'complex64') {\n   const real = zeros(shape, 'float32');\n   const imag = zeros(shape, 'float32');\n   return complex(real, imag);\n }\n const values = makeZerosTypedArray(sizeFromShape(shape), dtype);\n return ENGINE.makeTensor(values, shape, dtype) as Tensor<R>;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {ENGINE} from '../engine';\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\nimport {makeOnesTypedArray, sizeFromShape} from '../util';\n\nimport {complex} from

'./complex';\nimport {zeros} from './zeros';\n\n/**\n * Creates a `tf.Tensor` with all elements set to 1.\n *\n * ```js\n * tf.ones([2, 2]).print();\n * ```\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param dtype The type of an element in the resulting tensor. Defaults to\n * 'float'.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function ones<R extends Rank>(\n shape: ShapeMap[R], dtype: DataType = 'float32'): Tensor<R> {\n if (dtype === 'complex64') {\n const real = ones(shape, 'float32');\n const imag = zeros(shape, 'float32');\n return complex(real, imag);\n }\n const values = makeOnesTypedArray(sizeFromShape(shape), dtype);\n return ENGINE.makeTensor(values, shape, dtype) as Tensor<R>;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {OnesLike, OnesLikeInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Creates a `tf.Tensor` with all elements set to 1 with the same shape as the\n * given tensor.\n *\n * ```js\n * const x = tf.tensor([1, 2]);\n * tf.onesLike(x).print();\n * ```\n * @param x A tensor.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction onesLike_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'onesLike');\n\n const inputs: OnesLikeInputs = {x: $x};\n return ENGINE.runKernel(OnesLike, inputs as {} as NamedTensorMap);\n}\n\nexport const onesLike = op({onesLike_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {Tensor1D, Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {matMul} from './mat_mul';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Computes the outer product of two vectors, `v1` and `v2`.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n * const b = tf.tensor1d([3, 4, 5]);\n *\n * tf.outerProduct(a, b).print();\n * ```\n * @param v1 The first vector in the outer product operation.\n * @param v2 The second vector in the outer product operation.\n *\n * @doc {heading: 'Operations', subheading: 'Matrices'}\n */\nfunction outerProduct_(\n v1: Tensor1D|TensorLike, v2: Tensor1D|TensorLike): Tensor2D {\n const $v1 = convertToTensor(v1, 'v1', 'outerProduct');\n const $v2 = convertToTensor(v2, 'v2', 'outerProduct');\n\n util.assert(\n $v1.rank === 1 && $v2.rank === 1,\n () => `Error in outerProduct: inputs must be rank 1, but got ranks ` +\n `${$v1.rank} and ${$v2.rank}.`);\n\n const v12D = reshape($v1, [-1, 1]);\n const v22D = reshape($v2, [1, -1]);\n return matMul(v12D, v22D);\n}\n\nexport const outerProduct = op({outerProduct_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under

the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {PadV2, PadV2Attrs, PadV2Inputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Pads a `tf.Tensor` with a given value and paddings.\n *\n * This operation implements `CONSTANT` mode. For `REFLECT` and `SYMMETRIC`,\n * refer to `tf.mirrorPad`\n *\n * Also available are stricter rank-specific methods with the same signature\n * as this method that assert that `paddings` is of given
length.\n * - `tf.pad1d`\n * - `tf.pad2d`\n * - `tf.pad3d`\n * - `tf.pad4d`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n * x.pad([[1, 2]]).print();\n * ```\n * @param x The tensor to pad.\n * @param paddings An array of length `R` (the rank of the tensor), where\n * each element is a length-2 tuple of ints `[padBefore, padAfter]`,\n * specifying how much to pad along each dimension of the tensor.\n * @param constantValue The pad value to use. Defaults to 0.\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction pad_<T extends Tensor>(\n   x: T|TensorLike, paddings: Array<[number, number]>, constantValue = 0): T {\n const $x = convertToTensor(x, 'x', 'pad');\n if ($x.rank === 0) {\n   throw new Error('pad(scalar) is not defined. Pass non-scalar to pad');\n }\n\n const attrs: PadV2Attrs = {paddings, constantValue};\n const inputs: PadV2Inputs = {x: $x};\n return ENGINE.runKernel(\n   PadV2, inputs as unknown as NamedTensorMap,\n
attrs as unknown as NamedAttrMap);\n}\n\nexport const pad = op({pad_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Tensor1D} from '../tensor';\nimport {TensorLike} from '../types';\nimport {assert} from '../util';\nimport {op} from './operation';\nimport {pad} from './pad';\n\n/**\n * Pads a `tf.Tensor1D`
with a given value and paddings. See `pad` for details.\n */\nfunction pad1d_(\n   x: Tensor1D|TensorLike, paddings: [number, number],\n   constantValue = 0): Tensor1D {\n assert(\n   paddings.length === 2,\n   () => 'Invalid number of paddings. Must be length of 2.');\n return pad(x, [paddings], constantValue);\n}\n\nexport const pad1d = op({pad1d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==========\n */\nimport {Tensor2D} from '../tensor';\nimport {TensorLike} from '../types';\nimport {assert} from '../util';\nimport {op} from './operation';\nimport {pad} from './pad';\n\n/**\n * Pads a `tf.Tensor2D` with a given value and paddings. See `pad` for details.\n */\nfunction pad2d_(\n   x: Tensor2D|TensorLike, paddings: [[number, number], [number, number]],\n   constantValue = 0): Tensor2D {\n assert(\n   paddings.length === 2 && paddings[0].length === 2 &&\n   paddings[1].length === 2,\n   () => 'Invalid number of paddings. Must be length of 2 each.');\n return pad(x, paddings, constantValue);\n}\n\nexport const pad2d = op({pad2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version

2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Tensor3D} from '../tensor';\nimport {TensorLike} from '../types';\nimport {assert} from '../util';\nimport {op} from './operation';\nimport {pad} from './pad';\n\n/**\n * Pads a `tf.Tensor3D` with a given value and paddings. See `pad` for details.\n */\nfunction pad3d_(\n x: Tensor3D|TensorLike,\n paddings: [[number, number], [number, number], [number, number]],\n constantValue = 0): Tensor3D {\n assert(\n paddings.length === 3 && paddings[0].length === 2 &&\n paddings[1].length === 2 &&
paddings[2].length === 2,\n () => 'Invalid number of paddings. Must be length of 2 each.');\n return pad(x, paddings, constantValue);\n}\n\nexport const pad3d = op({pad3d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {Tensor4D} from '../tensor';\nimport {TensorLike} from '../types';\nimport {assert}
from '../util';\nimport {op} from './operation';\nimport {pad} from './pad';\n\n/**\n * Pads a `tf.Tensor4D` with a given value and paddings. See `pad` for details.\n */\nfunction pad4d_(\n x: Tensor4D|TensorLike,\n paddings:\n [\n [number, number], [number, number], [number, number], [number, number]\n],\n constantValue = 0): Tensor4D {\n assert(\n paddings.length === 4 && paddings[0].length === 2 &&\n paddings[1].length === 2 && paddings[2].length === 2 &&\n paddings[3].length === 2,\n () => 'Invalid number of paddings. Must be length of 2 each.');\n return pad(x, paddings, constantValue);\n}\n\nexport const pad4d = op({pad4d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {SpaceToBatchND, SpaceToBatchNDAttrs, SpaceToBatchNDInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * This operation divides \"spatial\" dimensions `[1, ..., M]` of the input into\n * a grid of blocks of shape `blockShape`, and interleaves
these blocks with\n * the \"batch\" dimension (0) such that in the output, the spatial\n * dimensions `[1, ..., M]` correspond to the position within the grid,\n * and the batch dimension combines both the position within a spatial block\n * and the original batch position. Prior to division into blocks,\n * the spatial dimensions of the input are optionally zero padded\n * according to `paddings`. See below for a precise description.\n *\n * ```js\n * const x = tf.tensor4d([1, 2, 3, 4], [1, 2, 2, 1]);\n * const blockShape = [2, 2];\n * const paddings = [[0, 0], [0, 0]];\n *\n * x.spaceToBatchND(blockShape, paddings).print();\n * ```\n *\n * @param x A `tf.Tensor`. N-D with `x.shape` =

`[batch] + spatialShape +\n * remainingShape`, where spatialShape has `M` dimensions.\n * @param blockShape A 1-D array. Must have shape `[M]`, all values must\n * be >= 1.\n * @param paddings A 2-D array. Must have shape `[M, 2]`, all values must be >=\n * 0. `paddings[i] = [padStart, padEnd]` specifies
the amount to zero-pad\n * from input dimension `i + 1`, which corresponds to spatial dimension `i`. It\n * is required that\n * `(inputShape[i + 1] + padStart + padEnd) % blockShape[i] === 0`\n *\n * This operation is equivalent to the following steps:\n *\n * 1. Zero-pad the start and end of dimensions `[1, ..., M]` of the input\n * according to `paddings` to produce `padded` of shape paddedShape.\n *\n * 2. Reshape `padded` to `reshapedPadded` of shape:\n * `[batch] + [paddedShape[1] / blockShape[0], blockShape[0], ...,\n * paddedShape[M] / blockShape[M-1], blockShape[M-1]] + remainingShape`\n *\n * 3. Permute dimensions of `reshapedPadded` to produce `permutedReshapedPadded`\n * of shape: `blockShape + [batch] + [paddedShape[1] / blockShape[0], ...,\n * paddedShape[M] / blockShape[M-1]] + remainingShape`\n *\n * 4. Reshape `permutedReshapedPadded` to flatten `blockShape` into the\n * batch dimension, producing an output tensor of shape:\n * `[batch * prod(blockShape)] + [paddedShape[1]
/ blockShape[0], ...,\n * paddedShape[M] / blockShape[M-1]] + remainingShape`\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nfunction spaceToBatchND_<T extends Tensor>(\n x: T|TensorLike, blockShape: number[], paddings: number[][]): T {\n const $x = convertToTensor(x, 'x', 'spaceToBatchND');\n\n util.assert(\n $x.rank >= 1 + blockShape.length,\n () => `input rank ${$x.rank} should be > than [blockShape] ${\n blockShape.length}`);\n\n util.assert(\n paddings.length === blockShape.length,\n () => `paddings.shape[0] ${\n paddings.length} must be equal to [blockShape] ${blockShape.length}`);\n\n util.assert(\n $x.shape.reduce(\n (a, b, i) => {\n if (i > 0 && i <= blockShape.length) {\n return a &&\n ((b + paddings[i - 1][0] + paddings[i - 1][1]) %\n blockShape[i - 1] ===\n 0);\n }\n return a;\n
},\n true),\n () => `input spatial dimensions ${$x.shape.slice(1)} with paddings ${\n paddings.toString()} must be divisible by blockShapes ${\n blockShape.toString()}`);\n\n const inputs: SpaceToBatchNDInputs = {x: $x};\n const attrs: SpaceToBatchNDAttrs = {blockShape, paddings};\n\n return ENGINE.runKernel(\n SpaceToBatchND, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n}\n\nexport const spaceToBatchND = op({spaceToBatchND_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {avgPool} from './avg_pool';\nimport {batchToSpaceND} from './batch_to_space_nd';\nimport * as conv_util from './conv_util';\nimport {maxPool} from './max_pool';\nimport {op} from './operation';\nimport {reshape} from './reshape';\nimport {spaceToBatchND} from './space_to_batch_nd';\n\n/**\n * Performs an N-D pooling operation\n *\n * @param input The input tensor, of rank 4 or rank 3 of shape\n * `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param windowShape The filter size: `[filterHeight, filterWidth]`. If\n * `filterSize` is a single number,
then `filterHeight == filterWidth`.\n * @param poolingType The type of pooling, either 'max' or 'avg'.\n * @param pad The type of padding algorithm:\n * - `same` and stride 1: output will be of same size as input,\n * regardless of filter size.\n * - `valid`: output will be smaller than input if filter is larger\n * than 1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n * in which we sample input values across the height and width dimensions\n *

in dilated pooling. Defaults to `[1, 1]`. If `dilationRate` is a single\n * number, then `dilationHeight == dilationWidth`. If it is greater than\n * 1, then all values of `strides` must be 1.\n * @param strides The strides of the pooling: `[strideHeight, strideWidth]`. If\n * `strides` is
a single number, then `strideHeight == strideWidth`.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction pool_<T extends Tensor3D|Tensor4D>(\n input: T|TensorLike, windowShape: [number, number]|number,\n poolingType: 'avg'|'max', pad: 'valid'|'same'|number,\n dilations?: [number, number]|number, strides?: [number, number]|number) {\n if (dilations == null) {\n dilations = [1, 1];\n }\n if (strides == null) {\n strides = 1;\n }\n if (pad === 0) {\n pad = 'valid';\n }\n\n const $x = convertToTensor(input, 'x', 'maxPool');\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n\n if ($x.rank === 3) {\n reshapedTo4D = true;\n x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n }\n\n util.assert(\n conv_util.eitherStridesOrDilationsAreOne(strides, dilations),\n () => 'Error in pool: Either strides or dilations must be 1. ' +\n `Got strides ${strides} and dilations '${dilations}'`);\n\n const
convInfo = conv_util.computePool2DInfo(\n x4D.shape, windowShape, strides, dilations, pad);\n const dilation: [number, number] =\n [convInfo.dilationHeight, convInfo.dilationWidth];\n\n // The following implementation does batchToSpace(pool(spaceToBatch(x)))\n // whenever dilation > 1 since the TF kernels do not support dilation > 1.\n // tslint:disable-next-line:max-line-length\n // https://github.com/tensorflow/tensorflow/blob/50f6bb67dc98c9b74630b6047aae7a4f8a40fd02/tensorflow/python/ops/nn_ops.py#L1037\n\n let basePadding: number[][];\n if (pad === 'same') {\n basePadding = withSpaceToBatchBasePaddings(\n [convInfo.filterHeight, convInfo.filterWidth], dilation);\n } else {\n basePadding = [[0, 0], [0, 0]];\n }\n\n const isDilationOne = dilation[0] === 1 && dilation[1] === 1;\n const [adjustedPadding, adjustedCrops] = requiredSpaceToBatchPaddings(\n [convInfo.inHeight, convInfo.inWidth], dilation, basePadding);\n const convertedPad = isDilationOne
? pad : 'valid';\n const convertedX =\n isDilationOne ? x4D : spaceToBatchND(x4D, dilation, adjustedPadding);\n\n const forwardOp = poolingType === 'avg' ?\n () => avgPool(convertedX, windowShape, strides, convertedPad) :\n () => maxPool(convertedX, windowShape, strides, convertedPad);\n const y = forwardOp();\n\n const res = isDilationOne ? y : batchToSpaceND(y, dilation, adjustedCrops);\n\n if (reshapedTo4D) {\n return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n\n return res as T;\n}\n\n// Helper function to compute crops and paddings for pool with dilation > 1.\n// tslint:disable-next-line:max-line-length\n// https://github.com/tensorflow/tensorflow/blob/50f6bb67dc98c9b74630b6047aae7a4f8a40fd02/tensorflow/python/ops/array_ops.py#L2184\nfunction requiredSpaceToBatchPaddings(\n inputShape: [number, number], blockShape: [number, number],\n basePadding: number[][]) {\n const padStart = basePadding.map(b => b[0]);\n const origPadEnd
= basePadding.map(b => b[1]);\n const fullInputShape = inputShape.concat(padStart, origPadEnd);\n const padEndExtra = blockShape.map((b, i) => (b - fullInputShape[i] % b) % b);\n const padEnd = origPadEnd.map((s, i) => s + padEndExtra[i]);\n const paddings = blockShape.map((_, i) => [padStart[i], padEnd[i]]);\n const crops = blockShape.map((_, i) => [0, padEndExtra[i]]);\n return [paddings, crops];\n}\n\n// Helper function to compute base paddings for pool with dilation > 1.\n// tslint:disable-next-line:max-line-length\n// https://github.com/tensorflow/tensorflow/blob/50f6bb67dc98c9b74630b6047aae7a4f8a40fd02/tensorflow/python/ops/nn_ops.py#L524\nfunction withSpaceToBatchBasePaddings(\n filterShape: [number, number], dilation: [number, number]) {\n // Spatial dimensions of the filters and the upsampled filters in which we\n // introduce (rate - 1) zeros between consecutive filter values.\n const dilatedFilterShape = filterShape.map((s, i) => {\n return s + (s - 1)
* (dilation[i] - 1);\n });\n const padExtraShape = dilatedFilterShape.map(s => s - 1);\n\n // When padding is odd, we pad more at end, following the same\n // convention as conv2d.\n const padExtraStart = padExtraShape.map(s => Math.floor(s / 2));\n const padExtraEnd = padExtraShape.map((s, i) => s - padExtraStart[i]);\n return padExtraShape.map((_, i) => {\n return [padExtraStart[i], padExtraEnd[i]];\n });\n}\n\nexport const pool = op({pool_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the

Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See
the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {ENGINE} from '../engine';\nimport {Pow, PowInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the power of one `tf.Tensor` to another. Supports broadcasting.\n *\n * Given a `tf.Tensor` x and a `tf.Tensor` y, this operation computes x^y for\n * corresponding elements in x and y. The result's dtype will be the upcasted\n * type of the `base` and `exp` dtypes.\n *\n * ```js\n * const a = tf.tensor([[2, 3], [4, 5]])\n * const b = tf.tensor([[1, 2], [3, 0]]).toInt();\n *\n * a.pow(b).print(); // or tf.pow(a, b)\n * ```\n *\n * ```js\n * const
a = tf.tensor([[1, 2], [3, 4]])\n * const b = tf.tensor(2).toInt();\n *\n * a.pow(b).print(); // or tf.pow(a, b)\n * ```\n * We also expose `powStrict` which has the same signature as this op and\n * asserts that `base` and `exp` are the same shape (does not broadcast).\n *\n * @param base The base `tf.Tensor` to pow element-wise.\n * @param exp The exponent `tf.Tensor` to pow element-wise.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction pow_<T extends Tensor>(\n   base: Tensor|TensorLike, exp: Tensor|TensorLike): T {\n let $base = convertToTensor(base, 'base', 'pow');\n let $exp = convertToTensor(exp, 'exp', 'pow');\n [$base, $exp] = makeTypesMatch($base, $exp);\n\n const inputs: PowInputs = {a: $base, b: $exp};\n\n return ENGINE.runKernel(Pow, inputs as {} as NamedTensorMap);\n}\n\nexport const pow = op({pow_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Prelu, PreluInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes leaky rectified linear element-wise with parametric alphas.\n *\n * `x < 0 ? alpha * x :
f(x) = x`\n *\n * ```js\n * const x = tf.tensor1d([-1, 2, -3, 4]);\n * const alpha = tf.scalar(0.1);\n *\n * x.prelu(alpha).print(); // or tf.prelu(x, alpha)\n * ```\n * @param x The input tensor.\n * @param alpha Scaling factor for negative values.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction prelu_<T extends Tensor>(x: T|TensorLike, alpha: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'prelu');\n const $alpha = convertToTensor(alpha, 'alpha', 'prelu');\n\n const inputs: PreluInputs = {x: $x, alpha: $alpha};\n return ENGINE.runKernel(Prelu, inputs as {} as NamedTensorMap);\n}\n\nexport const prelu = op({prelu_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

*/\n\nimport {ENGINE} from '../engine';\nimport {Prod, ProdAttrs, ProdInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {cast} from './cast';\nimport {op} from './operation';\n\n/**\n * Computes the product of elements across dimensions of a `tf.Tensor`.\n *\n * Reduces the input along the dimensions given in `axes`. Unless `keepDims`\n * is true, the rank of the `tf.Tensor` is reduced by
1 for each entry in\n * `axes`. If `keepDims` is true, the reduced dimensions are retained with\n * length 1. If `axes` has no entries, all dimensions are reduced, and a\n * `tf.Tensor` with a single element is returned.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3]);\n *\n * x.prod().print(); // or tf.prod(x)\n * ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.prod(axis).print(); // or tf.prod(x, axis)\n * ```\n *\n * @param x The input tensor to compute the product over. If the dtype is `bool`\n *   it will be converted to `int32` and the output dtype will be `int32`.\n * @param axis The dimension(s) to reduce. By default it reduces\n *   all dimensions.\n * @param keepDims If true, retains reduced dimensions with size 1.\n *\n * @doc {heading: 'Operations', subheading: 'Reduction'}\n */\nfunction prod_<T extends Tensor>(\n   x: Tensor|TensorLike, axis: number|number[] = null, keepDims = false): T {\n let $x = convertToTensor(x,
'x', 'prod');\n\n if ($x.dtype === 'bool') {\n   // bool is not an allowed type for the underlying kernel.\n $x = cast($x, 'int32');\n }\n\n const inputs: ProdInputs = {x: $x};\n const attrs: ProdAttrs = {axis, keepDims};\n\n return ENGINE.runKernel(\n   Prod, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const prod = op({prod_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
under the License.\n *
==\n */\n\nimport {ENGINE} from '../engine';\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\nimport {sizeFromShape} from '../util';\n\nimport {op} from './operation';\n\n/**\n * Creates a `tf.Tensor` with values sampled from a random number generator\n * function defined by the user.\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param randFunction A random number generator function which is called\n * for each element in the output tensor.\n * @param dtype The data type of the output tensor. Defaults to 'float32'.\n */\nfunction rand_<R extends Rank>(\n   shape: ShapeMap[R], randFunction: () => number,\n   dtype?: DataType): Tensor<R> {\n const size = sizeFromShape(shape);\n let values = null;\n if (dtype == null || dtype === 'float32') {\n   values = new Float32Array(size);\n } else if (dtype === 'int32') {\n   values = new Int32Array(size);\n } else if (dtype === 'bool') {\n   values = new Uint8Array(size);\n } else {\n   throw new Error(`Unknown data type ${dtype}`);\n }\n for (let i = 0; i < size; i++) {\n   values[i] = randFunction();\n }\n return ENGINE.makeTensor(values, shape, dtype) as Tensor<R>;\n}\n\nexport const rand = op({rand_});\n","// A port of an algorithm by Johannes Baagøe <baagoe@baagoe.com>, 2010\n// http://baagoe.com/en/RandomMusings/javascript/\n// https://github.com/nquinlan/better-random-numbers-for-javascript-mirror\n// Original work is under MIT license -\n\n// Copyright (C) 2010 by Johannes Baagøe <baagoe@baagoe.org>\n//\n// Permission is hereby granted, free of charge, to any person obtaining a copy\n// of this software and associated documentation files (the \"Software\"), to deal\n// in the Software without restriction, including without limitation the rights\n// to use, copy, modify, merge, publish, distribute, sublicense, and/or sell\n// copies of
the Software, and to permit persons to whom the Software is\n// furnished to do so, subject to the following conditions:\n// \n// The above copyright notice and this permission notice shall be included in\n// all copies or substantial portions of the Software.\n// \n// THE SOFTWARE IS PROVIDED \"AS IS\", WITHOUT

WARRANTY OF ANY KIND, EXPRESS OR\n// IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,\n// FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE\n// AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER\n// LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,\n// OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN\n// THE SOFTWARE.\n\n\n\n(function(global, module, define) {\n\nfunction Alea(seed) {\n var me = this, mash = Mash();\n\n me.next = function() {\n   var t = 2091639 * me.s0 + me.c * 2.3283064365386963e-10; // 2^-32\n   me.s0 = me.s1;\n   me.s1 = me.s2;\n
    return me.s2 = t - (me.c = t | 0);\n };\n\n // Apply the seeding algorithm from Baagoe.\n me.c = 1;\n me.s0 = mash(' ');\n me.s1 = mash(' ');\n me.s2 = mash(' ');\n me.s0 -= mash(seed);\n if (me.s0 < 0) { me.s0 += 1; }\n me.s1 -= mash(seed);\n if (me.s1 < 0) { me.s1 += 1; }\n me.s2 -= mash(seed);\n if (me.s2 < 0) { me.s2 += 1; }\n mash = null;\n}\n\nfunction copy(f, t) {\n t.c = f.c;\n t.s0 = f.s0;\n t.s1 = f.s1;\n t.s2 = f.s2;\n return t;\n}\n\nfunction impl(seed, opts) {\n var xg = new Alea(seed),\n   state = opts && opts.state,\n   prng = xg.next;\n prng.int32 = function() { return (xg.next() * 0x100000000) | 0; }\n prng.double = function() {\n   return prng() + (prng() * 0x200000 | 0) * 1.1102230246251565e-16; // 2^-53\n };\n prng.quick = prng;\n if (state) {\n   if (typeof(state) == 'object') copy(state, xg);\n   prng.state = function() { return copy(xg, {}); }\n }\n return prng;\n}\n\nfunction Mash() {\n var n = 0xefc8249d;\n\n var mash = function(data)
  {\n   data = data.toString();\n   for (var i = 0; i < data.length; i++) {\n   n += data.charCodeAt(i);\n   var h = 0.02519603282416938 * n;\n   n = h >>> 0;\n   h -= n;\n   h *= n;\n   n = h >>> 0;\n   h -= n;\n   n += h * 0x100000000; // 2^32\n   }\n   return (n >>> 0) * 2.3283064365386963e-10; // 2^-32\n };\n\n return mash;\n}\n\n\nif (module && module.exports) {\n module.exports = impl;\n} else if (define && define.amd) {\n define(function() { return impl; });\n} else {\n this.alea = impl;\n}\n\n})(\n this,\n (typeof module) == 'object' && module,   // present in node.js\n (typeof define) == 'function' && define   // present with an AMD loader\n);\n\n\n","// A Javascript implementaion of the \"xor128\" prng algorithm by\n// George Marsaglia. See http://www.jstatsoft.org/v08/i14/paper\n\n(function(global, module, define) {\n\nfunction XorGen(seed) {\n var me = this, strseed = '';\n\n me.x = 0;\n me.y = 0;\n me.z = 0;\n me.w = 0;\n\n
  // Set up generator function.\n me.next = function() {\n   var t = me.x ^ (me.x << 11);\n   me.x = me.y;\n   me.y = me.z;\n   me.z = me.w;\n   return me.w ^= (me.w >>> 19) ^ t ^ (t >>> 8);\n };\n\n if (seed === (seed | 0)) {\n   // Integer seed.\n   me.x = seed;\n } else {\n   // String seed.\n   strseed += seed;\n }\n\n // Mix in string seed, then discard an initial batch of 64 values.\n for (var k = 0; k < strseed.length + 64; k++) {\n   me.x ^= strseed.charCodeAt(k) | 0;\n   me.next();\n }\n}\n\nfunction copy(f, t) {\n t.x = f.x;\n t.y = f.y;\n t.z = f.z;\n t.w = f.w;\n return t;\n}\n\nfunction impl(seed, opts) {\n var xg = new XorGen(seed),\n   state = opts && opts.state,\n   prng = function() { return (xg.next() >>> 0) / 0x100000000; };\n prng.double = function() {\n   do {\n   var top = xg.next() >>> 11,\n   bot = (xg.next() >>> 0) / 0x100000000,\n   result = (top + bot) / (1 << 21);\n   } while (result === 0);\n   return
  result;\n };\n prng.int32 = xg.next;\n prng.quick = prng;\n if (state) {\n   if (typeof(state) == 'object') copy(state, xg);\n   prng.state = function() { return copy(xg, {}); }\n }\n return prng;\n}\n\nif (module && module.exports) {\n module.exports = impl;\n} else if (define && define.amd) {\n define(function() { return impl; });\n} else {\n this.xor128 = impl;\n}\n\n})(\n this,\n (typeof module) == 'object' && module,   // present in node.js\n (typeof define) == 'function' && define   // present with an AMD loader\n);\n\n\n","// A Javascript implementaion of the \"xorwow\" prng algorithm by\n// George Marsaglia. See http://www.jstatsoft.org/v08/i14/paper\n\n(function(global, module, define) {\n\nfunction XorGen(seed) {\n var me = this, strseed = '';\n\n // Set up generator function.\n me.next = function() {\n   var t = (me.x ^ (me.x >>> 2));\n   me.x = me.y; me.y = me.z; me.z = me.w; me.w = me.v;\n   return (me.d = (me.d + 362437 | 0)) +\n   (me.v = (me.v
  ^ (me.v << 4)) ^ (t ^ (t << 1))) | 0;\n };\n\n me.x = 0;\n me.y = 0;\n me.z = 0;\n me.w = 0;\n me.v = 0;\n\n if (seed === (seed | 0)) {\n   // Integer seed.\n   me.x = seed;\n } else {\n   // String seed.\n   strseed += seed;\n }\n\n // Mix in string seed, then discard an initial batch of 64 values.\n for (var k = 0; k < strseed.length + 64; k++) {\n

me.x ^= strseed.charCodeAt(k) | 0;\n if (k == strseed.length) {\n me.d = me.x << 10 ^ me.x >>> 4;\n }\n me.next();\n }\n}\n\nfunction copy(f, t) {\n t.x = f.x;\n t.y = f.y;\n t.z = f.z;\n t.w = f.w;\n t.v = f.v;\n t.d = f.d;\n return t;\n}\n\nfunction impl(seed, opts) {\n var xg = new XorGen(seed),\n state = opts && opts.state,\n prng = function() { return (xg.next() >>> 0) / 0x100000000; };\n prng.double = function() {\n do {\n var top = xg.next() >>> 11,\n bot = (xg.next() >>> 0) / 0x100000000,\n result = (top + bot) / (1 << 21);\n } while (result === 0);\n
  return result;\n };\n prng.int32 = xg.next;\n prng.quick = prng;\n if (state) {\n if (typeof(state) == 'object') copy(state, xg);\n prng.state = function() { return copy(xg, {}); }\n }\n return prng;\n}\n\nif (module && module.exports) {\n module.exports = impl;\n} else if (define && define.amd) {\n define(function() { return impl; });\n} else {\n this.xorwow = impl;\n}\n\n})(\n this,\n (typeof module) == 'object' && module, // present in node.js\n (typeof define) == 'function' && define // present with an AMD loader\n);\n\n\n","// A Javascript implementaion of the \"xorshift7\" algorithm by\n// François Panneton and Pierre L'ecuyer:\n// \"On the Xorgshift Random Number Generators\"\n// http://saluc.engr.uconn.edu/refs/crypto/rng/panneton05onthexorshift.pdf\n\n(function(global, module, define) {\n\nfunction XorGen(seed) {\n var me = this;\n\n // Set up generator function.\n me.next = function() {\n // Update xor generator.\n var X = me.x, i = me.i, t,
 v, w;\n t = X[i]; t ^= (t >>> 7); v = t ^ (t << 24);\n t = X[(i + 1) & 7]; v ^= t ^ (t >>> 10);\n t = X[(i + 3) & 7]; v ^= t ^ (t >>> 3);\n t = X[(i + 4) & 7]; v ^= t ^ (t << 7);\n t = X[(i + 7) & 7]; t = t ^ (t << 13); v ^= t ^ (t << 9);\n X[i] = v;\n me.i = (i + 1) & 7;\n return v;\n };\n\n function init(me, seed) {\n var j, w, X = [];\n\n if (seed === (seed | 0)) {\n // Seed state array using a 32-bit integer.\n w = X[0] = seed;\n } else {\n // Seed state using a string.\n seed = '' + seed;\n for (j = 0; j < seed.length; ++j) {\n X[j & 7] = (X[j & 7] << 15) ^\n (seed.charCodeAt(j) + X[(j + 1) & 7] << 13);\n }\n }\n // Enforce an array length of 8, not all zeroes.\n while (X.length < 8) X.push(0);\n for (j = 0; j < 8 && X[j] === 0; ++j);\n if (j == 8) w = X[7] = -1; else w = X[j];\n\n me.x = X;\n me.i = 0;\n\n // Discard an initial 256 values.\n for (j = 256; j > 0; --j) {\n
  me.next();\n }\n }\n\n init(me, seed);\n}\n\nfunction copy(f, t) {\n t.x = f.x.slice();\n t.i = f.i;\n return t;\n}\n\nfunction impl(seed, opts) {\n if (seed == null) seed = +(new Date);\n var xg = new XorGen(seed),\n state = opts && opts.state,\n prng = function() { return (xg.next() >>> 0) / 0x100000000; };\n prng.double = function() {\n do {\n var top = xg.next() >>> 11,\n bot = (xg.next() >>> 0) / 0x100000000,\n result = (top + bot) / (1 << 21);\n } while (result === 0);\n return result;\n };\n prng.int32 = xg.next;\n prng.quick = prng;\n if (state) {\n if (state.x) copy(state, xg);\n prng.state = function() { return copy(xg, {}); }\n }\n return prng;\n}\n\nif (module && module.exports) {\n module.exports = impl;\n} else if (define && define.amd) {\n define(function() { return impl; });\n} else {\n this.xorshift7 = impl;\n}\n\n})(\n this,\n (typeof module) == 'object' && module, // present in node.js\n
  (typeof define) == 'function' && define // present with an AMD loader\n);\n\n\n","// A Javascript implementaion of Richard Brent's Xorgens xor4096 algorithm.\n//\n// This fast non-cryptographic random number generator is designed for\n// use in Monte-Carlo algorithms. It combines a long-period xorshift\n// generator with a Weyl generator, and it passes all common batteries\n// of stasticial tests for randomness while consuming only a few nanoseconds\n// for each prng generated. For background on the generator, see Brent's\n// paper: \"Some long-period random number generators using shifts and xors.\"\n// http://arxiv.org/pdf/1004.3115v1.pdf\n//\n// Usage:\n//\n// var xor4096 = require('xor4096');\n// random = xor4096(1);   // Seed with int32 or string.\n// assert.equal(random(), 0.1520436450538547); // (0, 1) range, 53 bits.\n// assert.equal(random.int32(), 1806534897);   // signed int32, 32 bits.\n//\n// For nonzero numeric keys, this impelementation provides a
 sequence\n// identical to that by Brent's xorgens 3 implementaion in C. This\n// implementation also provides for initalizing the generator with\n// string seeds, or for saving and restoring the state of the generator.\n//\n// On Chrome, this prng benchmarks about 2.1 times slower than\n// Javascript's built-in Math.random().\n\n(function(global, module, define) {\n\nfunction XorGen(seed) {\n var me = this;\n\n // Set up generator function.\n me.next = function() {\n var w = me.w,\n X = me.X, i = me.i, t, v;\n // Update Weyl generator.\n me.w = w = (w + 0x61c88647) | 0;\n // Update xor generator.\n v = X[(i + 34) & 127];\n t = X[i

```
= ((i + 1) & 127)];\n    v ^= v << 13;\n    t ^= t << 17;\n    v ^= v >>> 15;\n    t ^= t >>> 12;\n    // Update Xor generator array state.\n    v = X[i] = v ^ t;\n    me.i = i;\n    // Result is the combination.\n    return (v + (w ^ (w >>> 16))) | 0;\n  };\n\n  function init(me, seed) {\n    var t, v, i, j, w, X = [], limit = 128;\n    if (seed === (seed | 0)) {\n      // Numeric seeds initialize v, which is used to generates X.\n      v = seed;\n      seed = null;\n    } else {\n      // String seeds are mixed into v and X one character at a time.\n      seed = seed + '\\0';\n      v = 0;\n      limit = Math.max(limit, seed.length);\n    }\n    // Initialize circular array and weyl value.\n    for (i = 0, j = -32; j < limit; ++j) {\n      // Put the unicode characters into the array, and shuffle them.\n      if (seed) v ^= seed.charCodeAt((j + 32) % seed.length);\n      // After 32 shuffles, take v as the starting w value.\n      if (j === 0) w = v;\n      v ^= v << 10;\n      v ^= v >>> 15;\n      v ^= v << 4;\n      v ^= v >>> 13;\n      if (j >= 0) {\n        w = (w + 0x61c88647) | 0;     // Weyl.\n        t = (X[j & 127] ^= (v + w));  // Combine xor and weyl to init array.\n        i = (0 == t) ? i + 1 : 0;     // Count zeroes.\n      }\n    }\n    // We have detected all zeroes; make the key nonzero.\n    if (i >= 128) {\n      X[(seed && seed.length || 0) & 127] = -1;\n    }\n    // Run the generator 512 times to further mix the state before using it.\n    // Factoring this as a function slows the main generator, so it is just\n    // unrolled here.  The weyl generator is not advanced while warming up.\n    i = 127;\n    for (j = 4 * 128; j > 0; --j) {\n      v = X[(i + 34) & 127];\n      t = X[i = ((i + 1) & 127)];\n      v ^= v << 13;\n      t ^= t << 17;\n      v ^= v >>> 15;\n      t ^= t >>> 12;\n      X[i] = v ^ t;\n    }\n    // Storing state as object members is faster than using closure variables.\n    me.w = w;\n    me.X = X;\n    me.i = i;\n  }\n\n  init(me, seed);\n}\n\nfunction copy(f, t) {\n  t.i = f.i;\n  t.w = f.w;\n  t.X = f.X.slice();\n  return t;\n};\n\nfunction impl(seed, opts) {\n  if (seed == null) seed = +(new Date);\n  var xg = new XorGen(seed),\n      state = opts && opts.state,\n      prng = function() { return (xg.next() >>> 0) / 0x100000000; };\n  prng.double
 = function() {\n    do {\n      var top = xg.next() >>> 11,\n          bot = (xg.next() >>> 0) / 0x100000000,\n          result = (top + bot) / (1 << 21);\n    } while (result === 0);\n    return result;\n  };\n  prng.int32 = xg.next;\n  prng.quick = prng;\n  if (state) {\n    if (state.X) copy(state, xg);\n    prng.state = function() { return copy(xg, {}); }\n  }\n  return prng;\n}\n\nif (module && module.exports) {\n  module.exports = impl;\n} else if (define && define.amd) {\n  define(function() { return impl; });\n} else {\n  this.xor4096 = impl;\n}\n\n})(\n  this,
          // window object or global\n  (typeof module) == 'object' && module,    // present in node.js\n  (typeof define) == 'function' && define   // present with an AMD loader\n);\n","// A Javascript implementaion of the \"Tyche-i\" prng algorithm by\n// Samuel Neves and Filipe Araujo.\n// See https://eden.dei.uc.pt/~sneves/pubs/2011-snfa2.pdf\n\n(function(global, module, define) {\n\nfunction
 XorGen(seed) {\n  var me = this, strseed = '';\n\n  // Set up generator function.\n  me.next = function() {\n    var b = me.b, c = me.c, d = me.d, a = me.a;\n    b = (b << 25) ^ (b >>> 7) ^ c;\n    c = (c - d) | 0;\n    d = (d << 24) ^ (d >>> 8) ^ a;\n    a = (a - b) | 0;\n    me.b = b = (b << 20) ^ (b >>> 12) ^ c;\n    me.c = c = (c - d) | 0;\n    me.d = (d << 16) ^ (c >>> 16) ^ a;\n    return me.a = (a - b) | 0;\n  };\n\n  /* The following is non-inverted tyche, which has better internal\n   * bit diffusion, but which is about 25% slower than tyche-i in JS.\n  me.next = function() {\n    var a = me.a, b = me.b, c = me.c, d = me.d;\n    a = (me.a + me.b | 0) >>> 0;\n    d = me.d ^ a; d = d << 16 ^ d >>> 16;\n    c = me.c + d | 0;\n    b = me.b ^ c; b = b << 12 ^ d >>> 20;\n    me.a = a = a + b | 0;\n    d = d ^ a; me.d = d = d << 8 ^ d >>> 24;\n    me.c = c = c + d | 0;\n    b = b ^ c;\n    return me.b = (b << 7 ^ b >>> 25);\n  }\n  */\n\n  me.a = 0;\n  me.b = 0;\n  me.c = 2654435769
 | 0;\n  me.d = 1367130551;\n\n  if (seed === Math.floor(seed)) {\n    // Integer seed.\n    me.a = (seed / 0x100000000) | 0;\n    me.b = seed | 0;\n  } else {\n    // String seed.\n    strseed += seed;\n  }\n\n  // Mix in string seed, then discard an initial batch of 64 values.\n  for (var k = 0; k < strseed.length + 20; k++) {\n    me.b ^= strseed.charCodeAt(k) | 0;\n    me.next();\n  }\n}\n\nfunction copy(f, t) {\n  t.a = f.a;\n  t.b = f.b;\n  t.c = f.c;\n  t.d = f.d;\n  return t;\n};\n\nfunction impl(seed, opts) {\n  var xg = new XorGen(seed),\n      state = opts && opts.state,\n
  prng = function() { return (xg.next() >>> 0) / 0x100000000; };\n  prng.double = function() {\n    do {\n      var top = xg.next() >>> 11,\n          bot = (xg.next() >>> 0) / 0x100000000,\n          result = (top + bot) / (1 << 21);\n    } while (result === 0);\n    return result;\n  };\n  prng.int32 = xg.next;\n  prng.quick = prng;\n  if (state) {\n    if (typeof(state) == 'object') copy(state,
```

xg);\n prng.state = function() { return copy(xg, {}); }\n }\n return prng;\n}\n\nif (module && module.exports) {\n module.exports = impl;\n} else if (define && define.amd) {\n define(function() { return impl; });\n} else {\n this.tychei = impl;\n}\n\n})(\n this,\n (typeof module) == 'object' && module, // present in node.js\n (typeof define) == 'function' && define // present with an AMD loader\n);\n\n\n","/*\nCopyright 2014 David Bau.\n\nPermission is hereby granted, free of charge, to any person obtaining\na copy of this software and associated documentation files (the\n\"Software\"), to deal in the Software without restriction, including\nwithout limitation the rights to use, copy, modify, merge, publish,\ndistribute, sublicense, and/or sell copies of the Software, and to\npermit persons to whom the Software is furnished to do so, subject to\nthe following conditions:\n\nThe above copyright notice and this permission notice shall be\nincluded in all copies or substantial portions of the Software.\n\nTHE SOFTWARE IS PROVIDED \"AS IS\", WITHOUT WARRANTY OF ANY KIND,\nEXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF\nMERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.\nIN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY\nCLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,\nTORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE\nSOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.\n\n*/\n\n(function (pool, math) {\n//\n// The following constants are related to IEEE 754 limits.\n//\nvar global = this,\n width = 256, // each RC4 output is 0 <= x < 256\n chunks = 6, // at least six RC4 outputs for each double\n digits = 52, // there are 52 significant digits in a double\n rngname = 'random', // rngname: name for Math.random and Math.seedrandom\n startdenom = math.pow(width, chunks),\n significance = math.pow(2, digits),\n overflow = significance * 2,\n mask = width - 1,\n nodecrypto; // node.js crypto module, initialized at the bottom.\n\n//\n// seedrandom()\n// This is the seedrandom function described above.\n//\nfunction seedrandom(seed, options, callback) {\n var key = [];\n options = (options == true) ? { entropy: true } : (options || {});\n\n // Flatten the seed string or build one from local entropy if needed.\n var shortseed = mixkey(flatten(\n options.entropy ? [seed, tostring(pool)] :\n (seed == null) ? autoseed() : seed, 3), key);\n\n // Use the seed to initialize an ARC4 generator.\n var arc4 = new ARC4(key);\n\n // This function returns a random double in [0, 1) that contains\n // randomness in every bit of the mantissa of the IEEE 754 value.\n var prng = function() {\n var n = arc4.g(chunks), // Start with a numerator n < 2 ^ 48\n d = startdenom, // and denominator d = 2 ^ 48.\n x = 0; // and no 'extra last byte'.\n while (n < significance) { // Fill up all significant digits by\n n = (n + x) * width; // shifting numerator and\n d *= width; // denominator and generating a\n x = arc4.g(1); // new least-significant-byte.\n }\n while (n >= overflow) { // To avoid rounding up, before adding\n n /= 2; // last byte, shift everything\n d /= 2; // right using integer math until\n x >>>= 1; // we have exactly the desired bits.\n }\n return (n + x) / d; // Form the number within [0, 1).\n };\n\n prng.int32 = function() { return arc4.g(4) | 0; }\n prng.quick = function() { return arc4.g(4) / 0x100000000; }\n prng.double = prng;\n\n // Mix the randomness into accumulated entropy.\n mixkey(tostring(arc4.S), pool);\n\n // Calling convention: what to return as a function of prng, seed, is_math.\n return (options.pass || callback ||\n function(prng, seed, is_math_call, state) {\n if (state) {\n // Load the arc4 state from the given state if it has an S array.\n if (state.S) { copy(state, arc4); }\n // Only provide the .state method if requested via options.state.\n prng.state = function() { return copy(arc4, {}); }\n }\n\n // If called as a method of Math (Math.seedrandom()), mutate\n // Math.random because that is how seedrandom.js has worked since v1.0.\n if (is_math_call) { math[rngname] = prng; return seed; }\n\n // Otherwise, it is a newer calling convention, so return the\n // prng directly.\n else return prng;\n })(\n prng,\n shortseed,\n 'global' in options ? options.global : (this == math),\n options.state);\n}\n\nmath['seed' + rngname] = seedrandom;\n\n//\n// ARC4\n//\n// An ARC4 implementation. The constructor takes a key in the\n// form of\n// an array of at most (width) integers that should be 0 <= x < (width).\n//\n// The g(count) method returns a pseudorandom integer that concatenates\n// the next (count) outputs from ARC4. Its return value is a number x\n//

that is in the range 0 <= x < (width ^ count).\n//\nfunction ARC4(key) {\n var t, keylen = key.length,\n   me = this, i = 0, j = me.i = me.j = 0, s = me.S = [];\n\n // The empty key [] is treated as [0].\n if (!keylen) { key = [keylen++]; }\n\n // Set up S using the standard key scheduling algorithm.\n while (i < width) {\n   s[i] = i++;\n }\n for (i = 0; i < width; i++) {\n   s[i] = s[j = mask & (j + key[i % keylen] + (t = s[i]))];\n   s[j] = t;\n }\n\n // The \"g\" method returns the next (count) outputs as one number.\n (me.g = function(count) {\n   // Using instance members instead of closure state nearly doubles speed.\n   var t, r = 0,\n   i = me.i, j = me.j, s = me.S;\n   while (count--) {\n   t = s[i = mask & (i + 1)];\n
      r = r * width + s[mask & ((s[i] = s[j = mask & (j + t)]) + (s[j] = t))];\n   }\n   me.i = i; me.j = j;\n   return r;\n   // For robust unpredictability, the function call below automatically\n   // discards an initial batch of values. This is called RC4-drop[256].\n   // See http://google.com/search?q=rsa+fluhrer+response&btnI\n })(width);\n}\n\n//\n// copy()\n// Copies internal state of ARC4 to or from a plain object.\n//\nfunction copy(f, t) {\n t.i = f.i;\n t.j = f.j;\n t.S = f.S.slice();\n return t;\n};\n\n//\n// flatten()\n// Converts an object tree to nested arrays of strings.\n//\nfunction flatten(obj, depth) {\n var result = [], typ = (typeof obj), prop;\n if (depth && typ == 'object') {\n   for (prop in obj) {\n   try { result.push(flatten(obj[prop], depth - 1)); } catch (e) {}\n   }\n }\n return (result.length ? result : typ == 'string' ? obj : obj + '\\0');\n}\n\n//\n// mixkey()\n// Mixes a string seed into a key that is an array of integers, and\n// returns a shortened string seed that is equivalent to the result key.\n//\nfunction mixkey(seed, key) {\n var stringseed = seed + '', smear, j = 0;\n while (j < stringseed.length) {\n   key[mask & j] =\n   mask & ((smear ^= key[mask & j] * 19) + stringseed.charCodeAt(j++));\n }\n return tostring(key);\n}\n\n//\n// autoseed()\n// Returns an object for autoseeding, using window.crypto and Node crypto\n// module if available.\n//\nfunction autoseed() {\n try {\n   var out;\n   if (nodecrypto && (out = nodecrypto.randomBytes)) {\n   // The use of 'out' to remember randomBytes makes tight minified code.\n   out = out(width);\n   } else {\n   out = new Uint8Array(width);\n   (global.crypto || global.msCrypto).getRandomValues(out);\n   }\n   return tostring(out);\n } catch (e) {\n   var browser = global.navigator,\n   plugins = browser && browser.plugins;\n   return [+new Date, global, plugins, global.screen, tostring(pool)];\n }\n}\n\n//\n// tostring()\n//
 Converts an array of charcodes to a string\n//\nfunction tostring(a) {\n return String.fromCharCode.apply(0, a);\n}\n\n//\n// When seedrandom.js is loaded, we immediately mix a few bits\n// from the built-in RNG into the entropy pool. Because we do\n// not want to interfere with deterministic PRNG state later,\n// seedrandom will not call math.random on its own again after\n// initialization.\n//\nmixkey(math.random(), pool);\n\n//\n// Nodejs and AMD support: export the implementation as a module using\n// either convention.\n//\nif ((typeof module) == 'object' && module.exports) {\n module.exports = seedrandom;\n // When in node.js, try using crypto package for autoseeding.\n try {\n   nodecrypto = require('crypto');\n } catch (ex) {}\n} else if ((typeof define) == 'function' && define.amd) {\n define(function() { return seedrandom; });\n}\n\n// End anonymous scope, and pass initial values.\n})(\n [],   // pool: entropy pool starts empty\n Math   // math: package containing
 random, pow, and seedrandom\n);\n","// A library of seedable RNGs implemented in Javascript.\n//\n// Usage:\n//\n// var seedrandom = require('seedrandom');\n// var random = seedrandom(1); // or any seed.\n// var x = random();   // 0 <= x < 1. Every bit is random.\n// var x = random.quick(); // 0 <= x < 1. 32 bits of randomness.\n\n// alea, a 53-bit multiply-with-carry generator by Johannes Baagøe.\n// Period: ~2^116\n// Reported to pass all BigCrush tests.\nvar alea = require('./lib/alea');\n\n// xor128, a pure xor-shift generator by George Marsaglia.\n// Period: 2^128-1.\n// Reported to fail: MatrixRank and LinearComp.\nvar xor128 = require('./lib/xor128');\n\n// xorwow, George Marsaglia's 160-bit xor-shift combined plus weyl.\n// Period: 2^192-2^32\n// Reported to fail: CollisionOver, SimpPoker, and LinearComp.\nvar xorwow = require('./lib/xorwow');\n\n// xorshift7, by François Panneton and Pierre L'ecuyer, takes\n// a different approach: it adds robustness by allowing more
 shifts\n// than Marsaglia's original three. It is a 7-shift generator\n// with 256 bits, that passes BigCrush with no systmatic failures.\n// Period 2^256-1.\n// No systematic BigCrush failures reported.\nvar xorshift7 = require('./lib/xorshift7');\n\n// xor4096, by Richard Brent, is a 4096-bit xor-shift with a\n// very long period that also adds a Weyl generator. It also passes\n// BigCrush with no systematic failures. Its long period may\n// be useful if you have many generators and need to avoid\n// collisions.\n// Period: 2^4128-2^32.\n// No systematic BigCrush

failures reported.\nvar xor4096 = require('./lib/xor4096');\n\n// Tyche-i, by Samuel Neves and Filipe Araujo, is a bit-shifting random\n// number generator derived from ChaCha, a modern stream cipher.\n// https://eden.dei.uc.pt/~sneves/pubs/2011-snfa2.pdf\n// Period: ~2^127\n// No systematic BigCrush failures reported.\nvar tychei = require('./lib/tychei');\n\n// The original ARC4-based prng included in this library.\n// Period: ~2^1600\nvar sr = require('./seedrandom');\n\nsr.alea = alea;\nsr.xor128 = xor128;\nsr.xorwow = xorwow;\nsr.xorshift7 = xorshift7;\nsr.xor4096 = xor4096;\nsr.tychei = tychei;\n\nmodule.exports = sr;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport * as seedrandom from 'seedrandom';\n\nimport {expectNumbersClose, testEpsilon} from '../test_util';\nimport {TypedArray} from '../types';\n\nexport interface RandomBase {\n nextValue(): number;\n}\n\nexport interface RandomGamma {\n nextValue(): number;\n}\n\nexport interface RandNormalDataTypes {\n float32: Float32Array;\n int32: Int32Array;\n}\n\nexport interface RandGammaDataTypes {\n float32: Float32Array;\n int32: Int32Array;\n}\n\n// https://en.wikipedia.org/wiki/Marsaglia_polar_method\nexport class MPRandGauss implements RandomBase {\n private mean: number;\n private stdDev: number;\n private nextVal: number;\n private dtype?: keyof RandNormalDataTypes;\n private truncated?: boolean;\n private upper?: number;\n private lower?: number;\n private random: seedrandom.prng;\n\n constructor(\n mean: number, stdDeviation: number, dtype?: keyof RandNormalDataTypes,\n truncated?: boolean, seed?: number) {\n this.mean = mean;\n this.stdDev = stdDeviation;\n this.dtype = dtype;\n this.nextVal = NaN;\n this.truncated = truncated;\n if (this.truncated) {\n this.upper = this.mean + this.stdDev * 2;\n this.lower = this.mean - this.stdDev * 2;\n }\n const seedValue = seed ? seed : Math.random();\n this.random = seedrandom.alea(seedValue.toString());\n }\n\n /** Returns next sample from a Gaussian distribution. */\n public nextValue(): number {\n if (!isNaN(this.nextVal)) {\n const value = this.nextVal;\n this.nextVal = NaN;\n return value;\n }\n\n let resultX: number, resultY: number;\n let isValid = false;\n while (!isValid) {\n let v1: number, v2: number, s: number;\n do {\n v1 = 2 * this.random() - 1;\n v2 = 2 * this.random() - 1;\n s = v1 * v1 + v2 * v2;\n } while (s >= 1 || s === 0);\n\n const mul = Math.sqrt(-2.0 * Math.log(s) / s);\n resultX = this.mean + this.stdDev * v1 * mul;\n resultY = this.mean + this.stdDev * v2 * mul;\n\n if (!this.truncated || this.isValidTruncated(resultX)) {\n isValid = true;\n }\n }\n\n if (!this.truncated || this.isValidTruncated(resultY)) {\n this.nextVal = this.convertValue(resultY);\n }\n return this.convertValue(resultX);\n }\n\n /** Handles proper rounding for non-floating-point numbers. */\n private convertValue(value: number): number {\n if (this.dtype == null || this.dtype === 'float32') {\n return value;\n }\n return Math.round(value);\n }\n\n /** Returns true if less than 2-standard-deviations from the mean. */\n private isValidTruncated(value: number): boolean {\n return value <= this.upper && value >= this.lower;\n }\n}\n\n// Marsaglia, George, and Wai Wan Tsang. 2000. \"A Simple Method for Generating\n// Gamma Variables.\"\nexport class RandGamma implements RandomGamma {\n private alpha: number;\n private beta: number;\n private d: number;\n private c: number;\n private dtype?: keyof RandGammaDataTypes;\n private randu: seedrandom.prng;\n private randn: MPRandGauss;\n\n constructor(\n alpha: number, beta: number, dtype: keyof RandGammaDataTypes,\n seed?: number) {\n this.alpha = alpha;\n this.beta = 1 / beta; // convert rate to scale parameter\n this.dtype = dtype;\n\n const seedValue = seed ? seed : Math.random();\n this.randu = seedrandom.alea(seedValue.toString());\n this.randn = new MPRandGauss(0, 1, dtype, false, this.randu());\n\n if (alpha < 1) {\n this.d = alpha + (2 / 3);\n } else {\n this.d = alpha - (1 / 3);\n }\n this.c = 1 / Math.sqrt(9 * this.d);\n }\n\n /** Returns next sample from a gamma distribution. */\n public nextValue(): number {\n let x2:

number, v0: number, v1: number, x: number, u: number, v: number;\n while (true) {\n do {\n x = this.randn.nextValue();\n v = 1 + (this.c * x);\n } while (v <= 0);\n v *= v * v;\n x2 = x * x;\n v0 = 1 - (0.331 * x2 * x2);\n v1 = (0.5 * x2) + (this.d * (1 - v + Math.log(v)));\n u = this.randu();\n if (u < v0 || Math.log(u) < v1) {\n break;\n }\n }\n v = (1 / this.beta) * this.d * v;\n if (this.alpha < 1) {\n v *= Math.pow(this.randu(), 1 / this.alpha);\n }\n return this.convertValue(v);\n }\n /** Handles proper rounding for non-floating-point numbers. */\n private convertValue(value: number): number {\n if (this.dtype === 'float32') {\n return value;\n }\n return Math.round(value);\n }\n}\n\nexport class UniformRandom implements RandomBase {\n private min: number;\n private range: number;\n private random: seedrandom.prng;\n private dtype?: keyof RandNormalDataTypes;\n\n constructor(\n min = 0, max = 1, dtype?: keyof RandNormalDataTypes,\n seed?: string|number) {\n this.min = min;\n this.range = max - min;\n this.dtype = dtype;\n if (seed == null) {\n seed = Math.random();\n }\n if (typeof seed === 'number') {\n seed = seed.toString();\n }\n\n if (!this.canReturnFloat()\n && this.range <= 1) {\n throw new Error(\n `The difference between ${min} - ${max} <= 1 and dtype is not float`);\n }\n this.random = seedrandom.alea(seed);\n }\n\n /** Handles proper rounding for non floating point numbers. */\n private canReturnFloat = () =>\n (this.dtype == null || this.dtype === 'float32');\n\n private convertValue(value: number): number {\n if (this.canReturnFloat()) {\n return value;\n }\n return Math.round(value);\n }\n\n nextValue() {\n return this.convertValue(this.min + this.range * this.random());\n }\n}\n\nexport function jarqueBeraNormalityTest(values: TypedArray|number[]) {\n // https://en.wikipedia.org/wiki/Jarque%E2%80%93Bera_test\n const n = values.length;\n const s = skewness(values);\n const k = kurtosis(values);\n const jb = n / 6 * (Math.pow(s, 2) + 0.25 * Math.pow(k - 3, 2));\n // JB test requires 2-degress of freedom from Chi-Square @ 0.95:\n // http://www.itl.nist.gov/div898/handbook/eda/section3/eda3674.htm\n const CHI_SQUARE_2DEG = 5.991;\n if (jb > CHI_SQUARE_2DEG) {\n throw new Error(`Invalid p-value for JB: ${jb}`);\n }\n}\n\nexport function expectArrayInMeanStdRange(\n actual: TypedArray|number[], expectedMean: number, expectedStdDev: number,\n epsilon?: number) {\n if (epsilon == null) {\n epsilon = testEpsilon();\n }\n const actualMean = mean(actual);\n expectNumbersClose(actualMean, expectedMean, epsilon);\n expectNumbersClose(\n standardDeviation(actual, actualMean), expectedStdDev, epsilon);\n}\n\nfunction mean(values: TypedArray|number[]) {\n let sum = 0;\n for (let i = 0; i < values.length; i++) {\n sum += values[i];\n }\n return sum / values.length;\n}\n\nfunction standardDeviation(values: TypedArray|number[], mean: number) {\n let squareDiffSum = 0;\n for (let i = 0; i < values.length; i++) {\n const diff = values[i] - mean;\n squareDiffSum += diff * diff;\n }\n return Math.sqrt(squareDiffSum / values.length);\n}\n\nfunction kurtosis(values: TypedArray|number[]) {\n // https://en.wikipedia.org/wiki/Kurtosis\n const valuesMean = mean(values);\n const n = values.length;\n let sum2 = 0;\n let sum4 = 0;\n for (let i = 0; i < n; i++) {\n const v = values[i] - valuesMean;\n sum2 += Math.pow(v, 2);\n sum4 += Math.pow(v, 4);\n }\n return (1 / n) * sum4 / Math.pow((1 / n) * sum2, 2);\n}\n\nfunction skewness(values: TypedArray|number[]) {\n // https://en.wikipedia.org/wiki/Skewness\n const valuesMean = mean(values);\n const n = values.length;\n let sum2 = 0;\n let sum3 = 0;\n for (let i = 0; i < n; i++) {\n const v = values[i] - valuesMean;\n sum2 += Math.pow(v, 2);\n sum3 += Math.pow(v, 3);\n }\n return (1 / n) * sum3 / Math.pow((1 / (n - 1)) * sum2, 3 / 2);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {Tensor} from '../tensor';\nimport {Rank, ShapeMap} from '../types';\n\nimport {buffer} from

'./buffer';\nimport {op} from './operation';\nimport {RandGamma} from './rand_util';\n\n/**\n * Creates a `tf.Tensor` with values sampled from a gamma distribution.\n *\n * ```js\n * tf.randomGamma([2, 2], 1).print();\n * ```\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param alpha The shape parameter of the gamma distribution.\n
 * @param beta The inverse scale parameter of the gamma distribution. Defaults\n * to 1.\n * @param dtype The data type of the output. Defaults to float32.\n * @param seed The seed for the random number generator.\n *\n * @doc {heading: 'Tensors', subheading: 'Random'}\n */\nfunction randomGamma_<R extends Rank>(\n shape: ShapeMap[R], alpha: number, beta = 1,\n dtype: 'float32'|'int32' = 'float32', seed?: number): Tensor<R> {\n if (beta == null) {\n beta = 1;\n }\n if (dtype == null) {\n dtype = 'float32';\n }\n if (dtype !== 'float32' && dtype !== 'int32') {\n throw new Error(`Unsupported data type ${dtype}`);\n }\n const rgamma = new RandGamma(alpha, beta, dtype, seed);\n const res = buffer(shape, dtype);\n for (let i = 0; i < res.values.length; i++) {\n res.values[i] = rgamma.nextValue();\n }\n return res.toTensor();\n}\n\nexport const randomGamma = op({randomGamma_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n *
 Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\n\nimport {buffer} from './buffer';\nimport {op} from './operation';\nimport {MPRandGauss} from './rand_util';\n\n/**\n * Creates a `tf.Tensor` with values sampled from a normal distribution.\n *\n * ```js\n * tf.randomNormal([2, 2]).print();\n * ```\n *\n * @param
 shape An array of integers defining the output tensor shape.\n * @param mean The mean of the normal distribution.\n * @param stdDev The standard deviation of the normal distribution.\n * @param dtype The data type of the output.\n * @param seed The seed for the random number generator.\n *\n * @doc {heading: 'Tensors', subheading: 'Random'}\n */\nfunction randomNormal_<R extends Rank>(\n shape: ShapeMap[R], mean = 0, stdDev = 1, dtype?: 'float32'|'int32',\n seed?: number): Tensor<R> {\n if (dtype != null && (dtype as DataType) === 'bool') {\n throw new Error(`Unsupported data type ${dtype}`);\n }\n const randGauss =\n new MPRandGauss(mean, stdDev, dtype, false /* truncated */, seed);\n const res = buffer(shape, dtype);\n for (let i = 0; i < res.values.length; i++) {\n res.values[i] = randGauss.nextValue();\n }\n return res.toTensor();\n}\n\nexport const randomNormal = op({randomNormal_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\n\nimport {buffer} from './buffer';\nimport {op} from './operation';\nimport {UniformRandom} from './rand_util';\n\n/**\n * Creates a `tf.Tensor` with values sampled from a uniform distribution.\n *\n * The generated values follow a uniform distribution in
 the range [minval,\n * maxval). The lower bound minval is included in the range, while the upper\n * bound maxval is excluded.\n *\n * ```js\n * tf.randomUniform([2, 2]).print();\n * ```\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param minval The lower bound on the range of random values to generate.\n

* Defaults to 0.\n * @param maxval The upper bound on the range of random values to generate.\n * Defaults to 1.\n * @param dtype The data type of the output tensor. Defaults to 'float32'.\n *\n * @doc {heading: 'Tensors', subheading: 'Random'}\n */\nfunction randomUniform_<R extends Rank>(\n shape: ShapeMap[R], minval = 0, maxval = 1, dtype: DataType = 'float32',\n seed?: number|string): Tensor<R> {\n const res = buffer(shape, dtype);\n const random = new UniformRandom(minval, maxval, null, seed);\n for (let i = 0; i < res.values.length; i++) {\n res.values[i] = random.nextValue();\n }\n return res.toTensor();\n}\n\nexport const randomUniform = op({randomUniform_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Range, RangeAttrs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor1D} from '../tensor';\n\n/**\n * Creates a new `tf.Tensor1D` filled with the numbers in the range provided.\n *\n * The tensor is a is half-open interval meaning it includes start, but\n * excludes stop. Decrementing ranges and negative step values are also\n * supported.sv\n *\n *\n * ```js\n * tf.range(0, 9, 2).print();\n * ```\n *\n * @param start An integer start value\n * @param stop An integer stop value\n * @param step An integer increment (will default to 1 or -1)\n * @param dtype The data type of the output tensor. Defaults to 'float32'.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function range(\n start: number, stop: number, step = 1,\n dtype: 'float32'|'int32' = 'float32'): Tensor1D {\n if (step === 0) {\n throw new Error('Cannot have a step of zero');\n }\n\n const attrs: RangeAttrs = {start, stop, step, dtype};\n\n return ENGINE.runKernel(Range, {} /* inputs */, attrs as {} as NamedAttrMap);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Real, RealInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {op} from './operation';\n\n/**\n * Returns the real part of a complex (or real) tensor.\n *\n * Given a tensor input, this operation returns a tensor of type float that is\n * the real part of each element in input considered as a complex number.\n *\n * If the input is real, it simply makes a clone.\n *\n * ```js\n * const x = tf.complex([-2.25, 3.25], [4.75, 5.75]);\n * tf.real(x).print();\n * ```\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction real_<T extends Tensor>(input: T|TensorLike): T {\n const $input = convertToTensor(input, 'input', 'real');\n\n const inputs: RealInputs = {input: $input};\n return ENGINE.runKernel(Real, inputs as {} as NamedTensorMap);\n}\n\nexport const real = op({real_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing

permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Reciprocal, ReciprocalInputs} from '../kernel_names';\nimport
{Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
reciprocal of x element-wise: `1 / x`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, 2]);\n *\n * x.reciprocal().print(); //
or tf.reciprocal(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic
math'}\n */\nfunction reciprocal_<T extends Tensor>(x: T|TensorLike): T {\n const $x
= convertToTensor(x, 'x', 'reciprocal');\n\n const inputs: ReciprocalInputs = {x: $x};\n return
ENGINE.runKernel(Reciprocal, inputs as {} as NamedTensorMap);\n}\nexport const reciprocal =
op({reciprocal_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Relu, ReluInputs} from
'../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport
{convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from
'./operation';\n\n/**\n * Computes rectified linear element-wise: `max(x, 0)`.\n *\n * ```js\n * const x = tf.tensor1d([-
1, 2, -3, 4]);\n *\n * x.relu().print(); // or tf.relu(x)\n * ```\n * @param x The input tensor. If the dtype is `bool`, the
output dtype will be\n *   `int32'.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction
relu_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'relu');\n\n const inputs:
ReluInputs = {x: $x};\n\n return ENGINE.runKernel(Relu, inputs as {} as NamedTensorMap);\n}\n\nexport const
relu = op({relu_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Relu6, Relu6Inputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
rectified linear 6 element-wise: `min(max(x, 0), 6)`.\n *\n * ```js\n * const x = tf.tensor1d([-1, 2, -3, 8]);\n *\n *
x.relu6().print();
  // or tf.relu6(x)\n * ```\n * @param x The input tensor. If the dtype is `bool`, the output dtype will be\n *
`int32'.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction relu6_<T extends Tensor>(x:
T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'relu6');\n\n const inputs: Relu6Inputs = {x: $x};\n\n
return ENGINE.runKernel(Relu6, inputs as {} as NamedTensorMap);\n}\n\nexport const relu6 =
op({relu6_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Reverse, ReverseAttrs, ReverseInputs} from
'../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport
{NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Reverses a `tf.Tensor` along a specified
axis.\n *\n * Also available are stricter rank-specific methods that assert that `x` is\n * of the given rank:\n *
- `tf.reverse1d`\n * - `tf.reverse2d`\n * - `tf.reverse3d`\n * - `tf.reverse4d`\n *\n * Except `tf.reverse1d` (which
does not have axis param), all methods have\n * same signature as this method.\n *\n * ```js\n * const x =
tf.tensor1d([1, 2, 3, 4]);\n *\n * x.reverse().print();\n
* ```\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * const axis = 1;\n * x.reverse(axis).print();\n *
```\n * @param x The input tensor to be reversed.\n * @param axis The set of dimensions to reverse. Must be in
the\n * range [-rank(x), rank(x)). Defaults to all axes.\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and
Joining'}\n */\nfunction reverse_<T extends Tensor>(\n x: T|TensorLike, axis?: number|number[]): T {\n const $x
= convertToTensor(x, 'x', 'reverse');\n\n const inputs: ReverseInputs = {x: $x};\n const attrs: ReverseAttrs = {dims:
axis};\n\n return ENGINE.runKernel(\n Reverse, inputs as {} as NamedTensorMap, attrs as {} as
NamedAttrMap);\n}\n\nexport const reverse = op({reverse_});\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of
the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor1D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\nimport {op} from './operation';\nimport {reverse} from
'./reverse';\n\n/**\n * Reverses a `tf.Tensor1D`.\n *\n * @param x The input tensor.\n */\nfunction reverse1d_(x:
Tensor1D|TensorLike): Tensor1D {\n const $x = convertToTensor(x, 'x', 'reverse');\n util.assert(\n $x.rank ===
1,\n () => `Error in reverse1D: x must be rank 1 but got rank
${$x.rank}.`);\n return reverse($x, 0);\n}\n\nexport const reverse1d = op({reverse1d_});\n","/**\n * @license\n *
Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\nimport {op} from
'./operation';\nimport {reverse} from './reverse';\n\n/**\n * Reverses a `tf.Tensor2D` along a specified axis.\n *\n *
@param x The input tensor.\n * @param axis The set of dimensions to reverse. Must be in the\n * range [-
rank(x), rank(x)). Defaults to all axes.\n */\nfunction reverse2d_(x: Tensor2D|TensorLike, axis?: number|number[]):
Tensor2D {\n const $x = convertToTensor(x, 'x', 'reverse');\n util.assert(\n $x.rank === 2,\n () => `Error in
reverse2D: x must be rank 2 but got rank ${$x.rank}.`);\n return reverse($x, axis);\n}\n\nexport const reverse2d =
op({reverse2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
```

Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor3D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\nimport {op} from './operation';\nimport {reverse} from './reverse';\n\n/**\n * Reverses a `tf.Tensor3D` along a specified axis.\n *\n * @param x The input tensor.\n * @param axis The set of dimensions to reverse. Must be in the\n * range [-rank(x), rank(x)). Defaults to all axes.\n */\nfunction reverse3d_(x: Tensor3D|TensorLike, axis?: number|number[]): Tensor3D {\n const $x = convertToTensor(x, 'x', 'reverse');\n util.assert(\n $x.rank === 3,\n () => `Error in reverse3D: x must be rank 3 but got rank ${$x.rank}.`);\n return reverse($x, axis);\n}\n\nexport const reverse3d = op({reverse3d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\nimport
{op} from './operation';\nimport {reverse} from './reverse';\n\n/**\n * Reverses a `tf.Tensor4D` along a specified axis.\n *\n * @param x The input tensor.\n * @param axis The set of dimensions to reverse. Must be in the\n * range [-rank(x), rank(x)). Defaults to all axes.\n */\nfunction reverse4d_(x: Tensor4D|TensorLike, axis?: number|number[]): Tensor4D {\n const $x = convertToTensor(x, 'x', 'reverse');\n util.assert(\n $x.rank === 4,\n () => `Error in reverse4D: x must be rank 4 but got rank ${$x.rank}.`);\n return reverse($x, axis);\n}\n\nexport const reverse4d = op({reverse4d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n
* distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Round, RoundInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes round of input `tf.Tensor` element-wise: `round(x)`.\n * It implements banker's rounding.\n *\n * ```js\n * const x = tf.tensor1d([.6, 1.1, -3.3]);\n *\n * x.round().print(); // or tf.round(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction round_<T extends Tensor>(x:
T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'round');\n const inputs: RoundInputs = {x: $x};\n\n return ENGINE.runKernel(Round, inputs as {} as NamedTensorMap);\n}\n\nexport const round = op({round_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Rsqrt, RsqrtInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes reciprocal of square root of the input `tf.Tensor` element-wise:\n * `y = 1 / sqrt(x)`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 4, -1]);\n *\n * x.rsqrt().print(); // or tf.rsqrt(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction rsqrt_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'rsqrt');\n\n const inputs: RsqrtInputs = {x: $x};\n\n return ENGINE.runKernel(Rsqrt, inputs as {} as NamedTensorMap);\n}\nexport const rsqrt = op({rsqrt_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {Scalar} from '../tensor';\nimport {DataType} from '../types';\nimport {isTypedArray} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-0 `tf.Tensor` (scalar) with the provided value and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.scalar` as it makes the code more readable.\n *\n * ```js\n * tf.scalar(3.14).print();\n * ```\n *\n * @param value The value of the scalar.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function scalar(\n   value: number|boolean|string|Uint8Array, dtype?: DataType): Scalar {\n if (((isTypedArray(value) && dtype !== 'string') || Array.isArray(value)) &&\n   dtype !== 'complex64') {\n   throw new Error(\n   'Error creating a new Scalar: value must be a primitive ' +\n   '(number|boolean|string)');\n }\n if (dtype === 'string' && isTypedArray(value) &&\n   !(value instanceof Uint8Array)) {\n   throw new Error(\n   'When making a scalar from encoded string, ' +\n   'the value must be `Uint8Array`.');\n }\n const shape: number[] = [];\n const inferredShape: number[] = [];\n return makeTensor(value, shape, inferredShape, dtype) as Scalar;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Selu, SeluInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes scaled exponential linear element-wise.\n *\n * `x < 0 ? scale * alpha * (exp(x) - 1) : x`\n *\n * ```js\n * const x = tf.tensor1d([-1, 2, -3, 4]);\n *\n * x.selu().print(); // or tf.selu(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction selu_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'selu');\n\n const inputs: SeluInputs = {x: $x};\n\n return ENGINE.runKernel(Selu, inputs

as {} as NamedTensorMap);\n}\n\nexport const selu = op({selu_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {conv2d} from './conv2d';\nimport {depthwiseConv2d} from './depthwise_conv2d';\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * 2-D convolution with separable filters.\n *\n * Performs a depthwise convolution that acts separately on channels followed\n * by a pointwise convolution that mixes channels. Note that this is\n * separability between dimensions [1, 2] and 3, not spatial separability\n * between dimensions 1 and 2.\n *\n * See\n * [https://www.tensorflow.org/api_docs/python/tf/nn/separable_conv2d](\n * https://www.tensorflow.org/api_docs/python/tf/nn/separable_conv2d)\n * for more details.\n *\n * @param x The input tensor, of rank 4 or rank 3, of shape\n *   `[batch, height, width, inChannels]`. If rank 3, batch of 1 is\n * assumed.\n * @param depthwiseFilter The depthwise filter tensor, rank 4, of shape\n *   `[filterHeight, filterWidth, inChannels, channelMultiplier]`. This is\n *   the filter used in the first step.\n * @param pointwiseFilter The pointwise filter tensor, rank 4, of shape\n *   `[1, 1, inChannels * channelMultiplier, outChannels]`. This is\n * the filter used in the second step.\n * @param strides The strides of the convolution: `[strideHeight,\n * strideWidth]`. If strides is a single number, then `strideHeight ==\n * strideWidth`.\n * @param pad The type of padding algorithm.\n *   - `same` and stride 1: output will be of same size as input,\n *   regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *   than 1x1.\n *   - For more info, see this guide:\n *   [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *   https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n *   in which we sample input values across the height and width dimensions\n *   in atrous convolution. Defaults to `[1, 1]`. If `rate` is a single\n *   number, then `dilationHeight == dilationWidth`. If it is greater than\n *   1, then all values of `strides` must be 1.\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\". Defaults to\n *   \"NHWC\". Specify the data format of the input and output data. With the\n *   default format \"NHWC\", the data is stored in the order of: [batch,\n *   height, width, channels]. Only \"NHWC\" is currently supported.\n *\n * @doc {heading: 'Operations', subheading: 'Convolution'}\n */\nfunction separableConv2d_<T extends Tensor3D|Tensor4D>(\n   x: T|TensorLike, depthwiseFilter: Tensor4D|TensorLike,\n   pointwiseFilter: Tensor4D|TensorLike, strides: [number, number]|number,\n   pad: 'valid'|'same', dilation: [number, number]|number = [1, 1],\n   dataFormat: 'NHWC'|'NCHW' = 'NHWC'): T {\n const $x = convertToTensor(x, 'x', 'separableConv2d');\n const $depthwiseFilter =\n   convertToTensor(depthwiseFilter, 'depthwiseFilter', 'separableConv2d');\n const $pointwiseFilter =\n   convertToTensor(pointwiseFilter, 'pointwiseFilter', 'separableConv2d');\n\n let x4D = $x as Tensor4D;\n let reshapedTo4D = false;\n if ($x.rank === 3) {\n   reshapedTo4D = true;\n   x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n }\n\n if (dataFormat === 'NCHW') {\n   throw new Error(\n   'separableConv2d currently does not support dataFormat NCHW; only ' +\n   'NHWC is supported');\n }\n\n util.assert(\n   x4D.rank === 4,\n   () => `Error in separableConv2d: input must be rank 4, but got ` +\n   `rank ${x4D.rank}.`);\n util.assert(\n $depthwiseFilter.rank === 4,\n   () => `Error in separableConv2d: depthwise filter must be rank 4, but ` +\n   `got rank ${$depthwiseFilter.rank}.`);\n util.assert(\n $pointwiseFilter.rank === 4,\n   () => `Error in separableConv2d: pointwise filter must be rank 4, but ` +\n   `got rank ${$depthwiseFilter.rank}.`);\n util.assert(\n $pointwiseFilter.shape[0] === 1,\n   () =>\n   `Error in

separableConv2d: the first dimension of pointwise filter ` +\n ` must be 1, but got ${$pointwiseFilter.shape[0]}.`);\n util.assert(\n $pointwiseFilter.shape[1] === 1,\n () => `Error in separableConv2d: the second dimension of pointwise ` +\n `filter must be 1, but got ${$pointwiseFilter.shape[1]}.`);\n\n const inChannels = $depthwiseFilter.shape[2];\n const channelMultiplier = $depthwiseFilter.shape[3];\n util.assert(\n $pointwiseFilter.shape[2] === inChannels * channelMultiplier,\n () =>\n `Error in separableConv2d: the third dimension of pointwise filter ` +\n `must be ${inChannels * channelMultiplier}, ` +\n `but got ${$pointwiseFilter.shape[2]}.`);\n\n const depthwise = depthwiseConv2d(\n x4D, $depthwiseFilter, strides, pad, dataFormat, dilation);\n const pointwiseStride = 1;\n const res =\n conv2d(depthwise, $pointwiseFilter, pointwiseStride, 'valid', dataFormat);\n\n if (reshapedTo4D) {\n return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res as T;\n}\n\nexport const separableConv2d = op({separableConv2d_});\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {Tensor, TensorBuffer} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\n/**\n * Computes the difference between two lists of numbers.\n *\n * Given a Tensor `x` and a Tensor `y`, this operation returns a Tensor `out`\n * that represents all values that are in `x` but not in `y`. The returned\n * Tensor `out` is sorted in the same order that the numbers appear in `x`\n * (duplicates are preserved). This operation also returns a Tensor indices that\n * represents the position of each out element in `x`. In other words:\n *\n * `out[i] = x[idx[i]] for i in [0, 1, ..., out.length - 1]`\n *\n * ```js\n * const x = [1, 2, 3, 4, 5, 6];\n * const y = [1, 3,
5];\n *\n * const [out, indices] = await tf.setdiff1dAsync(x, y);\n * out.print(); // [2, 4, 6]\n * indices.print(); // [1, 3, 5]\n * ```\n *\n * @param x 1-D Tensor. Values to keep.\n * @param y 1-D Tensor. Must have the same type as x. Values to exclude in the\n * output.\n * @returns Promise of Tensor tuple [out, indices].\n * out: Tensor with the same type as x.\n * indices: A Tensor of type int32.\n *\n * @doc {heading: 'Tensors', subheading: 'Transformations'}\n */\nasync function setdiff1dAsync_(\n x: Tensor|TensorLike, y: Tensor|TensorLike): Promise<[Tensor, Tensor]> {\n const $x = convertToTensor(x, 'x', 'setdiff1d');\n const $y = convertToTensor(y, 'y', 'setdiff1d');\n\n util.assert(\n $x.dtype === $y.dtype,\n () => `x and y should have the same dtype, but got x (${\n $x.dtype}) and y (${$y.dtype}).`);\n\n util.assert(\n $x.rank === 1, () => `x should be 1D tensor, but got x (${$x.shape}).`);\n\n util.assert(\n $y.rank === 1, () =>
`y should be 1D tensor, but got y (${$y.shape}).`);\n\n const xVals = await $x.data();\n const yVals = await $y.data();\n const ySet = new Set(yVals);\n\n let outputSize = 0;\n for (let i = 0; i < xVals.length; i++) {\n if (!ySet.has(xVals[i])) {\n outputSize++;\n }\n }\n\n const buffer = new TensorBuffer([outputSize], $x.dtype);\n const indices = new TensorBuffer([outputSize], 'int32');\n for (let i = 0, p = 0; i < xVals.length; i++) {\n if (!ySet.has(xVals[i])) {\n buffer.values[p] = xVals[i];\n indices.values[p] = i;\n p++;\n }\n }\n return [buffer.toTensor(), indices.toTensor()];\n}\nexport const setdiff1dAsync = setdiff1dAsync_;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
================================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Sign, SignInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Returns an
element-wise indication of the sign of a number.\n *\n * ```js\n * const x = tf.tensor1d([.6, 1.1, -3.3, NaN, 0]);\n *\n
* x.sign().print();  // or tf.sign(x)\n * ```\n * @param x The input Tensor.\n *\n * @doc {heading: 'Operations',
subheading: 'Basic math'}\n */\nfunction
 sign_<T extends Tensor>(x: T|TensorLike): T {\n  const $x = convertToTensor(x, 'x', 'sign');\n  const inputs:
SignInputs = {x: $x};\n  return ENGINE.runKernel(Sign, inputs as {} as NamedTensorMap);\n}\nexport const sign
= op({sign_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
================================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport
 {Sin, SinInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from
'../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from
'../types';\n\nimport {op} from './operation';\n\n/**\n * Computes sin of the input Tensor element-wise: `sin(x)`\n *\n
* ```js\n * const x = tf.tensor1d([0, Math.PI / 2, Math.PI * 3 / 4]);\n *\n * x.sin().print();  // or tf.sin(x)\n * ```\n *
@param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction sin_<T
extends Tensor>(x: T|TensorLike): T {\n  const $x = convertToTensor(x, 'x', 'sin');\n\n  const inputs: SinInputs = {x:
$x};\n\n  return ENGINE.runKernel(Sin, inputs as {} as NamedTensorMap);\n}\nexport const sin =
op({sin_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
 License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
================================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Sinh, SinhInputs} from '../kernel_names';\nimport {Tensor}
from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from
'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes
hyperbolic sin of the input `tf.Tensor` element-wise: `sinh(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, 1, -1, .7]);\n
*\n * x.sinh().print();  // or tf.sinh(x)\n
 * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction
sinh_<T extends Tensor>(x: T|TensorLike): T {\n  const $x = convertToTensor(x, 'x', 'sinh');\n  const inputs:
SinhInputs = {x: $x};\n\n  return ENGINE.runKernel(Sinh, inputs as {} as NamedTensorMap);\n}\nexport const
sinh = op({sinh_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n
```

```
 * ============================================================================\n
*/\n\nimport {Tensor1D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {slice} from
'./slice';\n\n/**\n * Extracts a 1D slice from 1D array starting at coordinates `begin` and is\n * of length `size`. See
`slice` for details.\n */\nfunction slice1d_(\n    x: Tensor1D|TensorLike, begin: number, size: number): Tensor1D {\n
const $x = convertToTensor(x, 'x', 'slice1d');\n  util.assert(\n      $x.rank === 1,\n      () =>\n          `slice1d expects a
rank-1 tensor, but got a rank-${$x.rank} tensor`);\n  return slice($x, [begin], [size]);\n}\nexport const slice1d =
op({slice1d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
 with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-
2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
============================================================================\n
*/\n\nimport {Tensor2D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {slice} from
'./slice';\n\n/**\n * Extracts a 2D slice from a 2D array starting at coordinates `begin` and\n * is of size `size`. See
`slice` for details.\n */\nfunction slice2d_(\n    x: Tensor2D|TensorLike, begin: [number, number],\n    size: [number,
number]):
 Tensor2D {\n  const $x = convertToTensor(x, 'x', 'slice2d');\n  util.assert(\n      $x.rank === 2,\n      () =>\n
`slice2d expects a rank-2 tensor, but got a rank-${$x.rank} tensor`);\n  return slice($x, begin, size);\n}\nexport const
slice2d = op({slice2d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
============================================================================\n
*/\n\nimport
 {Tensor3D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from
'../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {slice} from './slice';\n\n/**\n *
Extracts a 3D slice from a 3D array starting at coordinates `begin` and\n * is of size `size`. See `slice` for details.\n
*/\nfunction slice3d_(\n    x: Tensor3D|TensorLike, begin: [number, number, number],\n    size: [number, number,
number]): Tensor3D {\n  const $x = convertToTensor(x, 'x', 'slice3d');\n  util.assert(\n      $x.rank === 3,\n      ()
=>\n          `slice3d expects a rank-3 tensor, but got a rank-${$x.rank} tensor`);\n  return slice($x, begin,
size);\n}\nexport const slice3d = op({slice3d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of
 the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
============================================================================\n
*/\n\nimport {Tensor4D} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport
{TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\nimport {slice} from
'./slice';\n\n/**\n * Extracts a 4D slice from a 4D array starting at coordinates `begin` and\n * is of size `size`. See
```

`slice` for details.\n */\nfunction slice4d_(\n x: Tensor4D|TensorLike, begin: [number, number, number, number],\n size: [number, number, number, number]): Tensor4D {\n const $x = convertToTensor(x, 'x', 'slice4d');\n util.assert(\n $x.rank === 4,\n () =>\n `slice4d expects a rank-4 tensor, but got a rank-${$x.rank} tensor`);\n return slice($x, begin, size);\n}\nexport const slice4d = op({slice4d_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Softmax, SoftmaxAttrs, SoftmaxInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes the softmax normalized vector given the logits.\n *\n * ```js\n * const a = tf.tensor1d([1, 2, 3]);\n *\n * a.softmax().print(); // or tf.softmax(a)\n * ```\n *\n * ```js\n * const a = tf.tensor2d([2, 4, 6, 1, 2, 3], [2, 3]);\n *\n * a.softmax().print(); // or tf.softmax(a)\n * ```\n *\n * @param logits The logits array.\n * @param dim The dimension softmax would be performed on. Defaults to `-1`\n * which indicates the last dimension.\n *\n * @doc {heading: 'Operations', subheading: 'Normalization'}\n */\nfunction softmax_<T extends Tensor>(logits: T|TensorLike, dim = -1): T {\n const $logits = convertToTensor(logits,\n 'logits', 'softmax', 'float32');\n\n if (dim === -1) {\n dim = $logits.rank - 1;\n }\n if (dim !== $logits.rank - 1) {\n throw Error(\n 'Softmax along a non-last dimension is not yet supported. ' +\n `Logits was rank ${$logits.rank} and dim was ${dim}`);\n }\n\n const inputs: SoftmaxInputs = {logits: $logits};\n const attrs: SoftmaxAttrs = {dim};\n\n return ENGINE.runKernel(\n Softmax, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const softmax = op({softmax_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../../engine';\nimport {FFT, FFTInputs} from '../../kernel_names';\nimport {Tensor} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {assert} from '../../util';\nimport {op} from '../operation';\n\n/**\n * Fast Fourier transform.\n *\n * Computes the 1-dimensional discrete Fourier transform over the inner-most\n * dimension of input.\n *\n * ```js\n * const real = tf.tensor1d([1, 2, 3]);\n * const imag = tf.tensor1d([1, 2, 3]);\n * const x = tf.complex(real, imag);\n *\n * x.fft().print(); // tf.spectral.fft(x).print();\n * ```\n * @param input The complex input to compute an fft over.\n *\n * @doc {heading: 'Operations', subheading: 'Spectral', namespace: 'spectral'}\n */\nfunction fft_(input: Tensor): Tensor {\n assert(\n input.dtype === 'complex64',\n () => `The dtype for tf.spectral.fft() must be complex64 ` +\n `but got ${input.dtype}.`);\n\n const inputs: FFTInputs = {input};\n\n return ENGINE.runKernel(FFT, inputs as {} as NamedTensorMap);\n}\n\nexport const fft = op({fft_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable

law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../../engine';\nimport {IFFT, IFFTInputs} from '../../kernel_names';\nimport {Tensor} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {assert} from '../../util';\nimport {op} from '../operation';\n\n/**\n * Inverse fast Fourier transform.\n *\n * Computes the inverse 1-dimensional discrete Fourier transform over the\n * inner-most dimension of input.\n *\n * ```js\n * const real = tf.tensor1d([1, 2, 3]);\n * const imag = tf.tensor1d([1, 2, 3]);\n * const x = tf.complex(real, imag);\n *\n * x.ifft().print(); // tf.spectral.ifft(x).print();\n * ```\n * @param input The complex input to compute an ifft over.\n *\n * @doc {heading: 'Operations', subheading: 'Spectral', namespace: 'spectral'}\n */\nfunction ifft_(input: Tensor): Tensor {\n assert(\n   input.dtype === 'complex64',\n   () => `The dtype for tf.spectral.ifft() must be complex64 ` +\n   `but got ${input.dtype}.`);\n\n const inputs: IFFTInputs = {input};\n\n return ENGINE.runKernel(IFFT, inputs as {} as NamedTensorMap);\n}\n\nexport const ifft = op({ifft_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor, Tensor2D} from '../../tensor';\nimport {complex} from '../complex';\nimport {concat} from '../concat';\nimport {imag} from '../imag';\nimport {mul} from '../mul';\nimport {op} from '../operation';\nimport {real} from '../real';\nimport {reshape} from '../reshape';\nimport {reverse} from '../reverse';\nimport {scalar} from '../scalar';\nimport {slice} from '../slice';\n\nimport {ifft} from './ifft';\n\n/**\n * Inversed real value input fast Fourier transform.\n *\n * Computes the 1-dimensional inversed discrete Fourier transform over the\n * inner-most dimension of the real input.\n *\n * ```js\n * const real = tf.tensor1d([1, 2, 3]);\n * const imag = tf.tensor1d([0, 0, 0]);\n * const x = tf.complex(real, imag);\n *\n * x.irfft().print();\n * ```\n * @param input The real value input to compute an irfft over.\n *\n * @doc {heading: 'Operations', subheading: 'Spectral', namespace: 'spectral'}\n */\nfunction irfft_(input: Tensor): Tensor {\n const innerDimensionSize = input.shape[input.shape.length - 1];\n const batch = input.size / innerDimensionSize;\n let ret: Tensor;\n if (innerDimensionSize <= 2) {\n   const complexInput = reshape(input, [batch, innerDimensionSize]);\n   ret = ifft(complexInput);\n } else {\n   // The length of unique components of the DFT of a real-valued signal\n   // is 2 * (input_len - 1)\n   const outputShape = [batch, 2 * (innerDimensionSize - 1)];\n   const realInput = reshape(real(input), [batch, innerDimensionSize]);\n   const imagInput = reshape(imag(input), [batch, innerDimensionSize]);\n\n   const realConjugate =\n   reverse(slice(realInput, [0, 1], [batch, innerDimensionSize - 2]), 1);\n   const imagConjugate: Tensor2D = mul(\n   reverse(slice(imagInput, [0, 1], [batch, innerDimensionSize - 2]), 1),\n   scalar(-1));\n\n   const r = concat([realInput, realConjugate], 1);\n   const i = concat([imagInput, imagConjugate], 1);\n   const complexInput =\n   reshape(complex(r, i), [outputShape[0], outputShape[1]]);\n   ret = ifft(complexInput);\n }\n ret = real(ret);\n // reshape the result if the input is 3D tensor.\n if (input.rank === 3 && input.shape[0] !== 0) {\n   const temp = ret;\n   const batch = input.shape[0];\n   ret = reshape(ret, [batch, ret.shape[0] / batch, ret.shape[1]]);\n   temp.dispose();\n }\n return ret;\n}\n\nexport const irfft = op({irfft_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {ENGINE} from '../engine';\nimport {SplitV, SplitVAttrs, SplitVInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Splits a `tf.Tensor` into sub tensors.\n *\n * If `numOrSizeSplits` is a number, splits `x` along dimension `axis`\n * into `numOrSizeSplits` smaller tensors.\n * Requires that `numOrSizeSplits` evenly divides `x.shape[axis]`.\n *\n * If `numOrSizeSplits` is a number array, splits `x` into\n * `numOrSizeSplits.length` pieces. The shape of the `i`-th piece has the\n * same size as `x` except along dimension `axis` where the size is\n * `numOrSizeSplits[i]`.\n *\n * ```js\n * const x = tf.tensor2d([1, 2, 3, 4, 5, 6, 7, 8], [2, 4]);\n * const [a, b] = tf.split(x, 2, 1);\n * a.print();\n * b.print();\n *\n * const [c, d, e] = tf.split(x, [1, 2, 1], 1);\n * c.print();\n * d.print();\n * e.print();\n * ```\n *\n * @param x The input tensor to split.\n * @param numOrSizeSplits Either an integer indicating the number of\n * splits along the axis or an array of integers containing the sizes of\n * each output tensor along the axis. If a number then it must evenly divide\n * `x.shape[axis]`; otherwise the sum of sizes must match `x.shape[axis]`.\n * Can contain one -1 indicating that dimension is to be inferred.\n * @param axis The dimension along which to split. Defaults to 0 (the first\n * dim).\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction split_<T extends Tensor>(\n   x: Tensor|TensorLike, numOrSizeSplits: number[]|number, axis = 0): T[] {\n const $x = convertToTensor(x, 'x', 'split');\n\n const inputs: SplitVInputs = {x: $x};\n const attr: SplitVAttrs = {numOrSizeSplits, axis};\n\n return ENGINE.runKernel(\n   SplitV, inputs as {} as NamedTensorMap,\n   attr as {} as NamedAttrMap) as {} as T[];\n}\n\nexport const split = op({split_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor} from '../../tensor';\nimport {assert} from '../../util';\nimport {complex} from '../complex';\nimport {concat} from '../concat';\nimport {imag} from '../imag';\nimport {op} from '../operation';\nimport {real} from '../real';\nimport {reshape} from '../reshape';\nimport {slice} from '../slice';\nimport {split} from '../split';\nimport {zeros} from '../zeros';\nimport {zerosLike} from '../zeros_like';\n\nimport {fft} from './fft';\n\n/**\n * Real value input fast Fourier transform.\n *\n * Computes the 1-dimensional discrete Fourier transform over the\n * inner-most dimension of the real input.\n *\n * ```js\n * const real = tf.tensor1d([1, 2, 3]);\n *\n * real.rfft().print();\n * ```\n * @param input The real value input to compute an rfft over.\n *\n * @doc {heading: 'Operations', subheading: 'Spectral', namespace: 'spectral'}\n */\nfunction rfft_(input: Tensor, fftLength?: number): Tensor {\n assert(\n   input.dtype === 'float32',\n   () => `The dtype for rfft() must be real value but got ${input.dtype}`);\n\n let innerDimensionSize = input.shape[input.shape.length - 1];\n const batch = input.size / innerDimensionSize;\n\n let adjustedInput: Tensor;\n if (fftLength != null && fftLength < innerDimensionSize) {\n   // Need to crop\n   const begin = input.shape.map(v => 0);\n   const size = input.shape.map(v => v);\n   size[input.shape.length - 1] = fftLength;\n   adjustedInput = slice(input, begin, size);\n   innerDimensionSize = fftLength;\n } else if (fftLength != null && fftLength > innerDimensionSize) {\n   // Need to pad with zeros\n   const zerosShape = input.shape.map(v => v);\n   zerosShape[input.shape.length - 1] = fftLength - innerDimensionSize;\n   adjustedInput = concat([input, zeros(zerosShape)], input.shape.length - 1);\n   innerDimensionSize = fftLength;\n } else {\n   adjustedInput = input;\n }\n\n // Complement the input with zero imaginary numbers.\n const zerosInput

= zerosLike(adjustedInput);\n const complexInput =\n   reshape(complex(adjustedInput, zerosInput), [batch, innerDimensionSize]);\n\n const ret = fft(complexInput);\n\n // Exclude complex conjugations. These conjugations are put symmetrically.\n const half = Math.floor(innerDimensionSize / 2) + 1;\n const realValues = real(ret);\n const imagValues = imag(ret);\n const realComplexConjugate = split(\n   realValues, [half, innerDimensionSize - half],\n   realValues.shape.length - 1);\n const imagComplexConjugate = split(\n imagValues, [half, innerDimensionSize - half],\n   imagValues.shape.length - 1);\n\n const outputShape = adjustedInput.shape.slice();\n outputShape[adjustedInput.shape.length - 1] = half;\n\n return reshape(\n complex(realComplexConjugate[0], imagComplexConjugate[0]), outputShape);\n}\n\nexport const rfft = op({rfft_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {ENGINE} from '../engine';\nimport {Sqrt, SqrtInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes square root of the input `tf.Tensor` element-wise: `y = sqrt(x)`\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 4, -1]);\n *\n * x.sqrt().print(); // or tf.sqrt(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction sqrt_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'sqrt');\n\n const inputs: SqrtInputs = {x: $x};\n\n return ENGINE.runKernel(Sqrt, inputs as {} as NamedTensorMap);\n}\nexport const sqrt = op({sqrt_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {ENGINE} from '../engine';\nimport {SquaredDifference, SquaredDifferenceInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {makeTypesMatch} from '../tensor_util';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {assertAndGetBroadcastShape} from './broadcast_util';\nimport {op} from './operation';\n\n/**\n * Returns (a - b) * (a - b) element-wise.\n * Supports broadcasting.\n *\n * ```js\n * const a = tf.tensor1d([1, 4, 3, 16]);\n * const b = tf.tensor1d([1, 2, 9, 4]);\n *\n * a.squaredDifference(b).print(); // or tf.squaredDifference(a, b)\n * ```\n *\n * ```js\n * // Broadcast squared difference a with b.\n * const a = tf.tensor1d([2, 4, 6, 8]);\n * const b = tf.scalar(5);\n *\n * a.squaredDifference(b).print(); // or tf.squaredDifference(a, b)\n * ```\n *\n * @param a The first tensor.\n * @param b The second tensor. Must have the same type as `a`.\n *\n * @doc {heading: 'Operations', subheading: 'Arithmetic'}\n */\nfunction squaredDifference_<T extends Tensor>(\n   a: Tensor|TensorLike, b: Tensor|TensorLike): T {\n let $a = convertToTensor(a, 'a', 'squaredDifference');\n let $b = convertToTensor(b, 'b', 'squaredDifference');\n [$a, $b] = makeTypesMatch($a, $b);\n\n assertAndGetBroadcastShape($a.shape, $b.shape);\n\n const inputs: SquaredDifferenceInputs = {a: $a, b: $b};\n const attrs = {};\n\n return ENGINE.runKernel(\n   SquaredDifference, inputs as unknown as NamedTensorMap, attrs);\n}\n\nexport const squaredDifference = op({squaredDifference_});\n","/**\n * @license\n * Copyright 2020

Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {squeezeShape} from '../util';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\n/**\n * Removes dimensions of size 1 from the shape of a `tf.Tensor`.\n *\n * ```js\n * const x = tf.tensor([1, 2, 3, 4], [1, 1, 4]);\n * x.squeeze().print();\n * ```\n *\n * @param x The input tensor to be squeezed.\n * @param axis An optional list of numbers. If specified, only\n * squeezes the dimensions listed. The dimension index starts at 0. It\n * is an error to squeeze a dimension that is not 1.\n *\n * @doc {heading:
'Tensors', subheading: 'Transformations'}\n */\nfunction squeeze_<T extends Tensor>(x: Tensor|TensorLike, axis?: number[]): T {\n const $x = convertToTensor(x, 'x', 'squeeze');\n return reshape($x, squeezeShape($x.shape, axis).newShape) as T;\n}\n\nexport const squeeze = op({squeeze_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Pack, PackAttrs, PackInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensorArray} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Stacks a list of rank-`R` `tf.Tensor`s into one rank-`(R+1)` `tf.Tensor`.\n *\n * ```js\n * const a = tf.tensor1d([1, 2]);\n * const b = tf.tensor1d([3, 4]);\n * const c = tf.tensor1d([5, 6]);\n * tf.stack([a, b, c]).print();\n * ```\n *\n * @param tensors A list of tensor objects with the same shape and dtype.\n * @param axis The axis to stack along. Defaults to 0 (the first dim).\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction stack_<T extends Tensor>(\n   tensors: Array<T|TensorLike>, axis = 0): Tensor {\n const $tensors =\n   convertToTensorArray(tensors, 'tensors', 'stack', 'string_or_numeric');\n\n util.assert(\n $tensors.length >= 1,
() => 'Pass at least one tensor to tf.stack');\n\n if ($tensors.length > 0) {\n   util.assert(\n   axis <=
$tensors[0].rank, () => 'Axis must be <= rank of the tensor');\n }\n\n const inputs: PackInputs = $tensors;\n const attrs: PackAttrs = {axis};\n\n return ENGINE.runKernel(\n   Pack, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const stack = op({stack_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Step, StepAttrs, StepInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {from

'../types';\n\nimport {op} from './operation';\n\n/**\n * Computes step of the input `tf.Tensor` element-wise: `x > 0 ? 1 : alpha * x`\n *\n * ```js\n * const x = tf.tensor1d([0, 2, -1, -3]);\n *\n * x.step(.5).print(); // or tf.step(x, .5)\n * ```\n * @param x The input tensor.\n * @param alpha The gradient when input is negative.\n *\n * @doc {heading: 'Operations', subheading: 'Basic math'}\n */\nfunction step_<T extends Tensor>(x: T|TensorLike, alpha = 0.0): T {\n const $x = convertToTensor(x, 'x', 'step');\n\n const inputs: StepInputs = {x: $x};\n const attrs: StepAttrs = {alpha};\n\n return ENGINE.runKernel(\n   Step, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\nexport const step = op({step_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {StridedSlice, StridedSliceAttrs, StridedSliceInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Extracts a strided slice of a tensor.\n *\n * Roughly speaking, this op extracts a slice of size (end-begin)/stride from\n * the given input tensor (x). Starting at the location specified by begin the\n * slice continues by adding stride to the index until all dimensions are not\n * less than end. Note that a stride can be negative, which causes a reverse\n * slice.\n *\n * ```js\n * const t = tf.tensor3d([1, 1, 1 ,2, 2, 2, 3, 3, 3, 4, 4, 4, 5, 5, 5, 6, 6, 6],\n *   [3, 2, 3]);\n * t.stridedSlice([1, 0, 0], [2, 1, 3], [1, 1, 1]).print() // [[[3, 3, 3]]]\n * t.stridedSlice([1, 0, 0], [2, 2, 3], [1, 1, 1]).print() // [[[3, 3, 3],\n *   // [4, 4, 4]]]\n * t.stridedSlice([1, -1, 0], [2, -3, 3], [1, -1, 1]).print() // [[[4, 4, 4],\n *   // [3, 3, 3]]]\n * ```\n *\n * @param x The tensor to stride slice.\n * @param begin The coordinates to start the slice from.\n * @param end: The coordinates to end the slice at.\n * @param strides: The size of the slice.\n * @param beginMask: If the ith bit of beginMask is set, begin[i] is ignored\n *   and the fullest possible range in that dimension is used instead.\n * @param endMask: If the ith bit of endMask is set, end[i] is ignored\n *   and the fullest possible range in that dimension is used instead.\n * @param shrinkAxisMask: a bitmask where bit i implies that\n * the ith specification should shrink the dimensionality. begin and end must\n * imply a slice of size 1 in the dimension.\n *\n * @doc {heading:
'Operations', subheading: 'Slicing and Joining'}\n */\nfunction stridedSlice_(\n   x: Tensor|TensorLike, begin: number[], end: number[], strides?: number[],\n   beginMask = 0, endMask = 0, ellipsisMask = 0, newAxisMask = 0,\n   shrinkAxisMask = 0): Tensor {\n const $x = convertToTensor(x, 'x', 'stridedSlice');\n\n const inputs: StridedSliceInputs = {x: $x};\n const attrs: StridedSliceAttrs = {\n   begin,\n   end,\n   strides,\n   beginMask,\n   endMask,\n   ellipsisMask,\n   newAxisMask,\n   shrinkAxisMask\n };\n\n return ENGINE.runKernel(\n   StridedSlice, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap);\n}\n\nexport const stridedSlice = op({stridedSlice_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../engine';\nimport {Tan, TanInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from

'../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Computes tan of the input `tf.Tensor` element-wise, `tan(x)`\n *\n * ```js\n * const x = tf.tensor1d([0, Math.PI / 2, Math.PI * 3 / 4]);\n *\n * x.tan().print(); // or tf.tan(x)\n * ```\n * @param x The input tensor.\n *\n * @doc {heading: 'Operations', subheading:
'Basic math'}\n */\nfunction tan_<T extends Tensor>(x: T|TensorLike): T {\n const $x = convertToTensor(x, 'x', 'tan');\n\n const inputs: TanInputs = {x: $x};\n\n return ENGINE.runKernel(Tan, inputs as {} as NamedTensorMap);\n}\nexport const tan = op({tan_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport
{Tensor1D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike1D} from '../types';\nimport {DataType} from '../types';\nimport {assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-1 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor1d` as it makes the code more readable.\n *\n * ```js\n * tf.tensor1d([1, 2, 3]).print();\n * ```\n *\n * @param values The values of the tensor. Can be array of numbers,\n *   or a `TypedArray`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor1d(values: TensorLike1D, dtype?: DataType): Tensor1D {\n assertNonNull(values);\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 1) {\n   throw new Error('tensor1d() requires values to be a flat/TypedArray');\n }\n const shape: number[] = null;\n return makeTensor(values, shape, inferredShape, dtype) as Tensor1D;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor2D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike2D} from '../types';\nimport {DataType} from '../types';\nimport
{assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-2 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor2d` as it makes the code more readable.\n *\n * ```js\n * // Pass a nested array.\n * tf.tensor2d([[1, 2], [3, 4]]).print();\n * ```\n * ```js\n * // Pass a flat array and specify a shape.\n * tf.tensor2d([1, 2, 3, 4], [2, 2]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n *   or a flat array, or a `TypedArray`.\n * @param shape The shape of the tensor. If not provided, it is inferred from\n *   `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor2d(\n   values: TensorLike2D, shape?: [number, number],\n   dtype?: DataType): Tensor2D {\n assertNonNull(values);\n if (shape
!= null && shape.length !== 2) {\n   throw new Error('tensor2d() requires shape to have two numbers');\n }\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 2 && inferredShape.length !== 1) {\n   throw new Error(\n   'tensor2d() requires values to be number[][] or flat/TypedArray');\n }\n if (inferredShape.length === 1 && shape == null) {\n   throw new Error(\n   'tensor2d() requires shape to be

provided when `values` ' +\n 'are a flat/TypedArray');\n }\n return makeTensor(values, shape, inferredShape, dtype) as Tensor2D;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor4D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike4D} from '../types';\nimport {DataType} from '../types';\nimport {assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-4 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor4d` as it makes the code more readable.\n *\n * ```js\n * // Pass a nested array.\n * tf.tensor4d([[[[1], [2]], [[3], [4]]]]).print();\n * ```\n * ```js\n * // Pass a flat array and specify a shape.\n * tf.tensor4d([1, 2, 3, 4], [1, 2, 2, 1]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n * or a flat array, or a `TypedArray`.\n * @param shape The shape of the tensor. Optional. If not provided,\n * it is inferred from `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor4d(\n values: TensorLike4D, shape?: [number, number, number, number],\n dtype?: DataType): Tensor4D {\n assertNonNull(values);\n if (shape != null && shape.length !== 4) {\n throw new Error('tensor4d() requires shape to have four numbers');\n }\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 4 && inferredShape.length !== 1) {\n throw new Error(\n 'tensor4d() requires values to be number[][][][] or flat/TypedArray');\n }\n if (inferredShape.length === 1 && shape == null) {\n throw new Error(\n 'tensor4d() requires shape to be provided when `values` ' +\n 'are a flat array');\n }\n return makeTensor(values, shape, inferredShape, dtype) as Tensor4D;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor5D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike5D} from '../types';\nimport {DataType} from '../types';\nimport {assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-5 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor5d` as it makes the code more readable.\n *\n * ```js\n * // Pass a nested array.\n * tf.tensor5d([[[[[1],[2]],[[3],[4]]],[[[5],[6]],[[7],[8]]]]]).print();\n * ```\n * ```js\n * // Pass a flat array and specify a shape.\n * tf.tensor5d([1, 2, 3, 4, 5, 6, 7, 8], [1, 2, 2, 2, 1]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n * or a flat array, or a `TypedArray`.\n * @param shape The shape of the tensor. Optional. If not provided,\n * it is inferred from `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor5d(\n values: TensorLike5D, shape?: [number, number, number, number, number],\n dtype?: DataType): Tensor5D {\n assertNonNull(values);\n if (shape != null && shape.length !== 5) {\n throw new Error('tensor5d() requires shape to have five numbers');\n }\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 5 && inferredShape.length !== 1) {\n throw new Error(\n 'tensor5d() requires values to be ' +\n 'number[][][][][] or flat/TypedArray');\n }\n if (inferredShape.length === 1 && shape == null) {\n throw new Error(\n 'tensor5d() requires shape to be provided when `values` ' +\n 'are a

flat array');\n }\n return makeTensor(values, shape, inferredShape, dtype) as Tensor5D;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
 required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor6D} from '../tensor';\nimport {inferShape} from '../tensor_util_env';\nimport {TensorLike6D} from '../types';\nimport {DataType} from '../types';\nimport {assertNonNull} from '../util';\nimport {makeTensor} from './tensor_ops_util';\n\n/**\n * Creates rank-6 `tf.Tensor` with the provided values, shape and dtype.\n *\n * The same functionality can be achieved with `tf.tensor`, but in general\n * we recommend using `tf.tensor6d` as it makes the code more readable.\n *\n * ```js\n * // Pass a nested array.\n * tf.tensor6d([[[[[[1],[2]],[[3],[4]]],[[[5],[6]],[[7],[8]]]]]]).print();\n
 * ```\n * ```js\n * // Pass a flat array and specify a shape.\n * tf.tensor6d([1, 2, 3, 4, 5, 6, 7, 8], [1, 1, 2, 2, 2, 1]).print();\n * ```\n *\n * @param values The values of the tensor. Can be nested array of numbers,\n *   or a flat array, or a `TypedArray`.\n * @param shape The shape of the tensor. Optional. If not provided,\n *   it is inferred from `values`.\n * @param dtype The data type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function tensor6d(\n   values: TensorLike6D,\n   shape?: [number, number, number, number, number, number],\n   dtype?: DataType): Tensor6D {\n assertNonNull(values);\n if (shape != null && shape.length !== 6) {\n   throw new Error('tensor6d() requires shape to have six numbers');\n }\n const inferredShape = inferShape(values, dtype);\n if (inferredShape.length !== 6 && inferredShape.length !== 1) {\n   throw new Error(\n   'tensor6d() requires values to be number[][][][][][] or ' +\n   'flat/TypedArray');\n
  }\n if (inferredShape.length === 1 && shape == null) {\n   throw new Error(\n   'tensor6d() requires shape to be provided when `values` ' +\n   'are a flat array');\n }\n shape = shape ||\n   inferredShape as [number, number, number, number, number, number];\n return makeTensor(values, shape, inferredShape, dtype) as Tensor6D;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
 License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {TopK, TopKAttrs, TopKInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Finds the values and indices of the `k` largest entries along the last\n * dimension.\n *\n * If the input is a vector (rank=1), finds the k largest entries in the vector\n * and outputs their values and indices as vectors. Thus values[j] is the j-th\n * largest entry in input, and its index is indices[j].\n * For higher rank inputs, computes the top k entries along the last dimension.\n *\n * If two elements are equal, the lower-index element appears first.\n *\n * ```js\n * const a = tf.tensor2d([[1, 5], [4, 3]]);\n * const {values,
 indices} = tf.topk(a);\n * values.print();\n * indices.print();\n * ```\n * @param x 1-D or higher `tf.Tensor` with last dimension being at least `k`.\n * @param k Number of top elements to look for along the last dimension.\n * @param sorted If true, the resulting `k` elements will be sorted by the\n *   values in descending order.\n *\n * @doc {heading: 'Operations', subheading: 'Evaluation'}\n */\nfunction topk_<T extends Tensor>(\n   x: T|TensorLike, k = 1, sorted = true): {values: T, indices: T} {\n const $x = convertToTensor(x, 'x', 'topk');\n if

($x.rank === 0) {\n throw new Error('topk() expects the input to be of rank 1 or higher');\n }\n const lastDim = $x.shape[$x.shape.length - 1];\n if (k > lastDim) {\n throw new Error(\n `'k' passed to topk() must be <= the last dimension (${lastDim}) ` +\n `but got ${k}`);\n }\n\n const inputs: TopKInputs = {x: $x};\n const attrs: TopKAttrs = {k, sorted};\n\n const [values, indices] = ENGINE.runKernel(\n TopK, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n\n return {values, indices} as {values: T, indices: T};\n}\n\nexport const topk = op({topk_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor} from '../tensor';\nimport {DataType, Rank, ShapeMap} from '../types';\n\nimport {buffer} from './buffer';\nimport {op} from './operation';\nimport {MPRandGauss} from './rand_util';\n\n/**\n * Creates a `tf.Tensor` with values sampled from a truncated normal\n * distribution.\n *\n * ```js\n * tf.truncatedNormal([2, 2]).print();\n * ```\n *\n * The generated values follow a normal distribution with specified mean and\n * standard deviation, except that values whose magnitude is more than 2\n * standard deviations from the mean are dropped and re-picked.\n *\n * @param shape An array of integers defining the output tensor shape.\n * @param mean The mean of the normal distribution.\n * @param stdDev The standard deviation of the normal distribution.\n * @param dtype The data type of the output tensor.\n * @param seed The seed for the random number generator.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nfunction truncatedNormal_<R extends Rank>(\n shape: ShapeMap[R], mean = 0, stdDev = 1, dtype?: 'float32'|'int32',\n seed?: number): Tensor<R>\n {\n if (dtype != null && (dtype as DataType) === 'bool') {\n throw new Error(`Unsupported data type $ { dtype }`);\n }\n const randGauss =\n new MPRandGauss(mean, stdDev, dtype, true /* truncated */, seed);\n const res = buffer(shape, dtype);\n for (let i = 0; i < res.values.length; i++) {\n res.values[i] = randGauss.nextValue();\n }\n return res.toTensor();\n}\n\nexport const truncatedNormal = op({truncatedNormal_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
 specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ENGINE} from '../engine';\nimport {Unique, UniqueAttrs, UniqueInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor, Tensor1D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assert} from '../util';\n\nimport {op} from './operation';\n\n/**\n * Finds unique elements along an axis of a tensor.\n *\n * It returns a tensor `values` containing all of the unique elements along the\n * `axis` of the given tensor `x` in the same order that they occur along the\n * `axis` in `x`; `x` does not need to be sorted. It also returns a tensor\n * `indices` the same size as the number of the elements in `x` along the `axis`\n * dimension. It contains the index in the
 unique output `values`.\n *\n * ```js\n * // A 1-D tensor\n * const a = tf.tensor1d([1, 1, 2, 4, 4, 4, 7, 8, 8]);\n * const {values, indices} = tf.unique(a);\n * values.print(); // [1, 2, 4, 7, 8,]\n * indices.print(); // [0, 0, 1, 2, 2, 2, 3, 4, 4]\n * ```\n *\n * ```js\n * // A 2-D tensor with axis=0\n * //\n * // 'a' is: [[1, 0, 0],\n * //   [1, 0, 0],\n * //   [2, 0, 0]]\n * const a = tf.tensor2d([[1, 0, 0], [1, 0, 0], [2, 0, 0]]);\n * const {values, indices} = tf.unique(a, 0)\n *

values.print(); // [[1, 0, 0],\n * // [2, 0, 0]]\n * indices.print(); // [0, 0, 1]\n * ```\n *\n * ```js\n * // A 2-D tensor with axis=1\n * //\n * // 'a' is: [[1, 0, 0],\n * // [1, 0, 0],\n * // [2, 0, 0]]\n * const a = tf.tensor2d([[1, 0, 0], [1, 0, 0], [2, 0, 0]]);\n * const {values, indices} = tf.unique(a, 1)\n * values.print(); // [[1, 0],\n * // [1, 0],\n * // [2, 0]]\n * indices.print(); // [0, 1, 1]\n
 * ```\n * @param x A tensor (int32, string, bool).\n * @param axis The axis of the tensor to find the unique elements.\n * @returns [uniqueElements, indices] (see above for details)\n *\n * @doc {heading: 'Operations', subheading: 'Evaluation'}\n */\nfunction unique_<T extends Tensor>(\n  x: T|TensorLike, axis = 0): {values: T, indices: Tensor1D} {\n  const $x = convertToTensor(x, 'x', 'unique', 'string_or_numeric');\n  assert($x.rank > 0, () => 'The input tensor must be at least 1D');\n\n  const inputs: UniqueInputs = {x: $x};\n  const attrs: UniqueAttrs = {axis};\n  const [values, indices] = ENGINE.runKernel(\n  Unique, inputs as {} as NamedTensorMap,\n  attrs as {} as NamedAttrMap) as [T, Tensor1D];\n  return {values, indices};\n}\n\nexport const unique = op({unique_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
 not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {UnsortedSegmentSum, UnsortedSegmentSumAttrs, UnsortedSegmentSumInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor, Tensor1D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assert, isInt} from '../util';\n\nimport
 {op} from './operation';\n\n/**\n * Computes the sum along segments of a `tf.Tensor`.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n * const segmentIds = tf.tensor1d([1, 2, 0, 1], 'int32');\n * const numSegments = 3;\n *\n * x.unsortedSegmentSum(segmentIds, numSegments).print()\n * //or tf.unsortedSegmentSum(x, segmentIds, numSegments)\n * ```\n * @param x The `tf.Tensor` that will be summed along its segments.\n * @param segmentIds A `tf.Tensor1D` whose rank is equal to the rank of `x`'s\n * dimension along the `axis`. Maps each element of `x` to a segment.\n * @param numSegments The number of distinct `segmentIds`.\n *\n * @doc {heading: 'Operations', subheading: 'Segment'}\n */\nfunction unsortedSegmentSum_<T extends Tensor>(\n x: T|TensorLike, segmentIds: Tensor1D|TensorLike, numSegments: number): T {\n const $x = convertToTensor(x, 'x', 'unsortedSegmentSum');\n const $segmentIds =\n convertToTensor(segmentIds, 'segmentIds', 'unsortedSegmentSum', 'int32');\n assert(isInt(numSegments),
 () => 'numSegments must be of dtype int');\n\n const inputs: UnsortedSegmentSumInputs = {x: $x, segmentIds: $segmentIds};\n const attrs: UnsortedSegmentSumAttrs = {numSegments};\n\n return ENGINE.runKernel(\n UnsortedSegmentSum, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n}\n\nexport const unsortedSegmentSum = op({unsortedSegmentSum_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n
 * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {Unpack, UnpackAttrs, UnpackInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport

{NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {op} from './operation';\n\n/**\n * Unstacks a `tf.Tensor` of rank-`R` into a list of rank-`(R-1)` `tf.Tensor`s.\n *\n * ```js\n * const a = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n *\n * tf.unstack(a).forEach(tensor => tensor.print());\n * ```\n *\n * @param x A tensor object.\n * @param axis The axis to unstack along. Defaults to 0 (the first dim).\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nfunction unstack_(x: Tensor|TensorLike, axis = 0): Tensor[] {\n const $x = convertToTensor(x, 'x', 'unstack', 'string_or_numeric');\n util.assert(\n   axis >= -$x.shape.length && axis < $x.shape.length,\n   () =>\n   `Axis = ${axis} is not in [-${$x.shape.length}, ${$x.shape.length})`);\n\n const inputs: UnpackInputs = {value: $x};\n const attrs: UnpackAttrs = {axis};\n\n return ENGINE.runKernel(\n   Unpack, inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap);\n}\n\nexport const unstack = op({unstack_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ENGINE} from '../engine';\nimport {Tensor, Variable} from '../tensor';\nimport {DataType, Rank} from '../types';\n\n/**\n * Creates a new variable with the provided initial value.\n * ```js\n * const x = tf.variable(tf.tensor([1, 2, 3]));\n * x.assign(tf.tensor([4, 5, 6]));\n *\n * x.print();\n * ```\n *\n * @param initialValue Initial value for the tensor.\n * @param trainable If true, optimizers are allowed to update it.\n * @param name Name of the variable. Defaults to a unique id.\n * @param dtype If set, initialValue will be converted to the given type.\n *\n * @doc {heading: 'Tensors', subheading: 'Creation'}\n */\nexport function variable<R extends Rank>(\n   initialValue: Tensor<R>, trainable = true, name?: string,\n   dtype?: DataType): Variable<R> {\n return ENGINE.makeVariable(initialValue,\n   trainable, name, dtype) as\n   Variable<R>;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n/** An implementation of the Where kernel shared between cpu and webgl */\n\nimport {buffer} from '../ops/buffer';\nimport {Tensor2D} from '../tensor';\nimport {TypedArray} from '../types';\n\nexport function whereImpl(condShape: number[], condVals: TypedArray): Tensor2D {\n const indices = [];\n for (let i = 0; i < condVals.length; i++) {\n   if (condVals[i]) {\n   indices.push(i);\n   }\n }\n\n const inBuffer = buffer(condShape, 'int32');\n\n const out = buffer([indices.length, condShape.length], 'int32');\n for (let i = 0; i < indices.length; i++) {\n   const loc = inBuffer.indexToLoc(indices[i]);\n   const offset = i * condShape.length;\n   out.values.set(loc, offset);\n }\n return out.toTensor() as Tensor2D;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {whereImpl} from '../backends/where_impl';\nimport {Tensor, Tensor2D} from '../tensor';\nimport

{convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\n\n/**\n * Returns the coordinates of true elements of condition.\n *\n * The coordinates are returned in a 2-D tensor where the first dimension (rows)\n * represents the number of true elements, and the second dimension (columns)\n * represents the coordinates of the true elements. Keep in mind, the shape of\n * the output tensor can vary depending on how many true values there are in\n * input. Indices are output in row-major order. The resulting tensor has the\n * shape `[numTrueElems, condition.rank]`.\n *\n * This is analogous to calling the python `tf.where(cond)` without an x or y.\n *\n * ```js\n * const cond = tf.tensor1d([false, false, true], 'bool');\n * const result = await tf.whereAsync(cond);\n * result.print();\n * ```\n *\n * @doc {heading: 'Operations', subheading: 'Logical'}\n */\nasync function whereAsync_(condition: Tensor|TensorLike): Promise<Tensor2D> {\n const $condition =\n convertToTensor(condition, 'condition', 'whereAsync', 'bool');\n const vals = await $condition.data();\n const res = whereImpl($condition.shape, vals);\n if (condition !== $condition) {\n $condition.dispose();\n }\n return res;\n}\n\nexport const whereAsync = whereAsync_;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {gather} from './gather';\nimport {reshape} from './reshape';\nimport {squeeze} from './squeeze';\nimport {whereAsync} from './where_async';\n\n/**\n * Apply boolean mask to tensor.\n *\n * ```js\n * const tensor = tf.tensor2d([1, 2, 3, 4, 5, 6], [3, 2]);\n * const mask = tf.tensor1d([1, 0, 1], 'bool');\n * const result = await tf.booleanMaskAsync(tensor, mask);\n * result.print();\n * ```\n *\n * @param tensor N-D tensor.\n * @param mask K-D boolean tensor, K <= N and K must be known statically.\n * @param axis A 0-D int Tensor representing the axis in tensor to mask from.\n * By default, axis is 0 which will mask from the first dimension.\n * Otherwise K + axis <= N.\n *\n * @doc {heading: 'Tensors', subheading: 'Slicing and Joining'}\n */\nasync function booleanMaskAsync_(\n tensor: Tensor|TensorLike, mask: Tensor|TensorLike,\n axis?: number): Promise<Tensor> {\n const $tensor = convertToTensor(tensor, 'tensor', 'boolMask');\n const $mask = convertToTensor(mask, 'mask', 'boolMask', 'bool');\n\n const axisFrom = axis == null ? 0 : axis;\n const maskDim = $mask.rank;\n const tensorShape = $tensor.shape;\n\n util.assert(maskDim > 0, () => 'mask cannot be scalar');\n util.assertShapesMatch(\n tensorShape.slice(axisFrom, axisFrom + maskDim), $mask.shape,\n `mask's shape must match the first K dimensions of tensor's shape,`);\n\n let leadingSize = 1;\n for (let i = axisFrom; i < axisFrom + maskDim; i++)\n {\n leadingSize *= tensorShape[i];\n }\n const targetTensorShape =\n tensorShape.slice(0, axisFrom)\n .concat([leadingSize], tensorShape.slice(axisFrom + maskDim));\n const reshapedTensor = reshape($tensor, targetTensorShape);\n const reshapedMask = reshape($mask, [-1]);\n const positivePositions = await whereAsync(reshapedMask);\n const indices = squeeze(positivePositions, [1]);\n\n const res = gather(reshapedTensor, indices, axisFrom);\n\n // Ensure no memory leak.\n if (tensor !== $tensor) {\n $tensor.dispose();\n }\n if (mask !== $mask) {\n $mask.dispose();\n }\n indices.dispose();\n reshapedTensor.dispose();\n reshapedMask.dispose();\n positivePositions.dispose();\n\n return res;\n}\n\nexport const booleanMaskAsync = booleanMaskAsync_;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n

```
* See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {parseAxisParam} from '../util';\n\nimport {abs} from './abs';\nimport * as axis_util from './axis_util';\nimport {max} from './max';\nimport {min} from './min';\nimport {op} from './operation';\nimport {pow} from './pow';\nimport {reshape} from './reshape';\nimport {scalar} from './scalar';\nimport {sqrt} from './sqrt';\nimport {square} from
 './square';\nimport {sum} from './sum';\n\n/**\n * Computes the norm of scalar, vectors, and matrices.\n * This function can compute several different vector norms (the 1-norm, the\n * Euclidean or 2-norm, the inf-norm, and in general the p-norm for p > 0)\n * and matrix norms (Frobenius, 1-norm, and inf-norm).\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 3, 4]);\n *\n * x.norm().print();  // or tf.norm(x)\n * ```\n *\n * @param x The input array.\n * @param ord Optional. Order of the norm. Supported norm types are\n * following:\n *\n *  | ord        | norm for matrices         | norm for vectors\n *  |------------|---------------------------|---------------------\n *  |'euclidean' |Frobenius norm             |2-norm\n *  |'fro'       |Frobenius norm\t           |\n *  |Infinity    |max(sum(abs(x), axis=1))   |max(abs(x))\n *  |-Infinity   |min(sum(abs(x), axis=1))   |min(abs(x))\n *  |1           |max(sum(abs(x), axis=0))   |sum(abs(x))\n *  |2           |
  |sum(abs(x)^2)^1/2*\n *\n * @param axis Optional. If axis is null (the default), the input is\n * considered a vector and a single vector norm is computed over the entire\n * set of values in the Tensor, i.e. norm(x, ord) is equivalent\n * to norm(x.reshape([-1]), ord). If axis is a integer, the input\n * is considered a batch of vectors, and axis determines the axis in x\n * over which to compute vector norms. If axis is a 2-tuple of integer it is\n * considered a batch of matrices and axis determines the axes in NDArray\n * over which to compute a matrix norm.\n * @param keepDims Optional. If true, the norm have the same dimensionality\n * as the input.\n *\n * @doc {heading: 'Operations', subheading: 'Matrices'}\n */\nfunction norm_(\n    x: Tensor|TensorLike, ord: number|'euclidean'|'fro' = 'euclidean',\n    axis: number|number[] = null, keepDims = false): Tensor {\n  x = convertToTensor(x, 'x', 'norm');\n\n  const norm = normImpl(x, ord, axis);\n  let keepDimsShape = norm.shape;\n
  if (keepDims) {\n    const axes = parseAxisParam(axis, x.shape);\n    keepDimsShape = axis_util.expandShapeToKeepDim(norm.shape, axes);\n  }\n  return reshape(norm, keepDimsShape);\n}\n\nfunction normImpl(\n    x: Tensor, p: number|string, axis: number|number[] = null): Tensor {\n  if (x.rank === 0) {\n    return abs(x);\n  }\n\n  // consider vector when no axis is specified\n  if (x.rank !== 1 && axis === null) {\n    return normImpl(reshape(x, [-1]), p, axis);\n  }\n\n  // vector\n  if (x.rank === 1 || typeof axis === 'number' ||\n      Array.isArray(axis) && axis.length === 1) {\n    if (p === 1) {\n      return sum(abs(x), axis);\n    }\n    if (p === Infinity) {\n      return max(abs(x), axis);\n    }\n    if (p === -Infinity) {\n      return min(abs(x), axis);\n    }\n    if (p === 'euclidean' || p === 2) {\n      // norm(x, 2) = sum(abs(xi) ^ 2) ^ 1/2\n      return sqrt(sum(pow(abs(x), scalar(2, 'int32')), axis));\n    }\n\n    throw new Error(`Error in norm: invalid ord value: ${p}`);\n  }\n\n  // matrix (assumption axis[0] < axis[1])\n  if (Array.isArray(axis) && axis.length === 2) {\n    if (p === 1) {\n      return max(sum(abs(x), axis[0]), axis[1] - 1);\n    }\n    if (p === Infinity) {\n      return max(sum(abs(x), axis[1]), axis[0]);\n    }\n    if (p === -Infinity) {\n      return min(sum(abs(x), axis[1]), axis[0]);\n    }\n    if (p === 'fro' || p === 'euclidean') {\n      // norm(x) = sqrt(sum(pow(x, 2)))\n      return sqrt(sum(square(x), axis));\n    }\n\n    throw new Error(`Error in norm: invalid ord value: ${p}`);\n  }\n\n  throw new Error(`Error in norm: invalid axis: ${axis}`);\n}\n\nexport const norm = op({norm_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
 by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\n\nimport {Scalar, Tensor} from '../tensor';\nimport {assertTypesMatch} from '../tensor_util';\nimport
```

{convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {add} from './add';\nimport {div} from './div';\nimport {mul} from './mul';\nimport {op} from './operation';\nimport {pow} from './pow';\nimport {scalar} from './scalar';\nimport {sub} from './sub';\n\n/**\n * Compute the moving average of a variable.\n *\n * Without zeroDebias, the moving average operation is defined by:\n * `v += delta`\n * where\n * `delta = (1 - decay) * (x - v)`\n *\n * With zeroDebias (default), the `delta` term is scaled to debias the\n * effect of the (assumed) zero-initialization of `v`.\n * `delta /= (1 - decay ^ step)`\n *\n * For more details on the zero-debiasing algorithm, see:\n * https://arxiv.org/abs/1412.6980\n *\n * Note that this function is completely stateless and does not keep track of\n * step count. The step count needs to be maintained by the caller and passed\n * in as `step`.\n *\n * @param v The current moving average value.\n * @param x New input value, must have the same shape and dtype as `v`.\n * @param decay The decay factor. Typical values are 0.95 and 0.99.\n * @param step Step count.\n * @param zeroDebias: Whether zeroDebias is to be performed (default: `true`).\n * @returns The new moving average value.\n *\n * @doc {heading: 'Operations', subheading: 'Moving Average'}\n */\nfunction movingAverage_<T extends Tensor>(\n v: T|TensorLike, x: T|TensorLike, decay: number|Scalar,\n step?: number|Scalar, zeroDebias = true): T {\n const $v = convertToTensor(v, 'v', 'movingAverage');\n const $x = convertToTensor(x, 'x', 'movingAverage');\n const $decay = convertToTensor(decay, 'decay', 'movingAverage');\n\n assertTypesMatch($v, $x);\n util.assert(\n util.arraysEqual($v.shape, $x.shape), () => 'Shape mismatch in v and x');\n\n const one = scalar(1);\n const oneMinusDecay = sub(one, $decay);\n\n let update = mul(sub($x, $v), oneMinusDecay);\n if (zeroDebias) {\n util.assert(\n step != null, () => 'When using zeroDebias: true, step is required.');\n const $step = convertToTensor(step, 'step', 'movingAverage');\n update = div(update, sub(one, pow($decay, $step)));\n }\n return add($v, update);\n}\n\nexport const movingAverage = op({movingAverage_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\n\nimport {ENGINE} from '../engine';\nimport {ScatterNd, ScatterNdAttrs, ScatterNdInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, ShapeMap, TensorLike} from '../types';\n\nimport {op} from './operation';\nimport * as scatter_nd_util from './scatter_nd_util';\n\n/**\n * Creates a new tensor by applying sparse updates to individual\n * values or slices within a zero tensor of the given shape tensor according to\n * indices. This operator is the inverse of the `tf.gatherND` operator which\n * extracts values or slices from a given tensor.\n *\n * ```js\n * const indices = tf.tensor2d([4, 3, 1, 7], [4, 1], 'int32');\n * const updates = tf.tensor1d([9, 10, 11, 12]);\n * const shape = [8];\n * tf.scatterND(indices, updates, shape).print() //[0, 11, 0, 10, 9, 0, 0, 12]\n * ```\n *\n * @param indices The tensor contains the indices into the output tensor.\n * @param updates The tensor contains the value for the indices.\n * @param shape: The shape of the output tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Slicing and Joining'}\n */\nfunction scatterND_<R extends Rank>(\n indices: Tensor|TensorLike, updates: Tensor|TensorLike,\n shape: ShapeMap[R]): Tensor<R> {\n const $indices = convertToTensor(indices, 'indices', 'scatterND', 'int32');\n const $updates = convertToTensor(updates, 'updates', 'scatterND');\n scatter_nd_util.validateInput($updates, $indices, shape);\n\n const inputs: ScatterNdInputs = {indices: $indices, updates: $updates};\n const attrs: ScatterNdAttrs = {shape};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n return ENGINE.runKernel(\n ScatterNd, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as Tensor<R>;\n}\n\nexport const scatterND = op({scatterND_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under

the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\nimport {Tensor} from '../tensor';\n\n/**\n * Validate sparseToDense inputs.\n *\n * @param sparseIndices A 0-D, 1-D, or 2-D Tensor of type int32.\n * sparseIndices[i] contains the complete index where sparseValues[i] will be\n * placed.\n * @param sparseValues A 0-D or 1-D Tensor. Values\n * corresponding to each row of sparseIndices, or a scalar value to be used for\n * all sparse indices.\n * @param outputShape number[]. Shape of the dense output tensor.\n * @param validateIndices boolean. indice validation is not supported, error\n * will be thrown if it is set.\n */\nexport function validateInput(\n sparseIndices: Tensor, sparseValues: Tensor, outputShape: number[],\n defaultValues: Tensor) {\n if (sparseIndices.dtype !== 'int32') {\n throw new Error(\n 'tf.sparseToDense()
expects the indices to be int32 type,' +\n ` but the dtype was ${sparseIndices.dtype}.`);\n }\n if (sparseIndices.rank > 2) {\n throw new Error(\n 'sparseIndices should be a scalar, vector, or matrix,' +\n ` but got shape ${sparseIndices.shape}.`);\n }\n\n const numElems = sparseIndices.rank > 0 ? sparseIndices.shape[0] : 1;\n const numDims = sparseIndices.rank > 1 ? sparseIndices.shape[1] : 1;\n\n if (outputShape.length !== numDims) {\n throw new Error(\n 'outputShape has incorrect number of elements:,' +\n ` ${outputShape.length}, should be: ${numDims}.`);\n }\n\n const numValues = sparseValues.size;\n if (!(sparseValues.rank === 0 ||\n sparseValues.rank === 1 && numValues === numElems)) {\n throw new Error(\n 'sparseValues has incorrect shape ' +\n `${sparseValues.shape}, should be [] or [${numElems}]`);\n }\n\n if (sparseValues.dtype !== defaultValues.dtype) {\n throw new Error('sparseValues.dtype
must match defaultValues.dtype');\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {ENGINE} from '../engine';\nimport {SparseToDense, SparseToDenseAttrs, SparseToDenseInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport * as sparse_to_dense from '../ops/sparse_to_dense_util';\nimport
{Scalar, Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {Rank, ScalarLike, ShapeMap, TensorLike} from '../types';\n\nimport {op} from './operation';\n\n/**\n * Converts a sparse representation into a dense tensor.\n *\n * Builds an array dense with shape outputShape such that:\n *\n * // If sparseIndices is scalar\n * dense[i] = (i == sparseIndices ? sparseValues : defaultValue)\n *\n * // If sparseIndices is a vector, then for each i\n * dense[sparseIndices[i]] = sparseValues[i]\n *\n * // If sparseIndices is an n by d matrix, then for each i in [0, n)\n * dense[sparseIndices[i][0], ..., sparseIndices[i][d-1]] = sparseValues[i]\n * All other values in dense are set to defaultValue. If sparseValues is a\n * scalar, all sparse indices are set to this single value.\n *\n * If indices are repeated the final value is summed over all values for those\n * indices.\n *\n * ```js\n
* const indices = tf.tensor1d([4, 5, 6, 1, 2, 3], 'int32');\n * const values = tf.tensor1d([10, 11, 12, 13, 14, 15], 'float32');\n * const shape = [8];\n * tf.sparseToDense(indices, values, shape).print();\n * ```\n *\n * @param sparseIndices A 0-D, 1-D, or 2-D Tensor of type int32.\n * sparseIndices[i] contains the complete index where

sparseValues[i] will be\n * placed.\n * @param sparseValues A 0-D or 1-D Tensor. Values\n * corresponding to each row of sparseIndices, or a scalar value to be used for\n * all sparse indices.\n * @param outputShape Shape of the dense output tensor. the type is inferred.\n * @param defaultValue Scalar. Value to set for indices not specified in\n * sparseIndices. Defaults to zero.\n *\n * @doc {heading: 'Operations', subheading: 'Normalization'}\n */\nfunction sparseToDense_<R extends Rank>(\n sparseIndices: Tensor|TensorLike, sparseValues: Tensor|TensorLike,\n outputShape: ShapeMap[R], defaultValue: Scalar|ScalarLike = 0): Tensor<R> {\n const $sparseIndices =\n convertToTensor(sparseIndices, 'sparseIndices', 'sparseToDense', 'int32');\n const $sparseValues =\n convertToTensor(sparseValues, 'sparseValues', 'sparseToDense');\n const $defaultValue = convertToTensor(\n defaultValue, 'defaultValue', 'sparseToDense', $sparseValues.dtype);\n\n sparse_to_dense.validateInput(\n $sparseIndices, $sparseValues, outputShape, $defaultValue);\n\n const inputs: SparseToDenseInputs = {\n sparseIndices: $sparseIndices,\n sparseValues: $sparseValues,\n defaultValue: $defaultValue\n };\n\n const attrs: SparseToDenseAttrs = {outputShape};\n\n return ENGINE.runKernel(\n SparseToDense, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n}\n\nexport const sparseToDense = op({sparseToDense_});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with
the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {ENGINE} from '../engine';\nimport {GatherNd, GatherNdInputs} from '../kernel_names';\nimport {Tensor} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {op} from './operation';\n\n/**\n * Gather slices from input tensor into a Tensor with shape specified by\n * `indices`.\n *\n * `indices` is an K-dimensional integer tensor, best thought of as
a\n * (K-1)-dimensional tensor of indices into input, where each element defines a\n * slice of input:\n * output[\\\\(i_0, ..., i_{K-2}\\\\)] = input[indices[\\\\(i_0, ..., i_{K-2}\\\\)]]\n *\n * Whereas in `tf.gather`, `indices` defines slices into the first dimension of\n * input, in `tf.gatherND`, `indices` defines slices into the first N dimensions\n * of input, where N = indices.shape[-1].\n *\n * The last dimension of indices can be at most the rank of input:\n * indices.shape[-1] <= input.rank\n *\n * The last dimension of `indices` corresponds to elements\n * (if indices.shape[-1] == input.rank) or slices\n * (if indices.shape[-1] < input.rank) along dimension indices.shape[-1] of\n * input.\n * The output tensor has shape\n * indices.shape[:-1] + input.shape[indices.shape[-1]:]\n *\n * Note that on CPU, if an out of bound index is found, an error is returned. On\n * GPU, if an out of bound index is found, a 0 is stored in the corresponding\n * output value.\n *\n * ```js\n *
const indices = tf.tensor2d([0, 1, 1, 0], [2,2], 'int32');\n * const input = tf.tensor2d([9, 10, 11, 12], [2, 2]);\n * tf.gatherND(input, indices).print() // [10, 11]\n * ```\n *\n * @param x The tensor from which to gather values.\n * @param indices Index tensor, must be of type int32.\n *\n * @doc {heading: 'Operations', subheading: 'Slicing and Joining'}\n */\nfunction gatherND_(x: Tensor|TensorLike, indices: Tensor|TensorLike): Tensor {\n const $indices = convertToTensor(indices, 'indices', 'gatherND', 'int32');\n const $x = convertToTensor(x, 'x', 'gatherND');\n\n const inputs: GatherNdInputs = {params: $x, indices: $indices};\n\n return ENGINE.runKernel(GatherNd, inputs as {} as NamedTensorMap);\n}\n\nexport const gatherND = op({gatherND_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy
of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor} from '../tensor';\nimport * as util from '../util';\n\n/**\n * Normalize noise shape based on provided tensor and noise shape.\n *\n * @param x Tensor.\n * @param noiseShape The shape for the randomly generated keep/drop flags, as\n * an array of numbers. Optional.\n * @returns Normalized noise shape.\n */\nexport function getNoiseShape(x: Tensor, noiseShape?: number[]): number[] {\n if (noiseShape == null) {\n return x.shape.slice();\n }\n if (util.arraysEqual(x.shape, noiseShape))
{\n return noiseShape;\n }\n if (x.shape.length === noiseShape.length) {\n const newDimension: number[] = [];\n for (let i = 0; i < x.shape.length; i++) {\n if (noiseShape[i] == null && x.shape[i] != null) {\n newDimension.push(x.shape[i]);\n } else {\n newDimension.push(noiseShape[i]);\n }\n }\n return newDimension;\n }\n\n return noiseShape;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport * as util from '../util';\n\nimport {add} from './add';\nimport {div} from './div';\nimport {getNoiseShape} from './dropout_util';\nimport {floor} from './floor';\nimport {mul} from './mul';\nimport {op} from './operation';\nimport {randomUniform} from './random_uniform';\n\n/**\n * Computes dropout.\n *\n * ```js\n * const x = tf.tensor1d([1, 2, 2, 1]);\n * const rate = 0.75;\n * const output = tf.dropout(x, rate);\n * output.print();\n * ```\n *\n * @param x A floating point Tensor or TensorLike.\n * @param rate A float in the range [0, 1). The probability that each element\n * of x is discarded.\n * @param noiseShape An array of numbers of type int32, representing the\n * shape for randomly generated keep/drop flags. If the
noiseShape has null\n * value, it will be automatically replaced with the x's relative dimension\n * size. Optional.\n * @param seed Used to create random seeds. Optional.\n * @returns A Tensor of the same shape of x.\n *\n * @doc {heading: 'Operations', subheading: 'Dropout'}\n */\nfunction dropout_(\n x: Tensor|TensorLike, rate: number, noiseShape?: number[],\n seed?: number|string): Tensor {\n const $x = convertToTensor(x, 'x', 'dropout');\n\n util.assert(\n $x.dtype === 'float32',\n () => `x has to be a floating point tensor since it's going to be ` +\n `scaled, but got a ${$x.dtype} tensor instead.`);\n util.assert(\n rate >= 0 && rate < 1,\n () => `rate must be a float in the range [0, 1), but got ${rate}.`);\n\n if (rate === 0) {\n return x instanceof Tensor ? $x.clone() : $x;\n }\n\n const $noiseShape = getNoiseShape($x, noiseShape);\n const keepProb = 1 - rate;\n const multiplier = div(\n floor(add(randomUniform($noiseShape,
0, 1, 'float32', seed), keepProb)),\n keepProb);\n\n return mul($x, multiplier);\n}\n\nexport const dropout = op({dropout_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor1D} from '../tensor';\nimport {tensor1d} from './tensor1d';\n\nexport function enclosingPowerOfTwo(value: number) {\n // Return

2**N for integer N such that 2**N >= value.\n return Math.floor(Math.pow(2, Math.ceil(Math.log(value) / Math.log(2.0))));\n}\n\nexport function cosineWindow(\n   windowLength: number, a: number, b: number): Tensor1D {\n const even = 1 - windowLength % 2;\n const newValues = new Float32Array(windowLength);\n for (let i = 0; i < windowLength; ++i) {\n   const cosArg = (2.0 * Math.PI * i) / (windowLength + even - 1);\n newValues[i] = a - b * Math.cos(cosArg);\n }\n return tensor1d(newValues, 'float32');\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from '../tensor';\nimport {convertToTensor} from '../tensor_util_env';\nimport {TensorLike} from '../types';\nimport {assert, assertShapesMatch, getTypedArrayFromDType} from '../util';\nimport {tensor} from './tensor';\n\n/**\n * Returns whether the targets are in the top K predictions.\n *\n * ```js\n * const predictions = tf.tensor2d([[20, 10, 40, 30], [30, 50, -20, 10]]);\n * const targets = tf.tensor1d([2, 0]);\n * const precision = await tf.inTopKAsync(predictions, targets);\n * precision.print();\n * ```\n * @param predictions 2-D or higher `tf.Tensor` with last dimension being\n *   at least `k`.\n * @param targets 1-D or higher `tf.Tensor`.\n * @param k Optional Number of top elements to look at for computing precision,\n
 *   default to 1.\n *\n * @doc {heading: 'Operations', subheading: 'Evaluation'}\n */\nasync function inTopKAsync_<T extends Tensor, U extends Tensor>(\n   predictions: T|TensorLike, targets: U|TensorLike, k = 1): Promise<U> {\n const $predictions = convertToTensor(predictions, 'predictions', 'inTopK');\n const $targets = convertToTensor(targets, 'targets', 'inTopK');\n\n assert(\n $predictions.rank > 1,\n   () => 'inTopK() expects the predictions to be of rank 2 or higher, ' +\n   `but got ${$predictions.rank}`);\n assert(\n $predictions.rank - 1 === $targets.rank,\n   () => `predictions rank should be 1 larger than ` +\n   `targets rank, but got predictions rank ` +\n   `${$predictions.rank} and targets rank ${$targets.rank}`);\n assertShapesMatch(\n $predictions.shape.slice(0, $predictions.shape.length - 1),\n $targets.shape,\n   `predictions's shape should be align with the targets' shape, ` +\n   'except the
 last dimension.');\n const lastDim = $predictions.shape[$predictions.shape.length - 1];\n assert(\n   k > 0 && k <= lastDim,\n   () => `'k' passed to inTopK() must be > 0 && <= the predictions last ` +\n   `dimension (${lastDim}), but got ${k}`);\n\n const predictionsVals = await $predictions.data();\n const targetsVals = await $targets.data();\n\n // Reshape predictionsVals into a 2d tensor [batch, lastDim]\n // and look up topK along lastDim.\n const [batch, size] = [predictionsVals.length / lastDim, lastDim];\n const precision = getTypedArrayFromDType('bool', batch);\n\n for (let b = 0; b < batch; b++) {\n   const offset = b * size;\n   const vals = predictionsVals.subarray(offset, offset + size);\n   const valAndInd: Array<{value: number, index: number}> = [];\n   for (let i = 0; i < vals.length; i++) {\n   valAndInd.push({value: vals[i], index: i});\n   }\n valAndInd.sort((a, b) => b.value - a.value);\n\n   precision[b] = 0;\n   for (let i = 0;
 i < k; i++) {\n   if (valAndInd[i].index === targetsVals[b]) {\n   precision[b] = 1;\n   break;\n   }\n   }\n }\n\n if (predictions !== $predictions) {\n $predictions.dispose();\n }\n if (targets !== $targets) {\n $targets.dispose();\n }\n\n // Output precision has the same shape as targets.\n return tensor(precision, $targets.shape, 'bool') as U;\n}\n\nexport const inTopKAsync = inTopKAsync_;\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language

governing permissions and\n * limitations under the License.\n *
==========\n
*/\nimport {ENGINE} from '../engine';\nimport {Conv2DBackpropFilter, Conv2DBackpropFilterAttrs,
Conv2DBackpropFilterInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport
{Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\nimport * as util from
'../util';\n\nimport * as conv_util from './conv_util';\nimport {op} from './operation';\nimport {reshape} from
'./reshape';\n\n/**\n * Computes the derivative of the filter of a 2D convolution.\n *\n * @param x The input tensor,
of rank 4 or rank 3 of shape\n * [batch, height, width, inChannels]. If rank 3, batch of 1 is assumed.\n * @param
dy The dy image, of rank 4 or rank 3, of shape\n * [batch, height, width, outDepth]. If rank 3, batch of 1 is
assumed.\n * @param filterShape The shape of the filter, length 4,\n
 * [filterHeight, filterWidth, inDepth, outDepth].\n * @param strides The strides of the convolution:
[strideHeight,\n * strideWidth].\n * @param pad A string from: 'same', 'valid'. The type of padding algorithm\n *
used in the forward prop of the op.\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\".
Defaults to\n * \"NHWC\". Specify the data format of the input and output data. With the\n * default format
\"NHWC\", the data is stored in the order of: [batch,\n * height, width, channels].\n * @param
dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n * provided, it will default to truncate.\n
*/\nfunction conv2DBackpropFilter_<T extends Tensor3D|Tensor4D>(\n x: T, dy: T, filterShape: [number,
number, number, number],\n strides: [number, number]|number,\n pad:
'valid'|'same'|number|conv_util.ExplicitPadding,\n dataFormat: 'NHWC'|'NCHW' = 'NHWC',\n
dimRoundingMode?: 'floor'|'round'|'ceil'): Tensor4D {\n let x4D =
 x as Tensor4D;\n if (x.rank === 3) {\n x4D = reshape(x, [1, x.shape[0], x.shape[1], x.shape[2]]);\n }\n let dy4D
= dy as Tensor4D;\n if (dy4D.rank === 3) {\n dy4D = reshape(dy, [1, dy.shape[0], dy.shape[1], dy.shape[2]]);\n
}\n util.assert(\n x4D.rank === 4,\n () => `Error in conv2dDerFilter: input must be rank 4, but got shape ` +\n
 `${x4D.shape}.`);\n util.assert(\n dy4D.rank === 4,\n () => `Error in conv2dDerFilter: dy must be rank
4, but got shape ` +\n  `${dy4D.shape}.`);\n  util.assert(\n  filterShape.length === 4,\n  () => `Error in
conv2dDerFilter: filterShape must be length 4, but got ` +\n  `${filterShape}.`);\n const inDepth = dataFormat
=== 'NHWC' ? x4D.shape[3] : x4D.shape[1];\n const outDepth = dataFormat === 'NHWC' ? dy4D.shape[3] :
dy4D.shape[1];\n util.assert(\n inDepth === filterShape[2],\n () => `Error in conv2dDerFilter: depth of input
${inDepth}) must ` +\n  `match input depth in
 filter (${filterShape[2]}.`);\n  util.assert(\n  outDepth === filterShape[3],\n  () => `Error in conv2dDerFilter:
depth of dy (${outDepth}) must ` +\n  `match output depth for filter (${filterShape[3]}).`);\n if
(dimRoundingMode != null) {\n util.assert(\n util.isInt(pad as number),\n () => `Error in conv2dDerFilter:
pad must be an integer when using, ` +\n  `dimRoundingMode ${dimRoundingMode} but got pad
${pad}.`);\n }\n\n const inputs: Conv2DBackpropFilterInputs = {x: x4D, dy: dy4D};\n const attrs:
Conv2DBackpropFilterAttrs =\n {strides, pad, dataFormat, dimRoundingMode, filterShape};\n\n //
tslint:disable-next-line: no-unnecessary-type-assertion\n return ENGINE.runKernel(\n
Conv2DBackpropFilter, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as
Tensor4D;\n}\n\nexport const conv2DBackpropFilter = op({conv2DBackpropFilter_});\n","/**\n * @license\n *
Copyright 2019 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor} from '../tensor';\n\nimport * as broadcast_util from './broadcast_util';\nimport {elu} from
'./elu';\nimport {Activation} from './fused_types';\nimport {leakyRelu} from './leaky_relu';\nimport {mul} from

'./mul';\nimport {prelu} from './prelu';\nimport {relu} from './relu';\nimport {relu6} from './relu6';\nimport {reshape} from './reshape';\nimport {step} from './step';\nimport {sum} from './sum';\n\n// Returns gradient for fused activation.\nexport function getFusedDyActivation(\n dy: Tensor, y: Tensor, activation: Activation): Tensor {\n if (activation == null || activation === 'linear') {\n return dy;\n }\n if (activation === 'relu') {\n return mul(dy, step(y));\n }\n throw new Error(\n `Cannot compute gradient for fused activation ${activation}.`);\n}\n\n// Returns gradient for fused bias.\nexport function getFusedBiasGradient(\n bias: Tensor, dyActivation: Tensor): Tensor {\n let res = dyActivation;\n const reduceAxes =\n broadcast_util.getReductionAxes(bias.shape, dyActivation.shape);\n if (reduceAxes.length > 0) {\n res = sum(res, reduceAxes);\n }\n return reshape(res, bias.shape);\n}\n\nexport function applyActivation(\n x: Tensor, activation: Activation, preluActivationWeights?: Tensor,\n leakyreluAlpha?: number): Tensor {\n if (activation === 'linear')
{\n return x;\n } else if (activation === 'relu') {\n return relu(x);\n } else if (activation === 'elu') {\n return elu(x);\n } else if (activation === 'relu6') {\n return relu6(x);\n } else if (activation === 'prelu') {\n return prelu(x, preluActivationWeights);\n } else if (activation === 'leakyrelu') {\n return leakyRelu(x, leakyreluAlpha);\n }\n throw new Error(`Unknown fused activation ${activation}.`);\n}\n\n// Whether we should call fused ops.\nexport const shouldFuse = (gradientDepth: number, activation: Activation) => {\n const gradientMode = gradientDepth > 0;\n return !gradientMode || activation === 'linear';\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {ENGINE} from '../../engine';\nimport {customGrad} from '../../gradients';\nimport {FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor, Tensor3D, Tensor4D} from '../../tensor';\nimport {GradSaveFunc, NamedTensorMap} from '../../tensor_types';\nimport {makeTypesMatch} from '../../tensor_util';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\nimport {add} from '../add';\nimport * as broadcast_util from '../broadcast_util';\nimport
{conv2d as unfusedConv2d} from '../conv2d';\nimport {conv2DBackpropFilter} from '../conv2d_backprop_filter';\nimport {conv2DBackpropInput} from '../conv2d_backprop_input';\nimport * as conv_util from '../conv_util';\nimport {Activation} from '../fused_types';\nimport {applyActivation, getFusedBiasGradient, getFusedDyActivation, shouldFuse} from '../fused_util';\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\n\n/**\n * Computes a 2D convolution over the input x, optionally fused with adding a\n * bias and applying an activation.\n *\n * ```js\n * const inputDepth = 2;\n * const inShape = [2, 2, 2, inputDepth];\n * const outputDepth = 2;\n * const fSize = 1;\n * const pad = 0;\n * const strides = 1;\n *\n * const x = tf.tensor4d([1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,\n * 16], inShape);\n * const w = tf.tensor4d([-1, 1, -2, 0.5], [fSize, fSize, inputDepth,\n * outputDepth]);\n *\n * tf.fused.conv2d({ x, filter: w, strides, pad, dataFormat:
'NHWC',\n * dilations: [1, 1], bias: tf.scalar(5), activation: 'relu' }).print();\n * ```\n *\n * @param obj An object with the following properties:\n * @param x The input tensor, of rank 4 or rank 3, of shape\n * `[batch, height, width, inChannels]`. If rank 3, batch of 1 is\n * assumed.\n * @param filter The filter, rank 4, of shape\n * `[filterHeight, filterWidth, inDepth, outDepth]`.\n * @param strides The strides of the convolution: `[strideHeight,\n * strideWidth]`.\n * @param pad The type of padding algorithm.\n * - `same` and stride 1: output will be of same size as input,\n * regardless of filter size.\n * - `valid` output will be smaller than input if filter is larger\n * than 1x1.\n * - For more info, see this guide:\n * [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n * https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dataFormat An optional string from:

```
\"NHWC\", \"NCHW\". Defaults to\n *     \"NHWC\".
 Specify the data format of the input and output data. With the\n *     default format \"NHWC\", the data is stored in
the order of: [batch,\n *     height, width, channels]. Only \"NHWC\" is currently supported.\n * @param dilations
The dilation rates: `[dilationHeight, dilationWidth]`\n *     in which we sample input values across the height and
width dimensions\n *     in atrous convolution. Defaults to `[1, 1]`. If `dilations` is a single\n *     number, then
`dilationHeight == dilationWidth`. If it is greater than\n *     1, then all values of `strides` must be 1.\n * @param
dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *     provided, it will default to truncate.\n *
@param bias Tensor to be added to the result.\n * @param activation Name of activation kernel (defaults to `linear`)
to be\n *     applied\n *     after biasAdd.\n * @param preluActivationWeights Tensor of prelu weights to be applied
as part\n *     of a `prelu` activation, typically
 the same shape as `x`.\n * @param leakyreluAlpha Optional. Alpha to be applied as part of a `leakyrelu`\n *
activation.\n */\nfunction fusedConv2d_<T extends Tensor3D|Tensor4D>({\n  x,\n  filter,\n  strides,\n  pad,\n
dataFormat = 'NHWC',\n  dilations = [1, 1],\n  dimRoundingMode,\n  bias,\n  activation = 'linear',\n
preluActivationWeights,\n  leakyreluAlpha\n}: {\n  x: T|TensorLike,\n  filter: Tensor4D|TensorLike,\n  strides:
[number, number]|number,\n  pad: 'valid'|'same'|number|conv_util.ExplicitPadding,\n  dataFormat?:
'NHWC'|'NCHW',\n  dilations?: [number, number]|number,\n  dimRoundingMode?: 'floor'|'round'|'ceil',\n  bias?:
Tensor|TensorLike,\n  activation?: Activation,\n  preluActivationWeights?: Tensor,\n  leakyreluAlpha?: number\n}):
T {\n  activation = activation || 'linear';\n\n  if (shouldFuse(ENGINE.state.gradientDepth, activation) === false) {\n
let result = unfusedConv2d(\n      x, filter, strides, pad, dataFormat, dilations, dimRoundingMode);\n    if (bias !=
 null) {\n      result = add(result, bias);\n    }\n\n    return applyActivation(\n        result, activation,
preluActivationWeights, leakyreluAlpha) as T;\n  }\n\n  const $x = convertToTensor(x, 'x', 'conv2d');\n  const $filter
= convertToTensor(filter, 'filter', 'conv2d');\n\n  let x4D = $x as Tensor4D;\n  let reshapedTo4D = false;\n\n  if
($x.rank === 3) {\n    reshapedTo4D = true;\n    x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n
}\n  util.assert(\n      x4D.rank === 4,\n      () => `Error in fused conv2d: input must be rank 4, but got rank ` +\n
 `${x4D.rank}.`);\n  util.assert(\n      $filter.rank === 4,\n      () => `Error in fused conv2d: filter must be rank 4, but
got rank ` +\n          `${$filter.rank}.`);\n  if (dimRoundingMode != null) {\n    util.assert(\n        util.isInt(pad as
number),\n        () => `Error in fused conv2d: pad must be an integer when using, ` +\n            `dimRoundingMode
${dimRoundingMode} but got pad ${pad}.`);\n
  }\n\n  util.assert(\n      x4D.shape[3] === $filter.shape[2],\n      () => `Error in conv2d: depth of input
(${x4D.shape[3]}) must match ` +\n          `input depth for filter ${$filter.shape[2]}.`);\n  util.assert(\n
conv_util.eitherStridesOrDilationsAreOne(strides, dilations),\n      () => 'Error in conv2D: Either strides or dilations
must be 1. ' +\n          `Got strides ${strides} and dilations '${dilations}'`);\n  util.assert(\n      dataFormat ===
'NHWC',\n      () => `Error in conv2d: got dataFormat of ${\n          dataFormat} but only NHWC is currently
supported.`);\n\n  const convInfo = conv_util.computeConv2DInfo(\n      x4D.shape, $filter.shape, strides, dilations,
pad, dimRoundingMode);\n\n  let $bias: Tensor;\n  if (bias != null) {\n    $bias = convertToTensor(bias, 'bias', 'fused
conv2d');\n    [$bias] = makeTypesMatch($bias, $x);\n\n
broadcast_util.assertAndGetBroadcastShape(convInfo.outShape, $bias.shape);\n  }\n\n  let
$preluActivationWeights: Tensor;\n
  if (preluActivationWeights != null) {\n    $preluActivationWeights = convertToTensor(\n
preluActivationWeights, 'prelu weights', 'fused conv2d');\n  }\n\n  const grad = (dy: Tensor4D, saved: Tensor[]) =>
{\n    const [$filter, x4D, y, $bias] =\n        saved as [Tensor4D, Tensor4D, Tensor4D, Tensor];\n\n    const
dyActivation = getFusedDyActivation(dy, y, activation) as Tensor4D;\n\n    util.assert(\n
conv_util.tupleValuesAreOne(dilations),\n        () => 'Error in gradient of fused conv2D: ' +\n            `dilation rates
greater than 1 ` +\n            `are not yet supported in gradients. Got dilations '${dilations}'`);\n\n    const xDer =\n
conv2DBackpropInput(x4D.shape, dyActivation, $filter, strides, pad);\n    const filterDer =\n
conv2DBackpropFilter(x4D, dyActivation, $filter.shape, strides, pad);\n    const der: Tensor[] = [xDer,
filterDer];\n\n    if ($bias != null) {\n      const biasDer = getFusedBiasGradient($bias, dyActivation);\n
der.push(biasDer);\n
```

}\n return der;\n };\n\n const inputs: FusedConv2DInputs = {\n x: x4D,\n filter: $filter,\n bias: $bias,\n preluActivationWeights: $preluActivationWeights\n };\n\n const attrs: FusedConv2DAttrs = {\n strides,\n pad,\n dataFormat,\n dilations,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n };\n\n // Depending on the the params passed in we will have different number of\n // inputs and thus a a different number of elements in the gradient.\n if (bias == null) {\n const customOp =\n customGrad((x4D: Tensor4D, filter: Tensor4D, save: GradSaveFunc) => {\n let res: Tensor4D|Tensor3D =\n // tslint:disable-next-line: no-unnecessary-type-assertion\n ENGINE.runKernel(\n FusedConv2D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n\n save([filter, x4D, res]);\n\n if (reshapedTo4D) {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n res = reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as\n Tensor3D;\n }\n\n return {value: res, gradFunc: grad};\n });\n return customOp(x4D, $filter) as T;\n } else {\n const customOpWithBias = customGrad(\n (x4D: Tensor4D, filter: Tensor4D, bias: Tensor, save: GradSaveFunc) => {\n let res: Tensor4D|Tensor3D = ENGINE.runKernel(\n FusedConv2D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n\n save([filter, x4D, res, bias]);\n\n if (reshapedTo4D) {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n res = reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as\n Tensor3D;\n }\n\n return {value: res, gradFunc: grad};\n });\n\n return customOpWithBias(x4D, $filter, $bias) as T;\n }\n}\nexport const conv2d = op({fusedConv2d_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {ENGINE} from '../engine';\nimport {DepthwiseConv2dNativeBackpropFilter, DepthwiseConv2dNativeBackpropFilterAttrs, DepthwiseConv2dNativeBackpropFilterInputs} from '../kernel_names';\nimport {NamedAttrMap} from '../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from '../tensor_types';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\nfunction depthwiseConv2dNativeBackpropFilter_<T extends Tensor3D|Tensor4D>(\n x: T, dy: T, filterShape: [number, number, number, number],\n strides: [number, number]|number, pad: 'valid'|'same'|number,\n dilations: [number, number]|number = [1, 1],\n dimRoundingMode?: 'floor'|'round'|'ceil'): Tensor4D {\n let x4D = x as Tensor4D;\n if (x.rank === 3) {\n x4D = reshape(x, [1, x.shape[0], x.shape[1], x.shape[2]]);\n }\n let dy4D = dy as Tensor4D;\n if (dy4D.rank === 3) {\n dy4D = reshape(dy, [1, dy.shape[0], dy.shape[1], dy.shape[2]]);\n }\n\n const inputs: DepthwiseConv2dNativeBackpropFilterInputs = {x: x4D, dy: dy4D};\n const attrs: DepthwiseConv2dNativeBackpropFilterAttrs =\n {strides, pad, dimRoundingMode, dilations, filterShape};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n return ENGINE.runKernel(\n DepthwiseConv2dNativeBackpropFilter,\n inputs as {} as NamedTensorMap, attrs as {} as NamedAttrMap) as\n Tensor4D;\n}\n\nexport const depthwiseConv2dNativeBackpropFilter =\n op({depthwiseConv2dNativeBackpropFilter_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n

*/\nimport {ENGINE} from '../engine';\nimport
{DepthwiseConv2dNativeBackpropInput, DepthwiseConv2dNativeBackpropInputAttrs,
DepthwiseConv2dNativeBackpropInputInputs} from '../kernel_names';\nimport {NamedAttrMap} from
'../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../tensor';\nimport {NamedTensorMap} from
'../tensor_types';\n\nimport {op} from './operation';\nimport {reshape} from './reshape';\n\nfunction
depthwiseConv2dNativeBackpropInput_<T extends Tensor3D|Tensor4D>(\n xShape: [number, number, number,
number], dy: T, filter: Tensor4D,\n strides: [number, number]|number, pad: 'valid'|'same'|number,\n dilations:
[number, number]|number = [1, 1],\n dimRoundingMode?: 'floor'|'round'|'ceil'): T {\n let dy4D = dy as
Tensor4D;\n let reshapedTo4D = false;\n if (dy.rank === 3) {\n reshapedTo4D = true;\n dy4D = reshape(dy, [1,
dy.shape[0], dy.shape[1], dy.shape[2]]);\n }\n\n const inputs: DepthwiseConv2dNativeBackpropInputInputs = {dy:
dy4D, filter};\n const attrs: DepthwiseConv2dNativeBackpropInputAttrs
=\n {strides, pad, dimRoundingMode, dilations, inputShape: xShape};\n\n const res =\n // tslint:disable-next-
line: no-unnecessary-type-assertion\n ENGINE.runKernel(\n DepthwiseConv2dNativeBackpropInput,
inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n return
reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const
depthwiseConv2dNativeBackpropInput =\n op({depthwiseConv2dNativeBackpropInput_});\n","/**\n *
@license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License
for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../../engine';\nimport {customGrad} from '../../gradients';\nimport
{FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs} from
'../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor, Tensor3D, Tensor4D}
from '../../tensor';\nimport {GradSaveFunc, NamedTensorMap} from '../../tensor_types';\nimport
{makeTypesMatch} from '../../tensor_util';\nimport {convertToTensor} from '../../tensor_util_env';\nimport
{TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {add} from '../add';\nimport * as
broadcast_util from '../broadcast_util';\nimport * as conv_util from '../conv_util';\nimport {depthwiseConv2d as
unfusedDepthwiseConv2d}
from '../depthwise_conv2d';\nimport {depthwiseConv2dNativeBackpropFilter} from
'../depthwise_conv2d_native_backprop_filter';\nimport {depthwiseConv2dNativeBackpropInput} from
'../depthwise_conv2d_native_backprop_input';\nimport {Activation} from '../fused_types';\nimport
{applyActivation, getFusedBiasGradient, getFusedDyActivation, shouldFuse} from '../fused_util';\nimport {op}
from '../operation';\nimport {reshape} from '../reshape';\n\n/**\n * Computes depthwise 2D convolution, optionally
fused with adding a\n * bias and applying an activation.\n *\n * Given a 4D `input` array and a `filter` array of
shape\n * `[filterHeight, filterWidth, inChannels, channelMultiplier]` containing\n * `inChannels` convolutional
filters of depth 1, this op applies a\n * different filter to each input channel (expanding from 1 channel to\n *
`channelMultiplier` channels for each), then concatenates the results\n * together. The output has `inChannels *
channelMultiplier` channels.\n *\n
* See\n * [https://www.tensorflow.org/api_docs/python/tf/nn/depthwise_conv2d](\n *
https://www.tensorflow.org/api_docs/python/tf/nn/depthwise_conv2d)\n * for more details.\n *\n * @param obj An
object with the following properties:\n * @param x The input tensor, of rank 4 or rank 3, of shape\n * `[batch,
height, width, inChannels]`. If rank 3, batch of 1 is\n * assumed.\n * @param filter The filter tensor, rank 4, of
shape\n * `[filterHeight, filterWidth, inChannels, channelMultiplier]`.\n * @param strides The strides of the
convolution: `[strideHeight,\n * strideWidth]`. If strides is a single number, then `strideHeight ==\n *
strideWidth`.\n * @param pad The type of padding algorithm.\n * - `same` and stride 1: output will be of same size

```
as input,\n *       regardless of filter size.\n *   - `valid`: output will be smaller than input if filter is larger\n *       than 1x1.\n *   - For more info, see this guide:\n *     [https://www.tensorflow.org/api_guides/python/nn#Convolution](\n *          https://www.tensorflow.org/api_guides/python/nn#Convolution)\n * @param dilations The dilation rates: `[dilationHeight, dilationWidth]`\n *     in which we sample input values across the height and width dimensions\n *   in atrous convolution. Defaults to `[1, 1]`. If `rate` is a single\n *     number, then `dilationHeight == dilationWidth`. If it is greater than\n *     1, then all values of `strides` must be 1.\n * @param dataFormat: An optional string from: \"NHWC\", \"NCHW\". Defaults to\n *     \"NHWC\". Specify the data format of the input and output data. With the\n *     default format \"NHWC\", the data is stored in the order of: [batch,\n *     height, width, channels]. Only \"NHWC\" is currently supported.\n * @param dimRoundingMode A string from: 'ceil', 'round', 'floor'. If none is\n *     provided, it will default to truncate.\n * @param bias Tensor to be added to the result.\n * @param activation Name of activation kernel (defaults to `linear`).\n
 * @param preluActivationWeights Tensor of prelu weights to be applied as part\n *     of a `prelu` activation, typically the same shape as `x`.\n * @param leakyreluAlpha Optional. Alpha to be applied as part of a `leakyrelu`\n *     activation.\n */\nfunction fusedDepthwiseConv2d_<T extends Tensor3D|Tensor4D>({\n  x,\n  filter,\n  strides,\n  pad,\n  dataFormat = 'NHWC',\n  dilations = [1, 1],\n  dimRoundingMode,\n  bias,\n  activation = 'linear',\n  preluActivationWeights,\n  leakyreluAlpha\n}: {\n  x: T|TensorLike,\n  filter: Tensor4D|TensorLike,\n  strides: [number, number]|number,\n  pad: 'valid'|'same'|number,\n  dataFormat?: 'NHWC'|'NCHW',\n  dilations?: [number, number]|number,\n  dimRoundingMode?: 'floor'|'round'|'ceil',\n  bias?: Tensor|TensorLike,\n  activation?: Activation,\n  preluActivationWeights?: Tensor,\n  leakyreluAlpha?: number\n}): T {\n  if (shouldFuse(ENGINE.state.gradientDepth, activation) === false) {\n    let result = unfusedDepthwiseConv2d(\n x,
 filter, strides, pad, dataFormat, dilations, dimRoundingMode);\n    if (bias != null) {\n      result = add(result, bias);\n    }\n\n    return applyActivation(\n        result, activation, preluActivationWeights, leakyreluAlpha) as T;\n  }\n\n  const $x = convertToTensor(x, 'x', 'depthwiseConv2d');\n  const $filter = convertToTensor(filter, 'filter', 'depthwiseConv2d');\n\n  let x4D = $x as Tensor4D;\n  let reshapedTo4D = false;\n  if ($x.rank === 3) {\n    reshapedTo4D = true;\n    x4D = reshape($x, [1, $x.shape[0], $x.shape[1], $x.shape[2]]);\n  }\n  util.assert(\n      x4D.rank === 4,\n      () => `Error in fused depthwiseConv2d: input must be rank 4, but got ` +\n          `rank ${x4D.rank}.`);\n  util.assert(\n      $filter.rank === 4,\n      () => `Error in fused depthwiseConv2d: filter must be rank 4, ` +\n          `but got rank ${$filter.rank}.`);\n  util.assert(\n      x4D.shape[3] === $filter.shape[2],\n      () => `Error in fused depthwiseConv2d: number of input channels
 ` +\n          `(${x4D.shape[3]}) must match the inChannels dimension in ` +\n          `filter ${$filter.shape[2]}.`);\n  if (dilations == null) {\n    dilations = [1, 1];\n  }\n  util.assert(\n      conv_util.eitherStridesOrDilationsAreOne(strides, dilations),\n      () =>\n          'Error in fused depthwiseConv2d: Either strides or dilations must ' +\n          `be 1. Got strides ${strides} and dilations '${dilations}'`);\n\n  if (dimRoundingMode != null) {\n    util.assert(\n        util.isInt(pad as number),\n        () => `Error in fused depthwiseConv2d: pad must be an integer when ` +\n            `using dimRoundingMode ${dimRoundingMode} but got pad ${pad}.`);\n  }\n\n  const convInfo = conv_util.computeConv2DInfo(\n      x4D.shape, $filter.shape, strides, dilations, pad, dimRoundingMode,\n      true /* depthwise */);\n\n  let $bias: Tensor;\n  if (bias != null) {\n    $bias = convertToTensor(bias, 'bias', 'fused conv2d');\n    [$bias] = makeTypesMatch($bias, $x);\n\n
   broadcast_util.assertAndGetBroadcastShape(convInfo.outShape, $bias.shape);\n  }\n\n  let $preluActivationWeights: Tensor;\n  if (preluActivationWeights != null) {\n    $preluActivationWeights = convertToTensor(\n        preluActivationWeights, 'prelu weights', 'fused depthwiseConv2d');\n  }\n\n  const grad = (dy: Tensor4D, saved: Tensor[]) => {\n    util.assert(\n        conv_util.tupleValuesAreOne(dilations),\n        () => 'Error in gradient of fused depthwiseConv2d: dilation rates ' +\n            `greater than 1 are not yet supported. Got dilations ` +\n            `'${dilations}'`);\n    const [$filter, x4D, y, bias] = saved;\n\n    const dyActivation = getFusedDyActivation(dy, y, activation) as Tensor4D;\n\n    const xDer = depthwiseConv2dNativeBackpropInput(\n
    (x4D as Tensor4D).shape, dyActivation, $filter as Tensor4D, strides,\n        pad, dilations,
dimRoundingMode);\n    const filterDer = depthwiseConv2dNativeBackpropFilter(\n        x4D as Tensor4D,
```

dyActivation, ($filter
as Tensor4D).shape, strides,\n pad, dilations, dimRoundingMode);\n\n if (bias != null) {\n const biasDer = getFusedBiasGradient($bias, dyActivation);\n return [xDer, filterDer, biasDer];\n }\n return [xDer, filterDer];\n };\n\n const inputs: FusedDepthwiseConv2DInputs = {\n x: x4D,\n filter: $filter,\n bias: $bias,\n preluActivationWeights: $preluActivationWeights\n };\n const attrs: FusedDepthwiseConv2DAttrs = {\n strides,\n pad,\n dataFormat,\n dilations,\n dimRoundingMode,\n activation,\n leakyreluAlpha\n };\n\n // Depending on the the params passed in we will have different number of\n // inputs and thus a a different number of elements in the gradient.\n if (bias == null) {\n const customOp =\n customGrad((x4D: Tensor4D, filter: Tensor4D, save: GradSaveFunc) => {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n let res: Tensor4D|Tensor3D = ENGINE.runKernel(\n FusedDepthwiseConv2D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n\n save([filter, x4D, res]);\n\n if (reshapedTo4D) {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n res = reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as\n Tensor3D;\n }\n\n return {value: res, gradFunc: grad};\n });\n return customOp(x4D, $filter) as T;\n } else {\n const customOpWithBias = customGrad(\n (x4D: Tensor4D, filter: Tensor4D, bias: Tensor, save: GradSaveFunc) => {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n let res: Tensor4D|Tensor3D = ENGINE.runKernel(\n FusedDepthwiseConv2D, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap);\n\n save([filter, x4D, res, bias]);\n\n if (reshapedTo4D) {\n // tslint:disable-next-line: no-unnecessary-type-assertion\n res = reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as\n Tensor3D;\n }\n\n return {value: res, gradFunc: grad};\n });\n\n return customOpWithBias(x4D, $filter, $bias) as T;\n }\n}\nexport const depthwiseConv2d = op({fusedDepthwiseConv2d_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../../engine';\nimport {customGrad} from '../../gradients';\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor, Tensor3D} from '../../tensor';\nimport {GradSaveFunc, NamedTensorMap} from '../../tensor_types';\nimport {makeTypesMatch} from '../../tensor_util';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {add} from '../add';\nimport * as broadcast_util from '../broadcast_util';\nimport {Activation} from '../fused_types';\nimport {applyActivation, getFusedBiasGradient, getFusedDyActivation, shouldFuse} from '../fused_util';\nimport {matMul as unfusedMatMul} from '../mat_mul';\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\n\n/**\n * Computes the dot product of two matrices with optional activation and
bias.\n *\n * ```js\n * const a = tf.tensor2d([-1, -2], [1, 2]);\n * const b = tf.tensor2d([1, 2, 3, 4], [2, 2]);\n * const bias = tf.tensor2d([1, 2], [1, 2]);\n *\n * tf.fused.matMul({a, b, bias, activation: 'relu'}).print();\n * ```\n *\n * @param obj An object with the following properties:\n * - `a` First matrix in dot product operation.\n * - `b` Second matrix in dot product operation.\n * - `transposeA` If true, `a` is transposed before multiplication.\n * - `transposeB` If true, `b` is transposed before multiplication.\n * - `bias` Matrix to be added to the result.\n * - `activation` Name of activation kernel (defaults to `linear`).\n * - `preluActivationWeights` Tensor of prelu weights.\n * - `leakyreluAlpha` Alpha of leakyrelu.\n */\nfunction fusedMatMul_<T extends Tensor>({\n a,\n b,\n transposeA = false,\n transposeB = false,\n bias,\n activation = 'linear',\n preluActivationWeights,\n leakyreluAlpha,\n}: {\n a: T|TensorLike,\n b: T|TensorLike,\n transposeA?: boolean,\n

```
 transposeB?: boolean,\n  bias?: Tensor|TensorLike,\n  activation?: Activation,\n  preluActivationWeights?:
Tensor\n  leakyreluAlpha?: number\n}): T {\n   if (shouldFuse(ENGINE.state.gradientDepth, activation) === false)
{\n     let result = unfusedMatMul(a, b, transposeA, transposeB);\n     if (bias != null) {\n       result = add(result,
bias);\n     }\n\n     return applyActivation(\n         result, activation, preluActivationWeights, leakyreluAlpha)
as\n         T;\n   }\n\n   let $a = convertToTensor(a, 'a', 'fused matMul');\n   let $b = convertToTensor(b, 'b', 'fused
matMul');\n   [$a, $b] = makeTypesMatch($a, $b);\n\n   const innerShapeA =\n       transposeA ? $a.shape[$a.rank
- 2] : $a.shape[$a.rank - 1];\n   const innerShapeB =\n       transposeB ? $b.shape[$b.rank - 1] : $b.shape[$b.rank -
2];\n\n   const outerShapeA =\n       transposeA ? $a.shape[$a.rank - 1] : $a.shape[$a.rank - 2];\n   const
outerShapeB =\n       transposeB ? $b.shape[$b.rank
 - 2] : $b.shape[$b.rank - 1];\n\n   const outerDimsA = $a.shape.slice(0, -2);\n   const outerDimsB =
$b.shape.slice(0, -2);\n   const batchDimA = util.sizeFromShape(outerDimsA);\n   const batchDimB =
util.sizeFromShape(outerDimsB);\n\n   util.assert(\n       $a.rank >= 2 && $b.rank >= 2 && $a.rank === $b.rank,\n
    () => `Error in fused matMul: inputs must have the same rank of at ` +\n         `least 2, got ranks ${$a.rank}
and ${$b.rank}.`);\n\n   util.assert(\n       util.arraysEqual(outerDimsA, outerDimsB),\n       () => `Error in fused
matMul: outer dimensions (${outerDimsA}) and (` +\n         `${outerDimsB}) of Tensors with shapes ${$a.shape}
and ` +\n         `${$b.shape} must match.`);\n\n   util.assert(\n       innerShapeA === innerShapeB,\n       () =>
`Error in fused matMul: inner shapes (${innerShapeA}) and (` +\n         `${innerShapeB}) of Tensors with shapes
${$a.shape} and ` +\n         `${$b.shape} and transposeA=${transposeA}` +\n
      ` and transposeB=${transposeB} must match.`);\n\n   const outShape = $a.shape.slice(0, -
2).concat([outerShapeA, outerShapeB]);\n\n   const a3D: Tensor3D = transposeA ?\n       reshape($a, [batchDimA,
innerShapeA, outerShapeA]) :\n       reshape($a, [batchDimA, outerShapeA, innerShapeA]);\n   const b3D:
Tensor3D = transposeB ?\n       reshape($b, [batchDimB, outerShapeB, innerShapeB]) :\n       reshape($b,
[batchDimB, innerShapeB, outerShapeB]);\n\n   let $bias: Tensor;\n   if (bias != null) {\n     $bias =
convertToTensor(bias, 'bias', 'fused matMul');\n     [$bias] = makeTypesMatch($bias, $a);\n\n
broadcast_util.assertAndGetBroadcastShape(outShape, $bias.shape);\n   }\n\n   let $preluActivationWeights:
Tensor;\n   if (preluActivationWeights != null) {\n     $preluActivationWeights = convertToTensor(\n
preluActivationWeights, 'prelu weights', 'fused matMul');\n   }\n\n   const grad = (dy: Tensor3D, saved: Tensor[])
=> {\n     const [a3D, b3D,
 y, $bias] = saved;\n     // we reshape dy because the result of the forward is not\n     // necessarily going to be a 3d
tensor due to a reshape done at the end of\n     // the customOp.\n     const dyActivation =\n
getFusedDyActivation(reshape(dy, y.shape), y, activation);\n     let aDer: Tensor;\n     let bDer: Tensor;\n\n     if
(!transposeA && !transposeB) {\n       aDer = unfusedMatMul(dyActivation, b3D, false, true);\n       bDer =
unfusedMatMul(a3D, dyActivation, true, false);\n     } else if (!transposeA && transposeB) {\n       aDer =
unfusedMatMul(dyActivation, b3D, false, false);\n       bDer = unfusedMatMul(dyActivation, a3D, true, false);\n
} else if (transposeA && !transposeB) {\n       aDer = unfusedMatMul(b3D, dyActivation, false, true);\n       bDer =
unfusedMatMul(a3D, dyActivation, false, false);\n     } else {\n       aDer = unfusedMatMul(b3D, dyActivation,
true, true);\n       bDer = unfusedMatMul(dyActivation, a3D, true, true);\n
   }\n\n     if (bias != null) {\n       const biasDer = getFusedBiasGradient($bias, dyActivation);\n       return [aDer,
bDer, biasDer];\n     } else {\n       return [aDer, bDer];\n     }\n   };\n\n   const inputs: _FusedMatMulInputs = {\n
  a: a3D,\n     b: b3D,\n     bias: $bias,\n     preluActivationWeights: $preluActivationWeights\n   };\n   const
attrs: _FusedMatMulAttrs =\n       {transposeA, transposeB, activation, leakyreluAlpha};\n\n   // Depending on the
the params passed in we will have different number of\n   // inputs and thus a a different number of elements in the
gradient.\n   if (bias == null) {\n     const customOp =\n         customGrad((a3D: Tensor3D, b3D: Tensor3D, save:
GradSaveFunc) => {\n           const res =\n               // tslint:disable-next-line: no-unnecessary-type-assertion\n
     ENGINE.runKernel(\n                 _FusedMatMul, inputs as {} as NamedTensorMap,\n                 attrs as {}
as NamedAttrMap) as
 T;\n\n           save([a3D, b3D, res]);\n\n           return {value: reshape(res, outShape), gradFunc: grad};\n         });\n
   return customOp(a3D, b3D) as T;\n   } else {\n     const customOpWithBias = customGrad(\n         (a3D:
```

Tensor3D, b3D: Tensor3D, $bias: Tensor, save: GradSaveFunc) => {\n const res =\n // tslint:disable-next-line: no-unnecessary-type-assertion\n ENGINE.runKernel(\n _FusedMatMul, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as T;\n\n save([a3D, b3D, res, $bias]);\n\n return {value: reshape(res, outShape), gradFunc: grad};\n });\n\n return customOpWithBias(a3D, b3D, $bias) as T;\n }\n }\n\n export const matMul = op({fusedMatMul_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {conv2d} from './fused/conv2d';\nimport {depthwiseConv2d} from './fused/depthwise_conv2d';\nimport {matMul} from './fused/mat_mul';\nimport {Activation} from './fused_types';\n\nexport {Activation, conv2d, depthwiseConv2d, matMul};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor1D} from '../../tensor';\nimport {op} from '../operation';\nimport {cosineWindow} from '../signal_ops_util';\n\n/**\n * Generate a hamming window.\n *\n * See: https://en.wikipedia.org/wiki/Window_function#Hann_and_Hamming_windows\n *\n * ```js\n * tf.signal.hammingWindow(10).print();\n * ```\n * @param The length of window\n *\n * @doc {heading: 'Operations', subheading: 'Signal', namespace: 'signal'}\n */\nfunction hammingWindow_(windowLength: number): Tensor1D {\n return cosineWindow(windowLength, 0.54, 0.46);\n}\nexport const hammingWindow = op({hammingWindow_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor1D} from '../../tensor';\nimport {op} from '../operation';\nimport {cosineWindow} from '../signal_ops_util';\n\n/**\n * Generate a Hann window.\n *\n * See: https://en.wikipedia.org/wiki/Window_function#Hann_and_Hamming_windows\n *\n * ```js\n * tf.signal.hannWindow(10).print();\n * ```\n * @param The length of window\n *\n * @doc {heading: 'Operations', subheading: 'Signal', namespace: 'signal'}\n */\nfunction hannWindow_(windowLength: number): Tensor1D {\n return cosineWindow(windowLength, 0.5, 0.5);\n}\n\nexport const hannWindow = op({hannWindow_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed

on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor, Tensor1D} from '../../tensor';\nimport {concat} from '../concat';\nimport {fill} from '../fill';\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\nimport {slice} from '../slice';\nimport {tensor2d} from '../tensor2d';\n\n/**\n * Expands input into frames of frameLength.\n * Slides a window size with frameStep.\n *\n * ```js\n * tf.signal.frame([1, 2, 3], 2, 1).print();\n * ```\n * @param signal The input tensor to be expanded\n * @param frameLength Length of each frame\n * @param frameStep The frame hop size in samples.\n * @param padEnd Whether to pad the end of signal with padValue.\n * @param padValue An number to use where the input signal does\n * not exist when padEnd is True.\n *\n * @doc {heading: 'Operations', subheading: 'Signal', namespace: 'signal'}\n */\nfunction frame_(\n signal: Tensor1D, frameLength:
number, frameStep: number, padEnd = false,\n padValue = 0): Tensor {\n let start = 0;\n const output: Tensor[] = [];\n while (start + frameLength <= signal.size) {\n output.push(slice(signal, start, frameLength));\n start += frameStep;\n }\n\n if (padEnd) {\n while (start < signal.size) {\n const padLen = (start + frameLength) - signal.size;\n const pad = concat([\n slice(signal, start, frameLength - padLen), fill([padLen], padValue)\n]);\n output.push(pad);\n start += frameStep;\n }\n }\n\n if (output.length === 0) {\n return tensor2d([], [0, frameLength]);\n }\n\n return reshape(concat(output), [output.length, frameLength]);\n}\nexport const frame = op({frame_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Tensor, Tensor1D} from '../../tensor';\nimport {concat} from '../concat';\nimport {mul} from '../mul';\nimport {op} from '../operation';\nimport {enclosingPowerOfTwo} from '../signal_ops_util';\nimport {slice} from '../slice';\nimport {rfft} from '../spectral/rfft';\n\nimport {frame} from './frame';\nimport {hannWindow} from './hann_window';\n\n/**\n * Computes the Short-time Fourier Transform of signals\n * See: https://en.wikipedia.org/wiki/Short-time_Fourier_transform\n *\n * ```js\n * const input = tf.tensor1d([1, 1,
1, 1, 1])\n * tf.signal.stft(input, 3, 1).print();\n * ```\n * @param signal 1-dimensional real value tensor.\n * @param frameLength The window length of samples.\n * @param frameStep The number of samples to step.\n * @param fftLength The size of the FFT to apply.\n * @param windowFn A callable that takes a window length and returns 1-d tensor.\n *\n * @doc {heading: 'Operations', subheading: 'Signal', namespace: 'signal'}\n */\nfunction stft_(\n signal: Tensor1D, frameLength: number, frameStep: number,\n fftLength?: number,\n windowFn: (length:
number) => Tensor1D = hannWindow): Tensor {\n if (fftLength == null) {\n fftLength =
enclosingPowerOfTwo(frameLength);\n }\n const framedSignal = frame(signal, frameLength, frameStep);\n const windowedSignal = mul(framedSignal, windowFn(frameLength));\n const output: Tensor[] = [];\n for (let i = 0; i <
framedSignal.shape[0]; i++) {\n output.push(\n rfft(slice(windowedSignal, [i, 0], [1, frameLength]),
fftLength));\n
}\n return concat(output);\n}\nexport const stft = op({stft_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {ENGINE} from '../../engine';\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs}
from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor1D, Tensor2D,
 Tensor4D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor}
from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {op}
from '../operation';\n\n/**\n * Extracts crops from the input image tensor and resizes them using bilinear\n *
sampling or nearest neighbor sampling (possibly with aspect ratio change)\n * to a common output size specified by
cropSize.\n *\n * @param image 4d tensor of shape `[batch,imageHeight,imageWidth, depth]`,\n *     where
imageHeight and imageWidth must be positive, specifying the\n *     batch of images from which to take crops\n *
@param boxes 2d float32 tensor of shape `[numBoxes, 4]`. Each entry is\n *     `[y1, x1, y2, x2]`, where `(y1, x1)`
and `(y2, x2)` are the normalized\n *     coordinates of the box in the boxInd[i]'th image in the batch\n * @param
boxInd 1d int32 tensor of shape `[numBoxes]` with values in range\n *     `[0, batch)`
 that specifies the image that the `i`-th box refers to.\n * @param cropSize 1d int32 tensor of 2 elements
`[cropHeigh, cropWidth]`\n *     specifying the size to which all crops are resized to.\n * @param method Optional
string from `'bilinear' | 'nearest'`,\n *     defaults to bilinear, which specifies the sampling method for resizing\n *
@param extrapolationValue A threshold for deciding when to remove boxes based\n *     on score. Defaults to 0.\n *
@return A 4D tensor of the shape `[numBoxes,cropHeight,cropWidth,depth]`\n *\n * @doc {heading: 'Operations',
subheading: 'Images', namespace: 'image'}\n */\nfunction cropAndResize_(\n    image: Tensor4D|TensorLike,\n
boxes: Tensor2D|TensorLike,\n    boxInd: Tensor1D|TensorLike,\n    cropSize: [number, number],\n    method:
'bilinear'|'nearest' = 'bilinear',\n    extrapolationValue = 0,\n    ): Tensor4D {\n  const $image =
convertToTensor(image, 'image', 'cropAndResize');\n  const $boxes = convertToTensor(boxes, 'boxes',
'cropAndResize',
 'float32');\n  const $boxInd = convertToTensor(boxInd, 'boxInd', 'cropAndResize', 'int32');\n\n  const numBoxes =
$boxes.shape[0];\n\n  util.assert(\n      $image.rank === 4,\n      () => 'Error in cropAndResize: image must be rank
4,' +\n          `but got rank ${$image.rank}.`);\n  util.assert(\n      $boxes.rank === 2 && $boxes.shape[1] === 4,\n
() => `Error in cropAndResize: boxes must be have size [${numBoxes},4] ` +\n          `but had shape
${$boxes.shape}.`);\n  util.assert(\n      $boxInd.rank === 1 && $boxInd.shape[0] === numBoxes,\n      () => `Error
in cropAndResize: boxInd must be have size [${numBoxes}] ` +\n          `but had shape ${$boxes.shape}.`);\n
util.assert(\n      cropSize.length === 2,\n      () => `Error in cropAndResize: cropSize must be of length 2, but got `
+\n          `length ${cropSize.length}.`);\n  util.assert(\n      cropSize[0] >= 1 && cropSize[1] >= 1,\n      () =>
`cropSize must be atleast [1,1], but was ${cropSize}`);\n  util.assert(\n
    method === 'bilinear' || method === 'nearest',\n      () => `method must be bilinear or nearest, but was
${method}`);\n\n  const inputs:\n      CropAndResizeInputs = {image: $image, boxes: $boxes, boxInd: $boxInd};\n
const attrs: CropAndResizeAttrs = {method, extrapolationValue, cropSize};\n  const res = ENGINE.runKernel(\n
CropAndResize, inputs as {} as NamedTensorMap,\n      attrs as {} as NamedAttrMap);\n  return res as
Tensor4D;\n}\n\nexport const cropAndResize = op({cropAndResize_});\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n *
limitations under the License.\n *
==========================================================================\n
*/\n\nimport {ENGINE} from '../../engine';\nimport {FlipLeftRight, FlipLeftRightInputs} from
'../../kernel_names';\nimport {Tensor4D} from '../../tensor';\nimport {NamedTensorMap} from
'../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from
'../../types';\nimport * as util from '../../util';\nimport {op} from '../operation';\n\n/**\n * Flips the image left to right.
```

Currently available in the CPU, WebGL, and\n * WASM backends.\n *\n * @param image 4d tensor of shape `[batch, imageHeight, imageWidth, depth]`.\n */\n/** @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'} */\nfunction flipLeftRight_(image: Tensor4D|TensorLike): Tensor4D {\n const $image = convertToTensor(image, 'image', 'flipLeftRight',
'float32');\n\n util.assert(\n $image.rank === 4,\n   () => 'Error in flipLeftRight: image must be rank 4,' +\n
`but got rank ${$image.rank}.`);\n\n const inputs: FlipLeftRightInputs = {image: $image};\n const res =\n ENGINE.runKernel(FlipLeftRight, inputs as {} as NamedTensorMap, {});\n return res as Tensor4D;\n}\n\nexport const flipLeftRight = op({flipLeftRight_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==\n
*/\n\nimport {ENGINE} from '../../engine';\nimport {RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor4D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {op} from '../operation';\n\n/**\n * Rotates the input image tensor counter-clockwise with an optional offset\n * center of rotation. Currently available in the CPU, WebGL, and WASM backends.\n *\n * @param image 4d tensor of shape `[batch, imageHeight, imageWidth, depth]`.\n * @param radians The amount of rotation.\n * @param fillValue The value to fill in the empty space leftover\n *   after rotation. Can be either a single grayscale
value (0-255), or an\n *   array of three numbers `[red, green, blue]` specifying the red, green,\n *   and blue channels. Defaults to `0` (black).\n * @param center The center of rotation. Can be either a single value (0-1), or\n *
an array of two numbers `[centerX, centerY]`. Defaults to `0.5` (rotates\n *   the image around its center).\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction rotateWithOffset_(\n image: Tensor4D|TensorLike, radians: number,\n   fillValue: number|[number, number, number] = 0,\n   center: number|[number, number] = 0.5): Tensor4D {\n const $image = convertToTensor(image, 'image', 'rotateWithOffset', 'float32');\n\n util.assert(\n $image.rank === 4,\n   () => 'Error in rotateWithOffset: image must be rank 4,' +\n   `but got rank ${$image.rank}.`);\n\n const inputs: RotateWithOffsetInputs = {image: $image};\n const attrs: RotateWithOffsetAttrs = {radians, fillValue, center};\n const
res = ENGINE.runKernel(\n   RotateWithOffset, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap);\n return res as Tensor4D;\n}\n\nexport const rotateWithOffset = op({rotateWithOffset_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor1D, Tensor2D} from '../tensor';\nimport * as util
from '../util';\n\nfunction nonMaxSuppSanityCheck(\n   boxes: Tensor2D, scores: Tensor1D, maxOutputSize: number,\n   iouThreshold: number, scoreThreshold: number, softNmsSigma?: number): {\n maxOutputSize: number,\n iouThreshold: number,\n scoreThreshold: number,\n softNmsSigma: number\n} {\n if (iouThreshold == null) {\n   iouThreshold = 0.5;\n }\n if (scoreThreshold == null) {\n   scoreThreshold =

Number.NEGATIVE_INFINITY;\n }\n if (softNmsSigma == null) {\n   softNmsSigma = 0.0;\n }\n\n const numBoxes = boxes.shape[0];\n maxOutputSize = Math.min(maxOutputSize, numBoxes);\n\n util.assert(\n   0 <= iouThreshold && iouThreshold <= 1,\n   () => `iouThreshold must be in [0, 1], but was '${iouThreshold}'`);\n util.assert(\n   boxes.rank === 2,\n   () => `boxes must be a 2D tensor, but was of rank '${boxes.rank}'`);\n util.assert(\n   boxes.shape[1] === 4,\n   () =>\n   `boxes must have 4 columns, but 2nd dimension was ${boxes.shape[1]}`);\n\n util.assert(scores.rank === 1, () => 'scores must be a 1D tensor');\n util.assert(\n   scores.shape[0] === numBoxes,\n   () => `scores has incompatible shape with boxes. Expected ${numBoxes}, ` +\n   `but was ${scores.shape[0]}`);\n util.assert(\n   0 <= softNmsSigma && softNmsSigma <= 1,\n   () => `softNmsSigma must be in [0, 1], but was '${softNmsSigma}'`);\n return {maxOutputSize, iouThreshold, scoreThreshold, softNmsSigma};\n}\n\nexport {nonMaxSuppSanityCheck};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {ENGINE} from '../../engine';\nimport {NonMaxSuppressionV3} from '../../kernel_names';\nimport {Tensor1D, Tensor2D} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\n\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {op} from '../operation';\n\n/**\n * Performs non maximum suppression of bounding boxes based on\n * iou (intersection over union).\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n *   `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n *   the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n * @param iouThreshold
A float representing the threshold for deciding whether\n *   boxes overlap too much with respect to IOU. Must be between [0, 1].\n *   Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n *   on score. Defaults to -inf, which means any score is accepted.\n * @return A 1D tensor with the selected box indices.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction nonMaxSuppression_(\n   boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n maxOutputSize: number, iouThreshold = 0.5,\n   scoreThreshold = Number.NEGATIVE_INFINITY): Tensor1D {\n const $boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppression');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppression');\n\n const inputs = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold);\n maxOutputSize = inputs.maxOutputSize;\n iouThreshold = inputs.iouThreshold;\n
  scoreThreshold = inputs.scoreThreshold;\n\n const attrs = {maxOutputSize, iouThreshold, scoreThreshold};\n return ENGINE.runKernel(\n   NonMaxSuppressionV3, {boxes: $boxes, scores: $scores}, attrs);\n}\n\nexport const nonMaxSuppression = op({nonMaxSuppression_});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

```
*/\n\n/**\n * Inserts a value into a sorted array. This method allows duplicate, meaning it\n * allows inserting duplicate value, in which case, the element will be inserted\n * at the lowest index of the value.\n * @param arr The array to modify.\n * @param element The element to insert.\n * @param comparator Optional. If no comparator is specified, elements are\n * compared using array_util.defaultComparator, which is suitable for Strings\n * and Numbers in ascending arrays. If the array contains multiple instances of\n * the target value, the left-most instance will be returned. To provide a\n * comparator, it should take 2 arguments to compare and return a negative,\n * zero, or a positive number.\n */\nexport function binaryInsert<T>(\n    arr: T[], element: T, comparator?: (a: T, b: T) => number) {\n  const index = binarySearch(arr, element, comparator);\n  const insertionPoint = index < 0 ? -(index + 1) : index;\n  arr.splice(insertionPoint, 0, element);\n}\n\n/**\n * Searches the array for the target using binary search, returns the index\n * of the found element, or position to insert if element not found. If no\n * comparator is specified, elements are compared using array_\n * util.defaultComparator, which is suitable for Strings and Numbers in\n * ascending arrays. If the array contains multiple instances of the target\n * value, the left-most instance will be returned.\n * @param arr The array to be searched in.\n * @param target The target to be searched for.\n * @param comparator Should take 2 arguments to compare and return a negative,\n *     zero, or a positive number.\n * @return Lowest index of the target value if found, otherwise the insertion\n *     point where the target should be inserted, in the form of\n *     (-insertionPoint - 1).\n */\nexport function binarySearch<T>(\n    arr: T[], target: T, comparator?: (a: T, b: T) => number) {\n  return binarySearch_(arr, target, comparator || defaultComparator);\n}\n\n/**\n * Compares its two arguments for order.\n * @param a The first element to be compared.\n * @param b The second element to be compared.\n * @return A negative number, zero, or a positive number as the first\n *     argument is less than, equal to, or greater than the second.\n */\nfunction defaultComparator<T>(a: T, b: T): number {\n  return a > b ? 1 : a < b ? -1 : 0;\n}\n\nfunction binarySearch_<T>(\n    arr: T[], target: T, comparator: (a: T, b: T) => number) {\n  let left = 0;\n  let right = arr.length;\n  let middle = 0;\n  let found = false;\n  while (left < right) {\n    middle = left + ((right - left) >>> 1);\n    const compareResult = comparator(target, arr[middle]);\n    if (compareResult > 0) {\n      left = middle + 1;\n    } else {\n      right = middle;\n      // If compareResult is 0, the value is found. We record it is found,\n      // and then keep looking because there may be duplicate.\n      found = !compareResult;\n    }\n  }\n\n  return found ? left : -left - 1;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ============================================================================\n */\n\nimport {TypedArray} from '../types';\nimport {binaryInsert} from './non_max_suppression_util';\n\n/**\n * Implementation of the NonMaxSuppression kernel shared between webgl and cpu.\n */\ninterface Candidate {\n  score: number;\n  boxIndex: number;\n  suppressBeginIndex: number;\n}\n\ninterface NonMaxSuppressionResult {\n  selectedIndices: number[];\n  selectedScores?: number[];\n  validOutputs?: number;\n}\n\nexport function nonMaxSuppressionV3Impl(\n    boxes: TypedArray, scores: TypedArray, maxOutputSize: number,\n    iouThreshold: number, scoreThreshold: number): NonMaxSuppressionResult {\n  return nonMaxSuppressionImpl_(\n      boxes, scores, maxOutputSize, iouThreshold, scoreThreshold,\n      0 /* softNmsSigma */);\n}\n\nexport function nonMaxSuppressionV4Impl(\n    boxes: TypedArray, scores: TypedArray, maxOutputSize: number,\n    iouThreshold: number, scoreThreshold: number,\n    padToMaxOutputSize: boolean): NonMaxSuppressionResult {\n  return nonMaxSuppressionImpl_(\n      boxes, scores, maxOutputSize, iouThreshold, scoreThreshold,\n      0 /* softNmsSigma */, false /* returnScoresTensor */,\n      padToMaxOutputSize /* padToMaxOutputSize */, true\n      /* returnValidOutputs */);\n}\n\nexport function nonMaxSuppressionV5Impl(\n    boxes: TypedArray, scores:
```

```
 TypedArray, maxOutputSize: number,\n    iouThreshold: number, scoreThreshold: number,\n    softNmsSigma:
number): NonMaxSuppressionResult {\n  return nonMaxSuppressionImpl_(\n      boxes, scores, maxOutputSize,
iouThreshold, scoreThreshold, softNmsSigma,\n      true /* returnScoresTensor */);\n}\n\nfunction
nonMaxSuppressionImpl_(\n    boxes: TypedArray, scores: TypedArray, maxOutputSize: number,\n
iouThreshold: number, scoreThreshold: number, softNmsSigma: number,\n    returnScoresTensor = false,
padToMaxOutputSize = false,\n    returnValidOutputs = false): NonMaxSuppressionResult {\n  // The list is sorted
in ascending order, so that we can always pop the\n  // candidate with the largest score in O(1) time.\n  const
candidates = [];\n\n  for (let i = 0; i < scores.length; i++) {\n    if (scores[i] > scoreThreshold) {\n
candidates.push({score: scores[i], boxIndex: i, suppressBeginIndex: 0});\n    }\n  }\n\n
candidates.sort(ascendingComparator);\n\n  // If softNmsSigma is 0,
 the outcome of this algorithm is exactly same as\n  // before.\n  const scale = softNmsSigma > 0 ? (-0.5 /
softNmsSigma) : 0.0;\n\n  const selectedIndices: number[] = [];\n  const selectedScores: number[] = [];\n\n  while
(selectedIndices.length < maxOutputSize && candidates.length > 0) {\n    const candidate = candidates.pop();\n
const {score: originalScore, boxIndex, suppressBeginIndex} = candidate;\n\n    if (originalScore < scoreThreshold)
{\n      break;\n    }\n\n    // Overlapping boxes are likely to have similar scores, therefore we\n    // iterate through
the previously selected boxes backwards in order to\n    // see if candidate's score should be suppressed. We use\n
// suppressBeginIndex to track and ensure a candidate can be suppressed\n    // by a selected box no more than once.
Also, if the overlap exceeds\n    // iouThreshold, we simply ignore the candidate.\n    let ignoreCandidate = false;\n
for (let j = selectedIndices.length - 1; j >= suppressBeginIndex; --j)
 {\n      const iou = intersectionOverUnion(boxes, boxIndex, selectedIndices[j]);\n\n      if (iou >= iouThreshold) {\n
    ignoreCandidate = true;\n        break;\n      }\n\n      candidate.score =\n          candidate.score *
suppressWeight(iouThreshold, scale, iou);\n\n      if (candidate.score <= scoreThreshold) {\n        break;\n      }\n
}\n\n    // At this point, if `candidate.score` has not dropped below\n    // `scoreThreshold`, then we know that we
went through all of the\n    // previous selections and can safely update `suppressBeginIndex` to the\n    // end of the
selected array. Then we can re-insert the candidate with\n    // the updated score and suppressBeginIndex back in the
candidate list.\n    // If on the other hand, `candidate.score` has dropped below the score\n    // threshold, we will not
add it back to the candidates list.\n    candidate.suppressBeginIndex = selectedIndices.length;\n\n    if
(!ignoreCandidate) {\n      // Candidate has passed all the
 tests, and is not suppressed, so\n      // select the candidate.\n      if (candidate.score === originalScore) {\n
selectedIndices.push(boxIndex);\n        selectedScores.push(candidate.score);\n      } else if (candidate.score >
scoreThreshold) {\n        // Candidate's score is suppressed but is still high enough to be\n        // considered, so add
back to the candidates list.\n        binaryInsert(candidates, candidate, ascendingComparator);\n      }\n    }\n  }\n\n  //
NonMaxSuppressionV4 feature: padding output to maxOutputSize.\n  const validOutputs = selectedIndices.length;\n
const elemsToPad = maxOutputSize - validOutputs;\n\n  if (padToMaxOutputSize && elemsToPad > 0) {\n
selectedIndices.push(...new Array(elemsToPad).fill(0));\n    selectedScores.push(...new
Array(elemsToPad).fill(0.0));\n  }\n\n  const result: NonMaxSuppressionResult = {selectedIndices};\n\n  if
(returnScoresTensor) {\n    result['selectedScores'] = selectedScores;\n  }\n\n  if (returnValidOutputs)
 {\n    result['validOutputs'] = validOutputs;\n  }\n\n  return result;\n}\n\nfunction intersectionOverUnion(boxes:
TypedArray, i: number, j: number) {\n  const iCoord = boxes.subarray(i * 4, i * 4 + 4);\n  const jCoord =
boxes.subarray(j * 4, j * 4 + 4);\n  const yminI = Math.min(iCoord[0], iCoord[2]);\n  const xminI =
Math.min(iCoord[1], iCoord[3]);\n  const ymaxI = Math.max(iCoord[0], iCoord[2]);\n  const xmaxI =
Math.max(iCoord[1], iCoord[3]);\n  const yminJ = Math.min(jCoord[0], jCoord[2]);\n  const xminJ =
Math.min(jCoord[1], jCoord[3]);\n  const ymaxJ = Math.max(jCoord[0], jCoord[2]);\n  const xmaxJ =
Math.max(jCoord[1], jCoord[3]);\n  const areaI = (ymaxI - yminI) * (xmaxI - xminI);\n  const areaJ = (ymaxJ -
yminJ) * (xmaxJ - xminJ);\n  if (areaI <= 0 || areaJ <= 0) {\n    return 0.0;\n  }\n  const intersectionYmin =
Math.max(yminI, yminJ);\n  const intersectionXmin = Math.max(xminI, xminJ);\n  const intersectionYmax =
Math.min(ymaxI, ymaxJ);\n  const intersectionXmax = Math.min(xmaxI,
```

xmaxJ);\n const intersectionArea = Math.max(intersectionYmax - intersectionYmin, 0.0) *\n Math.max(intersectionXmax - intersectionXmin, 0.0);\n return intersectionArea / (areaI + areaJ - intersectionArea);\n}\n\n// A Gaussian penalty function, this method always returns values in [0, 1].\n// The weight is a function of similarity, the more overlap two boxes are, the\n// smaller the weight is, meaning highly overlapping boxe will be significantly\n// penalized. On the other hand, a non-overlapping box will not be penalized.\nfunction suppressWeight(iouThreshold: number, scale: number, iou: number) {\n const weight = Math.exp(scale * iou * iou);\n return iou <= iouThreshold ? weight : 0.0;\n}\n\nfunction ascendingComparator(c1: Candidate, c2: Candidate) {\n // For objects with same scores, we make the object with the larger index go\n // first. In an array that pops from the end, this means that the object with\n // the smaller index will be popped first. This ensures the same output as\n // the TensorFlow python version.\n return (c1.score - c2.score) ||\n   ((c1.score === c2.score) && (c2.boxIndex - c1.boxIndex));\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {nonMaxSuppressionV3Impl} from '../../backends/non_max_suppression_impl';\nimport {Tensor1D, Tensor2D}
 from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {tensor1d} from '../tensor1d';\n\n/**\n * Performs non maximum suppression of bounding boxes based on\n * iou (intersection over union).\n *\n * This is the async version of `nonMaxSuppression`\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n *   `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n *   the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n * @param iouThreshold A float representing the threshold for deciding whether\n *   boxes overlap too much with respect to IOU. Must be between [0, 1].\n *   Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n *   on score. Defaults
 to -inf, which means any score is accepted.\n * @return A 1D tensor with the selected box indices.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nasync function nonMaxSuppressionAsync_(\n   boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n   maxOutputSize: number, iouThreshold = 0.5,\n   scoreThreshold = Number.NEGATIVE_INFINITY): Promise<Tensor1D> {\n const $boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppressionAsync');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppressionAsync');\n\n const inputs = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold);\n maxOutputSize = inputs.maxOutputSize;\n iouThreshold = inputs.iouThreshold;\n scoreThreshold = inputs.scoreThreshold;\n\n const boxesAndScores = await Promise.all([$boxes.data(), $scores.data()]);\n const boxesVals = boxesAndScores[0];\n const scoresVals = boxesAndScores[1];\n\n // We call a cpu based impl directly
 with the typedarray data here rather\n // than a kernel because all kernels are synchronous (and thus cannot await\n // .data()).\n const {selectedIndices} = nonMaxSuppressionV3Impl(\n   boxesVals, scoresVals, maxOutputSize, iouThreshold, scoreThreshold);\n if ($boxes !== boxes) {\n $boxes.dispose();\n }\n if ($scores !== scores) {\n $scores.dispose();\n }\n\n return tensor1d(selectedIndices, 'int32');\n}\n\nexport const nonMaxSuppressionAsync = nonMaxSuppressionAsync_;\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND,
either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ENGINE} from '../../engine';\nimport {NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor, Tensor1D, Tensor2D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\n\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {op} from '../operation';\n\n/**\n * Performs non maximum suppression of bounding boxes based on\n * iou (intersection over union).\n *\n * This op also supports a Soft-NMS mode (c.f.\n * Bodla et al, https://arxiv.org/abs/1704.04503) where boxes reduce the score\n * of other overlapping boxes, therefore
favoring different regions of the image\n * with high scores. To enable this Soft-NMS mode, set the `softNmsSigma`\n * parameter to be larger than 0.\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n * `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n * the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n * @param iouThreshold A float representing the threshold for deciding whether\n * boxes overlap too much with respect to IOU. Must be between [0, 1].\n * Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n * on score. Defaults to -inf, which means any score is accepted.\n * @param softNmsSigma A float representing the sigma parameter for Soft NMS.\n * When sigma is 0, it falls back to nonMaxSuppression.\n * @return A map with the following
properties:\n * - selectedIndices: A 1D tensor with the selected box indices.\n * - selectedScores: A 1D tensor with the corresponding scores for each\n * selected box.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction nonMaxSuppressionWithScore_(\n boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n maxOutputSize: number, iouThreshold = 0.5,\n scoreThreshold = Number.NEGATIVE_INFINITY,\n softNmsSigma = 0.0): NamedTensorMap {\n const $boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppression');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppression');\n\n const params = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold,\n softNmsSigma);\n maxOutputSize = params.maxOutputSize;\n iouThreshold = params.iouThreshold;\n scoreThreshold = params.scoreThreshold;\n softNmsSigma = params.softNmsSigma;\n\n const inputs: NonMaxSuppressionV5Inputs
= {boxes: $boxes, scores: $scores};\n const attrs: NonMaxSuppressionV5Attrs =\n {maxOutputSize, iouThreshold, scoreThreshold, softNmsSigma};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const result = ENGINE.runKernel(\n NonMaxSuppressionV5, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as Tensor[];\n\n return {selectedIndices: result[0], selectedScores: result[1]};\n}\n\nexport const nonMaxSuppressionWithScore = op({nonMaxSuppressionWithScore_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {nonMaxSuppressionV5Impl} from '../../backends/non_max_suppression_impl';\nimport {Tensor1D, Tensor2D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor}

from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {tensor1d} from '../tensor1d';\n\n/**\n * Asynchronously performs non maximum suppression of bounding boxes based on\n * iou (intersection over union).\n *\n * This op also supports a Soft-NMS mode (c.f.\n * Bodla et al, https://arxiv.org/abs/1704.04503) where boxes reduce the score\n * of other overlapping boxes, therefore favoring different regions of the image\n * with high scores. To enable this Soft-NMS mode, set the `softNmsSigma`\n * parameter to be larger than 0.\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n *   `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n *   the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n * @param iouThreshold A float representing the threshold for deciding whether\n *   boxes overlap too much with respect to IOU. Must be between [0, 1].\n *   Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n *   on score. Defaults to -inf, which means any score is accepted.\n * @param softNmsSigma A float representing the sigma parameter for Soft NMS.\n *   When sigma is 0, it falls back to nonMaxSuppression.\n * @return A map with the following properties:\n *   - selectedIndices: A 1D tensor with the selected box indices.\n *   - selectedScores: A 1D tensor with the corresponding scores for each\n *   selected box.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nasync function nonMaxSuppressionWithScoreAsync_(\n   boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n   maxOutputSize: number, iouThreshold = 0.5,\n   scoreThreshold = Number.NEGATIVE_INFINITY,\n   softNmsSigma = 0.0): Promise<NamedTensorMap> {\n const $boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppressionAsync');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppressionAsync');\n\n const params = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold,\n   softNmsSigma);\n maxOutputSize = params.maxOutputSize;\n iouThreshold = params.iouThreshold;\n scoreThreshold = params.scoreThreshold;\n softNmsSigma = params.softNmsSigma;\n\n const boxesAndScores = await Promise.all([$boxes.data(), $scores.data()]);\n const boxesVals = boxesAndScores[0];\n const scoresVals = boxesAndScores[1];\n\n // We call a cpu based impl directly with the typedarray data here rather\n // than a kernel because all kernels are synchronous (and thus cannot await\n // .data()).\n const {selectedIndices, selectedScores} = nonMaxSuppressionV5Impl(\n   boxesVals, scoresVals, maxOutputSize, iouThreshold, scoreThreshold,\n   softNmsSigma);\n\n if ($boxes !== boxes) {\n $boxes.dispose();\n }\n if ($scores !== scores) {\n $scores.dispose();\n }\n\n return {\n   selectedIndices: tensor1d(selectedIndices, 'int32'),\n   selectedScores: tensor1d(selectedScores)\n };\n}\n\nexport const nonMaxSuppressionWithScoreAsync = nonMaxSuppressionWithScoreAsync_;\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {ENGINE} from '../../engine';\nimport {NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor, Tensor1D, Tensor2D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\n\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {op} from '../operation';\n\n/**\n * Asynchronously performs
non maximum suppression of bounding boxes based on\n * iou (intersection over union), with an option to pad results.\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n *   `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n *   the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n *

@param iouThreshold A float representing the threshold for deciding whether\n * boxes overlap too much with respect to IOU. Must be between [0, 1].\n * Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n * on score. Defaults to -inf, which means any score is accepted.\n * @param padToMaxOutputSize Defalts to false. If true, size of output\n * `selectedIndices` is padded to maxOutputSize.\n * @return A map with the following properties:\n * - selectedIndices: A 1D tensor with the selected box indices.\n * - validOutputs: A scalar denoting how many elements in `selectedIndices`\n * are valid. Valid elements occur first, then padding.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction nonMaxSuppressionPadded_(\n boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n maxOutputSize: number, iouThreshold = 0.5,\n scoreThreshold = Number.NEGATIVE_INFINITY,\n padToMaxOutputSize = false): NamedTensorMap {\n const $boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppression');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppression');\n\n const params = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold,\n null /* softNmsSigma */);\n const $maxOutputSize = params.maxOutputSize;\n const $iouThreshold = params.iouThreshold;\n const $scoreThreshold = params.scoreThreshold;\n\n const inputs: NonMaxSuppressionV4Inputs = {boxes: $boxes, scores: $scores};\n const attrs: NonMaxSuppressionV4Attrs = {\n maxOutputSize: $maxOutputSize,\n iouThreshold: $iouThreshold,\n scoreThreshold: $scoreThreshold,\n padToMaxOutputSize\n };\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const result = ENGINE.runKernel(\n NonMaxSuppressionV4, inputs as {} as NamedTensorMap,\n attrs as {} as NamedAttrMap) as Tensor[];\n\n return {selectedIndices: result[0], validOutputs: result[1]};\n}\n\nexport const nonMaxSuppressionPadded = op({nonMaxSuppressionPadded_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\nimport {nonMaxSuppressionV4Impl} from '../../backends/non_max_suppression_impl';\nimport {Tensor1D, Tensor2D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {nonMaxSuppSanityCheck} from '../nonmax_util';\nimport {scalar} from '../scalar';\nimport {tensor1d} from '../tensor1d';\n\n/**\n * Asynchronously performs non maximum suppression of bounding boxes based on\n * iou (intersection over union), with an option to pad results.\n *\n * @param boxes a 2d tensor of shape `[numBoxes, 4]`. Each entry is\n * `[y1, x1, y2, x2]`, where `(y1, x1)` and `(y2, x2)` are the corners of\n * the bounding box.\n * @param scores a 1d tensor providing the box scores of shape `[numBoxes]`.\n * @param maxOutputSize The maximum number of boxes to be selected.\n * @param iouThreshold A float representing the threshold for deciding whether\n * boxes overlap too much with respect to IOU. Must be between [0, 1].\n * Defaults to 0.5 (50% box overlap).\n * @param scoreThreshold A threshold for deciding when to remove boxes based\n * on score. Defaults to -inf, which means any score is accepted.\n * @param padToMaxOutputSize Defalts to false. If true, size of output\n * `selectedIndices` is padded to maxOutputSize.\n * @return A map with the following properties:\n * - selectedIndices: A 1D tensor with the selected box indices.\n * - validOutputs: A scalar denoting how many elements in `selectedIndices`\n * are valid. Valid elements occur first, then padding.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nasync function nonMaxSuppressionPaddedAsync_(\n boxes: Tensor2D|TensorLike, scores: Tensor1D|TensorLike,\n maxOutputSize: number, iouThreshold = 0.5,\n scoreThreshold = Number.NEGATIVE_INFINITY,\n padToMaxOutputSize = false): Promise<NamedTensorMap> {\n const

$boxes = convertToTensor(boxes, 'boxes', 'nonMaxSuppressionAsync');\n const $scores = convertToTensor(scores, 'scores', 'nonMaxSuppressionAsync');\n\n const params = nonMaxSuppSanityCheck(\n $boxes, $scores, maxOutputSize, iouThreshold, scoreThreshold,\n   null /* softNmsSigma */);\n const $maxOutputSize = params.maxOutputSize;\n const $iouThreshold = params.iouThreshold;\n const $scoreThreshold = params.scoreThreshold;\n\n const [boxesVals, scoresVals] =\n   await Promise.all([$boxes.data(), $scores.data()]);\n\n // We call a cpu based impl directly with the typedarray data here rather\n // than a kernel because all kernels are synchronous (and thus cannot await\n // .data()).\n const {selectedIndices, validOutputs} = nonMaxSuppressionV4Impl(\n   boxesVals, scoresVals, $maxOutputSize, $iouThreshold, $scoreThreshold,\n   padToMaxOutputSize);\n\n if ($boxes !== boxes) {\n $boxes.dispose();\n }\n if ($scores !== scores) {\n $scores.dispose();\n }\n\n return {\n   selectedIndices: tensor1d(selectedIndices, 'int32'),\n   validOutputs: scalar(validOutputs, 'int32')\n };\n}\n\nexport const nonMaxSuppressionPaddedAsync = nonMaxSuppressionPaddedAsync_;\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {ENGINE} from '../../engine';\nimport {ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\n\n/**\n * Bilinear resize a single 3D image or a batch of 3D images to a new shape.\n *\n * @param images The images, of rank 4 or rank 3, of shape\n *   `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param size The new shape `[newHeight, newWidth]` to resize the\n *   images to. Each channel is resized individually.\n * @param alignCorners Defaults to `false`. If true, rescale\n *   input by `(new_height - 1) / (height - 1)`, which exactly aligns the 4\n *   corners of images and resized images. If false, rescale by\n *   `new_height / height`. Treat similarly the width dimension.\n * @param halfPixelCenters Defaults to `false`. Whether to assume pixel centers\n *   are at 0.5, which would make the floating point coordinates of the top\n *   left pixel 0.5, 0.5.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction resizeBilinear_<T extends Tensor3D|Tensor4D>(\n   images: T|TensorLike, size: [number, number], alignCorners = false,\n   halfPixelCenters = false): T {\n const $images = convertToTensor(images, 'images', 'resizeBilinear');\n\n util.assert(\n $images.rank === 3 || $images.rank === 4,\n   () => `Error in resizeBilinear: x must be rank 3 or 4,
 but got ` +\n          `rank ${$images.rank}.`);\n  util.assert(\n      size.length === 2,\n      () => `Error in resizeBilinear: new shape must 2D, but got shape ` +\n          `${size}.`);\n  util.assert(\n      halfPixelCenters === false || alignCorners === false,\n      () => `Error in resizeBilinear: If halfPixelCenters is true, ` +\n          `alignCorners must be false.`);\n\n let batchImages = $images as Tensor4D;\n let reshapedTo4D = false;\n if ($images.rank === 3) {\n   reshapedTo4D = true;\n   batchImages = reshape(\n $images, [1, $images.shape[0], $images.shape[1], $images.shape[2]]);\n }\n\n const [] = size;\n\n const inputs: ResizeBilinearInputs = {images: batchImages};\n const attrs: ResizeBilinearAttrs = {alignCorners, halfPixelCenters, size};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   ResizeBilinear, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as
 T;\n\n if (reshapedTo4D) {\n   return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const resizeBilinear = op({resizeBilinear_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not

use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {ENGINE} from '../../engine';\nimport {ResizeNearestNeighbor, ResizeNearestNeighborAttrs, ResizeNearestNeighborInputs} from '../../kernel_names';\nimport {NamedAttrMap} from '../../kernel_registry';\nimport {Tensor3D, Tensor4D} from '../../tensor';\nimport {NamedTensorMap} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport * as util from '../../util';\n\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\n\n/**\n * NearestNeighbor resize a batch of 3D images to a new shape.\n *\n * @param images The images, of rank 4 or rank 3, of shape\n *   `[batch, height, width, inChannels]`. If rank 3, batch of 1 is assumed.\n * @param size The new shape `[newHeight, newWidth]` to resize the\n *   images to. Each channel is resized individually.\n * @param alignCorners Defaults to False. If true, rescale\n *   input by `(new_height - 1) / (height - 1)`, which exactly aligns the 4\n *   corners of images and resized images. If false, rescale by\n *   `new_height / height`.
Treat similarly the width dimension.\n * @param halfPixelCenters Defaults to `false`. Whether to assumes pixels are of\n *   half the actual dimensions, and yields more accurate resizes. This flag\n *   would also make the floating point coordinates of the top left pixel\n *   0.5, 0.5.\n *\n * @doc {heading: 'Operations', subheading: 'Images', namespace: 'image'}\n */\nfunction resizeNearestNeighbor_<T extends Tensor3D|Tensor4D>(\n   images: T|TensorLike, size: [number, number], alignCorners = false,\n   halfPixelCenters = false): T {\n const $images = convertToTensor(images, 'images', 'resizeNearestNeighbor');\n\n util.assert(\n $images.rank === 3 || $images.rank === 4,\n   () => `Error in resizeNearestNeighbor: x must be rank 3 or 4, but got ` +\n   `rank ${$images.rank}.`);\n util.assert(\n   size.length === 2,\n   () =>\n   `Error in resizeNearestNeighbor: new shape must 2D, but got shape ` +\n   `${size}.`);\n util.assert(\n $images.dtype === 'float32' || $images.dtype === 'int32',\n   () => '`images` must have `int32` or `float32` as dtype');\n util.assert(\n   halfPixelCenters === false || alignCorners === false,\n   () => `Error in resizeNearestNeighbor: If halfPixelCenters is true, ` +\n   `alignCorners must be false.`);\n let batchImages = $images as Tensor4D;\n let reshapedTo4D = false;\n if ($images.rank === 3) {\n   reshapedTo4D = true;\n   batchImages = reshape(\n $images, [1, $images.shape[0], $images.shape[1], $images.shape[2]]);\n }\n const [] = size;\n\n const inputs: ResizeNearestNeighborInputs = {images: batchImages};\n const attrs:\n   ResizeNearestNeighborAttrs = {alignCorners, halfPixelCenters, size};\n\n // tslint:disable-next-line: no-unnecessary-type-assertion\n const res = ENGINE.runKernel(\n   ResizeNearestNeighbor, inputs as {} as NamedTensorMap,\n   attrs as {} as NamedAttrMap) as T;\n\n if (reshapedTo4D) {\n   return reshape(res, [res.shape[1], res.shape[2], res.shape[3]]) as T;\n }\n return res;\n}\n\nexport const resizeNearestNeighbor = op({resizeNearestNeighbor_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike}
from '../../types';\nimport {assert} from '../../util';\n\nimport {greaterEqual} from '../greater_equal';\nimport {lessEqual} from '../less_equal';\nimport {logicalAnd} from '../logical_and';\nimport {op} from

'../operation';\nimport {range} from '../range';\nimport {reshape} from '../reshape';\nimport {scalar} from '../scalar';\nimport {stack} from '../stack';\nimport {sub} from '../sub';\nimport {unstack} from '../unstack';\nimport {where} from '../where';\nimport {zeros} from '../zeros';\n\n/**\n * Copy a tensor setting everything outside a central band in each innermost\n * matrix to zero.\n *\n * The band part is computed as follows: Assume input has `k` dimensions\n * `[I, J, K, ..., M, N]`, then the output is a tensor with the same shape where\n * `band[i, j, k, ..., m, n] = in_band(m, n) * input[i, j, k, ..., m, n]`.\n * The indicator function\n * `in_band(m, n) = (num_lower < 0 || (m-n) <= num_lower))`\n * `&& (num_upper < 0 || (n-m) <= num_upper)`\n *\n * ```js\n *
const x = tf.tensor2d([[0, 1, 2, 3],\n *   [-1, 0, 1, 2],\n *   [-2, -1, 0, 1],\n *
[-3, -2, -1, 0]]);\n * let y = tf.linalg.bandPart(x, 1, -1);\n * y.print(); // [[0, 1, 2, 3],\n *   // [-1, 0, 1, 2],\n *
// [0, -1, 0, 1],\n *   // [0, 0 , -1, 0]]\n * let z = tf.linalg.bandPart(x, 2, 1);\n * z.print(); // [[0, 1, 0, 0],\n
*   // [-1, 0, 1, 0],\n *   // [-2, -1, 0, 1],\n *   // [0, -2, -1, 0]]\n * ```\n *\n * @param x Rank `k` tensor\n * @param numLower Number of subdiagonals to keep.\n *   If negative, keep entire lower triangle.\n * @param numUpper Number of subdiagonals to keep.\n *   If negative, keep entire upper triangle.\n * @returns Rank `k` tensor of the same shape as input.\n *   The extracted banded tensor.\n *\n * @doc {heading:'Operations', subheading:'Linear Algebra', namespace:'linalg'}\n */\nfunction bandPart_<T extends Tensor>(\n
  a: T|TensorLike, numLower: number, numUpper: number): T {\n assert(\n   numLower % 1 === 0,\n   () => `bandPart(): numLower must be an integer, got ${numLower}.`);\n assert(\n   numUpper % 1 === 0,\n   () => `bandPart(): numUpper must be an integer, got ${numUpper}.`);\n\n const $a = convertToTensor(a, 'a', 'bandPart');\n\n assert(\n $a.rank >= 2,\n   () => `bandPart(): Rank must be at least 2, got ${$a.rank}.`);\n\n const shape = $a.shape;\n const [M, N] = $a.shape.slice(-2);\n\n if (!(numLower <= M)) {\n   throw new Error(\n
  `bandPart(): numLower (${numLower})` +\n   ` must not be greater than the number of rows (${M}).`);\n }\n if (!(numUpper <= N)) {\n   throw new Error(\n   `bandPart(): numUpper (${numUpper})` +\n   ` must not be greater than the number of columns (${N}).`);\n }\n\n if (numLower < 0) {\n   numLower = M;\n }\n if (numUpper < 0) {\n   numUpper = N;\n }\n\n const i = reshape(range(0, M, 1, 'int32'),
[-1, 1]);\n const j = range(0, N, 1, 'int32');\n const ij = sub(i, j);\n\n const inBand = logicalAnd(\n   lessEqual(ij, scalar(+numLower, 'int32')),\n   greaterEqual(ij, scalar(-numUpper, 'int32')));\n\n const zero = zeros([M, N], $a.dtype);\n\n return reshape(\n   stack(unstack(reshape($a, [-1, M, N]))\n   .map(mat => where(inBand, mat, zero))),\n   shape) as T;\n}\n\nexport const bandPart = op({bandPart_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
 * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {ENGINE} from '../../engine';\nimport {Tensor1D, Tensor2D} from '../../tensor';\nimport {assert} from '../../util';\n\nimport {div} from '../div';\nimport {mul} from '../mul';\nimport {norm} from '../norm';\nimport {op} from '../operation';\nimport {split} from '../split';\nimport {squeeze} from '../squeeze';\nimport {stack} from '../stack';\nimport {sub} from '../sub';\nimport {sum} from '../sum';\n\n/**\n * Gram-Schmidt orthogonalization.\n *\n * ```js\n * const x = tf.tensor2d([[1, 2], [3, 4]]);\n * let y = tf.linalg.gramSchmidt(x);\n * y.print();\n * console.log('Othogonalized:');\n * y.dot(y.transpose()).print(); // should be nearly the identity matrix.\n * console.log('First row direction maintained:');\n * const data = await y.array();\n * console.log(data[0][1] / data[0][0]);
// should be nearly 2.\n * ```\n *\n * @param xs The vectors to be orthogonalized, in one of the two following\n * formats:\n *   - An Array of `tf.Tensor1D`.\n *   - A `tf.Tensor2D`, i.e., a matrix, in which case the vectors are the rows\n *   of `xs`.\n *   In each case, all the vectors must have the same length and the length\n *   must be greater than or equal to the number of vectors.\n * @returns The orthogonalized and normalized vectors or matrix.\n * Orthogonalization means that the vectors or the rows of the matrix\n *   are orthogonal (zero inner products).

Normalization means that each\n * vector or each row of the matrix has an L2 norm that equals `1`.\n *\n * @doc {heading:'Operations', subheading:'Linear Algebra', namespace:'linalg'}\n */\nfunction gramSchmidt_(xs: Tensor1D[]|Tensor2D): Tensor1D[]|Tensor2D {\n let inputIsTensor2D: boolean;\n if (Array.isArray(xs)) {\n inputIsTensor2D = false;\n assert(\n xs != null && xs.length > 0,\n () => 'Gram-Schmidt process: input must not be null, undefined, or ' +\n 'empty');\n const dim = xs[0].shape[0];\n for (let i = 1; i < xs.length; ++i) {\n assert(\n xs[i].shape[0] === dim,\n () =>\n 'Gram-Schmidt: Non-unique lengths found in the input vectors: ' +\n `(${(xs as Tensor1D[])[i].shape[0]} vs. ${dim})`);\n }\n } else {\n inputIsTensor2D = true;\n xs = split(xs, xs.shape[0], 0).map(x => squeeze(x, [0]));\n }\n\n assert(\n xs.length <= xs[0].shape[0],\n () => `Gram-Schmidt: Number of vectors (${\n  (xs as Tensor1D[]).length}) exceeds ` +\n `number of dimensions (${(xs as Tensor1D[])[0].shape[0]}).`);\n\n const ys: Tensor1D[] = [];\n const xs1d = xs;\n for (let i = 0; i < xs.length; ++i) {\n ys.push(ENGINE.tidy(() => {\n let x = xs1d[i];\n if (i > 0) {\n for (let j = 0; j < i; ++j) {\n const proj = mul(sum(mul(ys[j], x)), ys[j]);\n x = sub(x, proj);\n }\n }\n return div(x, norm(x, 'euclidean'));\n }));\n }\n\n if (inputIsTensor2D) {\n return stack(ys, 0) as Tensor2D;\n } else {\n return ys;\n }\n}\n\nexport const gramSchmidt = op({gramSchmidt_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {ENGINE} from '../../engine';\nimport {dispose} from '../../globals';\nimport {Tensor, Tensor2D} from '../../tensor';\nimport {assert} from '../../util';\n\nimport {clone} from '../clone';\nimport {concat} from '../concat';\nimport {div} from '../div';\nimport {eye} from '../eye';\nimport {greater} from '../greater';\nimport {matMul} from '../mat_mul';\nimport {mul} from '../mul';\nimport {neg} from '../neg';\nimport {norm} from '../norm';\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\nimport {slice} from '../slice';\nimport {stack} from '../stack';\nimport {sub} from '../sub';\nimport {tensor2d} from '../tensor2d';\nimport {transpose} from '../transpose';\nimport {unstack} from '../unstack';\nimport {where} from '../where';\n\n/**\n * Compute QR decomposition of m-by-n matrix using Householder transformation.\n *\n * Implementation based on\n * [http://www.cs.cornell.edu/~bindel/class/cs6210-f09/lec18.pdf]\n * (http://www.cs.cornell.edu/~bindel/class/cs6210-f09/lec18.pdf)\n *\n * ```js\n * const a = tf.tensor2d([[1, 2], [3, 4]]);\n * let [q, r] = tf.linalg.qr(a);\n * console.log('Q');\n * q.print();\n * console.log('R');\n * r.print();\n * console.log('Orthogonalized');\n * q.dot(q.transpose()).print() // should be nearly the identity matrix.\n * console.log('Reconstructed');\n * q.dot(r).print(); // should be nearly [[1, 2], [3, 4]];\n * ```\n *\n * @param x The `tf.Tensor` to be QR-decomposed. Must have rank >= 2. Suppose\n * it has the shape `[..., M, N]`.\n * @param fullMatrices An optional boolean parameter. Defaults to `false`.\n * If `true`, compute full-sized `Q`. If `false` (the default),\n * compute only the leading N columns of `Q` and `R`.\n * @returns An `Array` of two `tf.Tensor`s: `[Q, R]`. `Q` is a unitary matrix,\n * i.e., its columns all have unit norm and are mutually orthogonal.\n * If `M >= N`,\n * If `fullMatrices` is `false` (default),\n * - `Q` has a shape of `[..., M, N]`,\n * - `R` has a shape of `[..., N, N]`.\n * If `fullMatrices` is `true` (default),\n * - `Q` has a shape of `[..., M, M]`,\n * - `R` has a shape of `[..., M, N]`.\n * If `M < N`,\n * - `Q` has a shape of `[..., M, M]`,\n * - `R` has a shape of `[..., M, N]`.\n * @throws If the rank of `x` is less than 2.\n *\n * @doc {heading:'Operations',\n * subheading:'Linear Algebra',\n * namespace:'linalg'}\n */\nfunction qr_(x: Tensor, fullMatrices = false): [Tensor, Tensor] {\n assert(\n x.rank >= 2,\n () => `qr() requires input tensor to have a rank >= 2, but got rank ${\n  x.rank}`);\n\n if (x.rank === 2) {\n return qr2d(x as Tensor2D, fullMatrices);\n } else {\n // Rank > 2.\n // TODO(cais): Below

```
we split the input into individual 2D tensors,\n    // perform QR decomposition on them and then stack the results back\n    // together. We should explore whether this can be parallelized.\n    const outerDimsProd = x.shape.slice(0, x.shape.length - 2)\n                .reduce((value, prev) => value * prev);\n    const x2ds = unstack(\n        reshape(\n            x,\n            [\n                outerDimsProd, x.shape[x.shape.length - 2],\n                x.shape[x.shape.length - 1]\n            ]),\n        0);\n    const q2ds: Tensor2D[] = [];\n    const r2ds: Tensor2D[] = [];\n    x2ds.forEach(x2d => {\n      const [q2d, r2d] = qr2d(x2d as Tensor2D, fullMatrices);\n      q2ds.push(q2d);\n      r2ds.push(r2d);\n    });\n    const q = reshape(stack(q2ds, 0), x.shape);\n    const r = reshape(stack(r2ds, 0), x.shape);\n    return [q, r];\n  }\n}\n\nfunction qr2d(x: Tensor2D, fullMatrices = false): [Tensor2D, Tensor2D] {\n  return ENGINE.tidy(() => {\n    assert(\n        x.shape.length === 2,\n        () => `qr2d() requires a 2D Tensor, but got a ${\n            x.shape.length}D Tensor.`);\n\n    const m = x.shape[0];\n    const n = x.shape[1];\n\n    let q = eye(m);    // Orthogonal transform so far.\n    let r = clone(x);  // Transformed matrix so far.\n\n    const one2D = tensor2d([[1]], [1, 1]);\n    let w: Tensor2D = clone(one2D);\n\n    const iters = m >= n ? n : m;\n    for (let j = 0; j < iters; ++j) {\n      // This tidy within the for-loop ensures we clean up temporary\n      // tensors as soon as they are no longer needed.\n      const rTemp = r;\n      const wTemp = w;\n      const qTemp = q;\n      [w, r, q] = ENGINE.tidy((): [Tensor2D, Tensor2D, Tensor2D] => {\n        // Find H = I - tau * w * w', to put zeros below R(j, j).\n        const rjEnd1 = slice(r, [j, j], [m - j, 1]);\n        const normX = norm(rjEnd1);\n        const rjj = slice(r, [j, j], [1, 1]);\n\n        // The sign() function returns 0 on 0, which causes division by zero.\n        const s = where(greater(rjj, 0), tensor2d([[-1]]), tensor2d([[1]]));\n\n        const u1 = sub(rjj, mul(s, normX));\n        const wPre = div(rjEnd1, u1);\n        if (wPre.shape[0] === 1) {\n          w = clone(one2D);\n        } else {\n          w = concat(\n              [\n                one2D,\n                slice(wPre, [1, 0], [wPre.shape[0] - 1, wPre.shape[1]])\n              ] as\n              Tensor2D\n              ],\n              0);\n        }\n        const tau = neg(div(matMul(s, u1), normX)) as Tensor2D;\n\n        // -- R := HR, Q := QH.\n        const rjEndAll = slice(r, [j, 0], [m - j, n]);\n        const tauTimesW: Tensor2D = mul(tau, w);\n        const wT: Tensor2D = transpose(w);\n        if (j === 0) {\n          r = sub(rjEndAll, matMul(tauTimesW, matMul(wT, rjEndAll)));\n        } else {\n          const rTimesTau: Tensor2D =\n              sub(rjEndAll, matMul(tauTimesW, matMul(wT, rjEndAll)));\n          r = concat([slice(r, [0, 0], [j, n]), rTimesTau], 0);\n        }\n        const tawTimesWT: Tensor2D = transpose(tauTimesW);\n        const qAllJEnd = slice(q, [0, j], [m, q.shape[1] - j]);\n        if (j === 0) {\n          q = sub(qAllJEnd, matMul(matMul(qAllJEnd, w), tawTimesWT));\n        } else {\n          const qTimesTau: Tensor2D =\n              sub(qAllJEnd, matMul(matMul(qAllJEnd, w), tawTimesWT));\n          q = concat([slice(q, [0, 0], [m, j]), qTimesTau], 1);\n        }\n        return [w, r, q];\n      });\n      dispose([rTemp, wTemp, qTemp]);\n    }\n\n    if (!fullMatrices && m > n) {\n      q = slice(q, [0, 0], [m, n]);\n      r = slice(r, [0, 0], [n, n]);\n    }\n\n    return [q, r];\n  }) as [Tensor2D, Tensor2D];\n}\n\nexport const qr = op({qr_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ============================================================================\n */\n\nexport enum Reduction {\n  NONE,\n  MEAN,\n  SUM,\n  SUM_BY_NONZERO_WEIGHTS\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
```

```
==========================================================================\n
 */\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport
{TensorLike} from '../../types';\n\nimport {cast} from '../cast';\nimport {div} from '../div';\nimport {Reduction} from
'../loss_ops_utils';\nimport {mean} from '../mean';\nimport {mul} from '../mul';\nimport {notEqual} from
'../not_equal';\nimport {ones} from '../ones';\nimport {op} from '../operation';\nimport {scalar} from
'../scalar';\nimport {sum} from '../sum';\n\n/**\n * Computes the weighted loss between two tensors.\n *\n *
@param losses Tensor of shape `[batch_size, d1, ... dN]`.\n * @param weights Tensor whose rank is either 0, or the
same rank as\n *    `losses`, and must be broadcastable to `losses` (i.e., all\n *    dimensions must be either `1`, or the
same as the corresponding\n *    `losses` dimension).\n *\n * @doc {heading: 'Training', subheading: 'Losses',
namespace: 'losses'}\n */\nfunction computeWeightedLoss_<T extends Tensor, O extends Tensor>(\n    losses:
 T|TensorLike, weights?: Tensor|TensorLike,\n    reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n
const $losses = convertToTensor(losses, 'losses', 'computeWeightedLoss');\n  let $weights: Tensor = null;\n  if
(weights != null) {\n    $weights = convertToTensor(weights, 'weights', 'computeWeightedLoss');\n  }\n\n  const
weightedLoss = ($weights == null) ? $losses : mul($losses, $weights);\n\n  if (reduction === Reduction.NONE) {\n
 return weightedLoss as O;\n  }\n  if (reduction === Reduction.SUM) {\n    return sum(weightedLoss);\n  }\n  if
(reduction === Reduction.MEAN) {\n    if ($weights == null) {\n      return mean(weightedLoss);\n    } else {\n
const broadcastFactor = $losses.size / $weights.size;\n      const result = div(sum(weightedLoss), sum($weights));\n
  return broadcastFactor > 1 ? div(result, scalar(broadcastFactor)) :\n                                result as O;\n    }\n  }\n  if
(reduction === Reduction.SUM_BY_NONZERO_WEIGHTS) {\n    if ($weights == null)
 {\n      return div(sum(weightedLoss), scalar($losses.size));\n    } else {\n      const broadcastedWeights =
mul($weights, ones($losses.shape));\n\n      const numNonZeros =\n          cast(sum(notEqual(broadcastedWeights,
scalar(0))), 'float32');\n      return div(sum(weightedLoss), numNonZeros);\n    }\n  }\n\n  throw Error(`Unknown
reduction: ${reduction}`);\n}\nexport const computeWeightedLoss = op({computeWeightedLoss_});\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific
 language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport
{TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {abs} from '../abs';\nimport
{Reduction} from '../loss_ops_utils';\nimport {op} from '../operation';\nimport {sub} from '../sub';\n\nimport
{computeWeightedLoss} from './compute_weighted_loss';\n\n/**\n * Computes the absolute difference loss
between two tensors.\n *\n * @param labels The ground truth output tensor, same dimensions as\n *
'predictions'.\n * @param predictions The predicted outputs.\n * @param weights Tensor whose rank is either 0, or
the same rank as\n *    `labels`, and must be broadcastable to `labels` (i.e., all dimensions\n *    must be either `1`, or
the same as the corresponding `losses`\n *    dimension).\n * @param
 reduction Type of reduction to apply to loss. Should be of type\n *    `Reduction`\n *\n * @doc {heading:
'Training', subheading: 'Losses', namespace: 'losses'}\n */\nfunction absoluteDifference_<T extends Tensor, O
extends Tensor>(\n    labels: T|TensorLike, predictions: T|TensorLike,\n    weights?: Tensor|TensorLike,\n
reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n  const $labels = convertToTensor(labels, 'labels',
'absoluteDifference');\n  const $predictions =\n      convertToTensor(predictions, 'predictions',
'absoluteDifference');\n  let $weights: Tensor = null;\n  if (weights != null) {\n    $weights =
convertToTensor(weights, 'weights', 'absoluteDifference');\n  }\n  assertShapesMatch(\n      $labels.shape,
$predictions.shape, 'Error in absoluteDifference: ');\n\n  const losses = abs(sub($labels, $predictions));\n  return
computeWeightedLoss(losses, $weights, reduction);\n}\n\nexport const absoluteDifference =
```

op({absoluteDifference_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {Reduction} from '../loss_ops_utils';\nimport {mul} from '../mul';\nimport {op} from '../operation';\nimport {scalar} from '../scalar';\nimport {sub} from '../sub';\nimport {sum} from '../sum';\n\nimport {computeWeightedLoss} from './compute_weighted_loss';\n\n/**\n * Computes the cosine distance loss between two tensors.\n *\n * @param labels The ground truth output tensor, same dimensions as\n *   'predictions'.\n * @param predictions The predicted outputs.\n * @param axis The dimension along which the cosine distance is computed.\n * @param weights Tensor whose rank is either 0, or the same rank as\n *   `labels`, and must be broadcastable to `labels` (i.e., all dimensions\n *   must be either `1`, or the same as the corresponding `losses`\n *   dimension).\n * @param reduction Type of reduction to apply to loss. Should be of type\n *   `Reduction`\n *\n * @doc {heading: 'Training', subheading: 'Losses', namespace: 'losses'}\n */\nfunction cosineDistance_<T extends Tensor, O extends Tensor>(\n   labels: T|TensorLike, predictions: T|TensorLike, axis: number,\n   weights?: Tensor|TensorLike,\n   reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n const $labels = convertToTensor(labels, 'labels', 'cosineDistance');\n const $predictions =\n   convertToTensor(predictions, 'predictions', 'cosineDistance');\n let $weights: Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights, 'weights', 'cosineDistance');\n }\n assertShapesMatch(\n $labels.shape, $predictions.shape, 'Error in cosineDistance: ');\n\n const one = scalar(1);\n const losses = sub(one, sum(mul($labels, $predictions), axis, true));\n return computeWeightedLoss(losses, $weights, reduction);\n}\nexport const cosineDistance = op({cosineDistance_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {Reduction} from '../loss_ops_utils';\nimport {mul} from '../mul';\nimport {op} from '../operation';\nimport {relu} from '../relu';\nimport {scalar} from '../scalar';\nimport {sub} from '../sub';\n\nimport {computeWeightedLoss} from './compute_weighted_loss';\n\n/**\n * Computes the Hinge loss between two tensors.\n *\n * @param labels The ground truth output tensor, same dimensions as\n *   'predictions'.\n * @param predictions The predicted outputs.\n * @param weights Tensor whose rank is either 0, or the same rank as\n *   `labels`, and must be broadcastable to `labels` (i.e., all dimensions\n *   must be either `1`, or the same as the corresponding `losses`\n *   dimension).\n * @param reduction Type of reduction to apply to loss. Should be of type\n *   `Reduction`\n *\n * @doc {heading: 'Training', subheading: 'Losses', namespace: 'losses'}\n */\nfunction hingeLoss_<T extends Tensor, O extends Tensor>(\n   labels: T|TensorLike, predictions: T|TensorLike,\n   weights?: Tensor|TensorLike,\n   reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n let $labels = convertToTensor(labels, 'labels', 'hingeLoss');\n const $predictions = convertToTensor(predictions, 'predictions', 'hingeLoss');\n let $weights: Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights,

'weights', 'hingeLoss');\n }\n assertShapesMatch($labels.shape, $predictions.shape, 'Error
 in hingeLoss: ');\n\n const one = scalar(1);\n // Convert binary labels to (-1, 1)\n $labels = sub(mul(scalar(2),
$labels), one);\n const losses = relu(sub(one, mul($labels, $predictions)));\n return computeWeightedLoss(losses,
$weights, reduction);\n}\nexport const hingeLoss = op({hingeLoss_});\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport
{TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {abs} from '../abs';\nimport
{add} from '../add';\nimport {Reduction} from '../loss_ops_utils';\nimport {minimum} from '../minimum';\nimport
{mul} from '../mul';\nimport {op} from '../operation';\nimport {scalar} from '../scalar';\nimport {square} from
'../square';\nimport {sub} from '../sub';\n\nimport {computeWeightedLoss} from
'./compute_weighted_loss';\n\n/**\n * Computes the huber loss between two tensors.\n *\n * @param labels The
ground truth output tensor, same dimensions as\n *   'predictions'.\n * @param predictions The predicted outputs.\n
* @param weights Tensor whose rank is either 0, or the same rank as\n *   `labels`, and must be broadcastable to
`labels` (i.e., all dimensions\n *   must be either `1`, or the same as the corresponding `losses`\n *   dimension).\n
 * @param delta Point where huber loss changes from quadratic to linear.\n * @param reduction Type of reduction
to apply to loss. Should be of type\n *   `Reduction`.\n *\n * @doc {heading: 'Training', subheading: 'Losses',
namespace: 'losses'}\n */\nfunction huberLoss_<T extends Tensor, O extends Tensor>(\n   labels: T|TensorLike,
predictions: T|TensorLike,\n   weights?: Tensor|TensorLike, delta = 1.0,\n   reduction =
Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n const $labels = convertToTensor(labels, 'labels',
'huberLoss');\n const $predictions = convertToTensor(predictions, 'predictions', 'huberLoss');\n let $weights:
Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights, 'weights', 'huberLoss');\n }\n
assertShapesMatch($labels.shape, $predictions.shape, 'Error in huberLoss: ');\n\n const deltaScalar =
scalar(delta);\n const error = abs(sub($predictions, $labels));\n const quadratic = minimum(error, deltaScalar);\n
const linear = sub(error,
 quadratic);\n\n const losses =\n   add(mul(scalar(0.5), square(quadratic)), mul(deltaScalar, linear));\n return
computeWeightedLoss(losses, $weights, reduction);\n}\nexport const huberLoss = op({huberLoss_});\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor}
 from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {assertShapesMatch} from
'../../util';\nimport {add} from '../add';\nimport {log} from '../log';\nimport {Reduction} from
'../loss_ops_utils';\nimport {mul} from '../mul';\nimport {neg} from '../neg';\nimport {op} from
'../operation';\nimport {scalar} from '../scalar';\nimport {sub} from '../sub';\n\nimport {computeWeightedLoss} from
'./compute_weighted_loss';\n\n/**\n * Computes the log loss between two tensors.\n *\n * @param labels The
ground truth output tensor, same dimensions as\n *   'predictions'.\n * @param predictions The predicted outputs.\n
* @param weights Tensor whose rank is either 0, or the same rank as\n *   `labels`, and must be broadcastable to
`labels` (i.e., all dimensions\n *   must be either `1`, or the same as the corresponding `losses`\n *   dimension).\n *

@param epsilon A small increment to avoid taking log of zero\n * @param reduction Type of reduction to apply to loss. Should be of type\n * `Reduction`\n *\n * @doc {heading: 'Training', subheading: 'Losses', namespace: 'losses'}\n */\nfunction logLoss_<T extends Tensor, O extends Tensor>(\n labels: T|TensorLike, predictions: T|TensorLike,\n weights?: Tensor|TensorLike, epsilon = 1e-7,\n reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n const $labels = convertToTensor(labels, 'labels', 'logLoss');\n const $predictions = convertToTensor(predictions, 'predictions', 'logLoss');\n let $weights: Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights, 'weights', 'logLoss');\n }\n assertShapesMatch($labels.shape, $predictions.shape, 'Error in logLoss: ');\n\n const one = scalar(1);\n const epsilonScalar = scalar(epsilon);\n\n const l1 = neg(mul($labels, log(add($predictions, epsilonScalar))));\n const l2 =\n mul(sub(one, $labels), log(add(sub(one, $predictions), epsilonScalar)));\n const losses = sub(l1, l2);\n return computeWeightedLoss(losses,
$weights, reduction);\n}\nexport const logLoss = op({logLoss_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {Reduction} from '../loss_ops_utils';\nimport {op} from '../operation';\nimport {squaredDifference} from '../squared_difference';\n\nimport {computeWeightedLoss} from './compute_weighted_loss';\n\n/**\n * Computes the mean squared error between two tensors.\n *\n * @param labels The ground truth output tensor, same dimensions as\n * 'predictions'.\n * @param predictions The predicted outputs.\n * @param weights Tensor whose rank is either 0, or the same rank as\n * `labels`, and must be broadcastable to `labels` (i.e., all dimensions\n * must be either `1`, or the same as the corresponding `losses`\n * dimension).\n * @param reduction Type of reduction to apply to loss. Should be of type\n * `Reduction`\n *\n * @doc {heading: 'Training', subheading: 'Losses', namespace: 'losses'}\n */\nfunction meanSquaredError_<T extends Tensor, O extends Tensor>(\n labels: T|TensorLike, predictions: T|TensorLike,\n weights?: Tensor|TensorLike,\n reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O
{\n const $labels = convertToTensor(labels, 'labels', 'meanSquaredError');\n const $predictions =\n convertToTensor(predictions, 'predictions', 'meanSquaredError');\n let $weights: Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights, 'weights', 'meanSquaredError');\n }\n assertShapesMatch(\n $labels.shape, $predictions.shape, 'Error in meanSquaredError: ');\n\n const losses = squaredDifference($labels, $predictions);\n return computeWeightedLoss(losses, $weights, reduction);\n}\nexport const meanSquaredError = op({meanSquaredError_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Tensor} from '../../tensor';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from '../../types';\nimport {assertShapesMatch} from '../../util';\nimport {abs} from '../abs';\nimport {add} from '../add';\nimport {exp} from '../exp';\nimport {log1p} from '../log1p';\nimport {Reduction} from

'../loss_ops_utils';\nimport {mul} from '../mul';\nimport {neg} from '../neg';\nimport {op} from '../operation';\nimport {relu} from '../relu';\nimport {scalar} from '../scalar';\nimport {sub} from '../sub';\n\nimport {computeWeightedLoss} from './compute_weighted_loss';\n\nfunction sigmoidCrossEntropyWithLogits_<T extends Tensor, O extends Tensor>(\n labels: T|TensorLike, logits: T|TensorLike): O {\n const $labels =\n convertToTensor(labels, 'labels', 'sigmoidCrossEntropyWithLogits');\n const $logits =\n convertToTensor(logits, 'logits', 'sigmoidCrossEntropyWithLogits');\n assertShapesMatch(\n $labels.shape, $logits.shape, 'Error in sigmoidCrossEntropyWithLogits: ');\n\n /**\n * Implementation Details:\n *\n * For brevity, let `x = logits`, `z = labels`. The logistic loss is\n * z * -log(sigmoid(x)) + (1 - z) * -log(1 - sigmoid(x))\n * = z * -log(1 / (1 + exp(-x))) + (1 - z) * -log(exp(-x) / (1 + exp(-x)))\n * = z * log(1 + exp(-x)) + (1 - z) * (-log(exp(-x)) + log(1 + exp(-x)))\n * = z * log(1 + exp(-x)) + (1 - z) * (x + log(1 + exp(-x))\n * = (1 - z) * x + log(1 + exp(-x))\n * = x - x * z + log(1 + exp(-x))\n *\n * For x < 0, to avoid overflow in exp(-x), we reformulate the above\n * x - x * z + log(1 + exp(-x))\n * = log(exp(x)) - x * z + log(1 + exp(-x))\n *
= - x * z + log(1 + exp(x))\n *\n * Hence, to ensure stability and avoid overflow, the implementation uses\n * this equivalent formulation:\n * max(x, 0) - x * z + log(1 + exp(-abs(x)))\n */\n const maxOutput = relu($logits);\n const outputXTarget = mul($logits, $labels);\n const sigmoidOutput = log1p(exp(neg(abs($logits))));\n\n return add(sub(maxOutput, outputXTarget), sigmoidOutput);\n}\n\n/**\n * Computes the sigmoid cross entropy loss between two tensors.\n *\n * If labelSmoothing is nonzero, smooth the labels towards 1/2:\n *\n * newMulticlassLabels = multiclassLabels * (1 - labelSmoothing)\n * + 0.5 * labelSmoothing\n *\n * @param multiClassLabels The ground truth output tensor of shape\n * [batch_size, num_classes], same dimensions as 'predictions'.\n * @param logits The predicted outputs.\n * @param weights Tensor whose rank is either 0, or the same rank as\n * `labels`, and must be broadcastable to `labels` (i.e., all dimensions\n
* must be either `1`, or the same as the corresponding `losses`\n * dimension).\n * @param labelSmoothing If greater than 0, then smooth the labels.\n * @param reduction Type of reduction to apply to loss. Should be of type\n * `Reduction`\n *\n * @doc { heading: 'Training', subheading: 'Losses', namespace: 'losses' }\n */\nfunction sigmoidCrossEntropy_<T extends Tensor, O extends Tensor>(\n multiClassLabels: T|TensorLike, logits: T|TensorLike,\n weights?: Tensor|TensorLike, labelSmoothing = 0,\n reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n let $multiClassLabels = convertToTensor(\n multiClassLabels, 'multiClassLabels', 'sigmoidCrossEntropy');\n const $logits = convertToTensor(logits, 'logits', 'sigmoidCrossEntropy');\n let $weights: Tensor = null;\n if (weights != null) {\n $weights = convertToTensor(weights, 'weights', 'sigmoidCrossEntropy');\n }\n assertShapesMatch(\n $multiClassLabels.shape, $logits.shape, 'Error in sigmoidCrossEntropy: ');\n\n if (labelSmoothing > 0) {\n const labelSmoothingScalar = scalar(labelSmoothing);\n const one = scalar(1);\n const half = scalar(0.5);\n\n $multiClassLabels =\n add(mul($multiClassLabels, sub(one, labelSmoothingScalar)),\n mul(half, labelSmoothingScalar));\n }\n const losses = sigmoidCrossEntropyWithLogits_($multiClassLabels, $logits);\n\n return computeWeightedLoss(losses, $weights, reduction);\n}\n\nexport const sigmoidCrossEntropy = op({sigmoidCrossEntropy_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\nimport {customGrad} from '../../gradients';\nimport {Tensor} from '../../tensor';\nimport {GradSaveFunc} from '../../tensor_types';\nimport {convertToTensor} from '../../tensor_util_env';\nimport {TensorLike} from

'../../types';\nimport {assertShapesMatch} from '../../util';\nimport {add} from '../add';\nimport {expandShapeToKeepDim} from '../axis_util';\nimport {cast} from '../cast';\nimport {div} from '../div';\nimport {exp} from '../exp';\nimport {logSumExp} from '../log_sum_exp';\nimport {Reduction} from '../loss_ops_utils';\nimport {mul} from '../mul';\nimport {neg} from '../neg';\nimport {op} from '../operation';\nimport {reshape} from '../reshape';\nimport {scalar} from '../scalar';\nimport {sub} from '../sub';\nimport {sum} from '../sum';\n\nimport {computeWeightedLoss} from './compute_weighted_loss';\n\n/**\n * Computes softmax cross entropy between logits and labels.\n *\n * Measures the probability error in discrete classification tasks in which\n * the classes are mutually exclusive (each entry is in exactly one class).\n * For example, each CIFAR-10 image is labeled with one and only one label: an\n * image can be a dog or a truck, but not both.\n *\n * `NOTE`: While the classes are mutually exclusive, their probabilities need\n * not be. All that is required is that each row of labels is a valid\n * probability distribution. If they are not, the computation of the gradient\n * will be incorrect.\n *\n * `WARNING`: This op expects unscaled logits, since it performs a softmax on\n * logits internally for efficiency. Do not call this op with the output of\n * softmax, as it will produce incorrect results.\n *\n * logits and labels must have the same shape, e.g. [batch_size, num_classes]\n * and the same dtype.\n * @param labels The labels array.\n * @param logits The logits array.\n * @param dim The dimension softmax would be performed on. Defaults to `-1`\n *   which indicates the last dimension.\n */\nfunction softmaxCrossEntropyWithLogits_<T extends Tensor, O extends Tensor>(\n   labels: T, logits: T, dim = -1): O {\n if (dim === -1) {\n   dim = logits.rank - 1;\n }\n\n if (dim !== logits.rank - 1) {\n   throw Error(\n   `Softmax cross entropy along a non-last dimension is not yet ` +\n   `supported. Labels / logits was rank ${logits.rank} ` +\n   `and dim was ${dim}`);\n }\n // Use a custom gradient for numerical stability.\n const customOp =\n   customGrad((labels: Tensor, logits: Tensor, save: GradSaveFunc) => {\n   // Reference:\n   //   1. http://cs231n.github.io/linear-classify/#softmax\n   //   2. https://blog.feedly.com/tricks-of-the-trade-logsumexp/\n   const keepDims = true;\n   const lse = logSumExp(logits, [dim], keepDims);\n   const logResult = sub(cast(logits, 'float32'), lse);\n   save([labels, logResult]);\n\n   const costVector = neg(mul(logResult, labels));\n   const value: O = sum(costVector, [dim]);\n\n   const gradFunc = (dy: O, saved: Tensor[]) => {\n   const [labels, logResult] = saved;\n   const dyShape = expandShapeToKeepDim(dy.shape, [dim]);\n   return [\n   mul(reshape(dy, dyShape),\n   sub(cast(labels, 'float32'), exp(logResult))),\n   mul(reshape(dy, dyShape),\n   sub(exp(logResult), cast(labels, 'float32'))),\n   ];\n   };\n   return {value, gradFunc};\n   });\n\n return customOp(labels, logits);\n}\n\n/**\n * Computes the softmax cross entropy loss between two tensors.\n *\n * If labelSmoothing is nonzero, smooth the labels towards 1/2:\n *\n *   newOnehotLabels = onehotLabels * (1 - labelSmoothing)\n *   + labelSmoothing / numClasses\n *\n * @param onehotLabels One hot encoded labels\n *   [batch_size, num_classes], same dimensions as 'predictions'.\n * @param logits The predicted outputs.\n * @param weights Tensor whose rank is either 0, or 1, and must be\n *   broadcastable to `loss` of shape [batch_size]\n * @param labelSmoothing If greater than 0, then smooth the labels.\n * @param reduction Type of reduction to apply to loss. Should be of type\n *   `Reduction`\n *\n * @doc { heading: 'Training', subheading: 'Losses', namespace: 'losses' }\n */\nfunction softmaxCrossEntropy_<T extends Tensor, O extends Tensor>(\n   onehotLabels: T|TensorLike, logits: T|TensorLike,\n   weights?: Tensor|TensorLike, labelSmoothing = 0,\n   reduction = Reduction.SUM_BY_NONZERO_WEIGHTS): O {\n let $onehotLabels =\n   convertToTensor(onehotLabels, 'onehotLabels', 'softmaxCrossEntropy');\n const $logits = convertToTensor(logits, 'logits', 'softmaxCrossEntropy');\n let $weights: Tensor = null;\n\n if (weights != null) {\n $weights = convertToTensor(weights,\n   'weights', 'softmaxCrossEntropy');\n }\n\n assertShapesMatch(\n $onehotLabels.shape, $logits.shape, 'Error in softmaxCrossEntropy: ');\n\n if (labelSmoothing > 0) {\n   const labelSmoothingScalar = scalar(labelSmoothing);\n   const one = scalar(1);\n   const numClasses = scalar($onehotLabels.shape[1]);\n\n $onehotLabels =\n   add(mul($onehotLabels, sub(one, labelSmoothingScalar)),\n   div(labelSmoothingScalar, numClasses));\n }\n\n const losses = softmaxCrossEntropyWithLogits_($onehotLabels, $logits);\n\n return

computeWeightedLoss(losses, $weights, reduction);\n}\n\nexport const softmaxCrossEntropy = op({softmaxCrossEntropy_});\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
 required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n// Modularized ops.\nexport {abs} from './abs';\nexport {acos} from './acos';\nexport {acosh} from './acosh';\nexport {add} from './add';\nexport {addN} from './add_n';\nexport {all} from './all';\nexport {any} from './any';\nexport {argMax} from './arg_max';\nexport {argMin} from './arg_min';\nexport {asin} from './asin';\nexport {asinh} from './asinh';\nexport {atan} from './atan';\nexport {atan2} from './atan2';\nexport {atanh} from './atanh';\nexport {avgPool} from './avg_pool';\nexport {avgPool3d} from './avg_pool_3d';\nexport {basicLSTMCell} from './basic_lstm_cell';\nexport {batchToSpaceND}
 from './batch_to_space_nd';\nexport {batchNorm} from './batchnorm';\nexport {batchNorm2d} from './batchnorm2d';\nexport {batchNorm3d} from './batchnorm3d';\nexport {batchNorm4d} from './batchnorm4d';\nexport {bincount} from './bincount';\nexport {broadcastTo} from './broadcast_to';\nexport {buffer} from './buffer';\nexport {cast} from './cast';\nexport {ceil} from './ceil';\nexport {clipByValue} from './clip_by_value';\nexport {clone} from './clone';\nexport {complex} from './complex';\nexport {concat} from './concat';\nexport {concat1d} from './concat_1d';\nexport {concat2d} from './concat_2d';\nexport {concat3d} from './concat_3d';\nexport {concat4d} from './concat_4d';\nexport {conv1d} from './conv1d';\nexport {conv2d} from './conv2d';\nexport {conv2dTranspose} from './conv2d_transpose';\nexport {conv3d} from './conv3d';\nexport {conv3dTranspose} from './conv3d_transpose';\nexport {cos} from './cos';\nexport {cosh} from './cosh';\nexport {cumsum} from './cumsum';\nexport
 {denseBincount} from './dense_bincount';\nexport {depthToSpace} from './depth_to_space';\nexport {depthwiseConv2d} from './depthwise_conv2d';\nexport {diag} from './diag';\nexport {dilation2d} from './dilation2d';\nexport {div} from './div';\nexport {divNoNan} from './div_no_nan';\nexport {dot} from './dot';\nexport {elu} from './elu';\nexport {equal} from './equal';\nexport {erf} from './erf';\nexport {exp} from './exp';\nexport {expandDims} from './expand_dims';\nexport {expm1} from './expm1';\nexport {eye} from './eye';\nexport {fill} from './fill';\nexport {floor} from './floor';\nexport {floorDiv} from './floorDiv';\nexport {gather} from './gather';\nexport {greater} from './greater';\nexport {greaterEqual} from './greater_equal';\nexport {imag} from './imag';\nexport {isFinite} from './is_finite';\nexport {isInf} from './is_inf';\nexport {isNaN} from './is_nan';\nexport {leakyRelu} from './leaky_relu';\nexport {less} from './less';\nexport {lessEqual} from './less_equal';\nexport
 {linspace} from './linspace';\nexport {localResponseNormalization} from './local_response_normalization';\nexport {log} from './log';\nexport {log1p} from './log1p';\nexport {logSigmoid} from './log_sigmoid';\nexport {logSoftmax} from './log_softmax';\nexport {logSumExp} from './log_sum_exp';\nexport {logicalAnd} from './logical_and';\nexport {logicalNot} from './logical_not';\nexport {logicalOr} from './logical_or';\nexport {logicalXor} from './logical_xor';\nexport {matMul} from './mat_mul';\nexport {max} from './max';\nexport {maxPool} from './max_pool';\nexport {maxPool3d} from './max_pool_3d';\nexport {maxPoolWithArgmax} from './max_pool_with_argmax';\nexport {maximum} from './maximum';\nexport {mean} from './mean';\nexport {min} from './min';\nexport {minimum} from './minimum';\nexport {mirrorPad} from './mirror_pad';\nexport {mod} from './mod';\nexport {moments} from './moments';\nexport {mul} from './mul';\nexport {LSTMCellFunc, multiRNNCell} from './multi_rnn_cell';\nexport
 {multinomial} from './multinomial';\nexport {neg} from './neg';\nexport {notEqual} from './not_equal';\nexport {oneHot} from './one_hot';\nexport {ones} from './ones';\nexport {onesLike} from './ones_like';\nexport {outerProduct} from './outer_product';\nexport {pad} from './pad';\nexport {pad1d} from './pad1d';\nexport {pad2d}

from './pad2d';\nexport {pad3d} from './pad3d';\nexport {pad4d} from './pad4d';\nexport {pool} from './pool';\nexport {pow} from './pow';\nexport {prelu} from './prelu';\nexport {print} from './print';\nexport {prod} from './prod';\nexport {rand} from './rand';\nexport {randomGamma} from './random_gamma';\nexport {randomNormal} from './random_normal';\nexport {randomUniform} from './random_uniform';\nexport {range} from './range';\nexport {real} from './real';\nexport {reciprocal} from './reciprocal';\nexport {relu} from './relu';\nexport {relu6} from './relu6';\nexport {reshape} from './reshape';\nexport {reverse} from './reverse';\nexport {reverse1d} from './reverse_1d';\nexport
{reverse2d} from './reverse_2d';\nexport {reverse3d} from './reverse_3d';\nexport {reverse4d} from './reverse_4d';\nexport {round} from './round';\nexport {rsqrt} from './rsqrt';\nexport {scalar} from './scalar';\nexport {selu} from './selu';\nexport {separableConv2d} from './separable_conv2d';\nexport {setdiff1dAsync} from './setdiff1d_async';\nexport {sigmoid} from './sigmoid';\nexport {sign} from './sign';\nexport {sin} from './sin';\nexport {sinh} from './sinh';\nexport {slice} from './slice';\nexport {slice1d} from './slice1d';\nexport {slice2d} from './slice2d';\nexport {slice3d} from './slice3d';\nexport {slice4d} from './slice4d';\nexport {softmax} from './softmax';\nexport {softplus} from './softplus';\nexport {spaceToBatchND} from './space_to_batch_nd';\nexport {fft} from './spectral/fft';\nexport {ifft} from './spectral/ifft';\nexport {irfft} from './spectral/irfft';\nexport {rfft} from './spectral/rfft';\nexport {split} from './split';\nexport {sqrt} from
'./sqrt';\nexport {square} from './square';\nexport {squaredDifference} from './squared_difference';\nexport {squeeze} from './squeeze';\nexport {stack} from './stack';\nexport {step} from './step';\nexport {stridedSlice} from './strided_slice';\nexport {sub} from './sub';\nexport {sum} from './sum';\nexport {tan} from './tan';\nexport {tanh} from './tanh';\nexport {tensor} from './tensor';\nexport {tensor1d} from './tensor1d';\nexport {tensor2d} from './tensor2d';\nexport {tensor3d} from './tensor3d';\nexport {tensor4d} from './tensor4d';\nexport {tensor5d} from './tensor5d';\nexport {tensor6d} from './tensor6d';\nexport {tile} from './tile';\nexport {topk} from './topk';\nexport {truncatedNormal} from './truncated_normal';\nexport {unique} from './unique';\nexport {unsortedSegmentSum} from './unsorted_segment_sum';\nexport {unstack} from './unstack';\nexport {variable} from './variable';\nexport {where} from './where';\nexport {whereAsync} from './where_async';\nexport {zeros} from
'./zeros';\nexport {zerosLike} from './zeros_like';\n\nexport * from './boolean_mask';\nexport * from './transpose';\nexport * from './norm';\nexport * from './moving_average';\nexport * from './scatter_nd';\nexport * from './sparse_to_dense';\nexport * from './gather_nd';\nexport * from './dropout';\nexport * from './signal_ops_util';\nexport * from './in_top_k';\n\nexport {op, OP_SCOPE_SUFFIX} from './operation';\n\nimport {rfft} from './spectral/rfft';\nimport {fft} from './spectral/fft';\nimport {ifft} from './spectral/ifft';\nimport {irfft} from './spectral/irfft';\nconst spectral = {\n fft,\n ifft,\n rfft,\n irfft\n};\n\nimport * as fused from './fused_ops';\n\nimport {hammingWindow} from './signal/hamming_window';\nimport {hannWindow} from
'./signal/hann_window';\nimport {frame} from './signal/frame';\nimport {stft} from './signal/stft';\nconst signal = {\n hammingWindow,\n hannWindow,\n frame,\n stft,\n};\n\n// Image Ops namespace\nimport {cropAndResize} from './image/crop_and_resize';\nimport
{flipLeftRight} from './image/flip_left_right';\nimport {rotateWithOffset} from
'./image/rotate_with_offset';\nimport {nonMaxSuppression} from './image/non_max_suppression';\nimport {nonMaxSuppressionAsync} from './image/non_max_suppression_async';\nimport {nonMaxSuppressionWithScore} from './image/non_max_suppression_with_score';\nimport {nonMaxSuppressionWithScoreAsync} from './image/non_max_suppression_with_score_async';\nimport {nonMaxSuppressionPadded} from './image/non_max_suppression_padded';\nimport {nonMaxSuppressionPaddedAsync} from './image/non_max_suppression_padded_async';\nimport {resizeBilinear} from './image/resize_bilinear';\nimport {resizeNearestNeighbor} from './image/resize_nearest_neighbor';\nconst image = {\n flipLeftRight,\n resizeNearestNeighbor,\n resizeBilinear,\n rotateWithOffset,\n cropAndResize,\n nonMaxSuppression,\n nonMaxSuppressionAsync,\n nonMaxSuppressionWithScore,\n nonMaxSuppressionWithScoreAsync,\n nonMaxSuppressionPadded,\n
nonMaxSuppressionPaddedAsync\n};\n\n// linalg namespace\nimport {bandPart} from
'./linalg/band_part';\nimport {gramSchmidt} from './linalg/gram_schmidt';\nimport {qr} from './linalg/qr';\nconst

linalg = {\n bandPart,\n gramSchmidt,\n qr\n};\n\n// losses namespace;\nimport {absoluteDifference} from './losses/absolute_difference';\nimport {computeWeightedLoss} from './losses/compute_weighted_loss';\nimport {cosineDistance} from './losses/cosine_distance';\nimport {hingeLoss} from './losses/hinge_loss';\nimport {huberLoss} from './losses/huber_loss';\nimport {logLoss} from './losses/log_loss';\nimport {meanSquaredError} from './losses/mean_squared_error';\nimport {sigmoidCrossEntropy} from './losses/sigmoid_cross_entropy';\nimport {softmaxCrossEntropy} from './losses/softmax_cross_entropy';\nconst losses = {\n absoluteDifference,\n computeWeightedLoss,\n cosineDistance,\n hingeLoss,\n huberLoss,\n logLoss,\n meanSquaredError,\n sigmoidCrossEntropy,\n softmaxCrossEntropy\n};\n\n//
 Second level exports.\nexport {image, linalg, losses, spectral, fused, signal};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {dispose} from '../globals';\nimport {variableGrads} from '../gradients';\nimport {scalar} from '../ops/ops';\nimport {Serializable} from '../serialization';\nimport
 {Scalar, Variable} from '../tensor';\nimport {NamedTensor, NamedTensorMap} from '../tensor_types';\n\n/**\n * A variable that belongs to an optimizer.\n *\n * The `originalName` field is required for keeping track of the canonical\n * name of the variable, which is usually the name of the model weight that\n * the variable is related to plus a suffix, e.g., 'dense1/kernel/momentum'.\n * The name of the `Variable` object itself cannot be used directly due to\n * possible deduplication: Every `Variable` must have a unique name but more\n * than one optimizer objects of the same type may be created for the same model\n * or the same `Variable`.\n */\nexport interface OptimizerVariable {\n originalName: string;\n variable: Variable;\n}\n\n/** @doc {heading: 'Training', subheading: 'Classes', namespace: 'train'} */\nexport abstract class Optimizer extends Serializable {\n protected iterations_: number;\n\n /**\n   * Executes `f()` and minimizes the scalar output of `f()` by computing\n
   * gradients of y with respect to the list of trainable variables provided by\n   * `varList`. If no list is provided, it defaults to all trainable variables.\n   *\n   * @param f The function to execute and whose output to minimize.\n   * @param returnCost Whether to return the scalar cost value produced by\n   * executing `f()`.\n   * @param varList An optional list of variables to update. If specified, only\n   * the trainable variables in varList will be updated by minimize. Defaults to\n   * all trainable variables.\n   *\n   * @doc {heading: 'Training', subheading: 'Optimizers'}\n
*/\n minimize(f: () => Scalar, returnCost = false, varList?: Variable[]): Scalar\n |null {\n   const {value, grads} = this.computeGradients(f, varList);\n\n   if (varList != null) {\n   const gradArray: NamedTensor[] =\n varList.map(v => ({name: v.name, tensor: grads[v.name]}));\n   this.applyGradients(gradArray);\n   } else {\n this.applyGradients(grads);\n   }\n\n
  // Dispose gradients.\n   dispose(grads);\n\n   if (returnCost) {\n   return value;\n   } else {\n value.dispose();\n   return null;\n   }\n }\n\n /**\n   * The number of iterations that this optimizer instance has been invoked for.\n   */\n get iterations(): number {\n   if (this.iterations_ == null) {\n   this.iterations_ = 0;\n   }\n   return this.iterations_;\n }\n\n protected incrementIterations() {\n   this.iterations_ = this.iterations + 1;\n }\n\n /**\n   * Executes f() and computes the gradient of the scalar output of f() with\n   * respect to the list of trainable variables provided by `varList`. If no\n   * list is provided, it defaults to all trainable variables.\n   *\n   * @param f The function to execute and whose output to use for computing\n   * gradients with respect to variables.\n
   * @param varList An optional list of variables to compute gradients with\n   * respect to. If specified, only the trainable variables in varList will have\n
   * gradients computed with respect to. Defaults to all trainable variables.\n   *\n   * @doc {heading: 'Training', subheading: 'Optimizers'}\n   */\n computeGradients(f: () => Scalar, varList?: Variable[]):\n   {value: Scalar, grads: NamedTensorMap} {\n   return variableGrads(f, varList);\n }\n\n /**\n   * Updates variables by using the

computed gradients.\n *\n * @param variableGradients A mapping of variable name to its gradient value.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers'}\n */\n abstract applyGradients(variableGradients: NamedTensorMap|\n NamedTensor[]): void;\n\n /**\n * Dispose the variables (if any) owned by this optimizer instance.\n */\n dispose(): void {\n if (this.iterations_ != null) {\n dispose(this.iterations_);\n }\n }\n\n async saveIterations(): Promise<NamedTensor> {\n if (this.iterations_ == null) {\n this.iterations_ = 0;\n }\n return {\n name: 'iter', // Named for
Python compatibility.\n // TODO(cais): Use 'int64' type when available.\n tensor: scalar(this.iterations_, 'int32')\n };\n }\n\n async getWeights(): Promise<NamedTensor[]> {\n throw new Error('getWeights() is not implemented for this optimizer yet.');\n }\n\n async setWeights(weightValues: NamedTensor[]): Promise<void> {\n throw new Error(\n `setWeights() is not implemented for this optimizer class ` +\n `${this.getClassName()}`);\n }\n\n /**\n * Extract the first element of the weight values and set it\n * as the iterations counter variable of this instance of optimizer.\n *\n * @param weightValues\n * @returns Weight values with the first element consumed and excluded.\n */\n protected async extractIterations(weightValues: NamedTensor[]):\n Promise<NamedTensor[]> {\n this.iterations_ = (await weightValues[0].tensor.data())[0];\n return weightValues.slice(1);\n }\n}\n\nObject.defineProperty(Optimizer, Symbol.hasInstance,
{\n value: (instance: Optimizer) => {\n return instance.minimize != null && instance.computeGradients != null &&\n instance.applyGradients != null;\n }\n});\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {add} from '../ops/add';\nimport
{div} from '../ops/div';\nimport {mul} from '../ops/mul';\nimport {sqrt} from '../ops/ops';\nimport {square} from '../ops/square';\nimport {zerosLike} from '../ops/zeros_like';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from '../serialization';\nimport {NamedTensor, NamedVariableMap} from '../tensor_types';\n\nimport {Optimizer, OptimizerVariable} from './optimizer';\n\n/** @doclink Optimizer */\nexport class AdadeltaOptimizer extends Optimizer {\n /** @nocollapse */\n static className = 'Adadelta'; // Name matters for Python compatibility.\n private accumulatedGrads: OptimizerVariable[] = [];\n private accumulatedUpdates: OptimizerVariable[] = [];\n\n constructor(\n protected learningRate: number, protected rho: number,\n protected epsilon: number = null) {\n super();\n\n if (epsilon == null) {\n this.epsilon = ENGINE.backend.epsilon();\n }\n }\n\n applyGradients(variableGradients: NamedVariableMap|NamedTensor[]) {\n const variableNames = Array.isArray(variableGradients) ?\n variableGradients.map(item => item.name) :\n Object.keys(variableGradients);\n\n variableNames.forEach((name, i) => {\n const value = ENGINE.registeredVariables[name];\n const trainable = false;\n if (this.accumulatedGrads[i] == null) {\n this.accumulatedGrads[i] = {\n originalName: `${name}/accum_grad`,\n variable: tidy(() => zerosLike(value).variable(trainable))\n };\n }\n if (this.accumulatedUpdates[i] == null) {\n this.accumulatedUpdates[i] = {\n originalName: `${name}/accum_var`,\n variable: tidy(() => zerosLike(value).variable(trainable))\n };\n }\n\n const gradient = Array.isArray(variableGradients) ?\n variableGradients[i].tensor :\n variableGradients[name];\n if (gradient == null) {\n return;\n }\n\n const accumulatedGrad = this.accumulatedGrads[i].variable;\n const accumulatedUpdate = this.accumulatedUpdates[i].variable;\n\n tidy(() => {\n const newAccumulatedGrad =\n add(mul(accumulatedGrad, this.rho),\n mul(square(gradient), 1 - this.rho));\n\n const updates =\n mul(div(sqrt(add(accumulatedUpdate, this.epsilon)),\n sqrt(add(accumulatedGrad, this.epsilon))),\n gradient);\n\n const newAccumulatedUpdate =\n

add(mul(accumulatedUpdate, this.rho),\n mul(square(updates), 1 - this.rho));\n\n accumulatedGrad.assign(newAccumulatedGrad);\n accumulatedUpdate.assign(newAccumulatedUpdate);\n\n const newValue = add(mul(updates, -this.learningRate), value);\n value.assign(newValue);\n });\n });\n this.incrementIterations();\n }\n\n dispose(): void {\n if (this.accumulatedUpdates != null) {\n dispose(this.accumulatedGrads.map(v => v.variable));\n dispose(this.accumulatedUpdates.map(v => v.variable));\n }\n }\n\n async getWeights(): Promise<NamedTensor[]> {\n // Order matters for Python compatibility.\n const variables: OptimizerVariable[] =\n [...this.accumulatedGrads, ...this.accumulatedUpdates];\n return [await this.saveIterations()].concat(\n variables.map(v => ({name: v.originalName, tensor: v.variable})));\n }\n\n async setWeights(weightValues: NamedTensor[]): Promise<void> {\n weightValues = await this.extractIterations(weightValues);\n const variableCount = weightValues.length / 2;\n const trainable = false;\n this.accumulatedGrads =\n weightValues.slice(0, variableCount).map(v => ({\n originalName: v.name,\n variable: v.tensor.variable(\n trainable)\n }));\n this.accumulatedUpdates =\n weightValues.slice(variableCount, variableCount * 2)\n .map(v => ({\n originalName: v.name,\n variable: v.tensor.variable(trainable)\n }));\n }\n\n getConfig(): ConfigDict {\n return {\n 'learningRate': this.learningRate,\n 'rho': this.rho,\n 'epsilon': this.epsilon\n };\n }\n\n /** @nocollapse */\n static fromConfig<T extends Serializable>(\n cls: SerializableConstructor<T>, config: ConfigDict): T {\n return new cls(config['learningRate'], config['rho'], config['epsilon']);\n }\n}\nregisterClass(AdadeltaOptimizer);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {add} from '../ops/add';\nimport {div} from '../ops/div';\nimport {fill} from '../ops/fill';\nimport {mul} from '../ops/mul';\nimport {sqrt} from '../ops/sqrt';\nimport {square} from '../ops/square';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from '../serialization';\nimport {NamedTensor, NamedVariableMap} from '../tensor_types';\n\nimport {Optimizer, OptimizerVariable} from './optimizer';\n\n/** @doclink Optimizer */\nexport class AdagradOptimizer extends Optimizer {\n /** @nocollapse */\n static className = 'Adagrad';\n // Note: Name matters for Python compatibility.\n\n private accumulatedGrads: OptimizerVariable[] = [];\n\n constructor(\n protected learningRate: number, private initialAccumulatorValue = 0.1) {\n super();\n }\n\n applyGradients(variableGradients: NamedVariableMap|NamedTensor[]) {\n const variableNames = Array.isArray(variableGradients) ?\n variableGradients.map(item => item.name) :\n Object.keys(variableGradients);\n\n variableNames.forEach((name, i) => {\n const value = ENGINE.registeredVariables[name];\n if (this.accumulatedGrads[i] == null) {\n const trainable = false;\n this.accumulatedGrads[i] = {\n originalName: `${name}/accumulator`,\n variable: tidy(\n () => fill(value.shape, this.initialAccumulatorValue)\n .variable(trainable))\n };\n }\n\n const gradient = Array.isArray(variableGradients) ?\n variableGradients[i].tensor :\n variableGradients[name];\n\n if (gradient == null) {\n return;\n }\n\n const accumulatedGrad = this.accumulatedGrads[i].variable;\n\n tidy(() => {\n const newAccumulatedGrad = add(accumulatedGrad, square(gradient));\n accumulatedGrad.assign(newAccumulatedGrad);\n\n const newValue = add(\n mul(div(gradient,\n sqrt(add(newAccumulatedGrad, ENGINE.backend.epsilon()))),\n -this.learningRate),\n value);\n value.assign(newValue);\n });\n });\n this.incrementIterations();\n

```
}\n\n  dispose(): void {\n    if (this.accumulatedGrads != null) {\n      dispose(this.accumulatedGrads.map(v =>
v.variable));\n    }\n  }\n\n  async getWeights(): Promise<NamedTensor[]> {\n    // Order matters for Python
compatibility.\n    return [await this.saveIterations()].concat(this.accumulatedGrads.map(\n        v => ({name:
v.originalName, tensor: v.variable})));\n  }\n\n  async setWeights(weightValues:
 NamedTensor[]): Promise<void> {\n    weightValues = await this.extractIterations(weightValues);\n    const
trainable = false;\n    this.accumulatedGrads = weightValues.map(\n        v => ({originalName: v.name, variable:
v.tensor.variable(trainable)}));\n  }\n\n  getConfig(): ConfigDict {\n    return {\n      'learningRate':
this.learningRate,\n      'initialAccumulatorValue': this.initialAccumulatorValue,\n    };\n  }\n\n  /** @nocollapse
*/\n  static fromConfig<T extends Serializable>(\n      cls: SerializableConstructor<T>, config: ConfigDict): T {\n
return new cls(config['learningRate'], config['initialAccumulatorValue']);\n
}\n}\nregisterClass(AdagradOptimizer);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
 required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {add} from
'../ops/add';\nimport {div} from '../ops/div';\nimport {mul} from '../ops/mul';\nimport {pow} from
'../ops/pow';\nimport {scalar} from '../ops/scalar';\nimport {sqrt} from '../ops/sqrt';\nimport {square} from
'../ops/square';\nimport {sub} from '../ops/sub';\nimport {zerosLike} from '../ops/zeros_like';\nimport {ConfigDict,
registerClass, Serializable, SerializableConstructor} from '../serialization';\nimport {Variable} from
'../tensor';\nimport {NamedTensor, NamedVariableMap} from '../tensor_types';\n\nimport
 {Optimizer, OptimizerVariable} from './optimizer';\n\nexport class AdamOptimizer extends Optimizer {\n  /**
@nocollapse */\n  static className = 'Adam';  // Note: Name matters for Python compatibility.\n  private accBeta1:
Variable;\n  private accBeta2: Variable;\n\n  private accumulatedFirstMoment: OptimizerVariable[] = [];\n  private
accumulatedSecondMoment: OptimizerVariable[] = [];\n\n  constructor(\n      protected learningRate: number,
protected beta1: number,\n      protected beta2: number, protected epsilon: number = null) {\n    super();\n    tidy(()
=> {\n      // accB* will be updated by batch.\n      this.accBeta1 = scalar(beta1).variable();\n      this.accBeta2 =
scalar(beta2).variable();\n    });\n\n    if (epsilon == null) {\n      this.epsilon = ENGINE.backend.epsilon();\n    }\n
}\n\n  applyGradients(variableGradients: NamedVariableMap|NamedTensor[]) {\n    const varNames =
Array.isArray(variableGradients) ?\n        variableGradients.map(v => v.name)
 :\n        Object.keys(variableGradients);\n    tidy(() => {\n      const oneMinusAccBeta1 = sub(1, this.accBeta1);\n
const oneMinusAccBeta2 = sub(1, this.accBeta2);\n\n      varNames.forEach((name, i) => {\n        const value =
ENGINE.registeredVariables[name];\n        const trainable = false;\n        if (this.accumulatedFirstMoment[i] ==
null) {\n          this.accumulatedFirstMoment[i] = {\n            originalName: `${name}/m`,\n            variable: tidy(()
=> zerosLike(value).variable(trainable))\n          };\n        }\n        if (this.accumulatedSecondMoment[i] == null) {\n
          this.accumulatedSecondMoment[i] = {\n            originalName: `${name}/v`,\n            variable: tidy(() =>
zerosLike(value).variable(trainable))\n          };\n        }\n\n        const gradient = Array.isArray(variableGradients)
?\n            variableGradients[i].tensor :\n            variableGradients[name];\n        if (gradient == null) {\n
return;\n        }\n\n
        const firstMoment = this.accumulatedFirstMoment[i].variable;\n        const secondMoment =
this.accumulatedSecondMoment[i].variable;\n\n        const newFirstMoment =\n            add(mul(firstMoment,
this.beta1), mul(gradient, 1 - this.beta1));\n        const newSecondMoment =\n            add(mul(secondMoment,
this.beta2),\n                mul(square(gradient), 1 - this.beta2));\n\n        const biasCorrectedFirstMoment =
div(newFirstMoment, oneMinusAccBeta1);\n        const biasCorrectedSecondMoment =\n
div(newSecondMoment, oneMinusAccBeta2);\n\n        firstMoment.assign(newFirstMoment);\n
```

```
secondMoment.assign(newSecondMoment);\n\n        const newValue =\n
add(mul(div(biasCorrectedFirstMoment,\n                    add(sqrt(biasCorrectedSecondMoment), this.epsilon)),\n
            -this.learningRate),\n                value);\n        value.assign(newValue);\n      });\n\n
this.accBeta1.assign(mul(this.accBeta1, this.beta1));\n
  this.accBeta2.assign(mul(this.accBeta2, this.beta2));\n    });\n    this.incrementIterations();\n  }\n\n  dispose(): void
{\n    this.accBeta1.dispose();\n    this.accBeta2.dispose();\n\n    if (this.accumulatedFirstMoment != null) {\n
dispose(this.accumulatedFirstMoment.map(v => v.variable));\n    }\n    if (this.accumulatedSecondMoment != null)
{\n      dispose(this.accumulatedSecondMoment.map(v => v.variable));\n    }\n  }\n\n  async getWeights():
Promise<NamedTensor[]> {\n    // Order matters for Python compatibility.\n    const variables: OptimizerVariable[]
=\n        [...this.accumulatedFirstMoment, ...this.accumulatedSecondMoment];\n    return [await
this.saveIterations()].concat(\n        variables.map(v => ({name: v.originalName, tensor: v.variable})));\n  }\n\n
async setWeights(weightValues: NamedTensor[]): Promise<void> {\n    weightValues = await
this.extractIterations(weightValues);\n    tidy(() => {\n      this.accBeta1.assign(pow(this.beta1, this.iterations_ +
1));\n
    this.accBeta2.assign(pow(this.beta2, this.iterations_ + 1));\n    });\n\n    const variableCount =
weightValues.length / 2;\n    const trainable = false;\n    this.accumulatedFirstMoment =\n        weightValues.slice(0,
variableCount).map(v => ({\n                                originalName: v.name,\n
 variable: v.tensor.variable(\n                                trainable)\n                                }));\n
this.accumulatedSecondMoment =\n        weightValues.slice(variableCount, variableCount * 2)\n            .map(v =>
({\n                originalName: v.name,\n                variable: v.tensor.variable(trainable)\n                }));\n  }\n\n
getConfig(): ConfigDict {\n    return {\n      'learningRate': this.learningRate,\n      'beta1': this.beta1,\n      'beta2':
this.beta2,\n      'epsilon': this.epsilon,\n    };\n  }\n\n  /** @nocollapse */\n
  static fromConfig<T extends Serializable>(\n      cls: SerializableConstructor<T>, config: ConfigDict): T {\n
return new cls(\n        config['learningRate'], config['beta1'], config['beta2'],\n        config['epsilon']);\n
}\n}\nregisterClass(AdamOptimizer);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport
 {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {abs} from '../ops/abs';\nimport
{add} from '../ops/add';\nimport {div} from '../ops/div';\nimport {maximum} from '../ops/maximum';\nimport {mul}
from '../ops/mul';\nimport {scalar} from '../ops/scalar';\nimport {sub} from '../ops/sub';\nimport {zerosLike} from
'../ops/zeros_like';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from
'../serialization';\nimport {Variable} from '../tensor';\nimport {NamedTensor, NamedVariableMap} from
'../tensor_types';\n\nimport {Optimizer, OptimizerVariable} from './optimizer';\n\nexport class AdamaxOptimizer
extends Optimizer {\n  /** @nocollapse */\n  static className = 'Adamax';  // Note: Name matters for Python
compatbility.\n  private accBeta1: Variable;\n  private iteration: Variable;\n\n  private accumulatedFirstMoment:
OptimizerVariable[] = [];\n  private accumulatedWeightedInfNorm: OptimizerVariable[] = [];\n\n  constructor(\n
protected
 learningRate: number, protected beta1: number,\n      protected beta2: number, protected epsilon: number = null,\n
 protected decay = 0.0) {\n    super();\n\n    tidy(() => {\n      this.iteration = scalar(0).variable();\n      this.accBeta1 =
scalar(beta1).variable();\n    });\n\n    if (epsilon == null) {\n      this.epsilon = ENGINE.backend.epsilon();\n    }\n
}\n\n  applyGradients(variableGradients: NamedVariableMap|NamedTensor[]) {\n    const variableNames =
Array.isArray(variableGradients) ?\n        variableGradients.map(item => item.name) :\n
```

```
Object.keys(variableGradients);\n\n    tidy(() => {\n      const oneMinusAccBeta1 = sub(1, this.accBeta1);\n      const lr =\n          div(-this.learningRate, add(mul(this.iteration, this.decay), 1));\n\n      variableNames.forEach((name, i) => {\n        const value = ENGINE.registeredVariables[name];\n        const trainable = false;\n        if (this.accumulatedFirstMoment[i] == null) {\n          this.accumulatedFirstMoment[i] = {\n            originalName: `${name}/m`,\n            variable: zerosLike(value).variable(trainable)\n          };\n        }\n        if (this.accumulatedWeightedInfNorm[i] == null) {\n          this.accumulatedWeightedInfNorm[i] = {\n            originalName: `${name}/v`,\n            variable: zerosLike(value).variable(trainable)\n          };\n        }\n\n        const gradient = Array.isArray(variableGradients) ?\n            variableGradients[i].tensor :\n            variableGradients[name];\n        if (gradient == null) {\n          return;\n        }\n\n        const firstMoment = this.accumulatedFirstMoment[i].variable;\n        const weightedInfNorm = this.accumulatedWeightedInfNorm[i].variable;\n\n        const newFirstMoment =\n            add(mul(firstMoment, this.beta1), mul(gradient, 1 - this.beta1));\n\n        const ut0 = mul(weightedInfNorm, this.beta2);\n        const ut1 = abs(gradient);\n\n        const newWeightedInfNorm = maximum(ut0, ut1);\n\n        firstMoment.assign(newFirstMoment);\n        weightedInfNorm.assign(newWeightedInfNorm);\n\n        const newValue =\n            add(mul(div(lr, oneMinusAccBeta1),\n                    div(newFirstMoment, add(newWeightedInfNorm, this.epsilon))),\n                value);\n\n        value.assign(newValue);\n      });\n\n      this.iteration.assign(add(this.iteration, 1));\n      this.accBeta1.assign(mul(this.accBeta1, this.beta1));\n    });\n    this.incrementIterations();\n  }\n\n  dispose(): void {\n    this.accBeta1.dispose();\n    this.iteration.dispose();\n\n    if (this.accumulatedFirstMoment != null) {\n      dispose(this.accumulatedFirstMoment.map(v => v.variable));\n    }\n    if (this.accumulatedWeightedInfNorm != null) {\n      dispose(this.accumulatedWeightedInfNorm.map(v => v.variable));\n    }\n  }\n\n  async getWeights(): Promise<NamedTensor[]> {\n    throw new Error('getWeights() is not implemented for Adamax yet.');\n  }\n\n  async setWeights(weightValues: NamedTensor[]): Promise<void> {\n    throw new Error('setWeights() is not implemented for Adamax yet.');\n  }\n\n  getConfig(): ConfigDict {\n    return {\n      'learningRate': this.learningRate,\n      'beta1': this.beta1,\n      'beta2': this.beta2,\n      'epsilon': this.epsilon,\n      'decay': this.decay\n    };\n  }\n\n  /** @nocollapse */\n  static fromConfig<T extends Serializable>(\n      cls: SerializableConstructor<T>, config: ConfigDict): T {\n    return new cls(\n        config['learningRate'], config['beta1'], config['beta2'],\n        config['epsilon'], config['decay']);\n  }\n}\nregisterClass(AdamaxOptimizer);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\n\nimport {ENGINE} from '../engine';\nimport {keep, tidy} from '../globals';\nimport {add} from '../ops/add';\nimport {mul} from '../ops/mul';\nimport {scalar} from '../ops/scalar';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from '../serialization';\nimport {Scalar} from '../tensor';\nimport {NamedTensor, NamedTensorMap} from '../tensor_types';\n\nimport {Optimizer} from './optimizer';\n\n/** @doclink Optimizer */\nexport class SGDOptimizer extends Optimizer {\n  /** @nocollapse */\n  static className = 'SGD';  // Note: Name matters for Python compatibility.\n  protected c: Scalar;\n\n  constructor(protected learningRate: number) {\n    super();\n    this.setLearningRate(learningRate);\n  }\n\n  applyGradients(variableGradients: NamedTensorMap|NamedTensor[]) {\n    const varNames = Array.isArray(variableGradients) ?\n        variableGradients.map(v => v.name) :\n        Object.keys(variableGradients);\n    varNames.forEach((name, i) => {\n      const gradient = Array.isArray(variableGradients) ?\n          variableGradients[i].tensor :\n          variableGradients[name];\n      if (gradient == null) {\n        return;\n      }\n      const value = ENGINE.registeredVariables[name];\n      tidy(() => {\n        const newValue = add(mul(this.c, gradient), value);\n        value.assign(newValue);\n      });\n    });\n
```

this.incrementIterations();\n }\n\n /**\n   * Sets the learning rate of the optimizer.\n   */\n
setLearningRate(learningRate: number) {\n   this.learningRate = learningRate;\n   if (this.c != null) {\n
this.c.dispose();\n   }\n   this.c = keep(scalar(-learningRate));\n
  }\n\n dispose() {\n   this.c.dispose();\n }\n\n async getWeights(): Promise<NamedTensor[]> {\n   return [await
this.saveIterations()];\n }\n\n async setWeights(weightValues: NamedTensor[]): Promise<void> {\n
weightValues = await this.extractIterations(weightValues);\n   if (weightValues.length !== 0) {\n   throw new
Error('SGD optimizer does not have settable weights.');\n   }\n }\n\n getConfig(): ConfigDict {\n   return
{'learningRate': this.learningRate};\n }\n\n /** @nocollapse */\n static fromConfig<T extends Serializable>(\n
cls: SerializableConstructor<T>, config: ConfigDict): T {\n   return new cls(config['learningRate']);\n
}\n}\nregisterClass(SGDOptimizer);\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==\n
*/\n\nimport {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {add} from
'../ops/add';\nimport {mul} from '../ops/mul';\nimport {scalar} from '../ops/scalar';\nimport {zerosLike} from
'../ops/zeros_like';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from
'../serialization';\nimport {Scalar, Tensor} from '../tensor';\nimport {NamedTensor, NamedVariableMap} from
'../tensor_types';\n\nimport {OptimizerVariable} from './optimizer';\nimport {SGDOptimizer} from
'./sgd_optimizer';\n\n/** @doclink Optimizer */\nexport
 class MomentumOptimizer extends SGDOptimizer {\n /** @nocollapse */\n static className = 'Momentum'; //
Name matters for Python compatibility.\n private m: Scalar;\n private accumulations: OptimizerVariable[] = [];\n\n
constructor(\n   protected learningRate: number, private momentum: number,\n   private useNesterov = false) {\n
  super(learningRate);\n   this.m = scalar(this.momentum);\n }\n\n applyGradients(variableGradients:
NamedVariableMap|NamedTensor[]) {\n   const variableNames = Array.isArray(variableGradients) ?\n
variableGradients.map(item => item.name) :\n   Object.keys(variableGradients);\n\n
variableNames.forEach((name, i) => {\n   const value = ENGINE.registeredVariables[name];\n   if
(this.accumulations[i] == null) {\n   const trainable = false;\n   this.accumulations[i] = {\n   originalName:
`${name}/momentum`,\n   variable: tidy(() => zerosLike(value).variable(trainable))\n   };\n   }\n\n
    const accumulation = this.accumulations[i].variable;\n   const gradient = Array.isArray(variableGradients) ?\n
    variableGradients[i].tensor :\n   variableGradients[name];\n   if (gradient == null) {\n   return;\n   }\n\n
  tidy(() => {\n   let newValue: Tensor;\n   const newAccumulation = add(mul(this.m, accumulation),
gradient);\n   if (this.useNesterov) {\n   newValue = add(\n   mul(this.c, add(gradient,
mul(newAccumulation, this.m))), value);\n   } else {\n   newValue = add(mul(this.c, newAccumulation),
value);\n   }\n   accumulation.assign(newAccumulation);\n   value.assign(newValue);\n   });\n   });\n
this.incrementIterations();\n }\n\n dispose(): void {\n   this.m.dispose();\n   if (this.accumulations != null) {\n
dispose(this.accumulations.map(v => v.variable));\n   }\n }\n\n /**\n   * Sets the momentum of the optimizer.\n
*\n   * @param momentum\n   */\n setMomentum(momentum:
 number) {\n   this.momentum = momentum;\n }\n\n async getWeights(): Promise<NamedTensor[]> {\n   // Order
matters for Python compatibility.\n   return [await this.saveIterations()].concat(this.accumulations.map(\n   v =>
({name: v.originalName, tensor: v.variable})));\n }\n\n async setWeights(weightValues: NamedTensor[]):
Promise<void> {\n   weightValues = await this.extractIterations(weightValues);\n   const trainable = false;\n
this.accumulations = weightValues.map(\n   v => ({originalName: v.name, variable:
v.tensor.variable(trainable)}));\n }\n\n getConfig(): ConfigDict {\n   return {\n   'learningRate':

```
this.learningRate,\n      'momentum': this.momentum,\n      'useNesterov': this.useNesterov\n    };\n  }\n\n  /** @nocollapse */\n  static fromConfig<T extends Serializable>(\n      cls: SerializableConstructor<T>, config: ConfigDict): T {\n    return new cls(\n        config['learningRate'], config['momentum'], config['useNesterov']);\n  }\n}\nregisterClass(MomentumOptimizer);\n","/**\n
 * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {ENGINE} from '../engine';\nimport {dispose, tidy} from '../globals';\nimport {add} from '../ops/add';\nimport {div} from '../ops/div';\nimport {mul} from '../ops/mul';\nimport {sqrt} from '../ops/sqrt';\nimport {square} from
 '../ops/square';\nimport {sub} from '../ops/sub';\nimport {zerosLike} from '../ops/zeros_like';\nimport {ConfigDict, registerClass, Serializable, SerializableConstructor} from '../serialization';\nimport {NamedTensor, NamedTensorMap} from '../tensor_types';\n\nimport {Optimizer, OptimizerVariable} from './optimizer';\n\n/** @doclink Optimizer */\nexport class RMSPropOptimizer extends Optimizer {\n  /** @nocollapse */\n  static className = 'RMSProp';  // Note: Name matters for Python compatibility.\n  private centered: boolean;\n\n  private accumulatedMeanSquares: OptimizerVariable[] = [];\n  private accumulatedMoments: OptimizerVariable[] = [];\n  private accumulatedMeanGrads: OptimizerVariable[] = [];\n\n  constructor(\n      protected learningRate: number, protected decay = 0.9,\n      protected momentum = 0.0, protected epsilon: number = null,\n      centered = false) {\n    super();\n\n    this.centered = centered;\n\n    if (epsilon == null) {\n      this.epsilon = ENGINE.backend.epsilon();\n    }\n    if (learningRate == null) {\n      throw new Error(`learningRate for RMSPropOptimizer must be defined.`);\n    }\n  }\n\n  applyGradients(variableGradients: NamedTensorMap|NamedTensor[]) {\n    const variableNames = Array.isArray(variableGradients) ?\n        variableGradients.map(item => item.name) :\n        Object.keys(variableGradients);\n\n    variableNames.forEach((name, i) => {\n      const value = ENGINE.registeredVariables[name];\n      const trainable = false;\n      if (this.accumulatedMeanSquares[i] == null) {\n        this.accumulatedMeanSquares[i] = {\n          originalName: `${name}/rms`,\n          variable: tidy(() => zerosLike(value).variable(trainable))\n        };\n      }\n      if (this.accumulatedMoments[i] == null) {\n        this.accumulatedMoments[i] = {\n          originalName: `${name}/momentum`,\n          variable: tidy(() => zerosLike(value).variable(trainable))\n        };\n      }\n      if (this.accumulatedMeanGrads[i] == null &&
 this.centered) {\n        this.accumulatedMeanGrads[i] = {\n          originalName: `${name}/mg`,\n          variable: tidy(() => zerosLike(value).variable(trainable))\n        };\n      }\n\n      const gradient =
 Array.isArray(variableGradients) ?\n          variableGradients[i].tensor :\n          variableGradients[name];\n      if (gradient == null) {\n        return;\n      }\n\n      const accumulatedMeanSquare =
 this.accumulatedMeanSquares[i].variable;\n      const accumulatedMoments =
 this.accumulatedMoments[i].variable;\n      tidy(() => {\n        const newAccumulatedMeanSquare =\n
 add(mul(accumulatedMeanSquare, this.decay),\n                mul(square(gradient), 1 - this.decay));\n\n        if (this.centered) {\n          const accumulatedMeanGrad = this.accumulatedMeanGrads[i].variable;\n          // Centered gradient\n          const newAccumulatedMeanGrad =\n              add(mul(accumulatedMeanGrad, this.decay),\n
      mul(gradient, 1 - this.decay));\n\n
          const gradContribution =\n              div(mul(gradient, this.learningRate),\n                  sqrt(\n
 sub(newAccumulatedMeanSquare,\n                      add(square(newAccumulatedMeanGrad), this.epsilon))));\n
  const newAccumulatedMoments =\n              add(mul(accumulatedMoments, this.momentum),
 gradContribution);\n\n          accumulatedMeanSquare.assign(newAccumulatedMeanSquare);\n
 accumulatedMeanGrad.assign(newAccumulatedMeanGrad);\n
 accumulatedMoments.assign(newAccumulatedMoments);\n\n          const newValue = sub(value,
```

```
newAccumulatedMoments);\n          value.assign(newValue);\n        } else {\n          // Plain gradient\n          const
newAccumulatedMeanSquare =\n              add(mul(accumulatedMeanSquare, this.decay),\n
mul(square(gradient), 1 - this.decay));\n\n          const newAccumulatedMoments =\n
add(mul(accumulatedMoments, this.momentum),\n                  div(mul(gradient,
 this.learningRate),\n                      sqrt(add(newAccumulatedMeanSquare, this.epsilon))));\n\n
accumulatedMeanSquare.assign(newAccumulatedMeanSquare);\n
accumulatedMoments.assign(newAccumulatedMoments);\n\n          const newValue = sub(value,
newAccumulatedMoments);\n          value.assign(newValue);\n        }\n      });\n    });\n
this.incrementIterations();\n  }\n\n  dispose(): void {\n    if (this.accumulatedMeanSquares != null) {\n
dispose(this.accumulatedMeanSquares.map(v => v.variable));\n    }\n    if (this.accumulatedMeanGrads != null &&
this.centered) {\n      dispose(this.accumulatedMeanGrads.map(v => v.variable));\n    }\n    if
(this.accumulatedMoments != null) {\n      dispose(this.accumulatedMoments.map(v => v.variable));\n    }\n  }\n\n
async getWeights(): Promise<NamedTensor[]> {\n    // Order matters for Python compatibility.\n    const variables:
OptimizerVariable[] =\n        [...this.accumulatedMeanSquares, ...this.accumulatedMoments];\n
   if (this.centered) {\n      variables.push(...this.accumulatedMeanGrads);\n    }\n    return [await
this.saveIterations()].concat(\n        variables.map(v => ({name: v.originalName, tensor: v.variable})));\n  }\n\n
async setWeights(weightValues: NamedTensor[]): Promise<void> {\n    weightValues = await
this.extractIterations(weightValues);\n    const variableCount =\n        this.centered ? weightValues.length / 3 :
weightValues.length / 2;\n    const trainable = false;\n    this.accumulatedMeanSquares =\n
weightValues.slice(0, variableCount).map(v => ({\n                                originalName: v.name,\n
                        variable: v.tensor.variable(\n                                  trainable)\n
          }));\n    this.accumulatedMoments =\n        weightValues.slice(variableCount, variableCount * 2)\n
.map(v => ({\n
        originalName: v.name,\n                variable: v.tensor.variable(trainable)\n              }));\n    if
(this.centered) {\n      this.accumulatedMeanGrads =\n          weightValues.slice(variableCount * 2, variableCount *
3)\n              .map(v => ({\n                originalName: v.name,\n                variable:
v.tensor.variable(trainable)\n              }));\n    }\n  }\n\n  getConfig(): ConfigDict {\n    return {\n
'learningRate': this.learningRate,\n      'decay': this.decay,\n      'momentum': this.momentum,\n      'epsilon':
this.epsilon,\n      'centered': this.centered\n    };\n  }\n\n  /** @nocollapse */\n  static fromConfig<T extends
Serializable>(\n      cls: SerializableConstructor<T>, config: ConfigDict): T {\n    return new cls(\n
config['learningRate'], config['decay'], config['momentum'],\n        config['epsilon'], config['centered']);\n
}\n}\nregisterClass(RMSPropOptimizer);\n","/**\n * @license\n * Copyright 2018 Google
 LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {AdadeltaOptimizer} from './adadelta_optimizer';\nimport {AdagradOptimizer} from
'./adagrad_optimizer';\nimport {AdamOptimizer} from './adam_optimizer';\nimport {AdamaxOptimizer} from
'./adamax_optimizer';\nimport {MomentumOptimizer} from './momentum_optimizer';\nimport
{RMSPropOptimizer} from './rmsprop_optimizer';\nimport
 {SGDOptimizer} from './sgd_optimizer';\n\nexport class OptimizerConstructors {\n  /**\n   * Constructs a
`tf.SGDOptimizer` that uses stochastic gradient descent.\n   *\n   * ```js\n   * // Fit a quadratic function by learning
the coefficients a, b, c.\n   * const xs = tf.tensor1d([0, 1, 2, 3]);\n   * const ys = tf.tensor1d([1.1, 5.9, 16.8, 33.9]);\n
*\n   * const a = tf.scalar(Math.random()).variable();\n   * const b = tf.scalar(Math.random()).variable();\n   * const c
= tf.scalar(Math.random()).variable();\n   *\n   * // y = a * x^2 + b * x + c.\n   * const f = x =>
```

a.mul(x.square()).add(b.mul(x)).add(c);\n * const loss = (pred, label) => pred.sub(label).square().mean();\n *\n * const learningRate = 0.01;\n * const optimizer = tf.train.sgd(learningRate);\n *\n * // Train the model.\n * for (let i = 0; i < 10; i++) {\n * optimizer.minimize(() => loss(f(xs), ys));\n * }\n *\n * // Make predictions.\n * console.log(\n * `a: ${a.dataSync()},
b: ${b.dataSync()}, c: ${c.dataSync()}`);\n * const preds = f(xs).dataSync();\n * preds.forEach((pred, i) => {\n * console.log(`x: ${i}, pred: ${pred}`);\n * });\n * ```\n *\n * @param learningRate The learning rate to use for the SGD algorithm.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static sgd(learningRate: number): SGDOptimizer {\n return new SGDOptimizer(learningRate);\n }\n\n /**\n * Constructs a `tf.MomentumOptimizer` that uses momentum gradient\n * descent.\n *\n * See\n * [http://proceedings.mlr.press/v28/sutskever13.pdf](\n * http://proceedings.mlr.press/v28/sutskever13.pdf)\n *\n * @param learningRate The learning rate to use for the Momentum gradient\n * descent algorithm.\n * @param momentum The momentum to use for the momentum gradient descent\n * algorithm.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static momentum(learningRate:
number, momentum: number, useNesterov = false):\n MomentumOptimizer {\n return new MomentumOptimizer(learningRate, momentum, useNesterov);\n }\n\n /**\n * Constructs a `tf.RMSPropOptimizer` that uses RMSProp gradient\n * descent. This implementation uses plain momentum and is not centered\n * version of RMSProp.\n *\n * See\n * [http://www.cs.toronto.edu/~tijmen/csc321/slides/lecture_slides_lec6.pdf](\n * http://www.cs.toronto.edu/~tijmen/csc321/slides/lecture_slides_lec6.pdf)\n *\n * @param learningRate The learning rate to use for the RMSProp gradient\n * descent algorithm.\n * @param decay The discounting factor for the history/coming gradient.\n * @param momentum The momentum to use for the RMSProp gradient descent\n * algorithm.\n * @param epsilon Small value to avoid zero denominator.\n * @param centered If true, gradients are normalized by the estimated\n * variance of the gradient.\n *\n * @doc {heading: 'Training', subheading:
'Optimizers', namespace: 'train'}\n */\n static rmsprop(\n learningRate: number, decay = .9, momentum = 0.0, epsilon: number = null,\n centered = false): RMSPropOptimizer {\n return new RMSPropOptimizer(\n learningRate, decay, momentum, epsilon, centered);\n }\n\n /**\n * Constructs a `tf.AdamOptimizer` that uses the Adam algorithm.\n * See https://arxiv.org/abs/1412.6980\n *\n * @param learningRate The learning rate to use for the Adam gradient\n * descent algorithm.\n * @param beta1 The exponential decay rate for the 1st moment estimates.\n * @param beta2 The exponential decay rate for the 2nd moment estimates.\n * @param epsilon A small constant for numerical stability.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static adam(\n learningRate = 0.001, beta1 = 0.9, beta2 = 0.999,\n epsilon: number = null): AdamOptimizer {\n return new AdamOptimizer(learningRate,
beta1, beta2, epsilon);\n }\n\n /**\n * Constructs a `tf.AdadeltaOptimizer` that uses the Adadelta algorithm.\n * See https://arxiv.org/abs/1212.5701\n *\n * @param learningRate The learning rate to use for the Adadelta gradient\n * descent algorithm.\n * @param rho The learning rate decay over each update.\n * @param epsilon A constant epsilon used to better condition the grad\n * update.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static adadelta(learningRate = .001, rho = .95, epsilon: number = null):\n AdadeltaOptimizer {\n return new AdadeltaOptimizer(learningRate, rho, epsilon);\n }\n\n /**\n * Constructs a `tf.AdamaxOptimizer` that uses the Adamax algorithm.\n * See https://arxiv.org/abs/1412.6980\n *\n * @param learningRate The learning rate to use for the Adamax gradient\n * descent algorithm.\n *
@param beta1 The exponential decay rate for the 1st moment estimates.\n * @param beta2 The exponential decay rate for the 2nd moment estimates.\n * @param epsilon A small constant for numerical stability.\n * @param decay The learning rate decay over each update.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static adamax(\n learningRate = 0.002, beta1 = 0.9, beta2 = 0.999, epsilon: number = null,\n decay = 0.0): AdamaxOptimizer {\n return new AdamaxOptimizer(learningRate, beta1, beta2, epsilon, decay);\n }\n\n /**\n * Constructs a `tf.AdagradOptimizer` that uses the Adagrad algorithm.\n * See\n *

[http://www.jmlr.org/papers/volume12/duchi11a/duchi11a.pdf](\n * http://www.jmlr.org/papers/volume12/duchi11a/duchi11a.pdf)\n * or\n * [http://ruder.io/optimizing-gradient-descent/index.html#adagrad](\n * http://ruder.io/optimizing-gradient-descent/index.html#adagrad)\n *\n * @param learningRate The learning
rate to use for the Adagrad gradient\n * descent algorithm.\n * @param initialAccumulatorValue Starting value for the accumulators, must be\n * positive.\n *\n * @doc {heading: 'Training', subheading: 'Optimizers', namespace: 'train'}\n */\n static adagrad(learningRate: number, initialAccumulatorValue = 0.1):\n AdagradOptimizer {\n return new AdagradOptimizer(learningRate, initialAccumulatorValue);\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\n// So typings can propagate.\nimport {AdadeltaOptimizer} from './optimizers/adadelta_optimizer';\nimport {AdagradOptimizer} from './optimizers/adagrad_optimizer';\nimport {AdamOptimizer} from './optimizers/adam_optimizer';\nimport {AdamaxOptimizer} from './optimizers/adamax_optimizer';\nimport {MomentumOptimizer} from './optimizers/momentum_optimizer';\nimport {OptimizerConstructors} from './optimizers/optimizer_constructors';\nimport {RMSPropOptimizer} from './optimizers/rmsprop_optimizer';\nimport {SGDOptimizer} from './optimizers/sgd_optimizer';\n\n// tslint:disable-next-line:no-unused-expression\n[MomentumOptimizer, SGDOptimizer, AdadeltaOptimizer, AdagradOptimizer,\n RMSPropOptimizer, AdamaxOptimizer, AdamOptimizer];\n\nexport const train = {\n sgd: OptimizerConstructors.sgd,\n momentum: OptimizerConstructors.momentum,\n
adadelta: OptimizerConstructors.adadelta,\n adagrad: OptimizerConstructors.adagrad,\n rmsprop: OptimizerConstructors.rmsprop,\n adamax: OptimizerConstructors.adamax,\n adam: OptimizerConstructors.adam\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nconst delayCallback: Function = (() => {\n if (typeof requestAnimationFrame
!== 'undefined') {\n return requestAnimationFrame;\n } else if (typeof setImmediate !== 'undefined') {\n return setImmediate;\n }\n return (f: Function) => f(); // no delays\n})();\n\n/**\n * Returns a promise that resolve when a requestAnimationFrame has completed.\n *\n * On Node.js this uses setImmediate instead of requestAnimationFrame.\n *\n * This is simply a sugar method so that users can do the following:\n * `await tf.nextFrame();`\n *\n * @doc {heading: 'Performance', subheading: 'Timing'}\n */\nfunction nextFrame(): Promise<void> {\n return new Promise<void>(resolve => delayCallback(() => resolve()));\n}\n\nexport {nextFrame};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the

License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport * as util from '../util';\n\nexport function assertParamsConsistent(shapes: number[][], axis: number) {\n const rank = shapes[0].length;\n shapes.forEach((shape, i) => {\n util.assert(\n shape.length === rank,\n () =>\n `Error in concat${rank}D: rank of tensors[${i}] must be the same ` +\n `as the rank of the rest (${rank})`);\n });\n\n util.assert(\n axis >= 0 && axis < rank,\n () => `Error in concat${rank}D: axis must be between 0 and ${rank - 1}.`);\n\n const firstShape = shapes[0];\n shapes.forEach((shape, i) => {\n for (let r = 0; r < rank; r++) {\n util.assert(\n (r === axis) || (shape[r] === firstShape[r]),\n () => `Error in concat${rank}D: Shape of tensors[${i}] (${shape}) ` +\n `does not match the shape of the rest (${firstShape}) ` +\n `along the non-concatenated axis ${i}.`);\n }\n });\n}\n\nexport function computeOutShape(shapes: number[][], axis: number): number[] {\n const outputShape = shapes[0].slice();\n for (let i = 1; i < shapes.length; i++) {\n outputShape[axis] += shapes[i][axis];\n }\n return outputShape;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n/**\n * Inputs of size above this threshold will be parallelized by calling multiple\n * shader programs.\n */\nimport {nearestDivisor} from '../util';\n\nexport const PARALLELIZE_THRESHOLD = 30;\n\nexport interface ReduceInfo {\n windowSize: number;\n batchSize: number;\n inSize: number;\n outSize: number;\n}\n\nexport function computeOptimalWindowSize(inSize: number): number {\n if (inSize <= PARALLELIZE_THRESHOLD) {\n return inSize;\n }\n return nearestDivisor(inSize, Math.floor(Math.sqrt(inSize)));\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n// Returns the image center in pixels.\nexport function getImageCenter(\n center: number|[number, number], imageHeight: number,\n imageWidth: number): [number, number] {\n const centerX =\n imageWidth * (typeof center === 'number' ? center : center[0]);\n const centerY =\n imageHeight * (typeof center === 'number' ? center : center[1]);\n return [centerX, centerY];\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n/**\n * Gets the new shape of the input Tensor after it's been reshaped\n * to:\n * [blockShape[0], ..., blockShape[M-1], batch / prod(blockShape),\n * inputShape[1], ..., inputShape[N-1]]\n *\n * See step 1: https://www.tensorflow.org/api_docs/python/tf/batch_to_space_nd\n */\nexport function getReshaped(\n

inputShape:
number[], blockShape: number[], prod: number,\n batchToSpace = true): number[] {\n let reshaped: number[] = [];\n if (batchToSpace) {\n reshaped = reshaped.concat(blockShape.slice(0));\n reshaped.push(inputShape[0] / prod);\n reshaped = reshaped.concat(inputShape.slice(1));\n } else {\n reshaped = reshaped.concat(inputShape[0]);\n const spatialLength = blockShape.length;\n for (let i = 0; i < spatialLength; ++i) {\n reshaped =\n reshaped.concat([inputShape[i + 1] / blockShape[i], blockShape[i]]);\n }\n reshaped = reshaped.concat(inputShape.slice(spatialLength + 1));\n }\n return reshaped;\n}\n\n/**\n * Gets the permutation that will transpose the dimensions of the\n * reshaped tensor to shape:\n *\n * [batch / prod(block_shape),inputShape[1], blockShape[0], ...,\n * inputShape[M], blockShape[M-1],inputShape[M+1], ..., inputShape[N-1]]\n *\n * see step 2: https://www.tensorflow.org/api_docs/python/tf/batch_to_space_nd\n */\nexport function getPermuted(\n reshapedRank: number, blockShapeRank: number,\n batchToSpace = true): number[] {\n const permuted = [];\n if (batchToSpace) {\n permuted.push(blockShapeRank);\n for (let i = blockShapeRank + 1; i < reshapedRank; ++i) {\n if (i <= 2 * blockShapeRank) {\n permuted.push(i);\n permuted.push(i - (blockShapeRank + 1));\n } else {\n permuted.push(i);\n }\n }\n } else {\n const permutedBeforeBatch = [];\n const permutedAfterBatch = [];\n for (let i = 1; i < reshapedRank; ++i) {\n if (i >= blockShapeRank * 2 + 1 || i % 2 === 1) {\n permutedAfterBatch.push(i);\n } else {\n permutedBeforeBatch.push(i);\n }\n }\n permuted.push(...permutedBeforeBatch);\n permuted.push(0);\n permuted.push(...permutedAfterBatch);\n }\n return permuted;\n}\n\n/**\n * Gets the shape of the reshaped and permuted input Tensor before any cropping\n * is applied. The new shape will be:\n *\n * [batch / prod(blockShape),inputShape[1]
* blockShape[0], ...,\n * inputShape[M] * blockShape[M-1],inputShape[M+1], ..., inputShape[N-1]]\n *\n * See step 3: https://www.tensorflow.org/api_docs/python/tf/batch_to_space_nd\n */\nexport function getReshapedPermuted(\n inputShape: number[], blockShape: number[], prod: number,\n batchToSpace = true): number[] {\n const reshapedPermuted = [];\n\n if (batchToSpace) {\n reshapedPermuted.push(inputShape[0] / prod);\n } else {\n reshapedPermuted.push(inputShape[0] * prod);\n }\n\n for (let i = 1; i < inputShape.length; ++i) {\n if (i <= blockShape.length) {\n if (batchToSpace) {\n reshapedPermuted.push(blockShape[i - 1] * inputShape[i]);\n } else {\n reshapedPermuted.push(inputShape[i] / blockShape[i - 1]);\n }\n } else {\n reshapedPermuted.push(inputShape[i]);\n }\n }\n\n return reshapedPermuted;\n}\n\n/**\n * Converts the crops argument into the beginning coordinates of a slice\n * operation.\n
*/\nexport function getSliceBeginCoords(\n crops: number[][], blockShape: number): number[] {\n const sliceBeginCoords = [0];\n for (let i = 0; i < blockShape; ++i) {\n sliceBeginCoords.push(crops[i][0]);\n }\n return sliceBeginCoords;\n}\n\n/**\n * Converts the crops argument into the size of a slice operation. When\n * combined with getSliceBeginCoords this function allows the reshaped and\n * permuted Tensor to be cropped to its final output shape of:\n *\n * inputShape[1] * blockShape[0] - crops[0,0] - crops[0,1], ...,\n * inputShape[M] * blockShape[M-1] -crops[M-1,0] -\n * crops[M-1,1],inputShape[M+1], ..., inputShape[N-1]]\n *\n * See step 4: https://www.tensorflow.org/api_docs/python/tf/batch_to_space_nd\n */\nexport function getSliceSize(\n uncroppedShape: number[], crops: number[][], blockShape: number): number[] {\n const sliceSize = uncroppedShape.slice(0, 1);\n for (let i = 0; i < blockShape; ++i) {\n sliceSize.push(uncroppedShape[i + 1] - crops[i][0]
- crops[i][1]);\n }\n\n return sliceSize;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n

*/\n\nexport const SELU_SCALEALPHA = 1.7580993408473768599402175208123;\nexport const SELU_SCALE = 1.0507009873554804934193349852946;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nexport const ERF_P = 0.3275911;\nexport const ERF_A1 = 0.254829592;\nexport const ERF_A2 = -0.284496736;\nexport const ERF_A3 = 1.421413741;\nexport const ERF_A4 = -1.453152027;\nexport const ERF_A5 = 1.061405429;\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {env} from './environment';\n\nexport function warn(...msg: Array<{}>): void {\n if (!env().getBool('IS_TEST')) {\n   console.warn(...msg);\n }\n}\n\nexport function log(...msg: Array<{}>): void {\n if (!env().getBool('IS_TEST')) {\n   console.log(...msg);\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n *
you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {TypedArray} from '../types';\n/**\n * Merges real and imaginary Float32Arrays into a single complex Float32Array.\n *\n * The memory layout is interleaved as follows:\n * real: [r0, r1, r2]\n * imag: [i0, i1, i2]\n * complex: [r0, i0, r1, i1, r2, i2]\n *\n * This is the inverse of splitRealAndImagArrays.\n *\n * @param real The real values of the complex tensor values.\n * @param imag The imag values of the
complex tensor values.\n * @returns A complex tensor as a Float32Array with merged values.\n */\nexport function mergeRealAndImagArrays(\n   real: Float32Array, imag: Float32Array): Float32Array {\n if (real.length !== imag.length) {\n   throw new Error(\n   `Cannot merge real and imag arrays of different lengths. real:` +\n   `${real.length}, imag: ${imag.length}.`);\n }\n const result = new Float32Array(real.length * 2);\n for (let i = 0; i < result.length; i += 2) {\n   result[i] = real[i / 2];\n   result[i + 1] = imag[i / 2];\n }\n return result;\n}\n\n/**\n * Splits a complex Float32Array into real and imag parts.\n *\n * The memory layout is interleaved as follows:\n * complex: [r0, i0, r1, i1, r2, i2]\n * real: [r0, r1, r2]\n * imag: [i0, i1, i2]\n *\n * This is the inverse of mergeRealAndImagArrays.\n *\n * @param complex The complex tensor values.\n * @returns An object with real and imag Float32Array components of the complex\n *   tensor.\n */\nexport
function splitRealAndImagArrays(complex: Float32Array):\n   {real: Float32Array, imag: Float32Array} {\n const real = new Float32Array(complex.length / 2);\n const imag = new Float32Array(complex.length / 2);\n for (let i = 0; i < complex.length; i += 2) {\n   real[i / 2] = complex[i];\n   imag[i / 2] = complex[i + 1];\n }\n return {real, imag};\n}\n\n/**\n * Extracts even indexed complex values in the given array.\n * @param complex The complex tensor values\n */\nexport function complexWithEvenIndex(complex: Float32Array):\n   {real:

Float32Array, imag: Float32Array} {\n const len = Math.ceil(complex.length / 4);\n const real = new Float32Array(len);\n const imag = new Float32Array(len);\n for (let i = 0; i < complex.length; i += 4) {\n real[Math.floor(i / 4)] = complex[i];\n   imag[Math.floor(i / 4)] = complex[i + 1];\n }\n return {real, imag};\n}\n\n/**\n * Extracts odd indexed comple values in the given array.\n * @param complex The complex tensor values\n */\nexport
 function complexWithOddIndex(complex: Float32Array):\n   {real: Float32Array, imag: Float32Array} {\n const len = Math.floor(complex.length / 4);\n const real = new Float32Array(len);\n const imag = new Float32Array(len);\n for (let i = 2; i < complex.length; i += 4) {\n   real[Math.floor(i / 4)] = complex[i];\n imag[Math.floor(i / 4)] = complex[i + 1];\n }\n return {real, imag};\n}\n\n/**\n * Get the map representing a complex value in the given array.\n * @param complex The complex tensor values.\n * @param index An index of the target complex value.\n */\nexport function getComplexWithIndex(\n   complex: Float32Array, index: number): {real: number, imag: number} {\n const real = complex[index * 2];\n const imag = complex[index * 2 + 1];\n return {real, imag};\n}\n\n/**\n * Insert a given complex value into the TypedArray.\n * @param data The array in which the complex value is inserted.\n * @param c The complex value to be inserted.\n * @param index An index of
 the target complex value.\n */\nexport function assignToTypedArray(\n   data: TypedArray, real: number, imag: number, index: number) {\n data[index * 2] = real;\n data[index * 2 + 1] = imag;\n}\n\n/**\n * Make the list of exponent terms used by FFT.\n */\nexport function exponents(\n   n: number, inverse: boolean): {real: Float32Array, imag: Float32Array} {\n const real = new Float32Array(n / 2);\n const imag = new Float32Array(n / 2);\n for (let i = 0; i < Math.ceil(n / 2); i++) {\n   const x = (inverse ? 2 : -2) * Math.PI * (i / n);\n   real[i] = Math.cos(x);\n   imag[i] = Math.sin(x);\n }\n return {real, imag};\n}\n\n/**\n * Make the exponent term used by FFT.\n */\nexport function exponent(\n   k: number, n: number, inverse: boolean): {real: number, imag: number} {\n const x = (inverse ? 2 : -2) * Math.PI * (k / n);\n const real = Math.cos(x);\n const imag = Math.sin(x);\n return {real, imag};\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n
 * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {TensorInfo} from '../kernel_registry';\nimport {Tensor} from '../tensor';\nimport {assert} from '../util';\n\n/**\n * Prepare the split size array. When the input is a number, the axis is evenly\n * divided among the split size. When the input contains the negative value, the\n * rest of the axis is allocated toward that.\n */\nexport
 function prepareSplitSize(\n   x: Tensor|TensorInfo, numOrSizeSplits: number[]|number,\n   axis = 0): number[] {\n let splitSizes = [];\n if (typeof (numOrSizeSplits) === 'number') {\n   assert(\n   x.shape[axis] % numOrSizeSplits === 0,\n   () => 'Number of splits must evenly divide the axis.');\n   splitSizes =\n   new Array(numOrSizeSplits).fill(x.shape[axis] / numOrSizeSplits);\n } else {\n   const numOfNegs = numOrSizeSplits.reduce((count, value) => {\n   if (value === -1) {\n   count += 1;\n   }\n   return count;\n   }, 0);\n   assert(\n   numOfNegs <= 1,\n   () => 'There should be only one negative value in split array.');\n   const negIndex = numOrSizeSplits.indexOf(-1);\n   // Allow the number of split array to be -1, which indicates the rest\n   // of dimension is allocated to that split.\n   if (negIndex !== -1) {\n   const total = numOrSizeSplits.reduce((a, b) => b > 0 ? a + b : a);\n   numOrSizeSplits[negIndex]
 = x.shape[axis] - total;\n   }\n   assert(\n   x.shape[axis] === numOrSizeSplits.reduce((a, b) => a + b),\n   () => 'The sum of sizes must match the size of the axis dimension.');\n   splitSizes = numOrSizeSplits;\n }\n\n return splitSizes;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *

Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {TensorInfo} from '../kernel_registry';\nimport {nearestDivisor} from '../util';\n\nimport {PARALLELIZE_THRESHOLD} from './reduce_util';\n\nexport interface SegOpInfo {\n windowSize: number;\n batchSize: number;\n inSize: number;\n numSegments: number;\n}\n\nexport function segOpComputeOptimalWindowSize(\n inSize: number, numSegments: number): number {\n let done = false;\n let res;\n\n if (inSize <= PARALLELIZE_THRESHOLD) {\n res = inSize;\n done = true;\n } else {\n res = nearestDivisor(inSize, Math.floor(Math.sqrt(inSize)));\n }\n\n while (!done) {\n if (res > numSegments || res === inSize) {\n done = true;\n } else {\n res = nearestDivisor(inSize, res + 1);\n }\n }\n return res;\n}\n\nexport function computeOutShape(\n aShape: number[], axis: number, numSegments: number): number[] {\n const outShape = [];\n const rank = aShape.length;\n for (let dim = 0; dim < rank; dim++) {\n if (dim !== axis) {\n outShape.push(aShape[dim]);\n } else {\n outShape.push(numSegments);\n }\n }\n return outShape;\n}\n\nexport interface GatherOpShapeInfo {\n batchSize: number;\n sliceSize: number;\n outerSize: number;\n dimSize: number;\n outputShape: number[];\n}\n\nexport function collectGatherOpShapeInfo(\n x: TensorInfo, indices: TensorInfo, axis: number,\n batchDims: number): GatherOpShapeInfo {\n const indicesRank = indices.shape.length;\n const xRank = x.shape.length;\n\n if (batchDims !== 0) {\n if (batchDims < -indicesRank || batchDims > indicesRank) {\n throw new Error(`Expect batchDims in the range of [-${indicesRank}, ${\n indicesRank}], but got ${batchDims}`);\n }\n }\n\n if (batchDims < 0) {\n batchDims += indicesRank;\n }\n\n if (batchDims > xRank) {\n throw new Error(`batchDims (${batchDims}) must be less than rank(x) (\n ${xRank}).`);\n }\n\n if (axis < batchDims) {\n throw new Error(`batchDims (${\n batchDims}) must be less than or equal to axis (${axis}).`);\n }\n\n for (let i = 0; i < batchDims; ++i) {\n if (x.shape[i] !== indices.shape[i]) {\n throw new Error(\n `x.shape[${i}]: ${x.shape[i]} should be equal to indices.shape[${\n i}]: ${indices.shape[i]}.`);\n }\n }\n const dimSize = x.shape[axis];\n\n const outputShape: number[] = [];\n let batchSize = 1;\n let outerSize = 1;\n let sliceSize = 1;\n\n for (let i = 0; i < batchDims; ++i) {\n outputShape.push(x.shape[i]);\n batchSize *= x.shape[i];\n }\n\n for (let i = batchDims; i < axis; i++) {\n outputShape.push(x.shape[i]);\n outerSize *= x.shape[i];\n }\n\n for (let i = batchDims; i < indicesRank; i++) {\n outputShape.push(indices.shape[i]);\n }\n\n for (let i = axis + 1; i < xRank; i++) {\n outputShape.push(x.shape[i]);\n sliceSize *= x.shape[i];\n }\n\n return {batchSize, sliceSize, outerSize, dimSize, outputShape};\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {decodeString, encodeString} from '../util';\n\n// Utilities needed by backend consumers of tf-core.\nexport * from '../ops/axis_util';\nexport * from '../ops/broadcast_util';\nexport * from '../ops/concat_util';\nexport * from '../ops/conv_util';\nexport * from '../ops/fused_util';\nexport * from '../ops/fused_types';\nexport * from '../ops/reduce_util';\n\nimport * as slice_util from '../ops/slice_util';\nexport {slice_util};\n\nexport {BackendValues, TypedArray, upcastType, PixelData} from '../types';\nexport {MemoryInfo, TimingInfo} from '../engine';\nexport * from '../ops/rotate_util';\nexport * from '../ops/array_ops_util';\nexport * from '../ops/gather_nd_util';\nexport * from

'../ops/scatter_nd_util';\nexport * from '../ops/selu_util';\nexport * from '../ops/fused_util';\nexport * from '../ops/erf_util';\nexport * from '../log';\nexport * from '../backends/complex_util';\nexport * from '../ops/split_util';\n\nimport * as segment_util from '../ops/segment_util';\nexport {segment_util};\n\nexport function fromUint8ToStringArray(vals: Uint8Array[]) {\n try {\n   // Decode the bytes into string.\n   return vals.map(val => decodeString(val));\n } catch (err) {\n   throw new Error(\n   `Failed to decode encoded string bytes into utf-8, error: ${err}`);\n }\n}\n\nexport function fromStringArrayToUint8(strings: string[]) {\n return strings.map(s => encodeString(s));\n}\n\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\nexport {nonMaxSuppressionV3Impl, nonMaxSuppressionV4Impl, nonMaxSuppressionV5Impl} from './non_max_suppression_impl';\nexport {whereImpl} from './where_impl';\n","/**\n * @license\n * Copyright 2020 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==\n */\n\n// base.ts is tfjs-core without auto registration of things like flags,\n// gradients, chained ops or the opHandler. See base_side_effects.ts for parts\n// tfjs core that are required side effects.\n\n/**\n * @fileoverview\n * @suppress {partialAlias} Optimization disabled due to passing the module\n * object into a function below:\n *\n *   import * as ops from './ops/ops';\n *   setOpHandler(ops);\n */\n\n// Serialization.\nimport * as io from './io/io';\nimport * as math from './math';\nimport * as browser from './ops/browser';\nimport * as gather_util from './ops/gather_nd_util';\nimport * as scatter_util from './ops/scatter_nd_util';\nimport * as slice_util from './ops/slice_util';\nimport * as serialization from './serialization';\nimport * as tensor_util from './tensor_util';\nimport * as test_util from './test_util';\nimport * as util from './util';\nimport {version} from './version';\n\nexport {InferenceModel, MetaGraph, MetaGraphInfo, ModelPredictConfig, ModelTensorInfo, SavedModelTensorInfo, SignatureDef, SignatureDefEntry, SignatureDefInfo} from './model_types';\n// Optimizers.\nexport {AdadeltaOptimizer} from './optimizers/adadelta_optimizer';\nexport {AdagradOptimizer} from './optimizers/adagrad_optimizer';\nexport {AdamOptimizer} from './optimizers/adam_optimizer';\nexport {AdamaxOptimizer} from './optimizers/adamax_optimizer';\nexport {MomentumOptimizer} from './optimizers/momentum_optimizer';\nexport {Optimizer} from './optimizers/optimizer';\nexport {RMSPropOptimizer} from './optimizers/rmsprop_optimizer';\nexport {SGDOptimizer} from './optimizers/sgd_optimizer';\nexport {Scalar, Tensor, Tensor1D, Tensor2D, Tensor3D, Tensor4D, Tensor5D, TensorBuffer, Variable} from './tensor';\nexport {GradSaveFunc, NamedTensorMap, TensorContainer, TensorContainerArray, TensorContainerObject} from './tensor_types';\nexport {BackendValues, DataType, DataTypeMap, DataValues, NumericDataType, PixelData, Rank, RecursiveArray, ScalarLike, ShapeMap, sumOutType, TensorLike, TypedArray, upcastType} from './types';\n\nexport * from './ops/ops';\nexport {Reduction} from './ops/loss_ops_utils';\n\nexport * from './train';\nexport * from './globals';\nexport * from './kernel_registry';\nexport {customGrad, grad, grads, valueAndGrad, valueAndGrads, variableGrads} from './gradients';\n\nexport {TimingInfo,

MemoryInfo, ForwardFunc} from './engine';\nexport {Environment, env, ENV} from './environment';\nexport {Platform} from './platforms/platform';\n\nexport {version as version_core};\n\n// Top-level method exports.\nexport {nextFrame} from './browser_util';\n\n// Second level exports.\nimport * as backend_util from './backends/backend_util';\nimport * as device_util from './device_util';\nexport {\n browser,\n io,\n math,\n serialization,\n test_util,\n util,\n backend_util,\n tensor_util,\n slice_util,\n gather_util,\n scatter_util,\n device_util\n};\n\nimport * as kernel_impls from './backends/kernel_impls';\nexport {kernel_impls};\n// Backend specific.\nexport {KernelBackend, BackendTimingInfo, DataMover, DataStorage} from './backends/backend';\n\n// Export all kernel names / info.\nexport * from './kernel_names';\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\n// Required side effectful code.\nimport './base_side_effects';\n// All exports from this package should be in base.\nexport * from './base';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nconst contexts: {[key: string]: WebGLRenderingContext} = {};\n\nconst WEBGL_ATTRIBUTES: WebGLContextAttributes = {\n alpha: false,\n antialias: false,\n premultipliedAlpha: false,\n preserveDrawingBuffer: false,\n depth: false,\n stencil: false,\n failIfMajorPerformanceCaveat: true\n};\n\nexport function clearWebGLContext(webGLVersion: number) {\n delete contexts[webGLVersion];\n}\n\nexport function setWebGLContext(\n webGLVersion: number, gl: WebGLRenderingContext) {\n contexts[webGLVersion] = gl;\n}\n\nexport function getWebGLContext(webGLVersion:\n number): WebGLRenderingContext {\n if (!(webGLVersion in contexts)) {\n const newCtx = getWebGLRenderingContext(webGLVersion);\n if (newCtx !== null) {\n contexts[webGLVersion] = newCtx;\n } else {\n console.log('Could not get context for WebGL version', webGLVersion);\n return null;\n }\n }\n const gl = contexts[webGLVersion];\n if (gl.isContextLost()) {\n delete contexts[webGLVersion];\n return getWebGLContext(webGLVersion);\n }\n\n gl.disable(gl.DEPTH_TEST);\n gl.disable(gl.STENCIL_TEST);\n gl.disable(gl.BLEND);\n gl.disable(gl.DITHER);\n gl.disable(gl.POLYGON_OFFSET_FILL);\n gl.disable(gl.SAMPLE_COVERAGE);\n gl.enable(gl.SCISSOR_TEST);\n gl.enable(gl.CULL_FACE);\n gl.cullFace(gl.BACK);\n\n return contexts[webGLVersion];\n}\n\nfunction createCanvas(webGLVersion: number) {\n if (typeof OffscreenCanvas !== 'undefined' && webGLVersion === 2) {\n return new OffscreenCanvas(300, 150);\n } else if (typeof document !==\n 'undefined') {\n return document.createElement('canvas');\n } else {\n throw new Error('Cannot create a canvas in this context');\n }\n}\n\nfunction getWebGLRenderingContext(webGLVersion: number): WebGLRenderingContext {\n if (webGLVersion !== 1 && webGLVersion !== 2) {\n throw new Error('Cannot get WebGL rendering context, WebGL is disabled.');\n }\n const canvas = createCanvas(webGLVersion);\n\n canvas.addEventListener('webglcontextlost', (ev: Event) => {\n ev.preventDefault();\n delete contexts[webGLVersion];\n }, false);\n if (webGLVersion === 1) {\n return (canvas.getContext('webgl',

WEBGL_ATTRIBUTES) ||\n canvas.getContext('experimental-webgl', WEBGL_ATTRIBUTES)) as\n WebGLRenderingContext;\n }\n return canvas.getContext('webgl2', WEBGL_ATTRIBUTES) as WebGLRenderingContext;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, DataId, DataType, env, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nexport enum PackingScheme {\n /**\n * All values in a single texel are densely packed without any constraints.\n *\n * This is how the shader encodes a tensor with shape = [2, 3, 4]\n * (indices are [batch, row, col]).\n *\n * 000|001 010|011 020|021\n * ------- ------- -------\n * 002|003 012|013 022|023\n *\n * 100|101 110|111 120|121\n * ------- ------- -------\n * 102|103 112|113 122|123\n *\n */\n DENSE,\n\n /**\n * Single texels contain only values from the same batch, and from adjacent\n * rows and columns.\n *\n * This is how the shader encodes a tensor with shape = [2, 3, 5]\n * (indices are [batch, row, col]).\n *\n * 000|001 002|003 004|xxx 020|021 022|023 024|xxx\n * ------- ------- ------- ------- ------- -------\n * 010|011 012|013 014|xxx xxx|xxx xxx|xxx xxx|xxx\n *\n * 100|101 102|103 104|xxx 120|121 122|123 124|xxx\n * ------- ------- ------- ------- ------- -------\n * 110|111 112|113 114|xxx xxx|xxx xxx|xxx xxx|xxx\n *\n */\n SHARED_BATCH\n}\n\nexport enum TextureUsage {\n RENDER,\n UPLOAD,\n PIXELS,\n DOWNLOAD\n}\n\nexport enum PhysicalTextureType {\n UNPACKED_FLOAT16,\n UNPACKED_FLOAT32,\n PACKED_4X1_UNSIGNED_BYTE,\n PACKED_2X2_FLOAT32,\n PACKED_2X2_FLOAT16\n}\n\nexport interface TextureData {\n // Required.\n shape: number[];\n dtype: DataType;\n\n // Optional.\n values?: backend_util.BackendValues;\n texture?: WebGLTexture;\n // For complex numbers, the real and imaginary parts are stored as their own\n // individual tensorInfos, with a parent joining the two with the\n // complexTensors field. When this is defined, texture will be null.\n complexTensorInfos?: {real: TensorInfo, imag: TensorInfo};\n /** [rows, columns] shape of the texture. */\n texShape?: [number, number];\n usage?: TextureUsage;\n isPacked?: boolean;\n\n refCount: number;\n\n // Available when the tensor has been sliced.\n slice?: {\n // Offset in the 'flat index' space.\n flatOffset: number;\n // Used for counting how many sliced tensors point to the same texture.\n origDataId: DataId;\n };\n}\n\nexport function getUnpackedMatrixTextureShapeWidthHeight(\n rows: number, columns: number): [number, number] {\n return [columns, rows];\n}\n\nexport function getUnpackedArraySizeFromMatrixSize(\n matrixSize: number, channelsPerTexture: number): number {\n return matrixSize * channelsPerTexture;\n}\n\nexport function getColorMatrixTextureShapeWidthHeight(\n rows: number, columns: number): [number, number] {\n return [columns * 4, rows];\n}\n\n/**\n * Get shape for densely packed RGBA texture.\n */\nexport function getDenseTexShape(shape: number[]): [number, number] {\n const size = util.sizeFromShape(shape);\n const texelsNeeded = Math.ceil(size / 4);\n return util.sizeToSquarishShape(texelsNeeded);\n}\n\nexport function getMatrixSizeFromUnpackedArraySize(\n unpackedSize: number, channelsPerTexture: number): number {\n if (unpackedSize % channelsPerTexture !== 0) {\n throw new Error(\n `unpackedSize (${unpackedSize}) must be a multiple of ` +\n `${channelsPerTexture}`);\n }\n return unpackedSize / channelsPerTexture;\n}\n\nexport function decodeMatrixFromUnpackedColorRGBAArray(\n unpackedArray: Float32Array, matrix: Float32Array, channels: number) {\n const requiredSize = unpackedArray.length * channels / 4;\n if (matrix.length < requiredSize) {\n throw new Error(\n `matrix length (${matrix.length}) must be >= ${requiredSize}`);\n }\n let dst = 0;\n for (let src = 0; src < unpackedArray.length; src += 4) {\n for (let c = 0; c < channels; c++) {\n matrix[dst++] = unpackedArray[src + c];\n }\n }\n}\n\nexport function getPackedMatrixTextureShapeWidthHeight(\n rows: number, columns:

number): [number, number] {\n return [\n   Math.max(1, Math.ceil(columns / 2)), Math.max(1, Math.ceil(rows / 2))\n];\n}\n\nexport function getPackedRGBAArraySizeFromMatrixShape(\n   rows: number, columns: number): number {\n const [w, h] = getPackedMatrixTextureShapeWidthHeight(rows, columns);\n return w * h * 4;\n}\n\nexport interface TextureConfig {\n internalFormatFloat: number;\n textureFormatFloat: number;\n internalFormatPackedHalfFloat:
 number;\n internalFormatHalfFloat: number;\n internalFormatPackedFloat: number;\n\n // The format to use during a gl.readPixels call.\n downloadTextureFormat: number;\n // How many channels need to be unpacked after a gl.readPixels call.\n downloadUnpackNumChannels: number;\n\n defaultNumChannels: number;\n textureTypeHalfFloat: number;\n textureTypeFloat: number;\n}\n\nexport function getTextureConfig(\n   // tslint:disable-next-line:no-any\n   gl: WebGLRenderingContext, textureHalfFloatExtension?: any): TextureConfig {\n // tslint:disable-next-line:no-any\n const glany = gl as any;\n\n let internalFormatFloat: number;\n let internalFormatHalfFloat: number;\n let internalFormatPackedHalfFloat: number;\n let internalFormatPackedFloat: number;\n let textureFormatFloat: number;\n\n let downloadTextureFormat: number;\n let downloadUnpackNumChannels: number;\n\n let defaultNumChannels: number;\n let textureTypeHalfFloat: number;\n let textureTypeFloat: number;\n\n
  if (env().getNumber('WEBGL_VERSION') === 2) {\n   internalFormatFloat = glany.R32F;\n
internalFormatHalfFloat = glany.R16F;\n   internalFormatPackedHalfFloat = glany.RGBA16F;\n
internalFormatPackedFloat = glany.RGBA32F;\n   textureFormatFloat = glany.RED;\n
downloadUnpackNumChannels = 4;\n   defaultNumChannels = 1;\n   textureTypeHalfFloat =
glany.HALF_FLOAT;\n   textureTypeFloat = glany.FLOAT;\n } else {\n   internalFormatFloat = gl.RGBA;\n
internalFormatHalfFloat = gl.RGBA;\n   internalFormatPackedHalfFloat = gl.RGBA;\n
internalFormatPackedFloat = glany.RGBA;\n   textureFormatFloat = gl.RGBA;\n   downloadUnpackNumChannels
= 4;\n   defaultNumChannels = 4;\n   textureTypeHalfFloat = textureHalfFloatExtension != null ?\n
textureHalfFloatExtension.HALF_FLOAT_OES :\n   null;\n   textureTypeFloat = gl.FLOAT;\n }\n
downloadTextureFormat = gl.RGBA;\n\n return {\n   internalFormatFloat,\n   internalFormatHalfFloat,\n
internalFormatPackedHalfFloat,\n
    internalFormatPackedFloat,\n   textureFormatFloat,\n   downloadTextureFormat,\n
downloadUnpackNumChannels,\n   defaultNumChannels,\n   textureTypeHalfFloat,\n   textureTypeFloat\n
};\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {env, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport
 {getWebGLContext} from './canvas_util';\nimport {getTextureConfig} from './tex_util';\n\nexport function
callAndCheck<T>(gl: WebGLRenderingContext, func: () => T): T {\n const returnValue = func();\n if
(env().getBool('DEBUG')) {\n   checkWebGLError(gl);\n }\n return returnValue;\n}\n\nfunction
checkWebGLError(gl: WebGLRenderingContext) {\n const error = gl.getError();\n if (error !== gl.NO_ERROR)
{\n   throw new Error('WebGL Error: ' + getWebGLErrorMessage(gl, error));\n }\n}\n\n//
https://en.wikipedia.org/wiki/Half-precision_floating-point_format\nconst MIN_FLOAT16 = 5.96e-8;\nconst
MAX_FLOAT16 = 65504;\n\nexport function canBeRepresented(num: number): boolean {\n if
(env().getBool('WEBGL_RENDER_FLOAT32_ENABLED') || num === 0 ||\n   (MIN_FLOAT16 <
Math.abs(num) && Math.abs(num) < MAX_FLOAT16)) {\n   return true;\n }\n return false;\n}\n\nexport
function getWebGLErrorMessage(\n   gl: WebGLRenderingContext, status: number): string {\n switch (status) {\n
    case gl.NO_ERROR:\n   return 'NO_ERROR';\n   case gl.INVALID_ENUM:\n   return
'INVALID_ENUM';\n   case gl.INVALID_VALUE:\n   return 'INVALID_VALUE';\n   case

```
gl.INVALID_OPERATION:\n      return 'INVALID_OPERATION';\n    case
gl.INVALID_FRAMEBUFFER_OPERATION:\n      return 'INVALID_FRAMEBUFFER_OPERATION';\n    case
gl.OUT_OF_MEMORY:\n      return 'OUT_OF_MEMORY';\n    case gl.CONTEXT_LOST_WEBGL:\n      return
'CONTEXT_LOST_WEBGL';\n    default:\n      return `Unknown error code ${status}`;\n  }\n}\n\nexport function
getExtensionOrThrow(\n    gl: WebGLRenderingContext, extensionName: string): {} {\n  return
throwIfNull<{}>(\n      gl, () => gl.getExtension(extensionName),\n      'Extension \"' + extensionName + '\" not
supported on this browser.');\n}\n\nexport function createVertexShader(\n    gl: WebGLRenderingContext,
vertexShaderSource: string): WebGLShader {\n  const vertexShader: WebGLShader =
throwIfNull<WebGLShader>(\n      gl, () => gl.createShader(gl.VERTEX_SHADER),\n
    'Unable to create vertex WebGLShader.');\n  callAndCheck(gl, () => gl.shaderSource(vertexShader,
vertexShaderSource));\n  callAndCheck(gl, () => gl.compileShader(vertexShader));\n  if
(gl.getShaderParameter(vertexShader, gl.COMPILE_STATUS) === false) {\n
console.log(gl.getShaderInfoLog(vertexShader));\n    throw new Error('Failed to compile vertex shader.');\n  }\n
return vertexShader;\n}\n\nexport function createFragmentShader(\n    gl: WebGLRenderingContext,
fragmentShaderSource: string): WebGLShader {\n  const fragmentShader: WebGLShader =
throwIfNull<WebGLShader>(\n      gl, () => gl.createShader(gl.FRAGMENT_SHADER),\n      'Unable to create
fragment WebGLShader.');\n  callAndCheck(gl, () => gl.shaderSource(fragmentShader, fragmentShaderSource));\n
callAndCheck(gl, () => gl.compileShader(fragmentShader));\n  if (gl.getShaderParameter(fragmentShader,
gl.COMPILE_STATUS) === false) {\n    logShaderSourceAndInfoLog(\n        fragmentShaderSource,
gl.getShaderInfoLog(fragmentShader));\n
   throw new Error('Failed to compile fragment shader.');\n  }\n  return fragmentShader;\n}\n\nconst
lineNumberRegex = /ERROR: [0-9]+:([0-9]+):/g;\nfunction logShaderSourceAndInfoLog(\n    shaderSource: string,
shaderInfoLog: string) {\n  const lineNumberRegexResult = lineNumberRegex.exec(shaderInfoLog);\n  if
(lineNumberRegexResult == null) {\n    console.log(`Couldn't parse line number in error: ${shaderInfoLog}`);\n
console.log(shaderSource);\n    return;\n  }\n\n  const lineNumber = +lineNumberRegexResult[1];\n\n  const
shaderLines = shaderSource.split('\\n');\n  const pad = shaderLines.length.toString().length + 2;\n  const
linesWithLineNumbers = shaderLines.map(\n      (line, lineNumber) =>\n          util.rightPad((lineNumber +
1).toString(), pad) + line);\n  let maxLineLength = 0;\n  for (let i = 0; i < linesWithLineNumbers.length; i++) {\n
maxLineLength = Math.max(linesWithLineNumbers[i].length, maxLineLength);\n  }\n\n  const beforeErrorLines =
linesWithLineNumbers.slice(0,
 lineNumber - 1);\n  const errorLine = linesWithLineNumbers.slice(lineNumber - 1, lineNumber);\n  const
afterErrorLines = linesWithLineNumbers.slice(lineNumber);\n\n  console.log(beforeErrorLines.join('\\n'));\n
console.log(shaderInfoLog.split('\\n')[0]);\n  console.log(\n      `%c ${util.rightPad(errorLine[0],
maxLineLength)}`,\n      'border:1px solid red; background-color:#e3d2d2; color:#a61717');\n
console.log(afterErrorLines.join('\\n'));\n}\n\nexport function createProgram(gl: WebGLRenderingContext):
WebGLProgram {\n  return throwIfNull<WebGLProgram>(\n      gl, () => gl.createProgram(), 'Unable to create
WebGLProgram.');\n}\n\nexport function linkProgram(gl: WebGLRenderingContext, program: WebGLProgram)
{\n  callAndCheck(gl, () => gl.linkProgram(program));\n  if (gl.getProgramParameter(program, gl.LINK_STATUS)
=== false) {\n    console.log(gl.getProgramInfoLog(program));\n    throw new Error('Failed to link vertex and
fragment shaders.');\n  }\n}\n\nexport
 function validateProgram(\n    gl: WebGLRenderingContext, program: WebGLProgram) {\n  callAndCheck(gl, ()
=> gl.validateProgram(program));\n  if (gl.getProgramParameter(program, gl.VALIDATE_STATUS) === false) {\n
  console.log(gl.getProgramInfoLog(program));\n    throw new Error('Shader program validation failed.');\n
}\n}\n\nexport function createStaticVertexBuffer(\n    gl: WebGLRenderingContext, data: Float32Array):
WebGLBuffer {\n  const buffer: WebGLBuffer = throwIfNull<WebGLBuffer>(\n      gl, () => gl.createBuffer(),
'Unable to create WebGLBuffer');\n  callAndCheck(gl, () => gl.bindBuffer(gl.ARRAY_BUFFER, buffer));\n
callAndCheck(gl, () => gl.bufferData(gl.ARRAY_BUFFER, data, gl.STATIC_DRAW));\n  return
buffer;\n}\n\nexport function createStaticIndexBuffer(\n    gl: WebGLRenderingContext, data: Uint16Array):
```

WebGLBuffer {\n const buffer: WebGLBuffer = throwIfNull<WebGLBuffer>(\n   gl, () => gl.createBuffer(),
'Unable to create WebGLBuffer');\n callAndCheck(gl, () => gl.bindBuffer(gl.ELEMENT_ARRAY_BUFFER,
 buffer));\n callAndCheck(\n   gl, () => gl.bufferData(gl.ELEMENT_ARRAY_BUFFER, data,
gl.STATIC_DRAW));\n return buffer;\n}\n\nexport function getNumChannels(): number {\n if
(env().getNumber('WEBGL_VERSION') === 2) {\n   return 1;\n }\n return 4;\n}\n\nexport function
createTexture(gl: WebGLRenderingContext): WebGLTexture {\n return throwIfNull<WebGLTexture>(\n   gl, ()
=> gl.createTexture(), 'Unable to create WebGLTexture.');\n}\n\nexport function validateTextureSize(width:
number, height: number) {\n const maxTextureSize = env().getNumber('WEBGL_MAX_TEXTURE_SIZE');\n if
((width <= 0) || (height <= 0)) {\n   const requested = `[${width}x${height}]`;\n   throw new Error('Requested
texture size ' + requested + ' is invalid.');\n }\n if ((width > maxTextureSize) || (height > maxTextureSize)) {\n
const requested = `[${width}x${height}]`;\n   const max = `[${maxTextureSize}x${maxTextureSize}]`;\n   throw
new Error(\n   'Requested
 texture size ' + requested +\n   ' greater than WebGL maximum on this browser / GPU ' + max + '.');\n
}\n}\n\nexport function createFramebuffer(gl: WebGLRenderingContext): WebGLFramebuffer {\n return
throwIfNull<WebGLFramebuffer>(\n   gl, () => gl.createFramebuffer(), 'Unable to create
WebGLFramebuffer.');\n}\n\nexport function bindVertexBufferToProgramAttribute(\n   gl:
WebGLRenderingContext, program: WebGLProgram, attribute: string,\n   buffer: WebGLBuffer,
arrayEntriesPerItem: number, itemStrideInBytes: number,\n   itemOffsetInBytes: number): boolean {\n const loc =
gl.getAttribLocation(program, attribute);\n if (loc === -1) {\n   // The GPU compiler decided to strip out this
attribute because it's unused,\n   // thus no need to bind.\n   return false;\n }\n callAndCheck(gl, () =>
gl.bindBuffer(gl.ARRAY_BUFFER, buffer));\n callAndCheck(\n   gl,\n   () => gl.vertexAttribPointer(\n
loc, arrayEntriesPerItem, gl.FLOAT, false, itemStrideInBytes,\n
        itemOffsetInBytes));\n callAndCheck(gl, () => gl.enableVertexAttribArray(loc));\n return true;\n}\n\nexport
function bindTextureUnit(\n   gl: WebGLRenderingContext, texture: WebGLTexture, textureUnit: number) {\n
validateTextureUnit(gl, textureUnit);\n callAndCheck(gl, () => gl.activeTexture(gl.TEXTURE0 + textureUnit));\n
callAndCheck(gl, () => gl.bindTexture(gl.TEXTURE_2D, texture));\n}\n\nexport function unbindTextureUnit(\n
gl: WebGLRenderingContext, textureUnit: number) {\n validateTextureUnit(gl, textureUnit);\n callAndCheck(gl,
() => gl.activeTexture(gl.TEXTURE0 + textureUnit));\n callAndCheck(gl, () => gl.bindTexture(gl.TEXTURE_2D,
null));\n}\n\nexport function getProgramUniformLocationOrThrow(\n   gl: WebGLRenderingContext, program:
WebGLProgram,\n   uniformName: string): WebGLUniformLocation {\n return
throwIfNull<WebGLUniformLocation>(\n   gl, () => gl.getUniformLocation(program, uniformName),\n
'uniform \"' + uniformName + '\" not present in
 program.');\n}\n\nexport function getProgramUniformLocation(\n   gl: WebGLRenderingContext, program:
WebGLProgram,\n   uniformName: string): WebGLUniformLocation {\n return gl.getUniformLocation(program,
uniformName);\n}\n\nexport function bindTextureToProgramUniformSampler(\n   gl: WebGLRenderingContext,
texture: WebGLTexture,\n   uniformSamplerLocation: WebGLUniformLocation, textureUnit: number) {\n
callAndCheck(gl, () => bindTextureUnit(gl, texture, textureUnit));\n callAndCheck(gl, () =>
gl.uniform1i(uniformSamplerLocation, textureUnit));\n}\n\nexport function bindCanvasToFramebuffer(gl:
WebGLRenderingContext) {\n callAndCheck(gl, () => gl.bindFramebuffer(gl.FRAMEBUFFER, null));\n
callAndCheck(gl, () => gl.viewport(0, 0, gl.canvas.width, gl.canvas.height));\n callAndCheck(gl, () => gl.scissor(0,
0, gl.canvas.width, gl.canvas.height));\n}\n\nexport function bindColorTextureToFramebuffer(\n   gl:
WebGLRenderingContext, texture: WebGLTexture,\n   framebuffer: WebGLFramebuffer)
 {\n callAndCheck(gl, () => gl.bindFramebuffer(gl.FRAMEBUFFER, framebuffer));\n callAndCheck(\n   gl,\n
() => gl.framebufferTexture2D(\n   gl.FRAMEBUFFER, gl.COLOR_ATTACHMENT0, gl.TEXTURE_2D,
texture, 0));\n}\n\nexport function unbindColorTextureFromFramebuffer(\n   gl: WebGLRenderingContext,
framebuffer: WebGLFramebuffer) {\n callAndCheck(gl, () => gl.bindFramebuffer(gl.FRAMEBUFFER,
framebuffer));\n callAndCheck(\n   gl,\n   () => gl.framebufferTexture2D(\n   gl.FRAMEBUFFER,
gl.COLOR_ATTACHMENT0, gl.TEXTURE_2D, null, 0));\n}\n\nexport function validateFramebuffer(gl:

```
WebGLRenderingContext) {\n  const status = gl.checkFramebufferStatus(gl.FRAMEBUFFER);\n  if (status !==
gl.FRAMEBUFFER_COMPLETE) {\n    throw new Error(\n        'Error binding framebuffer: ' +
getFramebufferErrorMessage(gl, status));\n  }\n}\n\nexport function getFramebufferErrorMessage(\n    gl:
WebGLRenderingContext, status: number): string {\n  switch (status) {\n    case
gl.FRAMEBUFFER_INCOMPLETE_ATTACHMENT:\n
      return 'FRAMEBUFFER_INCOMPLETE_ATTACHMENT';\n    case
gl.FRAMEBUFFER_INCOMPLETE_MISSING_ATTACHMENT:\n      return
'FRAMEBUFFER_INCOMPLETE_MISSING_ATTACHMENT';\n    case
gl.FRAMEBUFFER_INCOMPLETE_DIMENSIONS:\n      return
'FRAMEBUFFER_INCOMPLETE_DIMENSIONS';\n    case gl.FRAMEBUFFER_UNSUPPORTED:\n      return
'FRAMEBUFFER_UNSUPPORTED';\n    default:\n      return `unknown error ${status}`;\n  }\n}\n\nfunction
throwIfNull<T>(\n    gl: WebGLRenderingContext, returnTOrNull: () => T | null,\n    failureMessage: string): T {\n
const tOrNull: T|null = callAndCheck(gl, () => returnTOrNull());\n  if (tOrNull == null) {\n    throw new
Error(failureMessage);\n  }\n  return tOrNull;\n}\n\nfunction validateTextureUnit(gl: WebGLRenderingContext,
textureUnit: number) {\n  const maxTextureUnit = gl.MAX_COMBINED_TEXTURE_IMAGE_UNITS - 1;\n
const glTextureUnit = textureUnit + gl.TEXTURE0;\n  if (glTextureUnit < gl.TEXTURE0 || glTextureUnit >
maxTextureUnit) {\n    const
  textureUnitRange = `[gl.TEXTURE0, gl.TEXTURE${maxTextureUnit}]`;\n    throw new Error(`textureUnit must
be in ${textureUnitRange}.`);\n  }\n}\n\nexport function getBatchDim(shape: number[], dimsToSkip = 2): number
{\n  return util.sizeFromShape(shape.slice(0, shape.length - dimsToSkip));\n}\n\nexport function
getRowsCols(shape: number[]): [number, number] {\n  if (shape.length === 0) {\n    throw Error('Cannot get rows
and columns of an empty shape array.');\n  }\n\n  return [\n    shape.length > 1 ? shape[shape.length - 2] : 1,
shape[shape.length - 1]\n  ];\n}\n\nexport function getShapeAs3D(shape: number[]): [number, number, number] {\n
let shapeAs3D: [number, number, number] = [1, 1, 1];\n  const isScalar = shape.length === 0 || (shape.length === 1
&& shape[0] === 1);\n  if (!isScalar) {\n    shapeAs3D =\n        [getBatchDim(shape), ...getRowsCols(shape)] as
[number, number, number];\n  }\n  return shapeAs3D;\n}\n\nexport function getTextureShapeFromLogicalShape(\n
  logShape:
  number[], isPacked = false): [number, number] {\n  let maxTexSize =
env().getNumber('WEBGL_MAX_TEXTURE_SIZE');\n  if (isPacked) {\n    maxTexSize = maxTexSize * 2;\n\n
// This logic ensures we accurately count the number of packed texels needed\n    // to accommodate the tensor. We
can only pack values in the same texel if\n    // they are from adjacent pairs of rows/cols within the same batch. So if
a\n    // tensor has 3 rows, we pretend it has 4 rows in order to account for the\n    // fact that the texels containing the
third row are half empty.\n    logShape = logShape.map(\n        (d, i) => i >= logShape.length - 2 ?\n
util.nearestLargerEven(logShape[i]) :\n            logShape[i]);\n\n    // Packed texture height is at least 2 (the channel
height of a single\n    // texel).\n    if (logShape.length === 1) {\n      logShape = [2, logShape[0]];\n    }\n  }\n\n  // If
logical shape is 2, we don't squeeze, since we want to match physical.\n  if (logShape.length !==
  2) {\n    const squeezeResult = util.squeezeShape(logShape);\n    logShape = squeezeResult.newShape;\n  }\n\n  let
size = util.sizeFromShape(logShape);\n  if (logShape.length <= 1 && size <= maxTexSize) {\n    return [1, size];\n
} else if (\n      logShape.length === 2 && logShape[0] <= maxTexSize &&\n      logShape[1] <= maxTexSize) {\n
return logShape as [number, number];\n  } else if (\n      logShape.length === 3 && logShape[0] * logShape[1] <=
maxTexSize &&\n      logShape[2] <= maxTexSize) {\n    return [logShape[0] * logShape[1], logShape[2]];\n  } else
if (\n      logShape.length === 3 && logShape[0] <= maxTexSize &&\n      logShape[1] * logShape[2] <=
maxTexSize) {\n    return [logShape[0], logShape[1] * logShape[2]];\n  } else if (\n      logShape.length === 4 &&\n
    logShape[0] * logShape[1] * logShape[2] <= maxTexSize &&\n      logShape[3] <= maxTexSize) {\n    return
[logShape[0] * logShape[1] * logShape[2], logShape[3]];\n  } else if (\n      logShape.length === 4
  && logShape[0] <= maxTexSize &&\n      logShape[1] * logShape[2] * logShape[3] <= maxTexSize) {\n    return
[logShape[0], logShape[1] * logShape[2] * logShape[3]];\n  } else {\n    if (isPacked) {\n      // For packed textures
size equals the number of channels required to\n      // accommodate the texture data. However in order to squarify
```

```
such that\n      // inner dimensions stay even, we rewrite size to equal the number of\n      // texels. Then in the return statement we rehydrate the squarified\n      // dimensions to channel units.\n\n      const batchDim = getBatchDim(logShape);\n      let rows = 2, cols = 2;\n      if (logShape.length) {\n        [rows, cols] = getRowsCols(logShape);\n      }\n      size = batchDim * (rows / 2) * (cols / 2);\n      return util.sizeToSquarishShape(size).map(d => d * 2) as [number, number];\n    }\n    return util.sizeToSquarishShape(size);\n  }\n}\n\nfunction isEven(n: number): boolean {\n  return n % 2 === 0;\n}\n\n/**\n * This determines whether
 reshaping a packed texture requires rearranging\n * the data within the texture, assuming 2x2 packing.\n */\nexport function isReshapeFree(shape1: number[], shape2: number[]): boolean {\n  shape1 = shape1.slice(-2);\n  shape2 = shape2.slice(-2);\n\n  if (util.arraysEqual(shape1, shape2)) {\n    return true;\n  }\n\n  if (!shape1.length || !shape2.length) {  // One of the shapes is a scalar.\n    return true;\n  }\n\n  if (shape1[0] === 0 || shape1[1] === 0 || shape2[0] === 0 ||\n      shape2[1] === 0) {\n    return true;\n  }\n\n  if (shape1.length !== shape2.length) {  // One of the shapes is a vector.\n    const shape1Cols = shape1.slice(-1)[0];\n    const shape2Cols = shape2.slice(-1)[0];\n    if (shape1Cols === shape2Cols) {\n      return true;\n    }\n\n    if (isEven(shape1Cols) && isEven(shape2Cols) &&\n      (shape1[0] === 1 || shape2[0] === 1)) {\n      return true;\n    }\n  }\n  return shape1[1] === shape2[1] && isEven(shape1[0]) && isEven(shape2[0]);\n}\n\n// We cache
 webgl params because the environment gets reset between\n// unit tests and we don't want to constantly query the WebGLContext for\n// MAX_TEXTURE_SIZE.\nlet MAX_TEXTURE_SIZE: number;\nlet MAX_TEXTURES_IN_SHADER: number;\n\nexport function getWebGLMaxTextureSize(webGLVersion: number): number {\n  if (MAX_TEXTURE_SIZE == null) {\n    const gl = getWebGLContext(webGLVersion);\n    MAX_TEXTURE_SIZE = gl.getParameter(gl.MAX_TEXTURE_SIZE);\n  }\n  return MAX_TEXTURE_SIZE;\n}\n\nexport function resetMaxTextureSize() {\n  MAX_TEXTURE_SIZE = null;\n}\nexport function resetMaxTexturesInShader() {\n  MAX_TEXTURES_IN_SHADER = null;\n}\n\nexport function getMaxTexturesInShader(webGLVersion: number): number {\n  if (MAX_TEXTURES_IN_SHADER == null) {\n    const gl = getWebGLContext(webGLVersion);\n    MAX_TEXTURES_IN_SHADER = gl.getParameter(gl.MAX_TEXTURE_IMAGE_UNITS);\n  }\n  // We cap at 16 to avoid spurious runtime \"memory exhausted\" error.\n  return Math.min(16, MAX_TEXTURES_IN_SHADER);\n}\n\nexport
 function getWebGLDisjointQueryTimerVersion(webGLVersion: number):\n    number {\n  if (webGLVersion === 0) {\n    return 0;\n  }\n\n  let queryTimerVersion: number;\n  const gl = getWebGLContext(webGLVersion);\n\n  if (hasExtension(gl, 'EXT_disjoint_timer_query_webgl2') &&\n      webGLVersion === 2) {\n    queryTimerVersion = 2;\n  } else if (hasExtension(gl, 'EXT_disjoint_timer_query')) {\n    queryTimerVersion = 1;\n  } else {\n    queryTimerVersion = 0;\n  }\n  return queryTimerVersion;\n}\n\nexport function hasExtension(gl: WebGLRenderingContext, extensionName: string) {\n  const ext = gl.getExtension(extensionName);\n  return ext != null;\n}\n\nexport function isWebGLVersionEnabled(webGLVersion: 1|2) {\n  try {\n    const gl = getWebGLContext(webGLVersion);\n    if (gl != null) {\n      return true;\n    }\n  } catch (e) {\n    console.log('Error when getting WebGL context: ', e);\n    return false;\n  }\n  return false;\n}\n\nexport function isCapableOfRenderingToFloatTexture(webGLVersion:
 number):\n    boolean {\n  if (webGLVersion === 0) {\n    return false;\n  }\n\n  const gl = getWebGLContext(webGLVersion);\n\n  if (webGLVersion === 1) {\n    if (!hasExtension(gl, 'OES_texture_float')) {\n      return false;\n    }\n  } else {\n    if (!hasExtension(gl, 'EXT_color_buffer_float')) {\n      return false;\n    }\n  }\n\n  const isFrameBufferComplete = createFloatTextureAndBindToFramebuffer(gl);\n  return isFrameBufferComplete;\n}\n\n/**\n * Check if we can download values from a float/half-float texture.\n *\n * Note that for performance reasons we use binding a texture to a framebuffer\n * as a proxy for ability to download float values later using readPixels. The\n * texture params of this texture will not match those in readPixels exactly\n * but if we are unable to bind some kind of float texture to the frameBuffer\n * then we definitely will not be able to read float values from it.\n */\nexport function isDownloadFloatTextureEnabled(webGLVersion:
 number): boolean {\n  if (webGLVersion === 0) {\n    return false;\n  }\n\n  const gl = getWebGLContext(webGLVersion);\n\n  if (webGLVersion === 1) {\n    if (!hasExtension(gl, 'OES_texture_float'))
```

{\n return false;\n }\n if (!hasExtension(gl, 'WEBGL_color_buffer_float')) {\n return false;\n }\n } else {\n if (hasExtension(gl, 'EXT_color_buffer_float')) {\n return createFloatTextureAndBindToFramebuffer(gl);\n }\n\n const COLOR_BUFFER_HALF_FLOAT = 'EXT_color_buffer_half_float';\n if (hasExtension(gl, COLOR_BUFFER_HALF_FLOAT)) {\n const textureHalfFloatExtension =\n gl.getExtension(COLOR_BUFFER_HALF_FLOAT);\n return createHalfFloatTextureAndBindToFramebuffer(\n gl, textureHalfFloatExtension);\n }\n\n return false;\n}\n\n const isFrameBufferComplete = createFloatTextureAndBindToFramebuffer(gl);\n return isFrameBufferComplete;\n}\n\nfunction createFloatTextureAndBindToFramebuffer(gl: WebGLRenderingContext):\n boolean {\n const texConfig = getTextureConfig(gl);\n\n const texture = gl.createTexture();\n gl.bindTexture(gl.TEXTURE_2D, texture);\n\n const width = 1;\n const height = 1;\n gl.texImage2D(\n gl.TEXTURE_2D, 0, texConfig.internalFormatFloat, width, height, 0,\n texConfig.textureFormatFloat, texConfig.textureTypeFloat, null);\n\n const frameBuffer = gl.createFramebuffer();\n gl.bindFramebuffer(gl.FRAMEBUFFER, frameBuffer);\n gl.framebufferTexture2D(\n gl.FRAMEBUFFER, gl.COLOR_ATTACHMENT0, gl.TEXTURE_2D, texture, 0);\n\n const isFrameBufferComplete =\n gl.checkFramebufferStatus(gl.FRAMEBUFFER) === gl.FRAMEBUFFER_COMPLETE;\n\n gl.bindTexture(gl.TEXTURE_2D, null);\n gl.bindFramebuffer(gl.FRAMEBUFFER, null);\n gl.deleteTexture(texture);\n gl.deleteFramebuffer(frameBuffer);\n\n return isFrameBufferComplete;\n}\n\nfunction createHalfFloatTextureAndBindToFramebuffer(\n // tslint:disable-next-line:no-any\n gl: WebGLRenderingContext, textureHalfFloatExtension:\n any): boolean {\n const texConfig = getTextureConfig(gl, textureHalfFloatExtension);\n const texture = gl.createTexture();\n gl.bindTexture(gl.TEXTURE_2D, texture);\n\n const width = 1;\n const height = 1;\n gl.texImage2D(\n gl.TEXTURE_2D, 0, texConfig.internalFormatHalfFloat, width, height, 0,\n texConfig.textureFormatFloat, texConfig.textureTypeHalfFloat, null);\n\n const frameBuffer = gl.createFramebuffer();\n gl.bindFramebuffer(gl.FRAMEBUFFER, frameBuffer);\n gl.framebufferTexture2D(\n gl.FRAMEBUFFER, gl.COLOR_ATTACHMENT0, gl.TEXTURE_2D, texture, 0);\n\n const isFrameBufferComplete =\n gl.checkFramebufferStatus(gl.FRAMEBUFFER) === gl.FRAMEBUFFER_COMPLETE;\n\n gl.bindTexture(gl.TEXTURE_2D, null);\n gl.bindFramebuffer(gl.FRAMEBUFFER, null);\n gl.deleteTexture(texture);\n gl.deleteFramebuffer(frameBuffer);\n\n return isFrameBufferComplete;\n}\n\nexport function isWebGLFenceEnabled(webGLVersion: number) {\n if (webGLVersion !== 2) {\n return false;\n }\n const gl = getWebGLContext(webGLVersion);\n\n // tslint:disable-next-line:no-any\n const isEnabled = (gl as any).fenceSync != null;\n return isEnabled;\n}\n\nexport function assertNotComplex(\n tensor: TensorInfo|TensorInfo[], opName: string): void {\n if (!Array.isArray(tensor)) {\n tensor = [tensor];\n }\n tensor.forEach(t => {\n if (t != null) {\n util.assert(\n t.dtype !== 'complex64',\n () => `${opName} does not support complex64 tensors ` +\n 'in the WebGL backend.');\n }\n });\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {device_util, env} from '@tensorflow/tfjs-core';\n\nimport {getMaxTexturesInShader, getWebGLDisjointQueryTimerVersion, getWebGLMaxTextureSize, isCapableOfRenderingToFloatTexture, isDownloadFloatTextureEnabled, isWebGLFenceEnabled, isWebGLVersionEnabled} from './webgl_util';\n\nconst ENV = env();\n\n/**\n * This file contains WebGL-specific flag registrations.\n */\n\n/**\n * True if WebGL is supported.\n */\nENV.registerFlag('HAS_WEBGL', () => ENV.getNumber('WEBGL_VERSION') > 0);\n\n/** 0:

No WebGL, 1: WebGL 1.0, 2: WebGL 2.0. */\nENV.registerFlag('WEBGL_VERSION', () => {\n if (isWebGLVersionEnabled(2)) {\n   return 2;\n } else if (isWebGLVersionEnabled(1)) {\n   return 1;\n }\n return 0;\n});\n\n/** Whether to check for numerical representation problems. */\nENV.registerFlag('WEBGL_CHECK_NUMERICAL_PROBLEMS', () => false);\n\nENV.registerFlag(\n'WEBGL_BUFFER_SUPPORTED', () => ENV.get('WEBGL_VERSION') === 2);\n\n/** Whether the WebGL backend will sometimes forward ops to the CPU. */\nENV.registerFlag('WEBGL_CPU_FORWARD', () => true);\n\n/** Whether the WebGL backend will always use f16 textures for rendering. */\nENV.registerFlag('WEBGL_FORCE_F16_TEXTURES', () => false);\n\n/** Whether to turn all packing related flags on. */\nENV.registerFlag('WEBGL_PACK', () => ENV.getBool('HAS_WEBGL'));\n\n/** Whether we will pack the batchnormalization op. */\nENV.registerFlag('WEBGL_PACK_NORMALIZATION', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack the clip op. */\nENV.registerFlag('WEBGL_PACK_CLIP', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack the depthwise conv op. */\n// TODO: https://github.com/tensorflow/tfjs/issues/1679\nENV.registerFlag('WEBGL_PACK_DEPTHWISECONV', () => false);\n\n/** Whether we will pack binary ops. */\nENV.registerFlag(\n'WEBGL_PACK_BINARY_OPERATIONS', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack unary ops. */\nENV.registerFlag(\n   'WEBGL_PACK_UNARY_OPERATIONS', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack array ops. */\nENV.registerFlag(\n'WEBGL_PACK_ARRAY_OPERATIONS', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack image ops. */\nENV.registerFlag(\n   'WEBGL_PACK_IMAGE_OPERATIONS', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will pack reduce ops. */\nENV.registerFlag('WEBGL_PACK_REDUCE', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether packed WebGL kernels lazily unpack their outputs. */\nENV.registerFlag('WEBGL_LAZILY_UNPACK', () => ENV.getBool('WEBGL_PACK'));\n\n/** Whether we will use the im2col algorithm to speed up convolutions. */\nENV.registerFlag('WEBGL_CONV_IM2COL', () => ENV.getBool('WEBGL_PACK'));\n\n/** The maximum texture dimension. */\nENV.registerFlag(\n   'WEBGL_MAX_TEXTURE_SIZE',\n   () => getWebGLMaxTextureSize(ENV.getNumber('WEBGL_VERSION')));\n\n/** The maximum texture dimension. */\nENV.registerFlag(\n   'WEBGL_MAX_TEXTURES_IN_SHADER',\n   () => getMaxTexturesInShader(ENV.getNumber('WEBGL_VERSION')));\n\n/**\n * The disjoint_query_timer extension version.\n * 0: disabled, 1: EXT_disjoint_timer_query, 2:\n * EXT_disjoint_timer_query_webgl2.\n * In Firefox with WebGL 2.0,\n * EXT_disjoint_timer_query_webgl2 is not available, so we must use the\n * WebGL 1.0 extension.\n */\nENV.registerFlag('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION', () => {\n const webGLVersion = ENV.getNumber('WEBGL_VERSION');\n\n if (webGLVersion === 0) {\n   return 0;\n }\n return getWebGLDisjointQueryTimerVersion(webGLVersion);\n});\n\n/**\n * Whether the timer object from the disjoint_query_timer extension gives\n * timing information that is reliable.\n */\nENV.registerFlag(\n'WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE',\n   () => ENV.getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION') > 0 &&\n!device_util.isMobile());\n\n/**\n * Whether the device is physically capable of rendering to float32 textures.\n */\nENV.registerFlag(\n   'WEBGL_RENDER_FLOAT32_CAPABLE',\n   () => isCapableOfRenderingToFloatTexture(ENV.getNumber('WEBGL_VERSION')));\n\n/**\n * Whether rendering to float32 textures is enabled. If disabled, renders to\n * float16 textures.\n */\nENV.registerFlag('WEBGL_RENDER_FLOAT32_ENABLED', () => {\n return ENV.getBool('WEBGL_FORCE_F16_TEXTURES') ?\n   false :\n   ENV.getBool('WEBGL_RENDER_FLOAT32_CAPABLE');\n});\n\n/**\n * Whether downloading float textures is enabled (16 or 32 bit). If disabled,\n * uses IEEE 754 encoding of the float32 values to 4 uint8 when downloading.\n */\nENV.registerFlag(\n   'WEBGL_DOWNLOAD_FLOAT_ENABLED',\n   () => isDownloadFloatTextureEnabled(ENV.getNumber('WEBGL_VERSION')));\n\n/** Whether the fence API is

available.
*/\nENV.registerFlag(\n 'WEBGL_FENCE_API_ENABLED',\n () => isWebGLFenceEnabled(ENV.getNumber('WEBGL_VERSION')));\n\n/**\n * Tensors with size <= than this will be uploaded as uniforms, not textures.\n */\nENV.registerFlag('WEBGL_SIZE_UPLOAD_UNIFORM', () => {\n // Use uniform uploads only when 32bit floats are supported. In\n // 16bit\n // environments there are problems with comparing a 16bit texture value\n // with a 32bit uniform value.\n const useUniforms = ENV.getBool('WEBGL_RENDER_FLOAT32_ENABLED');\n return useUniforms ? 4 : 0;\n});\n\n/**\n * If the total number of bytes allocated on the GPU is greater than this\n * number, we will aggressively delete textures upon disposal with\n * gl.deleteMatrixTexture, rather than making them available for reuse.\n *\n * Default value -1 indicates that we will never aggressively delete textures.\n */\nENV.registerFlag(\n 'WEBGL_DELETE_TEXTURE_THRESHOLD',\n () => {\n return -1;\n },\n threshold => {\n if (threshold < 0 && threshold !== -1) {\n throw new Error(\n `WEBGL_DELETE_TEXTURE_THRESHOLD must be -1 (indicating never ` +\n `delete) or at least 0, but got ${threshold}.`);\n }\n });\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {env} from '@tensorflow/tfjs-core';\n\nexport type GLSL = {\n version: string,\n attribute: string,\n varyingVs: string,\n varyingFs: string,\n texture2D: string,\n output: string,\n defineOutput: string,\n defineSpecialNaN: string,\n defineSpecialInf: string,\n defineRound: string\n};\n\nexport function getGlslDifferences(): GLSL {\n let version: string;\n let attribute: string;\n let varyingVs: string;\n let varyingFs: string;\n let texture2D: string;\n let output: string;\n let defineOutput: string;\n let defineSpecialNaN: string;\n let defineSpecialInf: string;\n let defineRound: string;\n\n if (env().getNumber('WEBGL_VERSION') === 2) {\n version = '#version 300 es';\n attribute = 'in';\n varyingVs = 'out';\n varyingFs = 'in';\n texture2D = 'texture';\n output = 'outputColor';\n defineOutput = 'out vec4 outputColor;';\n\n // Use custom isnan definition to work across differences between\n // implementations on various platforms. While this should happen in ANGLE\n // we still see differences between android and windows (on chrome) when\n // using isnan directly.\n defineSpecialNaN = `\n bool isnan_custom(float val) {\n return (val > 0.0 || val < 0.0) ? false : val != 0.0;\n }\n\n bvec4 isnan_custom(vec4 val) {\n return bvec4(isnan_custom(val.x),\n isnan_custom(val.y), isnan_custom(val.z), isnan_custom(val.w));\n }\n\n #define isnan(value) isnan_custom(value)\n `;\n // In webgl 2 we do not need to specify a custom isinf so there is no\n // need for a special INFINITY constant.\n defineSpecialInf = ``;\n defineRound = `\n #define round(value) newRound(value)\n int newRound(float value) {\n return int(floor(value + 0.5));\n }\n\n ivec4 newRound(vec4 value) {\n return ivec4(floor(value + vec4(0.5)));\n }\n `;\n } else {\n version = '';\n attribute = 'attribute';\n varyingVs = 'varying';\n varyingFs = 'varying';\n texture2D = 'texture2D';\n output = 'gl_FragColor';\n defineOutput = '';\n // WebGL1 has no built in isnan so we define one here.\n defineSpecialNaN = `\n #define isnan(value) isnan_custom(value)\n bool isnan_custom(float val) {\n return (val > 0. || val < 1. || val == 0.) ? false : true;\n }\n bvec4 isnan_custom(vec4 val) {\n return bvec4(isnan(val.x), isnan(val.y), isnan(val.z), isnan(val.w));\n }\n `;\n defineSpecialInf = `\n uniform float INFINITY;\n\n bool isinf(float val) {\n return abs(val) == INFINITY;\n }\n bvec4 isinf(vec4 val) {\n return equal(abs(val), vec4(INFINITY));\n }\n `;\n defineRound = `\n int round(float value) {\n return int(floor(value + 0.5));\n }\n\n ivec4 round(vec4 value) {\n return ivec4(floor(value + vec4(0.5)));\n }\n `;\n }\n\n return {\n version,\n attribute,\n varyingVs,\n varyingFs,\n texture2D,\n

output,\n defineOutput,\n
  defineSpecialNaN,\n defineSpecialInf,\n defineRound\n };\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {util} from '@tensorflow/tfjs-core';\n\n/**\n * Produces GLSL code that derives logical coordinates from a flat\n * index. The code performs integer division with each stride and decrements\n
 * the index until the index equals the final dimension coordinate.\n */\nexport function getLogicalCoordinatesFromFlatIndex(\n coords: string[], shape: number[], index = 'index'): string {\n const strides = util.computeStrides(shape);\n return strides\n .map((stride, i) => {\n const line1 = `int ${coords[i]} = ${index} / ${stride}`;\n const line2 = i === strides.length - 1 ?\n `int ${coords[i + 1]} = ${index} - ${coords[i]} * ${stride}` :\n `index -= ${coords[i]} * ${stride}`;\n return `${line1}; ${line2};`;\n })\n
  .join('');\n}\n\nfunction buildVec(x: string[]): string {\n if (x.length === 1) {\n return `${x[0]}`;\n }\n return `vec${x.length}(${x.join(',')})`;\n}\n\n/**\n * Produces GLSL code that computes the dot product of the input x and y\n * vectors. Handles splitting inputs into increments of vec4s when necessary.\n */\nexport function dotify(x: string[], y: string[]): string {\n if (x.length !== y.length)
 {\n throw new Error(\n `Vectors to be dotted must be of the same length -` +\n `got ${x.length} and ${y.length}`);\n }\n\n const slices: string[] = [];\n const nearestVec4 = Math.floor(x.length / 4);\n const nearestVec4Remainder = x.length % 4;\n\n for (let i = 0; i < nearestVec4; i++) {\n const xSlice = x.slice(i * 4, i * 4 + 4);\n const ySlice = y.slice(i * 4, i * 4 + 4);\n slices.push(`${buildVec(xSlice)}, ${buildVec(ySlice)}`);\n }\n\n if (nearestVec4Remainder !== 0) {\n let xSlice = x.slice(nearestVec4 * 4);\n let ySlice = y.slice(nearestVec4 * 4);\n if (xSlice.length === 1) {\n xSlice = xSlice.map(d => `float(${d})`);\n ySlice = ySlice.map(d => `float(${d})`);\n }\n slices.push(`${buildVec(xSlice)}, ${buildVec(ySlice)}`);\n }\n\n return slices.map((d, i) => `dot(${d})`).join('+');\n}\n\n/**\n * Produces GLSL that computes the flat index from 3D coordinates.\n */\nexport function getFlatIndexFrom3D(shape: [number, number,
 number]): string {\n const strides = util.computeStrides(shape).map(d => d.toString());\n\n return `\n int getFlatIndex(ivec3 coords) {\n  return coords.x * ${strides[0]} + coords.y * ${strides[1]} + coords.z;\n }\n`;\n}\n\nexport const ENCODE_FLOAT_SNIPPET = `\n const float FLOAT_MAX = 1.70141184e38;\n const float FLOAT_MIN = 1.17549435e-38;\n\n lowp vec4 encode_float(highp float v) {\n if (isnan(v)) {\n return vec4(255, 255, 255, 255);\n }\n\n highp float av = abs(v);\n\n if(av < FLOAT_MIN) {\n return vec4(0.0, 0.0, 0.0, 0.0);\n } else if(v > FLOAT_MAX) {\n return vec4(0.0, 0.0, 128.0, 127.0) / 255.0;\n } else if(v < -FLOAT_MAX) {\n return vec4(0.0, 0.0, 128.0, 255.0) / 255.0;\n }\n\n highp vec4 c = vec4(0,0,0,0);\n\n highp float e = floor(log2(av));\n highp float m = exp2(fract(log2(av))) - 1.0;\n\n c[2] = floor(128.0 * m);\n m -= c[2] / 128.0;\n c[1] = floor(32768.0 * m);\n m -= c[1] / 32768.0;\n c[0] = floor(8388608.0 * m);\n\n highp float ebias = e + 127.0;\n c[3] = floor(ebias / 2.0);\n ebias -= c[3] * 2.0;\n c[2] += floor(ebias) * 128.0;\n\n c[3] += 128.0 * step(0.0, -v);\n\n return c / 255.0;\n }\n`;\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {getGlslDifferences} from './glsl_version';\nimport

{GPGPUProgram} from './gpgpu_math';\nimport * as shader_util from './shader_compiler_util';\nimport {getDenseTexShape, PackingScheme} from './tex_util';\n\nexport class DecodeMatrixProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: [number, number, number];\n packedInputs = false;\n packedOutput = true;\n outPackingScheme = PackingScheme.DENSE;\n\n constructor(outputShape: [number, number, number]) {\n const texShape = getDenseTexShape(outputShape);\n const glsl = getGlslDifferences();\n this.outputShape = outputShape;\n\n this.userCode = `\n ivec3 outCoordsFromFlatIndex(int index) {\n ${\n shader_util.getLogicalCoordinatesFromFlatIndex(\n ['r', 'c', 'd'], outputShape)}\n return ivec3(r, c, d);\n }\n\n void main() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${texShape[0]}, ${texShape[1]}));\n int index = 4 * (resTexRC.x * ${texShape[1]} +
resTexRC.y);\n\n vec4 result = vec4(0.);\n\n for (int i=0; i<4; i++) {\n int flatIndex = index + i;\n ivec3 rc = outCoordsFromFlatIndex(flatIndex);\n result[i] = getA(rc.x, rc.y, rc.z);\n }\n\n ${glsl.output} = result;\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\nimport * as shader_util from './shader_compiler_util';\nimport {getDenseTexShape, PackingScheme} from './tex_util';\n\nexport class DecodeMatrixPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n packedInputs = true;\n packedOutput = true;\n outputShape: [number, number, number];\n outPackingScheme = PackingScheme.DENSE;\n\n constructor(outputShape: [number, number, number]) {\n const texShape = getDenseTexShape(outputShape);\n const glsl = getGlslDifferences();\n this.outputShape = outputShape;\n\n this.userCode = `\n ivec3 outCoordsFromFlatIndex(int index) {\n ${\n shader_util.getLogicalCoordinatesFromFlatIndex(\n ['r', 'c', 'd'], outputShape)}\n return ivec3(r, c, d);\n }\n\n void main() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${texShape[0]}, ${texShape[1]}));\n int index = 4 * (resTexRC.x * ${texShape[1]} + resTexRC.y);\n\n vec4 result = vec4(0.);\n\n for (int i=0; i<4; i++) {\n int flatIndex = index + i;\n ivec3 rc = outCoordsFromFlatIndex(flatIndex);\n result[i] = getChannel(getA(rc.x, rc.y, rc.z), vec2(rc.y, rc.z));\n }\n\n ${glsl.output} = result;\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==\n
*/\n\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\nimport {ENCODE_FLOAT_SNIPPET} from './shader_compiler_util';\nimport {TextureUsage} from './tex_util';\n\nexport class EncodeFloatProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n outTexUsage = TextureUsage.DOWNLOAD;\n\n constructor(outputShape: number[]) {\n const glsl = getGlslDifferences();\n this.outputShape = outputShape;\n this.userCode = `\n ${ENCODE_FLOAT_SNIPPET}\n\n void main() {\n float x = getAAtOutCoords();\n ${glsl.output} = encode_float(x);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n

* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\nimport {ENCODE_FLOAT_SNIPPET} from './shader_compiler_util';\nimport {TextureUsage} from './tex_util';\n\nexport class EncodeFloatPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n packedInputs = true;\n packedOutput = false;\n outTexUsage = TextureUsage.DOWNLOAD;\n\n constructor(outputShape:
[number, number, number]) {\n const glsl = getGlslDifferences();\n this.outputShape = outputShape;\n this.userCode = `\n ${ENCODE_FLOAT_SNIPPET}\n\n void main() {\n ivec3 coords = getOutputCoords();\n float x = getChannel(getAAtOutCoords(), vec2(coords.y, coords.z));\n ${glsl.output} = encode_float(x);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
* ==========\n */\n\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\nimport * as shader_util from './shader_compiler_util';\n\nexport class EncodeMatrixProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n\n constructor(\n outputShape: [number, number, number], texShape: [number, number],\n inputIsUnsignedByte = false) {\n const glsl = getGlslDifferences();\n const [height, width] = texShape;\n this.outputShape = outputShape;\n\n let output = `result`;\n if (inputIsUnsignedByte) {\n output = `floor(result * 255. + 0.5)`;\n }\n\n this.userCode = `\n ${shader_util.getFlatIndexFrom3D(outputShape)}\n\n void main() {\n ivec3 coords = getOutputCoords();\n\n int flatIndex = getFlatIndex(coords);\n int offset = imod(flatIndex, 4);\n\n flatIndex
= idiv(flatIndex, 4, 1.);\n\n int r = flatIndex / ${width};\n int c = imod(flatIndex, ${width});\n vec2 uv = (vec2(c, r) + halfCR) / vec2(${width}.0, ${height}.0);\n vec4 values = ${glsl.texture2D}(A, uv);\n\n float result;\n\n if(offset == 0) {\n result = values[0];\n } else if(offset == 1) {\n result = values[1];\n } else if(offset == 2) {\n result = values[2];\n } else {\n result = values[3];\n }\n\n ${glsl.output} = vec4(${output}, 0., 0., 0.);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the
License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\nimport * as shader_util from './shader_compiler_util';\n\n/*\nThis is how the shader encodes a tensor with shape = [2, 3,

```
5]\n(indices are [batch, row, col]).\n\n000|001 002|003 004|xxx 020|021 022|023 024|xxx\n------- ------- ------- ------- ------- -------\n010|011 012|013 014|xxx xxx|xxx xxx|xxx xxx|xxx\n\n100|101 102|103 104|xxx 120|121 122|123 124|xxx\n------- ------- ------- ------- ------- -------\n110|111 112|113 114|xxx xxx|xxx xxx|xxx xxx|xxx\n\nSingle texels contain only values from the same batch, and from adjacent rows\nand columns.\n */\n\nexport class EncodeMatrixPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n packedInputs = false;\n packedOutput = true;\n\n constructor(\n outputShape: [number, number, number], texShape: [number, number],\n inputIsUnsignedByte = false) {\n const glsl = getGlslDifferences();\n const [height, width] = texShape;\n this.outputShape = outputShape;\n\n let mainLoop = '';\n let output = 'result';\n if (inputIsUnsignedByte) {\n output = 'floor(result * 255. + 0.5)';\n }\n\n for (let row = 0; row <= 1; row++) {\n for (let col = 0; col <= 1; col++) {\n const channel = row * 2 + col;\n\n mainLoop += `\n localCoords = coords;\n if(localCoords[2] + ${col} < ${outputShape[2]}) {\n localCoords[2] += ${col};\n if(localCoords[1] + ${row} < ${outputShape[1]}) {\n localCoords[1] += ${row};\n\n flatIndex = getFlatIndex(localCoords);\n offset = imod(flatIndex, 4);\n\n flatIndex = idiv(flatIndex, 4, 1.);\n\n r = flatIndex / ${width};\n c = imod(flatIndex, ${width});\n uv = (vec2(c, r) + halfCR) / vec2(${width}.0, ${height}.0);\n values = ${glsl.texture2D}(A, uv);\n\n if(offset == 0) {\n result[${channel}] = values[0];\n } else if(offset == 1) {\n result[${channel}] = values[1];\n } else if(offset == 2) {\n result[${channel}] = values[2];\n } else {\n result[${channel}] = values[3];\n }\n }\n }\n `;\n }\n }\n\n this.userCode = `\n ${shader_util.getFlatIndexFrom3D(outputShape)}\n\n void main() {\n ivec3 coords = getOutputCoords();\n\n vec4 result = vec4(0.);\n int flatIndex, r, c, offset;\n ivec3 localCoords;\n vec2 uv;\n vec4 values;\n\n ${mainLoop}\n\n ${glsl.output} = ${output};\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n =============================================================================\n */\n\nimport {PixelData, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {getGlslDifferences} from './glsl_version';\nimport * as tex_util from './tex_util';\nimport {TextureConfig} from './tex_util';\nimport * as webgl_util from './webgl_util';\n\nexport function createVertexShader(gl: WebGLRenderingContext): WebGLShader {\n const glsl = getGlslDifferences();\n const vertexShaderSource = `${glsl.version}\n precision highp float;\n ${glsl.attribute} vec3 clipSpacePos;\n ${glsl.attribute} vec2 uv;\n ${glsl.varyingVs} vec2 resultUV;\n\n void main() {\n gl_Position = vec4(clipSpacePos, 1);\n resultUV = uv;\n }`;\n return webgl_util.createVertexShader(gl, vertexShaderSource);\n}\n\nexport function createVertexBuffer(gl: WebGLRenderingContext): WebGLBuffer {\n // [x y z u v] * [upper-left, lower-left, upper-right, lower-right]\n const vertexArray = new Float32Array(\n [-1, 1, 0, 0, 1, -1, -1, 0, 0, 0, 1, 1, 0, 1, 1, 1, -1, 0, 1, 0]);\n return webgl_util.createStaticVertexBuffer(gl, vertexArray);\n}\n\nexport function createIndexBuffer(gl: WebGLRenderingContext): WebGLBuffer {\n // OpenGL (and WebGL) have \"CCW == front\" winding\n const triangleVertexIndices = new Uint16Array([0, 1, 2, 2, 1, 3]);\n return webgl_util.createStaticIndexBuffer(gl, triangleVertexIndices);\n}\n\nfunction createAndConfigureTexture(\n gl: WebGLRenderingContext, width: number, height: number,\n internalFormat: number, textureFormat: number,\n textureType: number): WebGLTexture {\n webgl_util.validateTextureSize(width, height);\n const texture = webgl_util.createTexture(gl);\n\n const tex2d = gl.TEXTURE_2D;\n webgl_util.callAndCheck(gl, () =>
```

```
gl.bindTexture(tex2d, texture));\n  webgl_util.callAndCheck(\n      gl, () => gl.texParameteri(tex2d,
gl.TEXTURE_WRAP_S, gl.CLAMP_TO_EDGE));\n  webgl_util.callAndCheck(\n      gl, () =>
gl.texParameteri(tex2d, gl.TEXTURE_WRAP_T, gl.CLAMP_TO_EDGE));\n  webgl_util.callAndCheck(\n      gl, ()
=> gl.texParameteri(tex2d, gl.TEXTURE_MIN_FILTER, gl.NEAREST));\n  webgl_util.callAndCheck(\n      gl, ()
=> gl.texParameteri(tex2d, gl.TEXTURE_MAG_FILTER,
 gl.NEAREST));\n  webgl_util.callAndCheck(\n      gl,\n      () => gl.texImage2D(\n          tex2d, 0, internalFormat,
width, height, 0, textureFormat,\n          textureType, null));\n  webgl_util.callAndCheck(gl, () =>
gl.bindTexture(gl.TEXTURE_2D, null));\n  return texture;\n}\n\nexport function
getInternalFormatForFloat32MatrixTexture(\n    textureConfig: TextureConfig) {\n  return
textureConfig.internalFormatFloat;\n}\n\nexport function createFloat32MatrixTexture(\n    gl:
WebGLRenderingContext, rows: number, columns: number,\n    textureConfig: TextureConfig): WebGLTexture {\n
const [width, height] =\n      tex_util.getUnpackedMatrixTextureShapeWidthHeight(rows, columns);\n  return
createAndConfigureTexture(\n      gl, width, height,\n
getInternalFormatForFloat32MatrixTexture(textureConfig),\n      textureConfig.textureFormatFloat,
gl.FLOAT);\n}\n\nexport function getInternalFormatForFloat16MatrixTexture(\n    textureConfig: TextureConfig)
{\n  return textureConfig.internalFormatHalfFloat;\n}\n\nexport
 function createFloat16MatrixTexture(\n    gl: WebGLRenderingContext, rows: number, columns: number,\n
textureConfig: TextureConfig): WebGLTexture {\n  const [width, height] =\n
tex_util.getUnpackedMatrixTextureShapeWidthHeight(rows, columns);\n  return createAndConfigureTexture(\n
gl, width, height,\n      getInternalFormatForFloat16MatrixTexture(textureConfig),\n
textureConfig.textureFormatFloat, textureConfig.textureTypeHalfFloat);\n}\n\nexport function
getInternalFormatForUnsignedBytesMatrixTexture(\n    textureConfig: TextureConfig) {\n  return
textureConfig.downloadTextureFormat;\n}\n\nexport function createUnsignedBytesMatrixTexture(\n    gl:
WebGLRenderingContext, rows: number, columns: number,\n    textureConfig: TextureConfig): WebGLTexture {\n
const [width, height] =\n      tex_util.getUnpackedMatrixTextureShapeWidthHeight(rows, columns);\n  return
createAndConfigureTexture(\n      gl, width, height,\n
getInternalFormatForUnsignedBytesMatrixTexture(textureConfig),
 gl.RGBA,\n      gl.UNSIGNED_BYTE);\n}\n\nexport function getInternalFormatForPackedMatrixTexture(\n
textureConfig: TextureConfig) {\n  return textureConfig.internalFormatPackedFloat;\n}\n\nexport function
createPackedMatrixTexture(\n    gl: WebGLRenderingContext, rows: number, columns: number,\n    textureConfig:
TextureConfig): WebGLTexture {\n  const [width, height] =\n
tex_util.getPackedMatrixTextureShapeWidthHeight(rows, columns);\n  return createAndConfigureTexture(\n      gl,
width, height, getInternalFormatForPackedMatrixTexture(textureConfig),\n      gl.RGBA, gl.FLOAT);\n}\n\nexport
function getInternalFormatForFloat16PackedMatrixTexture(\n    textureConfig: TextureConfig) {\n  return
textureConfig.internalFormatPackedHalfFloat;\n}\n\nexport function createFloat16PackedMatrixTexture(\n    gl:
WebGLRenderingContext, rows: number, columns: number,\n    textureConfig: TextureConfig): WebGLTexture {\n
const [width,
 height] =\n      tex_util.getPackedMatrixTextureShapeWidthHeight(rows, columns);\n  return
createAndConfigureTexture(\n      gl, width, height,\n
getInternalFormatForFloat16PackedMatrixTexture(textureConfig), gl.RGBA,\n
textureConfig.textureTypeHalfFloat);\n}\n\nexport function bindVertexProgramAttributeStreams(\n    gl:
WebGLRenderingContext, program: WebGLProgram,\n    vertexBuffer: WebGLBuffer): boolean {\n  const
posOffset = 0;               // x is the first buffer element\n  const uvOffset = 3 * 4;           // uv comes after [x y z]\n
const stride = (3 * 4) + (2 * 4);  // xyz + uv, each entry is 4-byte float.\n  webgl_util.callAndCheck(\n      gl, () =>
gl.bindBuffer(gl.ARRAY_BUFFER, vertexBuffer));\n  const success =
webgl_util.bindVertexBufferToProgramAttribute(\n      gl, program, 'clipSpacePos', vertexBuffer, 3, stride,
posOffset);\n  return success &&\n      webgl_util.bindVertexBufferToProgramAttribute(\n          gl, program, 'uv',
vertexBuffer, 2, stride, uvOffset);\n}\n\nexport
```

```
 function uploadDenseMatrixToTexture(\n    gl: WebGLRenderingContext, texture: WebGLTexture, width:
number,\n    height: number, data: TypedArray, textureConfig: TextureConfig) {\n  webgl_util.callAndCheck(gl, ()
=> gl.bindTexture(gl.TEXTURE_2D, texture));\n\n  let dataForUpload: TypedArray, texelDataType: number,
internalFormat: number;\n  if (data instanceof Uint8Array) {\n    dataForUpload = new Uint8Array(width * height *
4);\n    texelDataType = gl.UNSIGNED_BYTE;\n    internalFormat = gl.RGBA;\n  } else {\n    dataForUpload =
new Float32Array(width * height * 4);\n    texelDataType = gl.FLOAT;\n    internalFormat =
textureConfig.internalFormatPackedFloat;\n  }\n\n  dataForUpload.set(data);\n\n  webgl_util.callAndCheck(\n
gl,\n      () => gl.texImage2D(\n          gl.TEXTURE_2D, 0, internalFormat, width, height, 0, gl.RGBA,\n
texelDataType, dataForUpload));\n\n  webgl_util.callAndCheck(gl, () => gl.bindTexture(gl.TEXTURE_2D,
null));\n}\n\nexport function
 uploadPixelDataToTexture(\n    gl: WebGLRenderingContext, texture: WebGLTexture,\n    pixels:
PixelData|ImageData|HTMLImageElement|HTMLCanvasElement|\n    HTMLVideoElement) {\n
webgl_util.callAndCheck(gl, () => gl.bindTexture(gl.TEXTURE_2D, texture));\n  if ((pixels as PixelData).data
instanceof Uint8Array) {\n    webgl_util.callAndCheck(\n        gl,\n        () => gl.texImage2D(\n
gl.TEXTURE_2D, 0, gl.RGBA, pixels.width, pixels.height, 0, gl.RGBA,\n            gl.UNSIGNED_BYTE, (pixels as
PixelData).data));\n  } else {\n    webgl_util.callAndCheck(\n        gl,\n        () => gl.texImage2D(\n
gl.TEXTURE_2D, 0, gl.RGBA, gl.RGBA, gl.UNSIGNED_BYTE,\n            pixels as ImageData |
HTMLImageElement | HTMLCanvasElement |\n                HTMLVideoElement));\n  }\n\n
webgl_util.callAndCheck(gl, () => gl.bindTexture(gl.TEXTURE_2D, null));\n}\n\nexport function
createBufferFromOutputTexture(\n    gl2: WebGL2RenderingContext, rows: number, columns: number,\n
  textureConfig: TextureConfig): WebGLBuffer {\n  // Create and bind the buffer.\n  const buffer =
gl2.createBuffer();\n  webgl_util.callAndCheck(\n      gl2, () => gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER,
buffer));\n\n  // Initialize the buffer to the size of the texture in bytes.\n  const bytesPerFloat = 4;\n  const
valuesPerTexel = 4;\n  const bufferSizeBytes = bytesPerFloat * valuesPerTexel * rows * columns;\n\n
webgl_util.callAndCheck(\n      gl2,\n      () => gl2.bufferData(\n          gl2.PIXEL_PACK_BUFFER,
bufferSizeBytes, gl2.STREAM_READ));\n\n  // Enqueue a command on the GPU command queue to copy of
texture into the\n  // buffer.\n  webgl_util.callAndCheck(\n      gl2, () => gl2.readPixels(0, 0, columns, rows,
gl2.RGBA, gl2.FLOAT, 0));\n\n  webgl_util.callAndCheck(\n      gl2, () =>
gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER, null));\n\n  return buffer;\n}\n\nexport function
downloadFloat32MatrixFromBuffer(\n    gl: WebGLRenderingContext, buffer: WebGLBuffer,\n    size: number):
Float32Array
 {\n  const gl2 = gl as WebGL2RenderingContext;\n\n  const downloadTarget = new Float32Array(size);\n\n
gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER, buffer);\n  gl2.getBufferSubData(gl2.PIXEL_PACK_BUFFER, 0,
downloadTarget);\n  gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER, null);\n\n  return downloadTarget;\n}\n\nexport
function downloadByteEncodedFloatMatrixFromOutputTexture(\n    gl: WebGLRenderingContext, rows: number,
columns: number,\n    textureConfig: TextureConfig) {\n  const [w, h] =\n
tex_util.getUnpackedMatrixTextureShapeWidthHeight(rows, columns);\n\n  const numChannels = 4;\n  const
downloadTarget = new Uint8Array(\n      tex_util.getUnpackedArraySizeFromMatrixSize(rows * columns,
numChannels));\n\n  webgl_util.callAndCheck(\n      gl,\n      () => gl.readPixels(\n          0, 0, w, h,
textureConfig.downloadTextureFormat, gl.UNSIGNED_BYTE,\n          downloadTarget));\n\n  // By wrapping the
buffer in a Float32Array, we use native browser IEEE 754\n  // decoding of the 4 bytes
 that back each 32 bit float.\n  return new Float32Array(downloadTarget.buffer);\n}\n\nexport function
downloadPackedMatrixFromBuffer(\n    gl: WebGLRenderingContext, buffer: WebGLBuffer, batch: number, rows:
number,\n    cols: number, physicalRows: number, physicalCols: number,\n    textureConfig: TextureConfig):
Float32Array {\n  const gl2 = gl as WebGL2RenderingContext;\n\n  const downloadTarget =\n      new
Float32Array(tex_util.getPackedRGBAArraySizeFromMatrixShape(\n          physicalRows, physicalCols));\n\n
gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER, buffer);\n  gl2.getBufferSubData(gl2.PIXEL_PACK_BUFFER, 0,
downloadTarget);\n  gl2.bindBuffer(gl2.PIXEL_PACK_BUFFER, null);\n\n  return downloadTarget;\n}\n\nexport
```

```
function downloadMatrixFromPackedOutputTexture(\n    gl: WebGLRenderingContext, physicalRows: number,\n physicalCols: number): Float32Array {\n  const packedRGBA = new Float32Array(physicalRows * physicalCols * 4);\n  webgl_util.callAndCheck(\n      gl,\n      () => gl.readPixels(\n          0, 0, physicalCols, physicalRows, gl.RGBA, gl.FLOAT, packedRGBA));\n\n  return packedRGBA;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========================================================================\n */\n\nimport {env, PixelData, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {getWebGLContext, setWebGLContext} from './canvas_util';\nimport * as gpgpu_util from './gpgpu_util';\nimport * as tex_util from './tex_util';\nimport {TextureConfig} from './tex_util';\nimport {WebGL1DisjointQueryTimerExtension, WebGL2DisjointQueryTimerExtension} from './webgl_types';\nimport * as webgl_util from './webgl_util';\n\nexport interface FenceContext {\n  query: WebGLQuery|WebGLSync;\n  isFencePassed(): boolean;\n}\n\nexport class GPGPUContext {\n  gl: WebGLRenderingContext;\n  textureFloatExtension: {};\n  textureHalfFloatExtension: {};\n colorBufferFloatExtension: {};\n  colorBufferHalfFloatExtension: {};\n  disjointQueryTimerExtension: WebGL2DisjointQueryTimerExtension|\n      WebGL1DisjointQueryTimerExtension;\n  vertexBuffer: WebGLBuffer;\n  indexBuffer: WebGLBuffer;\n  framebuffer: WebGLFramebuffer;\n  outputTexture: WebGLTexture|null = null;\n  program: WebGLProgram|null = null;\n  private disposed = false;\n  private disjoint: boolean;\n  textureConfig: TextureConfig;\n\n  constructor(gl?: WebGLRenderingContext) {\n    const glVersion = env().getNumber('WEBGL_VERSION');\n    if (gl != null) {\n      this.gl = gl;\n      setWebGLContext(glVersion, gl);\n    } else {\n      this.gl = getWebGLContext(glVersion);\n    }\n    // WebGL 2.0 enables texture floats without an extension.\n    let COLOR_BUFFER_FLOAT = 'WEBGL_color_buffer_float';\n    const COLOR_BUFFER_HALF_FLOAT = 'EXT_color_buffer_half_float';\n    if (env().getNumber('WEBGL_VERSION') === 1) {\n      const TEXTURE_FLOAT = 'OES_texture_float';\n      const TEXTURE_HALF_FLOAT = 'OES_texture_half_float';\n\n      this.textureFloatExtension =\n          webgl_util.getExtensionOrThrow(this.gl, TEXTURE_FLOAT);\n      if (webgl_util.hasExtension(this.gl, TEXTURE_HALF_FLOAT)) {\n        this.textureHalfFloatExtension =\n            webgl_util.getExtensionOrThrow(this.gl, TEXTURE_HALF_FLOAT);\n      } else if (env().get('WEBGL_FORCE_F16_TEXTURES')) {\n        throw new Error(\n            'GL context does not support half float textures, yet the ' +\n            'environment flag WEBGL_FORCE_F16_TEXTURES is set to true.');\n      }\n\n      this.colorBufferFloatExtension =\n          this.gl.getExtension(COLOR_BUFFER_FLOAT);\n      if (webgl_util.hasExtension(this.gl, COLOR_BUFFER_HALF_FLOAT)) {\n        this.colorBufferHalfFloatExtension =\n            webgl_util.getExtensionOrThrow(this.gl, COLOR_BUFFER_HALF_FLOAT);\n      } else if (env().get('WEBGL_FORCE_F16_TEXTURES')) {\n        throw new Error(\n            'GL context does not support color renderable half floats, yet ' +\n            'the environment flag WEBGL_FORCE_F16_TEXTURES is set to true.');\n      }\n    } else {\n      COLOR_BUFFER_FLOAT = 'EXT_color_buffer_float';\n      if (webgl_util.hasExtension(this.gl, COLOR_BUFFER_FLOAT)) {\n        this.colorBufferFloatExtension =\n            this.gl.getExtension(COLOR_BUFFER_FLOAT);\n      } else if (webgl_util.hasExtension(this.gl, COLOR_BUFFER_HALF_FLOAT)) {\n        this.colorBufferHalfFloatExtension =\n            this.gl.getExtension(COLOR_BUFFER_HALF_FLOAT);\n      } else {\n        throw new Error('GL context does not support color renderable floats');\n      }\n    }\n\n    this.vertexBuffer = gpgpu_util.createVertexBuffer(this.gl);\n    this.indexBuffer =
```

```
gpgpu_util.createIndexBuffer(this.gl);\n    this.framebuffer = webgl_util.createFramebuffer(this.gl);\n\n
this.textureConfig =\n        tex_util.getTextureConfig(this.gl, this.textureHalfFloatExtension);\n  }\n\n  private get
debug(): boolean {\n    return env().getBool('DEBUG');\n  }\n\n  public dispose() {\n    if (this.disposed) {\n
return;\n    }\n    if (this.program != null) {\n      console.warn(\n          'Disposing a GPGPUContext that still has a
bound WebGLProgram.' +\n          ' This is probably a resource leak, delete the program with ' +\n
'GPGPUContext.deleteProgram before disposing.');\n    }\n    if (this.outputTexture != null) {\n      console.warn(\n
    'Disposing a GPGPUContext that still has a bound output matrix ' +\n
      'texture.  This is probably a resource leak, delete the output ' +\n          'matrix texture with
GPGPUContext.deleteMatrixTexture before ' +\n          'disposing.');\n    }\n    const gl = this.gl;\n
webgl_util.callAndCheck(gl, () => gl.finish());\n    webgl_util.callAndCheck(gl, () =>
gl.bindFramebuffer(gl.FRAMEBUFFER, null));\n    webgl_util.callAndCheck(gl, () =>
gl.deleteFramebuffer(this.framebuffer));\n    webgl_util.callAndCheck(gl, () =>
gl.bindBuffer(gl.ARRAY_BUFFER, null));\n    webgl_util.callAndCheck(\n        gl, () =>
gl.bindBuffer(gl.ELEMENT_ARRAY_BUFFER, null));\n    webgl_util.callAndCheck(gl, () =>
gl.deleteBuffer(this.indexBuffer));\n    this.disposed = true;\n  }\n\n  public createFloat32MatrixTexture(rows:
number, columns: number):\n      WebGLTexture {\n    this.throwIfDisposed();\n    return
gpgpu_util.createFloat32MatrixTexture(\n        this.gl, rows, columns, this.textureConfig);\n  }\n\n  public
createFloat16MatrixTexture(rows: number, columns: number):\n
    WebGLTexture {\n    this.throwIfDisposed();\n    return gpgpu_util.createFloat16MatrixTexture(\n        this.gl,
rows, columns, this.textureConfig);\n  }\n\n  public createUnsignedBytesMatrixTexture(rows: number, columns:
number):\n      WebGLTexture {\n    this.throwIfDisposed();\n    return
gpgpu_util.createUnsignedBytesMatrixTexture(\n        this.gl, rows, columns, this.textureConfig);\n  }\n\n  public
uploadPixelDataToTexture(\n      texture: WebGLTexture,\n      pixels:
PixelData|ImageData|HTMLImageElement|HTMLCanvasElement) {\n    this.throwIfDisposed();\n
gpgpu_util.uploadPixelDataToTexture(this.gl, texture, pixels);\n  }\n\n  public uploadDenseMatrixToTexture(\n
texture: WebGLTexture, width: number, height: number, data: TypedArray) {\n    this.throwIfDisposed();\n
gpgpu_util.uploadDenseMatrixToTexture(\n        this.gl, texture, width, height, data, this.textureConfig);\n  }\n\n
public createFloat16PackedMatrixTexture(rows: number, columns: number):\n
    WebGLTexture {\n    this.throwIfDisposed();\n    return gpgpu_util.createFloat16PackedMatrixTexture(\n
this.gl, rows, columns, this.textureConfig);\n  }\n\n  public createPackedMatrixTexture(rows: number, columns:
number):\n      WebGLTexture {\n    this.throwIfDisposed();\n    return gpgpu_util.createPackedMatrixTexture(\n
 this.gl, rows, columns, this.textureConfig);\n  }\n\n  public deleteMatrixTexture(texture: WebGLTexture) {\n
this.throwIfDisposed();\n    if (this.outputTexture === texture) {\n
webgl_util.unbindColorTextureFromFramebuffer(this.gl, this.framebuffer);\n      this.outputTexture = null;\n    }\n
webgl_util.callAndCheck(this.gl, () => this.gl.deleteTexture(texture));\n  }\n\n  public
downloadByteEncodedFloatMatrixFromOutputTexture(\n      texture: WebGLTexture, rows: number, columns:
number): Float32Array {\n    return this.downloadMatrixDriver(\n        texture,\n        () =>
gpgpu_util.downloadByteEncodedFloatMatrixFromOutputTexture(\n
        this.gl, rows, columns, this.textureConfig));\n  }\n\n  public downloadPackedMatrixFromBuffer(\n      buffer:
WebGLBuffer, batch: number, rows: number, columns: number,\n      physicalRows: number, physicalCols:
number): Float32Array {\n    return gpgpu_util.downloadPackedMatrixFromBuffer(\n        this.gl, buffer, batch,
rows, columns, physicalRows, physicalCols,\n        this.textureConfig);\n  }\n\n  public
downloadFloat32MatrixFromBuffer(buffer: WebGLBuffer, size: number):\n      Float32Array {\n    return
gpgpu_util.downloadFloat32MatrixFromBuffer(this.gl, buffer, size);\n  }\n\n  public createBufferFromTexture(\n
texture: WebGLTexture, rows: number, columns: number): WebGLBuffer {\n
this.bindTextureToFrameBuffer(texture);\n    const result = gpgpu_util.createBufferFromOutputTexture(\n
this.gl as WebGL2RenderingContext, rows, columns, this.textureConfig);\n
this.unbindTextureToFrameBuffer();\n    return result;\n  }\n\n  public createAndWaitForFence():
```

```
 Promise<void> {\n    const fenceContext = this.createFence(this.gl);\n    return this.pollFence(fenceContext);\n  }\n\n  private createFence(gl: WebGLRenderingContext): FenceContext {\n    let query:
WebGLQuery|WebGLSync;\n    let isFencePassed: () => boolean;\n\n    if
(env().getBool('WEBGL_FENCE_API_ENABLED')) {\n      const gl2 = gl as WebGL2RenderingContext;\n\n
const sync = gl2.fenceSync(gl2.SYNC_GPU_COMMANDS_COMPLETE, 0);\n      gl.flush();\n\n
isFencePassed = () => {\n        const status = gl2.clientWaitSync(sync, 0, 0);\n        return status ===
gl2.ALREADY_SIGNALED ||\n            status === gl2.CONDITION_SATISFIED;\n      };\n\n      query = sync;\n
} else if (\n        env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION') > 0) {\n
query = this.beginQuery();\n      this.endQuery();\n      isFencePassed = () => this.isQueryAvailable(\n          query,\n
        env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION'));\n    } else {\n
    // If we have no way to fence, return true immediately. This will fire in\n      // WebGL 1.0 when there is no
disjoint query timer. In this case, because\n      // the fence passes immediately, we'll immediately ask for a
download of\n      // the texture, which will cause the UI thread to hang.\n      isFencePassed = () => true;\n    }\n\n
return {query, isFencePassed};\n  }\n\n  public downloadMatrixFromPackedTexture(\n      texture: WebGLTexture,
physicalRows: number,\n      physicalCols: number): Float32Array {\n    return this.downloadMatrixDriver(\n
texture,\n        () => gpgpu_util.downloadMatrixFromPackedOutputTexture(\n            this.gl, physicalRows,
physicalCols));\n  }\n\n  private vertexAttrsAreBound = false;\n\n  public createProgram(fragmentShaderSource:
string): WebGLProgram {\n    this.throwIfDisposed();\n    const gl = this.gl;\n    const fragmentShader:
WebGLShader =\n        webgl_util.createFragmentShader(gl, fragmentShaderSource);\n    const vertexShader:
 WebGLShader = gpgpu_util.createVertexShader(gl);\n    const program: WebGLProgram =
webgl_util.createProgram(gl);\n    webgl_util.callAndCheck(gl, () => gl.attachShader(program, vertexShader));\n
webgl_util.callAndCheck(gl, () => gl.attachShader(program, fragmentShader));\n    webgl_util.linkProgram(gl,
program);\n    if (this.debug) {\n      webgl_util.validateProgram(gl, program);\n    }\n    if
(!this.vertexAttrsAreBound) {\n      this.setProgram(program);\n      this.vertexAttrsAreBound =
gpgpu_util.bindVertexProgramAttributeStreams(\n          gl, this.program, this.vertexBuffer);\n    }\n    return
program;\n  }\n\n  public deleteProgram(program: WebGLProgram) {\n    this.throwIfDisposed();\n    if (program
=== this.program) {\n      this.program = null;\n    }\n    if (program != null) {\n      webgl_util.callAndCheck(this.gl,
() => this.gl.deleteProgram(program));\n    }\n  }\n\n  public setProgram(program: WebGLProgram|null) {\n
this.throwIfDisposed();\n    this.program
 = program;\n    if ((this.program != null) && this.debug) {\n      webgl_util.validateProgram(this.gl,
this.program);\n    }\n    webgl_util.callAndCheck(this.gl, () => this.gl.useProgram(program));\n  }\n\n  public
getUniformLocation(\n      program: WebGLProgram, uniformName: string,\n      shouldThrow = true):
WebGLUniformLocation {\n    this.throwIfDisposed();\n    if (shouldThrow) {\n      return
webgl_util.getProgramUniformLocationOrThrow(\n          this.gl, program, uniformName);\n    } else {\n      return
webgl_util.getProgramUniformLocation(\n          this.gl, program, uniformName);\n    }\n  }\n\n  public
getAttributeLocation(program: WebGLProgram, attribute: string):\n      number {\n    this.throwIfDisposed();\n
return webgl_util.callAndCheck(\n        this.gl, () => this.gl.getAttribLocation(program, attribute));\n  }\n\n  public
getUniformLocationNoThrow(program: WebGLProgram, uniformName: string):\n      WebGLUniformLocation {\n
  this.throwIfDisposed();\n
    return this.gl.getUniformLocation(program, uniformName);\n  }\n\n  public setInputMatrixTexture(\n
inputMatrixTexture: WebGLTexture, uniformLocation: WebGLUniformLocation,\n      textureUnit: number) {\n
this.throwIfDisposed();\n    this.throwIfNoProgram();\n    webgl_util.bindTextureToProgramUniformSampler(\n
this.gl, inputMatrixTexture, uniformLocation, textureUnit);\n  }\n\n  public setOutputMatrixTexture(\n
outputMatrixTexture: WebGLTexture, rows: number, columns: number) {\n
this.setOutputMatrixTextureDriver(outputMatrixTexture, columns, rows);\n  }\n\n  public
setOutputPackedMatrixTexture(\n      outputPackedMatrixTexture: WebGLTexture, rows: number, columns:
number) {\n    this.throwIfDisposed();\n    const [width, height] =\n
tex_util.getPackedMatrixTextureShapeWidthHeight(rows, columns);\n
```

```
this.setOutputMatrixTextureDriver(outputPackedMatrixTexture, width, height);\n  }\n\n  public
setOutputMatrixWriteRegion(\n      startRow: number, numRows:
 number, startColumn: number,\n      numColumns: number) {\n    this.setOutputMatrixWriteRegionDriver(\n
startColumn, startRow, numColumns, numRows);\n  }\n\n  public setOutputPackedMatrixWriteRegion(\n
startRow: number, numRows: number, startColumn: number,\n      numColumns: number) {\n    throw new
Error('setOutputPackedMatrixWriteRegion not implemented.');\n  }\n\n  public debugValidate() {\n    if
(this.program != null) {\n      webgl_util.validateProgram(this.gl, this.program);\n    }\n
webgl_util.validateFramebuffer(this.gl);\n  }\n\n  public executeProgram() {\n    this.throwIfDisposed();\n
this.throwIfNoProgram();\n    const gl = this.gl;\n    if (this.debug) {\n      this.debugValidate();\n    }\n
webgl_util.callAndCheck(\n        gl, () => gl.drawElements(gl.TRIANGLES, 6, gl.UNSIGNED_SHORT, 0));\n
}\n\n  public blockUntilAllProgramsCompleted() {\n    this.throwIfDisposed();\n    webgl_util.callAndCheck(this.gl,
() => this.gl.finish());\n  }\n\n  private
 getQueryTimerExtension(): WebGL1DisjointQueryTimerExtension\n      |WebGL2DisjointQueryTimerExtension
{\n    if (this.disjointQueryTimerExtension == null) {\n      this.disjointQueryTimerExtension =\n
webgl_util.getExtensionOrThrow(\n            this.gl,\n            env().getNumber(\n
'WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION') === 2 ?\n
'EXT_disjoint_timer_query_webgl2' :\n                'EXT_disjoint_timer_query') as\n
WebGL1DisjointQueryTimerExtension |\n          WebGL2DisjointQueryTimerExtension;\n    }\n    return
this.disjointQueryTimerExtension;\n  }\n\n  private getQueryTimerExtensionWebGL2():
WebGL2DisjointQueryTimerExtension {\n    return this.getQueryTimerExtension();\n  }\n\n  private
getQueryTimerExtensionWebGL1(): WebGL1DisjointQueryTimerExtension {\n    return
this.getQueryTimerExtension() as WebGL1DisjointQueryTimerExtension;\n  }\n\n  beginQuery(): WebGLQuery
{\n    if (env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION')
 === 2) {\n      const gl2 = this.gl as WebGL2RenderingContext;\n      const ext =
this.getQueryTimerExtensionWebGL2();\n\n      const query = gl2.createQuery();\n
gl2.beginQuery(ext.TIME_ELAPSED_EXT, query);\n      return query;\n    }\n    const ext =
this.getQueryTimerExtensionWebGL1();\n    const query = ext.createQueryEXT() as WebGLQuery;\n
ext.beginQueryEXT(ext.TIME_ELAPSED_EXT, query);\n    return query;\n  }\n\n  endQuery() {\n    if
(env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION') === 2) {\n      const gl2 =
this.gl as WebGL2RenderingContext;\n      const ext = this.getQueryTimerExtensionWebGL2();\n
gl2.endQuery(ext.TIME_ELAPSED_EXT);\n      return;\n    }\n    const ext =
this.getQueryTimerExtensionWebGL1();\n    ext.endQueryEXT(ext.TIME_ELAPSED_EXT);\n  }\n\n  public async
waitForQueryAndGetTime(query: WebGLQuery): Promise<number> {\n    await util.repeatedTry(\n        () =>
this.disposed ||  // while testing
 contexts are created / disposed\n                          // in rapid succession, so without this check we\n
      // may poll for the query timer indefinitely\n          this.isQueryAvailable(\n              query,\n
env().getNumber(\n                  'WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION')));\n    return
this.getQueryTime(\n        query,
env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_VERSION'));\n  }\n\n  private
getQueryTime(query: WebGLQuery, queryTimerVersion: number): number {\n    if (queryTimerVersion === 0) {\n
    return null;\n    }\n\n    if (queryTimerVersion === 2) {\n      const gl2 = this.gl as WebGL2RenderingContext;\n\n
    const timeElapsedNanos = gl2.getQueryParameter(query, gl2.QUERY_RESULT);\n      // Return milliseconds.\n
   return timeElapsedNanos / 1000000;\n    } else {\n      const ext = this.getQueryTimerExtensionWebGL1();\n\n
const timeElapsedNanos =\n          ext.getQueryObjectEXT(query,
 ext.QUERY_RESULT_EXT);\n      // Return milliseconds.\n      return timeElapsedNanos / 1000000;\n    }\n  }\n\n
private isQueryAvailable(query: WebGLQuery, queryTimerVersion: number):\n      boolean {\n    if
(queryTimerVersion === 0) {\n      return true;\n    }\n\n    if (queryTimerVersion === 2) {\n      const gl2 = this.gl
as WebGL2RenderingContext;\n      const ext = this.getQueryTimerExtensionWebGL2();\n\n      const available =\n
```

gl2.getQueryParameter(query, gl2.QUERY_RESULT_AVAILABLE);\n if (this.disjoint == null) {\n this.disjoint = this.gl.getParameter(ext.GPU_DISJOINT_EXT);\n }\n\n return available && !this.disjoint;\n } else {\n const ext = this.getQueryTimerExtensionWebGL1();\n\n const available =\n ext.getQueryObjectEXT(query, ext.QUERY_RESULT_AVAILABLE_EXT);\n if (this.disjoint == null) {\n this.disjoint = this.gl.getParameter(ext.GPU_DISJOINT_EXT);\n }\n\n return available && !this.disjoint;\n }\n }\n\n pollFence(fenceContext: FenceContext) {\n return new Promise<void>(resolve => {\n this.addItemToPoll(() => fenceContext.isFencePassed(), () => resolve());\n });\n }\n\n private itemsToPoll: PollItem[] = [];\n\n pollItems(): void {\n // Find the last query that has finished.\n const index = linearSearchLastTrue(this.itemsToPoll.map(x => x.isDoneFn));\n for (let i = 0; i <= index; ++i) {\n const {resolveFn} = this.itemsToPoll[i];\n resolveFn();\n }\n this.itemsToPoll = this.itemsToPoll.slice(index + 1);\n }\n\n private addItemToPoll(isDoneFn: () => boolean, resolveFn: () => void) {\n this.itemsToPoll.push({isDoneFn, resolveFn});\n if (this.itemsToPoll.length > 1) {\n // We already have a running loop that polls.\n return;\n }\n // Start a new loop that polls.\n util.repeatedTry(() => {\n this.pollItems();\n // End the loop if no more items to poll.\n return this.itemsToPoll.length === 0;\n });\n }\n\n private bindTextureToFrameBuffer(texture: WebGLTexture) {\n this.throwIfDisposed();\n webgl_util.bindColorTextureToFramebuffer(\n this.gl, texture, this.framebuffer);\n if (this.debug) {\n webgl_util.validateFramebuffer(this.gl);\n }\n }\n\n private unbindTextureToFrameBuffer() {\n if (this.outputTexture != null) {\n webgl_util.bindColorTextureToFramebuffer(\n this.gl, this.outputTexture, this.framebuffer);\n if (this.debug) {\n webgl_util.validateFramebuffer(this.gl);\n }\n } else {\n webgl_util.unbindColorTextureFromFramebuffer(this.gl, this.framebuffer);\n }\n }\n\n private downloadMatrixDriver(\n texture: WebGLTexture,\n downloadAndDecode: () => Float32Array): Float32Array {\n this.bindTextureToFrameBuffer(texture);\n const result = downloadAndDecode();\n this.unbindTextureToFrameBuffer();\n\n return result;\n }\n\n private setOutputMatrixTextureDriver(\n outputMatrixTextureMaybePacked:
WebGLTexture, width: number,\n height: number) {\n this.throwIfDisposed();\n const gl = this.gl;\n webgl_util.bindColorTextureToFramebuffer(\n gl, outputMatrixTextureMaybePacked, this.framebuffer);\n if (this.debug) {\n webgl_util.validateFramebuffer(gl);\n }\n this.outputTexture = outputMatrixTextureMaybePacked;\n webgl_util.callAndCheck(gl, () => gl.viewport(0, 0, width, height));\n webgl_util.callAndCheck(gl, () => gl.scissor(0, 0, width, height));\n }\n\n private setOutputMatrixWriteRegionDriver(\n x: number, y: number, width: number, height: number) {\n this.throwIfDisposed();\n webgl_util.callAndCheck(\n this.gl, () => this.gl.scissor(x, y, width, height));\n }\n\n private throwIfDisposed() {\n if (this.disposed) {\n throw new Error('Attempted to use disposed GPGPUContext.');\n }\n }\n\n private throwIfNoProgram() {\n if (this.program == null) {\n throw new Error('No
GPU program is currently set.');\n }\n }\n}\n\ntype PollItem = {\n isDoneFn: () => boolean,\n resolveFn: () => void\n};\n\n/**\n * Finds the index of the last true element using linear search.\n * Note: We can't do binary search because Chrome expects us to explicitly\n * test all fences before download:\n * https://github.com/tensorflow/tfjs/issues/1145\n */\nexport function linearSearchLastTrue(arr: Array<() => boolean>): number {\n let i = 0;\n for (; i < arr.length; ++i) {\n const isDone = arr[i]();\n if (!isDone) {\n break;\n }\n }\n return i - 1;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n

```
*/\n\nimport {backend_util, util} from '@tensorflow/tfjs-core';\nconst {getBroadcastDims} = backend_util;\nimport {getGlslDifferences, GLSL} from './glsl_version';\nimport * as shader_util from './shader_compiler_util';\n\nexport type ShapeInfo = {\n  logicalShape: number[],\n  texShape: [number, number],\n  isUniform: boolean,\n  isPacked: boolean,\n  flatOffset: number\n};\n\nexport type InputInfo = {\n  name: string,\n  shapeInfo: ShapeInfo\n};\n\nexport function makeShader(\n    inputsInfo: InputInfo[], outputShape: ShapeInfo, userCode: string,\n    usesPackedTextures: boolean): string {\n  const prefixSnippets: string[] = [];\n  inputsInfo.forEach(x => {\n    const size = util.sizeFromShape(x.shapeInfo.logicalShape);\n\n
    // Snippet when we decided to upload the values as uniform.\n    if (x.shapeInfo.isUniform) {\n
prefixSnippets.push(\n          `uniform float ${x.name}${size > 1 ? `[${size}]` : ''};`);\n    } else {\n
prefixSnippets.push(`uniform sampler2D ${x.name};`);\n      prefixSnippets.push(`uniform int offset${x.name};`);\n
  }\n  });\n  const inputPrefixSnippet = prefixSnippets.join('\\n');\n\n  const inputSamplingSnippet =\n
inputsInfo\n          .map(x => getInputSamplingSnippet(x, outputShape, usesPackedTextures))\n          .join('\\n');\n
const outTexShape = outputShape.texShape;\n  const glsl = getGlslDifferences();\n  const
floatTextureSampleSnippet = getFloatTextureSampleSnippet(glsl);\n  let outputSamplingSnippet: string;\n  let
floatTextureSetOutputSnippet: string;\n  let shaderPrefix = getShaderPrefix(glsl);\n\n  if (outputShape.isPacked) {\n
  outputSamplingSnippet =\n        getPackedOutputSamplingSnippet(outputShape.logicalShape,
  outTexShape);\n    floatTextureSetOutputSnippet = getFloatTextureSetRGBASnippet(glsl);\n  } else {\n
outputSamplingSnippet =\n        getOutputSamplingSnippet(outputShape.logicalShape, outTexShape);\n
floatTextureSetOutputSnippet = getFloatTextureSetRSnippet(glsl);\n  }\n\n  if (usesPackedTextures) {\n
shaderPrefix += SHADER_PACKED_PREFIX;\n  }\n\n  const source = [\n    shaderPrefix,
floatTextureSampleSnippet, floatTextureSetOutputSnippet,\n    inputPrefixSnippet, outputSamplingSnippet,
inputSamplingSnippet, userCode\n  ].join('\\n');\n  return source;\n}\n\nfunction getSamplerFromInInfo(inInfo:
InputInfo): string {\n  const shape = inInfo.shapeInfo.logicalShape;\n  switch (shape.length) {\n    case 0:\n      return
getSamplerScalar(inInfo);\n    case 1:\n      return getSampler1D(inInfo);\n    case 2:\n      return
getSampler2D(inInfo);\n    case 3:\n      return getSampler3D(inInfo);\n    case 4:\n      return
getSampler4D(inInfo);\n    case 5:\n      return
  getSampler5D(inInfo);\n    case 6:\n      return getSampler6D(inInfo);\n    default:\n      throw new Error(\n
`${shape.length}-D input sampling` +\n          ` is not yet supported`);\n  }\n}\n\nfunction
getPackedSamplerFromInInfo(inInfo: InputInfo): string {\n  const shape = inInfo.shapeInfo.logicalShape;\n  switch
(shape.length) {\n    case 0:\n      return getPackedSamplerScalar(inInfo);\n    case 1:\n      return
getPackedSampler1D(inInfo);\n    case 2:\n      return getPackedSampler2D(inInfo);\n    case 3:\n      return
getPackedSampler3D(inInfo);\n    default:\n      return getPackedSamplerND(inInfo);\n  }\n}\n\nfunction
getInputSamplingSnippet(\n    inInfo: InputInfo, outShapeInfo: ShapeInfo,\n    usesPackedTextures = false): string
{\n  let res = '';\n  if (usesPackedTextures) {\n    res += getPackedSamplerFromInInfo(inInfo);\n  } else {\n    res +=
getSamplerFromInInfo(inInfo);\n  }\n\n  const inShape = inInfo.shapeInfo.logicalShape;\n  const outShape =
outShapeInfo.logicalShape;\n
  if (inShape.length <= outShape.length) {\n    if (usesPackedTextures) {\n      res +=
getPackedSamplerAtOutputCoords(inInfo, outShapeInfo);\n    } else {\n      res +=
getSamplerAtOutputCoords(inInfo, outShapeInfo);\n    }\n  }\n  return res;\n}\n\nfunction
getPackedOutputSamplingSnippet(\n    outShape: number[], outTexShape: [number, number]): string {\n  switch
(outShape.length) {\n    case 0:\n      return getOutputScalarCoords();\n    case 1:\n      return
getOutputPacked1DCoords(outShape as [number], outTexShape);\n    case 2:\n      return
getOutputPacked2DCoords(outShape as [number, number], outTexShape);\n    case 3:\n      return
getOutputPacked3DCoords(\n          outShape as [number, number, number], outTexShape);\n    default:\n      return
getOutputPackedNDCoords(outShape, outTexShape);\n  }\n}\n\nfunction getOutputSamplingSnippet(\n
outShape: number[], outTexShape: [number, number]): string {\n  switch (outShape.length) {\n    case 0:\n      return
  getOutputScalarCoords();\n    case 1:\n      return getOutput1DCoords(outShape as [number], outTexShape);\n
case 2:\n      return getOutput2DCoords(outShape as [number, number], outTexShape);\n    case 3:\n      return
```

```
getOutput3DCoords(\n          outShape as [number, number, number], outTexShape);\n    case 4:\n      return
getOutput4DCoords(\n          outShape as [number, number, number, number], outTexShape);\n    case 5:\n      return
getOutput5DCoords(\n          outShape as [number, number, number, number, number], outTexShape);\n    case 6:\n
  return getOutput6DCoords(\n          outShape as [number, number, number, number, number, number],\n
outTexShape);\n    default:\n      throw new Error(\n          `${outShape.length}-D output sampling is not yet
supported`);\n  }\n}\n\nfunction getFloatTextureSampleSnippet(glsl: GLSL): string {\n  return `\n    float
sampleTexture(sampler2D textureSampler, vec2 uv) {\n      return ${glsl.texture2D}(textureSampler, uv).r;\n
  }\n  `;\n}\n\nfunction getFloatTextureSetRSnippet(glsl: GLSL): string {\n  return `\n    void setOutput(float val)
{\n      ${glsl.output} = vec4(val, 0, 0, 0);\n    }\n  `;\n}\n\nfunction getFloatTextureSetRGBASnippet(glsl: GLSL):
string {\n  return `\n    void setOutput(vec4 val) {\n      ${glsl.output} = val;\n    }\n  `;\n}\n\nfunction
getShaderPrefix(glsl: GLSL): string {\n  const SHADER_PREFIX = `${glsl.version}\n    precision highp float;\n
precision highp int;\n    precision highp sampler2D;\n    ${glsl.varyingFs} vec2 resultUV;\n
${glsl.defineOutput}\n    const vec2 halfCR = vec2(0.5, 0.5);\n\n    struct ivec5\n    {\n      int x;\n      int y;\n      int
z;\n      int w;\n      int u;\n    };\n\n    struct ivec6\n    {\n      int x;\n      int y;\n      int z;\n      int w;\n      int u;\n
int v;\n    };\n\n    uniform float NAN;\n    ${glsl.defineSpecialNaN}\n    ${glsl.defineSpecialInf}\n
${glsl.defineRound}\n\n    int imod(int x, int y) {\n      return
 x - y * (x / y);\n    }\n\n    int idiv(int a, int b, float sign) {\n      int res = a / b;\n      int mod = imod(a, b);\n      if
(sign < 0. && mod != 0) {\n        res -= 1;\n      }\n      return res;\n    }\n\n    //Based on the work of Dave Hoskins\n
 //https://www.shadertoy.com/view/4djSRW\n    #define HASHSCALE1 443.8975\n    float random(float seed){\n
 vec2 p = resultUV * seed;\n      vec3 p3  = fract(vec3(p.xyx) * HASHSCALE1);\n      p3 += dot(p3, p3.yzx +
19.19);\n      return fract((p3.x + p3.y) * p3.z);\n    }\n\n    ${SAMPLE_1D_SNIPPET}\n
${SAMPLE_2D_SNIPPET}\n    ${SAMPLE_3D_SNIPPET}\n  `;\n\n  return SHADER_PREFIX;\n}\n\nconst
SAMPLE_1D_SNIPPET = `\nvec2 uvFromFlat(int texNumR, int texNumC, int index) {\n  int texR = index /
texNumC;\n  int texC = index - texR * texNumC;\n  return (vec2(texC, texR) + halfCR) / vec2(texNumC,
texNumR);\n}\nvec2 packedUVfrom1D(int texNumR, int texNumC, int index) {\n  int texelIndex = index / 2;\n  int
texR = texelIndex / texNumC;\n
  int texC = texelIndex - texR * texNumC;\n  return (vec2(texC, texR) + halfCR) / vec2(texNumC,
texNumR);\n}\n`;\n\nconst SAMPLE_2D_SNIPPET = `\nvec2 packedUVfrom2D(int texelsInLogicalRow, int
texNumR,\n  int texNumC, int row, int col) {\n  int texelIndex = (row / 2) * texelsInLogicalRow + (col / 2);\n  int
texR = texelIndex / texNumC;\n  int texC = texelIndex - texR * texNumC;\n  return (vec2(texC, texR) + halfCR) /
vec2(texNumC, texNumR);\n}\n`;\n\nconst SAMPLE_3D_SNIPPET = `\nvec2 packedUVfrom3D(int texNumR, int
texNumC,\n    int texelsInBatch, int texelsInLogicalRow, int b,\n    int row, int col) {\n  int index = b * texelsInBatch
+ (row / 2) * texelsInLogicalRow + (col / 2);\n  int texR = index / texNumC;\n  int texC = index - texR *
texNumC;\n  return (vec2(texC, texR) + halfCR) / vec2(texNumC, texNumR);\n}\n`;\n\nconst
SHADER_PACKED_PREFIX = `\n  float getChannel(vec4 frag, vec2 innerDims) {\n    vec2 modCoord =
mod(innerDims, 2.);\n    return modCoord.x == 0. ?\n      (modCoord.y
 == 0. ? frag.r : frag.g) :\n      (modCoord.y == 0. ? frag.b : frag.a);\n  }\n  float getChannel(vec4 frag, int dim) {\n
float modCoord = mod(float(dim), 2.);\n    return modCoord == 0. ? frag.r : frag.g;\n  }\n`;\n\nfunction
getOutputScalarCoords() {\n  return `\n    int getOutputCoords() {\n      return 0;\n    }\n  `;\n}\n\nfunction
getOutputPacked1DCoords(\n    shape: [number], texShape: [number, number]): string {\n  const packedTexShape
=\n      [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n  if (packedTexShape[0] === 1) {\n    return `\n
int getOutputCoords() {\n        return 2 * int(resultUV.x * ${packedTexShape[1]}.0);\n      }\n    `;\n  }\n\n  if
(packedTexShape[1] === 1) {\n    return `\n      int getOutputCoords() {\n        return 2 * int(resultUV.y *
${packedTexShape[0]}.0);\n      }\n    `;\n  }\n\n  return `\n    int getOutputCoords() {\n      ivec2 resTexRC =
ivec2(resultUV.yx *\n                             vec2(${packedTexShape[0]}, ${packedTexShape[1]}));\n
    return 2 * (resTexRC.x * ${packedTexShape[1]} + resTexRC.y);\n    }\n  `;\n}\n\nfunction
getOutput1DCoords(\n    shape: [number], texShape: [number, number]): string {\n  if (texShape[0] === 1) {\n
return `\n      int getOutputCoords() {\n        return int(resultUV.x * ${texShape[1]}.0);\n      }\n    `;\n  }\n  if
```

```
(texShape[1] === 1) {\n    return `\n      int getOutputCoords() {\n        return int(resultUV.y * ${texShape[0]}.0);\n
  }\n    `;\n  }\n  return `\n    int getOutputCoords() {\n      ivec2 resTexRC = ivec2(resultUV.yx *\n
vec2(${texShape[0]}, ${texShape[1]}));\n      return resTexRC.x * ${texShape[1]} + resTexRC.y;\n    }\n
`;\n}\n\nfunction getOutputPacked3DCoords(\n    shape: [number, number, number], texShape: [number, number]):
string {\n  const packedTexShape =\n      [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n  const
texelsInLogicalRow = Math.ceil(shape[2] / 2);\n  const texelsInBatch = texelsInLogicalRow
 * Math.ceil(shape[1] / 2);\n\n  return `\n    ivec3 getOutputCoords() {\n      ivec2 resTexRC = ivec2(resultUV.yx *\n
                vec2(${packedTexShape[0]}, ${packedTexShape[1]}));\n      int index = resTexRC.x *
${packedTexShape[1]} + resTexRC.y;\n\n      int b = index / ${texelsInBatch};\n      index -= b *
${texelsInBatch};\n\n      int r = 2 * (index / ${texelsInLogicalRow});\n      int c = imod(index,
${texelsInLogicalRow}) * 2;\n\n      return ivec3(b, r, c);\n    }\n  `;\n}\n\nfunction getOutput3DCoords(\n    shape:
[number, number, number], texShape: [number, number]): string {\n  const coordsFromIndexSnippet =\n
shader_util.getLogicalCoordinatesFromFlatIndex(['r', 'c', 'd'], shape);\n\n  return `\n    ivec3 getOutputCoords() {\n
 ivec2 resTexRC = ivec2(resultUV.yx *\n                vec2(${texShape[0]}, ${texShape[1]}));\n      int index
= resTexRC.x * ${texShape[1]} + resTexRC.y;\n      ${coordsFromIndexSnippet}\n      return
 ivec3(r, c, d);\n    }\n  `;\n}\n\nfunction getOutputPackedNDCoords(\n    shape: number[], texShape: [number,
number]): string {\n  const packedTexShape =\n      [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n\n
const texelsInLogicalRow = Math.ceil(shape[shape.length - 1] / 2);\n  const texelsInBatch =\n
texelsInLogicalRow * Math.ceil(shape[shape.length - 2] / 2);\n  let texelsInBatchN = texelsInBatch;\n  let batches =
``;\n  let coords = 'b, r, c';\n\n  for (let b = 2; b < shape.length - 1; b++) {\n    texelsInBatchN *= shape[shape.length -
b - 1];\n    batches = `\n      int b${b} = index / ${texelsInBatchN};\n      index -= b${b} * ${texelsInBatchN};\n    `
+ batches;\n    coords = `b${b}, ` + coords;\n  }\n\n  return `\n    ivec${shape.length} getOutputCoords() {\n
ivec2 resTexRC = ivec2(resultUV.yx *\n                vec2(${packedTexShape[0]},
${packedTexShape[1]}));\n      int index = resTexRC.x * ${packedTexShape[1]} + resTexRC.y;\n\n
 ${batches}\n\n      int b = index / ${texelsInBatch};\n      index -= b * ${texelsInBatch};\n\n      int r = 2 * (index /
${texelsInLogicalRow});\n      int c = imod(index, ${texelsInLogicalRow}) * 2;\n\n      return
ivec${shape.length}(${coords});\n    }\n  `;\n}\n\nfunction getOutput4DCoords(\n    shape: [number, number,
number, number],\n    texShape: [number, number]): string {\n  const coordsFromIndexSnippet =
shader_util.getLogicalCoordinatesFromFlatIndex(\n      ['r', 'c', 'd', 'd2'], shape);\n\n  return `\n    ivec4
getOutputCoords() {\n      ivec2 resTexRC = ivec2(resultUV.yx *\n        vec2(${texShape[0]}, ${texShape[1]}));\n
 int index = resTexRC.x * ${texShape[1]} + resTexRC.y;\n      ${coordsFromIndexSnippet}\n      return ivec4(r, c,
d, d2);\n    }\n  `;\n}\n\nfunction getOutput5DCoords(\n    shape: [number, number, number, number, number],\n
texShape: [number, number]): string {\n  const coordsFromIndexSnippet =
shader_util.getLogicalCoordinatesFromFlatIndex(\n
    ['r', 'c', 'd', 'd2', 'd3'], shape);\n\n  return `\n    ivec5 getOutputCoords() {\n      ivec2 resTexRC =
ivec2(resultUV.yx * vec2(${texShape[0]},\n                ${texShape[1]}));\n\n      int index = resTexRC.x *
${texShape[1]} + resTexRC.y;\n\n      ${coordsFromIndexSnippet}\n\n      ivec5 outShape = ivec5(r, c, d, d2, d3);\n
  return outShape;\n    }\n  `;\n}\n\nfunction getOutput6DCoords(\n    shape: [number, number, number, number,
number, number],\n    texShape: [number, number]): string {\n  const coordsFromIndexSnippet =
shader_util.getLogicalCoordinatesFromFlatIndex(\n      ['r', 'c', 'd', 'd2', 'd3', 'd4'], shape);\n\n  return `\n    ivec6
getOutputCoords() {\n      ivec2 resTexRC = ivec2(resultUV.yx *\n        vec2(${texShape[0]}, ${texShape[1]}));\n
 int index = resTexRC.x * ${texShape[1]} + resTexRC.y;\n\n      ${coordsFromIndexSnippet}\n\n      ivec6 result =
ivec6(r, c, d, d2, d3, d4);\n      return result;\n    }\n  `;\n}\n\nfunction getOutputPacked2DCoords(\n
    shape: [number, number], texShape: [number, number]): string {\n  const packedTexShape =\n
[Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n  if (util.arraysEqual(shape, texShape)) {\n    return `\n
ivec2 getOutputCoords() {\n      return 2 * ivec2(resultUV.yx * vec2(${packedTexShape[0]}, ${\n
packedTexShape[1]}));\n    }\n  `;\n  }\n\n  // texels needed to accommodate a logical row\n  const
texelsInLogicalRow = Math.ceil(shape[1] / 2);\n\n  /**\n   * getOutputCoords\n   *\n   * resTexRC: The rows and
```

columns of the texels. If you move over one\n * texel to the right in the packed texture, you are moving over one column\n * (not two).\n *\n * index: The texel index\n */\n return `\n ivec2 getOutputCoords() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${packedTexShape[0]}, ${packedTexShape[1]}));\n\n int index = resTexRC.x * ${packedTexShape[1]} + resTexRC.y;\n int r = 2 * (index / ${texelsInLogicalRow});\n int c = imod(index, ${texelsInLogicalRow}) * 2;\n\n return ivec2(r, c);\n }\n `;\n}\n\nfunction getOutput2DCoords(\n shape: [number, number], texShape: [number, number]): string {\n if (util.arraysEqual(shape, texShape)) {\n return `\n ivec2 getOutputCoords() {\n return ivec2(resultUV.yx * vec2(${texShape[0]}, ${texShape[1]}));\n }\n `;\n }\n if (shape[1] === 1) {\n return `\n ivec2 getOutputCoords() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${texShape[0]}, ${texShape[1]}));\n int index = resTexRC.x * ${texShape[1]} + resTexRC.y;\n return ivec2(index, 0);\n }\n `;\n }\n if (shape[0] === 1) {\n return `\n ivec2 getOutputCoords() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${texShape[0]}, ${texShape[1]}));\n int index = resTexRC.x * ${texShape[1]} + resTexRC.y;\n return ivec2(0, index);\n }\n `;\n }\n return `\n ivec2 getOutputCoords() {\n ivec2 resTexRC = ivec2(resultUV.yx *\n vec2(${texShape[0]}, ${texShape[1]}));\n int index = resTexRC.x * ${texShape[1]} + resTexRC.y;\n int r = index / ${shape[1]};\n int c = index - r * ${shape[1]};\n return ivec2(r, c);\n }\n `;\n}\n\nfunction getFlatOffsetUniformName(texName: string): string {\n return `offset${texName}`;\n}\n\nfunction getPackedSamplerScalar(inputInfo: InputInfo): string {\n const texName = inputInfo.name;\n const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n const glsl = getGlslDifferences();\n return `\n vec4 ${funcName}() {\n return ${glsl.texture2D}(${texName}, halfCR);\n }\n `;\n}\n\nfunction getSamplerScalar(inputInfo: InputInfo): string {\n const texName = inputInfo.name;\n const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n if (inputInfo.shapeInfo.isUniform) {\n return `float ${funcName}() {return ${texName};}`;\n }\n const [texNumR, texNumC] = inputInfo.shapeInfo.texShape;\n if (texNumR === 1 && texNumC === 1) {\n return `\n float ${funcName}() {\n return sampleTexture(${texName}, halfCR);\n }\n `;\n }\n\n const [tNumR, tNumC] = inputInfo.shapeInfo.texShape;\n const offset = getFlatOffsetUniformName(texName);\n return `\n float ${funcName}() {\n vec2 uv = uvFromFlat(${tNumR}, ${tNumC}, ${offset});\n return sampleTexture(${texName}, uv);\n }\n `;\n}\n\nfunction getPackedSampler1D(inputInfo: InputInfo): string {\n const texName = inputInfo.name;\n const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n const texShape = inputInfo.shapeInfo.texShape;\n const packedTexShape =\n [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n const glsl = getGlslDifferences();\n\n return `\n vec4 ${funcName}(int index) {\n vec2 uv = packedUVfrom1D(\n ${packedTexShape[0]}, ${packedTexShape[1]}, index);\n return ${glsl.texture2D}(${texName}, uv);\n }\n `;\n}\n\nfunction getSampler1D(inputInfo: InputInfo): string {\n const texName = inputInfo.name;\n const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n\n if (inputInfo.shapeInfo.isUniform) {\n // Uniform arrays will be less than 65505 (no risk of float16 overflow).\n return `\n float ${funcName}(int index) {\n ${getUniformSampler(inputInfo)}\n }\n `;\n }\n\n const texShape = inputInfo.shapeInfo.texShape;\n const tNumR = texShape[0];\n const tNumC = texShape[1];\n\n if (tNumC === 1 && tNumR === 1) {\n return `\n float ${funcName}(int index) {\n return sampleTexture(${texName}, halfCR);\n }\n `;\n }\n const offset = getFlatOffsetUniformName(texName);\n if (tNumC === 1) {\n return `\n float ${funcName}(int index) {\n vec2 uv = vec2(0.5, (float(index + ${offset}) + 0.5) / ${tNumR}.0);\n return sampleTexture(${texName}, uv);\n }\n `;\n }\n if (tNumR === 1) {\n return `\n float ${funcName}(int index) {\n vec2 uv = vec2((float(index + ${offset}) + 0.5) / ${tNumC}.0, 0.5);\n return sampleTexture(${texName}, uv);\n }\n `;\n }\n return `\n float ${funcName}(int index) {\n vec2 uv = uvFromFlat(${tNumR}, ${tNumC}, index + ${offset});\n return sampleTexture(${texName}, uv);\n }\n `;\n}\n\nfunction getPackedSampler2D(inputInfo: InputInfo): string {\n const shape = inputInfo.shapeInfo.logicalShape;\n const texName = inputInfo.name;\n const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n const texShape = inputInfo.shapeInfo.texShape;\n\n const

```
texNumR = texShape[0];\n  const texNumC = texShape[1];\n  const glsl = getGlslDifferences();\n  if (texShape !=
null && util.arraysEqual(shape, texShape)) {\n    return `\n      vec4 ${funcName}(int row, int col) {\n        vec2 uv
= (vec2(col,
 row) + halfCR) / vec2(${texNumC}.0, ${texNumR}.0);\n\n        return ${glsl.texture2D}(${texName}, uv);\n
}\n    `;\n  }\n\n  const packedTexShape =\n      [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n  const
valuesPerRow = Math.ceil(shape[1] / 2);\n\n  return `\n    vec4 ${funcName}(int row, int col) {\n      vec2 uv =
packedUVfrom2D(${valuesPerRow}, ${packedTexShape[0]}, ${\n      packedTexShape[1]}, row, col);\n      return
${glsl.texture2D}(${texName}, uv);\n    }\n  `;\n}\n\nfunction getSampler2D(inputInfo: InputInfo): string {\n  const
shape = inputInfo.shapeInfo.logicalShape;\n  const texName = inputInfo.name;\n  const funcName = 'get' +
texName.charAt(0).toUpperCase() + texName.slice(1);\n  const texShape = inputInfo.shapeInfo.texShape;\n\n  if
(texShape != null && util.arraysEqual(shape, texShape)) {\n    const texNumR = texShape[0];\n    const texNumC =
texShape[1];\n    return `\n    float ${funcName}(int row, int col) {\n      vec2 uv = (vec2(col,
 row) + halfCR) / vec2(${texNumC}.0, ${texNumR}.0);\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n
}\n\n  const {newShape, keptDims} = util.squeezeShape(shape);\n  const squeezedShape = newShape;\n  if
(squeezedShape.length < shape.length) {\n    const newInputInfo = squeezeInputInfo(inputInfo, squeezedShape);\n
const params = ['row', 'col'];\n    return `\n      ${getSamplerFromInInfo(newInputInfo)}\n      float ${funcName}(int
row, int col) {\n        return ${funcName}(${getSqueezedParams(params, keptDims)});\n      }\n    `;\n  }\n\n  if
(inputInfo.shapeInfo.isUniform) {\n    // Uniform arrays will be less than 65505 (no risk of float16 overflow).\n
return `\n      float ${funcName}(int row, int col) {\n        int index = round(dot(vec2(row, col), vec2(${shape[1]},
1)));\n        ${getUniformSampler(inputInfo)}\n      }\n    `;\n  }\n\n  const texNumR = texShape[0];\n  const
texNumC = texShape[1];\n  const offset = getFlatOffsetUniformName(texName);\n  if (texNumC
 === 1) {\n    // index is used directly as physical (no risk of float16 overflow).\n    return `\n    float
${funcName}(int row, int col) {\n      float index = dot(vec3(row, col, ${offset}), vec3(${shape[1]}, 1, 1));\n
vec2 uv = vec2(0.5, (index + 0.5) / ${texNumR}.0);\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n  }\n
if (texNumR === 1) {\n    // index is used directly as physical (no risk of float16 overflow).\n    return `\n    float
${funcName}(int row, int col) {\n      float index = dot(vec3(row, col, ${offset}), vec3(${shape[1]}, 1, 1));\n
vec2 uv = vec2((index + 0.5) / ${texNumC}.0, 0.5);\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n  }\n\n
return `\n  float ${funcName}(int row, int col) {\n    // Explicitly use integer operations as dot() only works on
floats.\n    int index = row * ${shape[1]} + col + ${offset};\n    vec2 uv = uvFromFlat(${texNumR}, ${texNumC},
index);\n    return sampleTexture(${texName}, uv);\n  }\n`;\n}\n\nfunction
 getPackedSampler3D(inputInfo: InputInfo): string {\n  const shape = inputInfo.shapeInfo.logicalShape;\n  const
texName = inputInfo.name;\n  const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n
const texShape = inputInfo.shapeInfo.texShape;\n  const packedTexShape =\n      [Math.ceil(texShape[0] / 2),
Math.ceil(texShape[1] / 2)];\n\n  if (shape[0] === 1) {\n    const squeezedShape = shape.slice(1);\n    const keptDims
= [1, 2];\n    const newInputInfo = squeezeInputInfo(inputInfo, squeezedShape);\n    const params = ['b', 'row',
'col'];\n    return `\n      ${getPackedSamplerFromInInfo(newInputInfo)}\n      vec4 ${funcName}(int b, int row,
int col) {\n        return ${funcName}(${getSqueezedParams(params, keptDims)});\n      }\n    `;\n  }\n\n  const
texNumR = packedTexShape[0];\n  const texNumC = packedTexShape[1];\n\n  const valuesPerRow =
Math.ceil(shape[2] / 2);\n  const texelsInBatch = valuesPerRow * Math.ceil(shape[1] / 2);\n  const glsl
 = getGlslDifferences();\n\n  return `\n    vec4 ${funcName}(int b, int row, int col) {\n      vec2 uv =
packedUVfrom3D(\n        ${texNumR}, ${texNumC}, ${texelsInBatch}, ${valuesPerRow}, b, row, col);\n
return ${glsl.texture2D}(${texName}, uv);\n    }\n  `;\n}\n\nfunction getSampler3D(inputInfo: InputInfo): string {\n
const shape = inputInfo.shapeInfo.logicalShape;\n  const texName = inputInfo.name;\n  const funcName = 'get' +
texName.charAt(0).toUpperCase() + texName.slice(1);\n  const stride0 = shape[1] * shape[2];\n  const stride1 =
shape[2];\n\n  const {newShape, keptDims} = util.squeezeShape(shape);\n  const squeezedShape = newShape;\n  if
(squeezedShape.length < shape.length) {\n    const newInputInfo = squeezeInputInfo(inputInfo, squeezedShape);\n
const params = ['row', 'col', 'depth'];\n    return `\n      ${getSamplerFromInInfo(newInputInfo)}\n      float
${funcName}(int row, int col, int depth) {\n        return ${funcName}(${getSqueezedParams(params,
```

```
keptDims)});\n
      }\n    `;\n  }\n\n  if (inputInfo.shapeInfo.isUniform) {\n    // Uniform arrays will be less than 65505 (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth) {\n        int index = round(dot(vec3(row, col, depth),\n                              vec3(${stride0}, ${stride1}, 1)));\n        ${getUniformSampler(inputInfo)}\n      }\n    `;\n  }\n\n  const texShape = inputInfo.shapeInfo.texShape;\n  const texNumR = texShape[0];\n  const texNumC = texShape[1];\n  const flatOffset = inputInfo.shapeInfo.flatOffset;\n  if (texNumC === stride0 && flatOffset == null) {\n    // texC is used directly as physical (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth) {\n        float texR = float(row);\n        float texC = dot(vec2(col, depth), vec2(${stride1}, 1));\n        vec2 uv = (vec2(texC, texR) + halfCR) /\n                  vec2(${texNumC}.0, ${texNumR}.0);\n        return sampleTexture(${texName},
 uv);\n      }\n    `;\n  }\n\n  if (texNumC === stride1 && flatOffset == null) {\n    // texR is used directly as physical (no risk of float16 overflow).\n    return `\n    float ${funcName}(int row, int col, int depth) {\n      float texR = dot(vec2(row, col), vec2(${shape[1]}, 1));\n      float texC = float(depth);\n      vec2 uv = (vec2(texC, texR) + halfCR) / vec2(${texNumC}.0, ${texNumR}.0);\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n  }\n\n  const offset = getFlatOffsetUniformName(texName);\n  return `\n    float ${funcName}(int row, int col, int depth) {\n      // Explicitly use integer operations as dot() only works on floats.\n      int index = row * ${stride0} + col * ${stride1} + depth + ${offset};\n      vec2 uv = uvFromFlat(${texNumR}, ${texNumC}, index);\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n}\n\nfunction getPackedSamplerND(inputInfo: InputInfo): string {\n  const shape = inputInfo.shapeInfo.logicalShape;\n
  const rank = shape.length;\n  const texName = inputInfo.name;\n  const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n  const texShape = inputInfo.shapeInfo.texShape;\n  const packedTexShape =\n      [Math.ceil(texShape[0] / 2), Math.ceil(texShape[1] / 2)];\n  const texNumR = packedTexShape[0];\n  const texNumC = packedTexShape[1];\n\n  const valuesPerRow = Math.ceil(shape[rank - 1] / 2);\n  let texelsInBatch = valuesPerRow * Math.ceil(shape[rank - 2] / 2);\n  let params = `int b, int row, int col`;\n  let index = `b * ${texelsInBatch} + (row / 2) * ${valuesPerRow} + (col / 2)`;\n  for (let b = 2; b < rank - 1; b++) {\n    params = `int b${b}, ` + params;\n    texelsInBatch *= shape[rank - b - 1];\n    index = `b${b} * ${texelsInBatch} + ` + index;\n  }\n  const glsl = getGlslDifferences();\n  return `\n    vec4 ${funcName}(${params}) {\n      int index = ${index};\n      int texR = index / ${texNumC};\n      int texC = index - texR * ${texNumC};\n
    vec2 uv = (vec2(texC, texR) + halfCR) / vec2(${texNumC}, ${texNumR});\n      return ${glsl.texture2D}(${texName}, uv);\n    }\n  `;\n}\n\nfunction getSampler4D(inputInfo: InputInfo): string {\n  const shape = inputInfo.shapeInfo.logicalShape;\n  const texName = inputInfo.name;\n  const funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n  const stride2 = shape[3];\n  const stride1 = shape[2] * stride2;\n  const stride0 = shape[1] * stride1;\n\n  const {newShape, keptDims} = util.squeezeShape(shape);\n  if (newShape.length < shape.length) {\n    const newInputInfo = squeezeInputInfo(inputInfo, newShape);\n    const params = ['row', 'col', 'depth', 'depth2'];\n    return `\n      ${getSamplerFromInInfo(newInputInfo)}\n      float ${funcName}(int row, int col, int depth, int depth2) {\n        return ${funcName}(${getSqueezedParams(params, keptDims)});\n      }\n    `;\n  }\n\n  if (inputInfo.shapeInfo.isUniform) {\n    // Uniform arrays will be less than 65505 (no
 risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth, int depth2) {\n        int index = round(dot(vec4(row, col, depth, depth2),\n                              vec4(${stride0}, ${stride1}, ${stride2}, 1)));\n
  ${getUniformSampler(inputInfo)}\n      }\n    `;\n  }\n\n  const flatOffset = inputInfo.shapeInfo.flatOffset;\n  const texShape = inputInfo.shapeInfo.texShape;\n  const texNumR = texShape[0];\n  const texNumC = texShape[1];\n\n
  if (texNumC === stride0 && flatOffset == null) {\n    // texC is used directly as physical (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth, int depth2) {\n        float texR = float(row);\n        float texC =\n            dot(vec3(col, depth, depth2),\n                vec3(${stride1}, ${stride2}, 1));\n
    vec2 uv = (vec2(texC, texR) + halfCR) /\n                vec2(${texNumC}.0, ${texNumR}.0);\n        return sampleTexture(${texName}, uv);\n      }\n
```

```
  `;\n  }\n  if (texNumC === stride2 && flatOffset == null) {\n    // texR is used directly as physical (no risk of
float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth, int depth2) {\n        float texR =
dot(vec3(row, col, depth),\n                      vec3(${shape[1] * shape[2]}, ${shape[2]}, 1));\n        float texC =
float(depth2);\n        vec2 uv = (vec2(texC, texR) + halfCR) /\n                  vec2(${texNumC}.0, ${texNumR}.0);\n
  return sampleTexture(${texName}, uv);\n      }\n    `;\n  }\n\n  const offset =
getFlatOffsetUniformName(texName);\n  return `\n    float ${funcName}(int row, int col, int depth, int depth2) {\n
 // Explicitly use integer operations as dot() only works on floats.\n      int index = row * ${stride0} + col *
${stride1} +\n          depth * ${stride2} + depth2;\n      vec2 uv = uvFromFlat(${texNumR}, ${texNumC}, index +
${offset});\n      return sampleTexture(${texName}, uv);\n    }\n  `;\n}\n\nfunction getSampler5D(inputInfo:
 InputInfo): string {\n  const shape = inputInfo.shapeInfo.logicalShape;\n  const texName = inputInfo.name;\n  const
funcName = 'get' + texName.charAt(0).toUpperCase() + texName.slice(1);\n  const stride3 = shape[4];\n  const
stride2 = shape[3] * stride3;\n  const stride1 = shape[2] * stride2;\n  const stride0 = shape[1] * stride1;\n\n  const
{newShape, keptDims} = util.squeezeShape(shape);\n  if (newShape.length < shape.length) {\n    const
newInputInfo = squeezeInputInfo(inputInfo, newShape);\n    const params = ['row', 'col', 'depth', 'depth2', 'depth3'];\n
  return `\n      ${getSamplerFromInInfo(newInputInfo)}\n      float ${funcName}(int row, int col, int depth, int
depth2, int depth3) {\n        return ${funcName}(${getSqueezedParams(params, keptDims)});\n      }\n    `;\n  }\n\n
if (inputInfo.shapeInfo.isUniform) {\n    // Uniform arrays will be less than 65505 (no risk of float16 overflow).\n
return `\n      float ${funcName}(int row, int col, int depth,
 int depth2, int depth3) {\n        float index = dot(\n          vec4(row, col, depth, depth2),\n          vec4(${stride0},
${stride1}, ${stride2}, ${stride3})) +\n          depth3;\n        ${getUniformSampler(inputInfo)}\n      }\n    `;\n  }\n\n
const flatOffset = inputInfo.shapeInfo.flatOffset;\n  const texShape = inputInfo.shapeInfo.texShape;\n  const
texNumR = texShape[0];\n  const texNumC = texShape[1];\n\n  if (texNumC === stride0 && flatOffset == null) {\n
  // texC is used directly as physical (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int
col, int depth, int depth2, int depth3) {\n        int texR = row;\n        float texC = dot(vec4(col, depth, depth2,
depth3),\n                      vec4(${stride1}, ${stride2}, ${stride3}, 1));\n        vec2 uv = (vec2(texC, texR) + halfCR)
/\n                  vec2(${texNumC}.0, ${texNumR}.0);\n        return sampleTexture(${texName}, uv);\n      }\n    `;\n
}\n\n  if (texNumC === stride3 &&
 flatOffset == null) {\n    // texR is used directly as physical (no risk of float16 overflow).\n    return `\n      float
${funcName}(int row, int col, int depth, int depth2, int depth3) {\n        float texR = dot(\n          vec4(row, col,
depth, depth2),\n          vec4(${shape[1] * shape[2] * shape[3]},\n              ${shape[2] * shape[3]}, ${shape[3]},
1));\n        int texC = depth3;\n        vec2 uv = (vec2(texC, texR) + halfCR) /\n                  vec2(${texNumC}.0,
${texNumR}.0);\n        return sampleTexture(${texName}, uv);\n      }\n    `;\n  }\n\n  const offset =
getFlatOffsetUniformName(texName);\n  return `\n    float ${funcName}(int row, int col, int depth, int depth2, int
depth3) {\n      // Explicitly use integer operations as dot() only works on floats.\n      int index = row * ${stride0} +
col * ${stride1} + depth * ${stride2} +\n          depth2 * ${stride3} + depth3 + ${offset};\n      vec2 uv =
uvFromFlat(${texNumR}, ${texNumC}, index);\n      return sampleTexture(${texName},
 uv);\n    }\n  `;\n}\n\nfunction getSampler6D(inputInfo: InputInfo): string {\n  const shape =
inputInfo.shapeInfo.logicalShape;\n  const texName = inputInfo.name;\n  const funcName = 'get' +
texName.charAt(0).toUpperCase() + texName.slice(1);\n\n  const {newShape, keptDims} =
util.squeezeShape(shape);\n  if (newShape.length < shape.length) {\n    const newInputInfo =
squeezeInputInfo(inputInfo, newShape);\n    const params = ['row', 'col', 'depth', 'depth2', 'depth3', 'depth4'];\n
return `\n      ${getSamplerFromInInfo(newInputInfo)}\n      float ${funcName}(int row, int col, int depth,\n
    int depth2, int depth3, int depth4) {\n        return ${funcName}(${getSqueezedParams(params, keptDims)});\n
}\n    `;\n  }\n\n  const stride4 = shape[5];\n  const stride3 = shape[4] * stride4;\n  const stride2 = shape[3] *
stride3;\n  const stride1 = shape[2] * stride2;\n  const stride0 = shape[1] * stride1;\n\n  if
(inputInfo.shapeInfo.isUniform) {\n    //
 Uniform arrays will be less than 65505 (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row,
int col, int depth,\n                  int depth2, int depth3, int depth4) {\n        int index = round(dot(\n          vec4(row,
```

```
col, depth, depth2),\n          vec4(${stride0}, ${stride1}, ${stride2}, ${stride3})) +\n          dot(\n
vec2(depth3, depth4),\n          vec2(${stride4}, 1)));\n        ${getUniformSampler(inputInfo)}\n      }\n    `;\n  }\n\n
const flatOffset = inputInfo.shapeInfo.flatOffset;\n  const texShape = inputInfo.shapeInfo.texShape;\n  const
texNumR = texShape[0];\n  const texNumC = texShape[1];\n  if (texNumC === stride0 && flatOffset == null) {\n
// texC is used directly as physical (no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int
col, int depth,\n                  int depth2, int depth3, int depth4) {\n        int texR = row;\n        float texC =
dot(vec4(col, depth, depth2, depth3),\n
      vec4(${stride1}, ${stride2}, ${stride3}, ${stride4})) +\n              float(depth4);\n        vec2 uv = (vec2(texC,
texR) + halfCR) /\n                  vec2(${texNumC}.0, ${texNumR}.0);\n        return sampleTexture(${texName},
uv);\n      }\n    `;\n  }\n  if (texNumC === stride4 && flatOffset == null) {\n    // texR is used directly as physical
(no risk of float16 overflow).\n    return `\n      float ${funcName}(int row, int col, int depth,\n                  int
depth2, int depth3, int depth4) {\n        float texR = dot(vec4(row, col, depth, depth2),\n          vec4(${shape[1] *
shape[2] * shape[3] * shape[4]},\n              ${shape[2] * shape[3] * shape[4]},\n              ${shape[3] * shape[4]},\n
          ${shape[4]})) + float(depth3);\n        int texC = depth4;\n        vec2 uv = (vec2(texC, texR) + halfCR) /\n
        vec2(${texNumC}.0, ${texNumR}.0);\n        return sampleTexture(${texName}, uv);\n      }\n    `;\n  }\n
const offset = getFlatOffsetUniformName(texName);\n
  return `\n    float ${funcName}(int row, int col, int depth,\n                  int depth2, int depth3, int depth4) {\n      //
Explicitly use integer operations as dot() only works on floats.\n      int index = row * ${stride0} + col * ${stride1}
+ depth * ${stride2} +\n          depth2 * ${stride3} + depth3 * ${stride4} + depth4 + ${offset};\n      vec2 uv =
uvFromFlat(${texNumR}, ${texNumC}, index);\n      return sampleTexture(${texName}, uv);\n    }\n
`;\n}\n\nfunction getUniformSampler(inputInfo: InputInfo): string {\n  const texName = inputInfo.name;\n  const
inSize = util.sizeFromShape(inputInfo.shapeInfo.logicalShape);\n\n  if (inSize < 2) {\n    return `return
${texName};`;\n  }\n  return `\n    for (int i = 0; i < ${inSize}; i++) {\n      if (i == index) {\n        return
${texName}[i];\n      }\n    }\n  `;\n}\n\nfunction getPackedSamplerAtOutputCoords(\n    inputInfo: InputInfo,
outShapeInfo: ShapeInfo) {\n  const texName = inputInfo.name;\n  const
 texFuncSnippet = texName.charAt(0).toUpperCase() + texName.slice(1);\n  const funcName = 'get' +
texFuncSnippet + 'AtOutCoords';\n  const inRank = inputInfo.shapeInfo.logicalShape.length;\n  const outRank =
outShapeInfo.logicalShape.length;\n\n  const broadcastDims = getBroadcastDims(\n
inputInfo.shapeInfo.logicalShape, outShapeInfo.logicalShape);\n\n  const type = getCoordsDataType(outRank);\n
const rankDiff = outRank - inRank;\n  let coordsSnippet: string;\n  const fields = ['x', 'y', 'z', 'w', 'u', 'v'];\n\n  if
(inRank === 0) {\n    coordsSnippet = '';\n  } else if (outRank < 2 && broadcastDims.length >= 1) {\n
coordsSnippet = 'coords = 0;';\n  } else {\n    coordsSnippet =\n        broadcastDims.map(d => `coords.${fields[d +
rankDiff]} = 0;`)\n            .join('\\n');\n  }\n  let unpackedCoordsSnippet = '';\n  if (outRank < 2 && inRank > 0) {\n
unpackedCoordsSnippet = 'coords';\n  } else {\n    unpackedCoordsSnippet = inputInfo.shapeInfo.logicalShape\n

                .map((s, i) => `coords.${fields[i + rankDiff]}`)\n                            .join(', ');\n  }\n\n  let output =
`return outputValue;`;\n  const inSize = util.sizeFromShape(inputInfo.shapeInfo.logicalShape);\n  const
isInputScalar = inSize === 1;\n  const outSize = util.sizeFromShape(outShapeInfo.logicalShape);\n  const
isOutputScalar = outSize === 1;\n\n  if (inRank === 1 && !isInputScalar && !isOutputScalar) {\n    output = `\n
return vec4(outputValue.xy, outputValue.xy);\n    `;\n  } else if (isInputScalar && !isOutputScalar) {\n    if (outRank
=== 1) {\n      output = `\n        return vec4(outputValue.x, outputValue.x, 0., 0.);\n      `;\n    } else {\n      output =
`\n        return vec4(outputValue.x);\n      `;\n    }\n  } else if (broadcastDims.length) {\n    const rows = inRank - 2;\n
  const cols = inRank - 1;\n\n    if (broadcastDims.indexOf(rows) > -1 && broadcastDims.indexOf(cols) > -1) {\n
output = `return vec4(outputValue.x);`;\n
  } else if (broadcastDims.indexOf(rows) > -1) {\n      output = `return vec4(outputValue.x, outputValue.y, ` +\n
`outputValue.x, outputValue.y);`;\n    } else if (broadcastDims.indexOf(cols) > -1) {\n      output = `return
vec4(outputValue.xx, outputValue.zz);`;\n    }\n  }\n\n  return `\n    vec4 ${funcName}() {\n      ${type} coords =
getOutputCoords();\n      ${coordsSnippet}\n      vec4 outputValue =
```

get${texFuncSnippet}(${unpackedCoordsSnippet});\n ${output}\n }\n `;\n}\n\nfunction getSamplerAtOutputCoords(\n inputInfo: InputInfo, outShapeInfo: ShapeInfo) {\n const texName = inputInfo.name;\n const texFuncSnippet = texName.charAt(0).toUpperCase() + texName.slice(1);\n const funcName = 'get' + texFuncSnippet + 'AtOutCoords';\n const outTexShape = outShapeInfo.texShape;\n const inTexShape = inputInfo.shapeInfo.texShape;\n const inRank = inputInfo.shapeInfo.logicalShape.length;\n const outRank = outShapeInfo.logicalShape.length;\n\n if (!inputInfo.shapeInfo.isUniform && inRank === outRank &&\n inputInfo.shapeInfo.flatOffset == null &&\n util.arraysEqual(inTexShape, outTexShape)) {\n return `\n float ${funcName}() {\n return sampleTexture(${texName}, resultUV);\n }\n `;\n }\n\n const type = getCoordsDataType(outRank);\n const broadcastDims = getBroadcastDims(\n inputInfo.shapeInfo.logicalShape, outShapeInfo.logicalShape);\n const rankDiff = outRank - inRank;\n let coordsSnippet: string;\n const fields = ['x', 'y', 'z', 'w', 'u', 'v'];\n\n if (inRank === 0) {\n coordsSnippet = '';\n } else if (outRank < 2 && broadcastDims.length >= 1) {\n coordsSnippet = 'coords = 0;';\n } else {\n coordsSnippet =\n broadcastDims.map(d => `coords.${fields[d + rankDiff]} = 0;`)\n .join('\\n');\n }\n let unpackedCoordsSnippet = '';\n if (outRank < 2 && inRank > 0) {\n unpackedCoordsSnippet = 'coords';\n } else {\n unpackedCoordsSnippet = inputInfo.shapeInfo.logicalShape\n .map((s, i) => `coords.${fields[i + rankDiff]}`)\n .join(', ');\n }\n\n return `\n float ${funcName}() {\n ${type} coords = getOutputCoords();\n ${coordsSnippet}\n return get${texFuncSnippet}(${unpackedCoordsSnippet});\n }\n `;\n}\n\nexport function getCoordsDataType(rank: number): string {\n if (rank <= 1) {\n return 'int';\n } else if (rank === 2) {\n return 'ivec2';\n } else if (rank === 3) {\n return 'ivec3';\n } else if (rank === 4) {\n return 'ivec4';\n } else if (rank === 5) {\n return 'ivec5';\n } else if (rank === 6) {\n return 'ivec6';\n } else {\n throw Error(`GPU for rank ${rank} is not yet supported`);\n }\n}\n\n/** Returns a new input info (a copy) that has a squeezed logical shape. */\nfunction squeezeInputInfo(\n inInfo: InputInfo, squeezedShape: number[]): InputInfo {\n // Deep copy.\n const newInputInfo: InputInfo = JSON.parse(JSON.stringify(inInfo));\n newInputInfo.shapeInfo.logicalShape = squeezedShape;\n return newInputInfo;\n}\n\nfunction getSqueezedParams(params: string[], keptDims: number[]): string {\n return keptDims.map(d => params[d]).join(', ');\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ===\n */\n\nimport {env, Tensor, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUContext} from './gpgpu_context';\nimport * as shader_compiler from './shader_compiler';\nimport {InputInfo, ShapeInfo} from './shader_compiler';\nimport {PackingScheme, TextureData, TextureUsage} from './tex_util';\n\nexport interface GPGPUProgram {\n variableNames: string[];\n outputShape: number[];\n userCode: string;\n /** If true, this program expects packed input textures. Defaults to false. */\n packedInputs?: boolean;\n /** If true, this program produces a packed texture. Defaults to false. */\n packedOutput?: boolean;\n /**\n * Affects what type of texture we allocate for the output. Defaults to\n * `TextureUsage.RENDER`.\n */\n outTexUsage?: TextureUsage;\n /**\n * The type of scheme to use when packing texels for the output values.\n * See `PackingScheme` for details. Defaults to `PackingScheme.SHARED_BATCH`.\n */\n outPackingScheme?: PackingScheme;\n}\n\nexport interface GPGPUBinary {\n webGLProgram: WebGLProgram;\n program: GPGPUProgram;\n uniformLocations: {[name: string]: WebGLUniformLocation};\n source: string;\n inShapeInfos: ShapeInfo[];\n outShapeInfo: ShapeInfo;\n infLoc: WebGLUniformLocation;\n nanLoc: WebGLUniformLocation;\n}\n\nexport interface TensorData {\n shape: number[];\n texData: TextureData;\n isUniform: boolean;\n // Available when we decide to upload as uniform instead of texture.\n uniformValues?: TypedArray;\n}\n\nexport function compileProgram<T extends Tensor, K extends Tensor>(\n gpgpu:

```
GPGPUContext, program: GPGPUProgram, inputs: TensorData[],\n    output: TensorData): GPGPUBinary {\n
const userCode = program.userCode;\n  const inputInfos: InputInfo[] = inputs.map((input, i) => {\n    const
shapeInfo: ShapeInfo = {\n      logicalShape: input.shape,\n      texShape: input.isUniform ? null :
input.texData.texShape,\n      isUniform: input.isUniform,\n      isPacked: input.isUniform ? false :
input.texData.isPacked,\n      flatOffset: null\n    };\n    if (input.texData
 != null && input.texData.slice != null &&\n        input.texData.slice.flatOffset > 0) {\n      shapeInfo.flatOffset =
input.texData.slice.flatOffset;\n    }\n    return {name: program.variableNames[i], shapeInfo};\n  });\n  const
inShapeInfos = inputInfos.map(x => x.shapeInfo);\n  const outShapeInfo: ShapeInfo = {\n    logicalShape:
output.shape,\n    texShape: output.texData.texShape,\n    isUniform: false,\n    isPacked: output.texData.isPacked,\n
  flatOffset: null\n  };\n  const source = shader_compiler.makeShader(\n      inputInfos, outShapeInfo, userCode,
program.packedInputs);\n\n  const webGLProgram = gpgpu.createProgram(source);\n\n  // Add special uniforms
(NAN, INFINITY)\n  let infLoc: WebGLUniformLocation = null;\n  const nanLoc =
gpgpu.getUniformLocation(webGLProgram, 'NAN', false);\n  if (env().getNumber('WEBGL_VERSION') === 1)
{\n    infLoc = gpgpu.getUniformLocation(webGLProgram, 'INFINITY', false);\n  }\n\n  // Add user-defined
uniforms\n  const uniformLocations:
 {[name: string]: WebGLUniformLocation} = {};\n  for (let i = 0; i < program.variableNames.length; i++) {\n
const varName = program.variableNames[i];\n    const shouldThrow = false;\n    uniformLocations[varName] =\n
 gpgpu.getUniformLocation(webGLProgram, varName, shouldThrow);\n    uniformLocations[`offset${varName}`]
=\n        gpgpu.getUniformLocation(webGLProgram, `offset${varName}`, shouldThrow);\n  }\n\n  return {\n
program,\n    source,\n    webGLProgram,\n    uniformLocations,\n    inShapeInfos,\n    outShapeInfo,\n    infLoc,\n
nanLoc,\n  };\n}\n\nfunction validateBinaryAndProgram(\n    shapeInfos: ShapeInfo[], inputs: TensorData[]) {\n  if
(shapeInfos.length !== inputs.length) {\n    throw Error(\n        `Binary was compiled with ${shapeInfos.length}
inputs, but ` +\n        `was executed with ${inputs.length} inputs`);\n  }\n\n  shapeInfos.forEach((s, i) => {\n    const
shapeA = s.logicalShape;\n    const input = inputs[i];\n    const shapeB = input.shape;\n\n
    if (!util.arraysEqual(shapeA, shapeB)) {\n      throw Error(\n          `Binary was compiled with different shapes
than ` +\n          `the current args. Shapes ${shapeA} and ${shapeB} must match`);\n    }\n    // The input is uploaded
as uniform.\n    if (s.isUniform && input.isUniform) {\n      return;\n    }\n\n    const texShapeA = s.texShape;\n
const texShapeB = input.isUniform ? null : input.texData.texShape;\n    if (!util.arraysEqual(texShapeA,
texShapeB)) {\n      throw Error(\n          `Binary was compiled with different texture shapes than the` +\n          `
current args. Shape ${texShapeA} and ${texShapeB} must match`);\n    }\n  });\n}\n\nexport function
runProgram<T extends Tensor, K extends Tensor>(\n    gpgpu: GPGPUContext, binary: GPGPUBinary, inputs:
TensorData[],\n    output: TensorData,\n    customSetup?: (gpgpu: GPGPUContext, webGLProgram:
WebGLProgram) =>\n        void): void {\n  validateBinaryAndProgram(binary.inShapeInfos, inputs);\n
validateBinaryAndProgram([binary.outShapeInfo],
 [output]);\n\n  const outTex = output.texData.texture;\n  const outTexShape = output.texData.texShape;\n  if
(output.texData.isPacked) {\n    gpgpu.setOutputPackedMatrixTexture(outTex, outTexShape[0], outTexShape[1]);\n
} else {\n    gpgpu.setOutputMatrixTexture(outTex, outTexShape[0], outTexShape[1]);\n  }\n
gpgpu.setProgram(binary.webGLProgram);\n\n  // Set special uniforms (NAN, INFINITY)\n  if
(env().getNumber('WEBGL_VERSION') === 1) {\n    if (binary.infLoc !== null) {\n
gpgpu.gl.uniform1f(binary.infLoc, Infinity);\n    }\n  }\n  if (binary.nanLoc !== null) {\n
gpgpu.gl.uniform1f(binary.nanLoc, NaN);\n  }\n\n  // Set user-defined inputs\n  inputs.forEach((input, i) => {\n
const varName = binary.program.variableNames[i];\n    const varLoc = binary.uniformLocations[varName];\n
const varOffsetLoc = binary.uniformLocations[`offset${varName}`];\n\n    if (varLoc == null) {\n      // The
compiler inferred that this variable is not used
 in this shader.\n      return;\n    }\n\n    if (input.isUniform) {\n      // Upload the values of the tensor as uniform.\n
if (util.sizeFromShape(input.shape) < 2) {\n        gpgpu.gl.uniform1f(varLoc, input.uniformValues[0]);\n      } else
{\n        let vals = input.uniformValues;\n        if (!(vals instanceof Float32Array)) {\n          vals = new
Float32Array(vals);\n        }\n        gpgpu.gl.uniform1fv(varLoc, vals);\n      }\n      return;\n    }\n\n    // If the input
```

was sliced, upload the flat offset index.\n if (input.texData.slice != null && varOffsetLoc != null) {\n gpgpu.gl.uniform1i(varOffsetLoc, input.texData.slice.flatOffset);\n }\n\n gpgpu.setInputMatrixTexture(input.texData.texture, varLoc, i);\n });\n\n if (customSetup != null) {\n customSetup(gpgpu, binary.webGLProgram);\n }\n gpgpu.executeProgram();\n}\n\nexport function makeShaderKey(\n program: GPGPUProgram, inputs: TensorData[], output: TensorData): string {\n let keyInputs =
 ";\n inputs.concat(output).forEach(x => {\n const hasOffset = x.texData != null && x.texData.slice != null &&\n x.texData.slice.flatOffset > 0;\n const texShape = x.isUniform ? 'uniform' : x.texData.texShape;\n keyInputs += `${x.shape}_${texShape}_${hasOffset}`;\n });\n const keyUserCode = program.userCode;\n let key = program.constructor.name;\n // Fast string concat. See https://jsperf.com/string-concatenation/14.\n key += '_' + keyInputs + '_' + keyUserCode;\n return key;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF
 ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {TensorInfo, util} from '@tensorflow/tfjs-core';\n\nexport function assertNotComplex(\n tensor: TensorInfo|TensorInfo[], opName: string): void {\n if (!Array.isArray(tensor)) {\n tensor = [tensor];\n }\n tensor.forEach(t => {\n if (t != null) {\n util.assert(\n t.dtype !== 'complex64',\n () => `${\n opName} does not support complex64 tensors in the CPU backend.`);\n }\n });\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
 by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Abs, AbsInputs, KernelConfig, KernelFunc, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\n\nexport function simpleAbsImpl(vals: TypedArray): Float32Array {\n const resultValues = new Float32Array(vals.length);\n for (let i = 0; i < vals.length; ++i) {\n resultValues[i] = Math.abs(vals[i]);\n }\n return resultValues;\n}\n\nexport const abs = (args: {inputs: AbsInputs, backend: MathBackendCPU}) => {\n const {x} = args.inputs;\n const cpuBackend = args.backend;\n\n assertNotComplex(x, 'abs');\n\n\n let resultValues = new Float32Array(util.sizeFromShape(x.shape));\n const values = cpuBackend.data.get(x.dataId).values as TypedArray;\n resultValues = simpleAbsImpl(values);\n\n return cpuBackend.makeOutput(resultValues, x.shape, 'float32');\n};\n\nexport const absConfig: KernelConfig = {\n kernelName: Abs,\n backendName: 'cpu',\n kernelFunc: abs as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n *
 limitations under the License.\n *
==\n

*/\n\nimport {backend_util, DataType, NumericDataType, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {SimpleBinaryKernelImpl, SimpleBinaryOperation} from './binary_types';\n\n/**\n * Template that creates implementation for binary ops. Supports broadcast.\n */\nexport function createSimpleBinaryKernelImpl(op: SimpleBinaryOperation):\n SimpleBinaryKernelImpl {\n return (aShape: number[], bShape: number[], aVals: TypedArray,\n bVals: TypedArray, dtype: DataType): [TypedArray, number[]] => {\n const newShape = backend_util.assertAndGetBroadcastShape(aShape, bShape);\n\n const resultRank = newShape.length;\n const resultStrides = util.computeStrides(newShape);\n const resultSize = util.sizeFromShape(newShape);\n\n const result =\n util.getTypedArrayFromDType(dtype as NumericDataType, resultSize);\n\n const aRank = aShape.length;\n
 const bRank = bShape.length;\n\n const aStrides = util.computeStrides(aShape);\n const bStrides = util.computeStrides(bShape);\n\n const aBroadcastDims = backend_util.getBroadcastDims(aShape, newShape);\n
 const bBroadcastDims = backend_util.getBroadcastDims(bShape, newShape);\n\n if (aBroadcastDims.length + bBroadcastDims.length === 0) {\n for (let i = 0; i < result.length; ++i) {\n result[i] = op(aVals[i % aVals.length], bVals[i % bVals.length]);\n }\n } else {\n for (let i = 0; i < result.length; ++i) {\n const loc = util.indexToLoc(i, resultRank, resultStrides);\n\n const aLoc = loc.slice(-aRank);\n aBroadcastDims.forEach(d => aLoc[d] = 0);\n const aIndex = util.locToIndex(aLoc, aRank, aStrides);\n\n const bLoc = loc.slice(-bRank);\n bBroadcastDims.forEach(d => bLoc[d] = 0);\n const bIndex = util.locToIndex(bLoc, bRank, bStrides);\n\n result[i] = op(aVals[aIndex], bVals[bIndex]);\n
 }\n }\n\n return [result, newShape];\n };\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Complex, ComplexInputs, KernelConfig, KernelFunc, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\n\nexport function complex(args: {inputs: ComplexInputs,
 backend: MathBackendCPU}):\n TensorInfo {\n const {inputs, backend} = args;\n const {real, imag} = inputs;\n\n const realVals = backend.data.get(real.dataId).values as TypedArray;\n const imagVals = backend.data.get(imag.dataId).values as TypedArray;\n\n const complexInfo = backend.makeTensorInfo(real.shape, 'complex64');\n\n const complex = backend.data.get(complexInfo.dataId);\n\n // The complex tensor owns the underlying real and imag tensorInfos, only the\n // complex tensor tracks refCount, when complexData is disposed the\n // underlying tensorData will be disposed.\n complex.complexTensorInfos = {\n real: backend.makeTensorInfo(real.shape, 'float32', realVals),\n imag: backend.makeTensorInfo(imag.shape, 'float32', imagVals)\n };\n\n return complexInfo;\n}\n\nexport const complexConfig: KernelConfig = {\n kernelName: Complex,\n backendName: 'cpu',\n kernelFunc: complex as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
 Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {DataType, TensorInfo, util} from '@tensorflow/tfjs-core';\nimport {MathBackendCPU} from '../backend_cpu';\nimport {complex} from '../kernels/Complex';\n\n/**\n * Generates a tensorInfo with all zeros

value.\n * @param backend cpu backend.\n * @param shape Shape for the zeros tensor.\n * @param dtype Optional. If set, the
result has this dtype.\n */\nexport function zeros(\n   backend: MathBackendCPU, shape: number[],\n   dtype: DataType = 'float32'): TensorInfo {\n if (dtype === 'complex64') {\n   const real = zeros(backend, shape, 'float32');\n   const imag = zeros(backend, shape, 'float32');\n\n   return complex({inputs: {real, imag}, backend});\n }\n\n const values = util.makeZerosTypedArray(util.sizeFromShape(shape), dtype);\n\n return backend.makeTensorInfo(shape, dtype, values);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Identity, IdentityInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\n\nexport function identity(\n   args: {inputs: IdentityInputs, backend: MathBackendCPU}): TensorInfo {\n const {inputs, backend} = args;\n const {x} = inputs;\n\n backend.incRef(x.dataId);\n\n return {dataId: x.dataId, shape: x.shape, dtype: x.dtype};\n}\n\nexport const identityConfig: KernelConfig = {\n kernelName: Identity,\n backendName: 'cpu',\n kernelFunc: identity as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain
a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Real, RealInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\n\nexport function real(args: {inputs: RealInputs, backend: MathBackendCPU}):\n   TensorInfo {\n const {inputs, backend} = args;\n const {input} = inputs;\n\n const real = backend.data.get(input.dataId).complexTensorInfos.real;\n const realVal = backend.data.get(real.dataId).values;\n\n // When complex tensor is disposed, its underlying parts will
be disposed too.\n // Make new tensor out of the real value of the complex. This makes sure the\n // value is still accessible even if complex tensor is disposed.\n return backend.makeTensorInfo(real.shape, real.dtype, realVal);\n}\n\nexport const realConfig: KernelConfig = {\n kernelName: Real,\n backendName: 'cpu',\n kernelFunc: real as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========\n */\nimport {Cast, CastAttrs, CastInputs, KernelConfig, KernelFunc, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {zeros} from '../utils/zeros_impl';\n\nimport

{complex} from './Complex';\nimport {identity} from './Identity';\nimport {real} from './Real';\n\nexport function cast(\n args: {inputs: CastInputs, backend: MathBackendCPU, attrs: CastAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dtype} = attrs;\n\n // Casting to complex64.\n if (dtype === 'complex64') {\n if (x.dtype === 'complex64') {\n   return identity({inputs: {x}, backend});\n }\n\n const zerosTensorInfo = zeros(backend, x.shape, x.dtype);\n const floatX = cast({inputs: {x}, backend, attrs: {dtype: 'float32'}});\n\n const result =\n   complex({inputs: {real: floatX, imag: zerosTensorInfo}, backend});\n\n backend.disposeIntermediateTensorInfo(zerosTensorInfo);\n backend.disposeIntermediateTensorInfo(floatX);\n\n return result;\n }\n\n // Casting from complex64\n if (x.dtype === 'complex64') {\n const realPart = real({inputs: {input: x}, backend});\n const result = cast({inputs: {x: realPart}, backend, attrs: {dtype}});\n\n backend.disposeIntermediateTensorInfo(realPart);\n\n return result;\n }\n\n if (!util.hasEncodingLoss(x.dtype, dtype)) {\n // We don't change the underlying data, since we cast to higher\n // precision.\n const result = identity({inputs: {x}, backend});\n return {dataId: result.dataId, shape: result.shape, dtype};\n }\n\n if (dtype === 'int32') {\n const values = backend.data.get(x.dataId).values as TypedArray;\n const resultValues = Int32Array.from(values);\n return backend.makeTensorInfo(x.shape, 'int32', resultValues);\n }\n\n if (dtype === 'bool') {\n // This is essentially the result of notEqual(x, 0). We avoid using\n // kernel notEqual to avoid circular dependency, i.e. binary_utils ->\n // cast -> notEqual -> binary_utils.\n const xVals = backend.data.get(x.dataId).values as TypedArray;\n const zero = util.toTypedArray([0], x.dtype);\n\n const [resultData, resultShape] = createSimpleBinaryKernelImpl(\n   (a, b) => (a !== b) ? 1 : 0)(x.shape, [], xVals, zero, 'bool');\n\n return backend.makeTensorInfo(resultShape, 'bool', resultData);\n }\n\n throw new Error(`Error in Cast: failed to cast ${x.dtype} to ${dtype}`);\n}\n\nexport const castConfig: KernelConfig = {\n kernelName: Cast,\n backendName: 'cpu',\n kernelFunc: cast as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
 obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, BinaryInputs, DataType, KernelFunc, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\nimport {cast} from '../kernels/Cast';\nimport {complex} from '../kernels/Complex';\n\nimport {ComplexBinaryKernelImpl, ComplexBinaryOperation, SimpleBinaryKernelImpl} from './binary_types';\n\n/**\n * Template that creates a `KernelFunc` for binary ops.\n * @param name Kernel name.\n * @param
 binaryKernelImpl A `SimpleBinaryKernelImpl` for the kernel.\n * @param binaryKernelComplexImpl Optional. If exists, represents a\n *   `ComplexBinaryKernelImpl` for the kernel, will be used when input dtype\n *   is `complex64`.\n * @param dtype Optional. If set, the result has this dtype. Otherwise, the\n *   result has the same dtype as the first input. This is mainly used in\n *   comparison kernels, such as Equal, Less, Greater, etc.\n */\nexport function binaryKernelFunc(\n name: string, simpleImpl: SimpleBinaryKernelImpl,\n complexImpl?: ComplexBinaryKernelImpl, dtype?: DataType): KernelFunc {\n if (complexImpl == null) {\n return ({inputs, backend}) => {\n   const {a, b} = inputs as BinaryInputs;\n   const cpuBackend = backend as MathBackendCPU;\n\n   assertNotComplex([a, b], name);\n\n   const aVals = cpuBackend.data.get(a.dataId).values as TypedArray;\n   const bVals = cpuBackend.data.get(b.dataId).values as TypedArray;\n\n   const $dtype
 = dtype || a.dtype;\n\n   const [resultData, resultShape] =\n   simpleImpl(a.shape, b.shape, aVals, bVals, $dtype);\n\n   return cpuBackend.makeTensorInfo(resultShape, $dtype, resultData);\n };\n }\n\n return ({inputs, backend}) => {\n const {a, b} = inputs as BinaryInputs;\n const cpuBackend = backend as MathBackendCPU;\n\n if (a.dtype === 'complex64' || b.dtype === 'complex64') {\n   const $aComplex = cast(\n

```
{inputs: {x: a}, backend: cpuBackend, attrs: {dtype: 'complex64'}});\n\n      const $aComplexVals = cpuBackend.data.get($aComplex.dataId);\n\n      const aReal = $aComplexVals.complexTensorInfos.real;\n      const aImag = $aComplexVals.complexTensorInfos.imag;\n\n      const aRealVals =\n cpuBackend.data.get(aReal.dataId).values as Float32Array;\n      const aImagVals =\n cpuBackend.data.get(aImag.dataId).values as Float32Array;\n\n      const $bComplex = cast(\n          {inputs: {x: b}, backend: cpuBackend, attrs: {dtype:
 'complex64'}});\n\n      const $bComplexVals = cpuBackend.data.get($bComplex.dataId);\n\n      const bReal = $bComplexVals.complexTensorInfos.real;\n      const bImag = $bComplexVals.complexTensorInfos.imag;\n\n      const bRealVals =\n          cpuBackend.data.get(bReal.dataId).values as Float32Array;\n      const bImagVals =\n        cpuBackend.data.get(bImag.dataId).values as Float32Array;\n\n      const [resultRealData, resultImagData, resultShape] = complexImpl(\n          a.shape, b.shape, aRealVals, aImagVals, bRealVals, bImagVals);\n\n      const resultReal =\n          cpuBackend.makeTensorInfo(resultShape, 'float32', resultRealData);\n\n      const resultImag =\n          cpuBackend.makeTensorInfo(resultShape, 'float32', resultImagData);\n\n      const result = complex(\n       {inputs: {real: resultReal, imag: resultImag}, backend: cpuBackend});\n\n      cpuBackend.disposeIntermediateTensorInfo($aComplex);\n      cpuBackend.disposeIntermediateTensorInfo($bComplex);\n      cpuBackend.disposeIntermediateTensorInfo(resultReal);\n      cpuBackend.disposeIntermediateTensorInfo(resultImag);\n\n      return result;\n    } else {\n      const aVals = cpuBackend.data.get(a.dataId).values as TypedArray;\n      const bVals = cpuBackend.data.get(b.dataId).values as TypedArray;\n\n      const $dtype = dtype || a.dtype;\n\n      const [resultData, resultShape] =\n          simpleImpl(a.shape, b.shape, aVals, bVals, $dtype);\n\n      return cpuBackend.makeTensorInfo(resultShape, $dtype, resultData);\n    }\n  };\n}\n\n/**\n * Template that creates the complex type implementation for binary ops.\n * Supports broadcast.\n */\nexport function createComplexBinaryKernelImpl(op: ComplexBinaryOperation):\n ComplexBinaryKernelImpl {\n  return (aShape: number[], bShape: number[], aRealVals: Float32Array,\n          aImagVals: Float32Array, bRealVals: Float32Array,\n          bImagVals: Float32Array): [TypedArray, TypedArray, number[]] => {\n    const resultShape = backend_util.assertAndGetBroadcastShape(aShape,
 bShape);\n    const resultSize = util.sizeFromShape(resultShape);\n    const resultRank = resultShape.length;\n    const resultStrides = util.computeStrides(resultShape);\n\n    const resultRealVals =
 util.getTypedArrayFromDType('float32', resultSize);\n    const resultImagVals =
 util.getTypedArrayFromDType('float32', resultSize);\n\n    const aBroadcastDims =
 backend_util.getBroadcastDims(aShape, resultShape);\n    const bBroadcastDims =
 backend_util.getBroadcastDims(bShape, resultShape);\n\n    const aVals =
 backend_util.mergeRealAndImagArrays(aRealVals, aImagVals);\n    const bVals =
 backend_util.mergeRealAndImagArrays(bRealVals, bImagVals);\n\n    const aRank = aShape.length;\n    const aStrides = util.computeStrides(aShape);\n\n    const bRank = bShape.length;\n    const bStrides =
 util.computeStrides(bShape);\n\n    if (aBroadcastDims.length + bBroadcastDims.length === 0) {\n      for (let i = 0; i < resultRealVals.length; i++) {\n
    const aIdx = i % aVals.length;\n        const bIdx = i % bVals.length;\n\n        const result =\n op(aVals[aIdx * 2], aVals[aIdx * 2 + 1], bVals[bIdx * 2],\n              bVals[bIdx * 2 + 1]);\n\n        resultRealVals[i] = result.real;\n        resultImagVals[i] = result.imag;\n      }\n    } else {\n      for (let i = 0; i < resultRealVals.length; i++) {\n        const loc = util.indexToLoc(i, resultRank, resultStrides);\n\n        const aLoc = loc.slice(-aRank);\n aBroadcastDims.forEach(d => aLoc[d] = 0);\n        const aIndex = util.locToIndex(aLoc, aRank, aStrides);\n\n const bLoc = loc.slice(-bRank);\n        bBroadcastDims.forEach(d => bLoc[d] = 0);\n        const bIndex =
 util.locToIndex(bLoc, bRank, bStrides);\n\n        const opResult =\n            op(aVals[aIndex * 2], aVals[aIndex * 2 + 1], bVals[bIndex * 2],\n              bVals[bIndex * 2 + 1]);\n\n        resultRealVals[i] = opResult.real;\n resultImagVals[i] = opResult.imag;\n
   }\n    }\n    return [resultRealVals, resultImagVals, resultShape];\n  };\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
```

may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {Add, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc, createComplexBinaryKernelImpl} from '../utils/binary_utils';\n\nexport
const addImpl = createSimpleBinaryKernelImpl(((a, b) => a + b));\nexport const addComplexImpl =\n createComplexBinaryKernelImpl(((aReal, aImag, bReal, bImag) => {\n return {real: aReal + bReal, imag: aImag + bImag};\n }));\n\nexport const add = binaryKernelFunc(Add, addImpl, addComplexImpl);\n\nexport const addConfig: KernelConfig = {\n kernelName: Add,\n backendName: 'cpu',\n kernelFunc: add\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {buffer, DataType, Rank, TensorBuffer, TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function bincountImpl(\n xVals: TypedArray, weightsVals: TypedArray, weightsDtype: DataType,\n weightsShape: number[], size: number): TypedArray {\n const weightsSize = util.sizeFromShape(weightsShape);\n const outVals = util.makeZerosTypedArray(size, weightsDtype) as TypedArray;\n\n for (let i = 0; i < xVals.length; i++) {\n const value = xVals[i];\n if (value < 0) {\n throw new Error('Input x must be non-negative!');\n }\n\n if (value >= size) {\n continue;\n }\n\n if (weightsSize > 0) {\n outVals[value] += weightsVals[i];\n } else {\n outVals[value] += 1;\n }\n }\n\n return outVals;\n}\n\nexport function bincountReduceImpl<R extends Rank>(\n xBuf: TensorBuffer<R>,
weightsBuf: TensorBuffer<R>, size: number,\n binaryOutput = false): TensorBuffer<R> {\n const numRows = xBuf.shape[0];\n const numCols = xBuf.shape[1];\n\n const outBuf = buffer([numRows, size], weightsBuf.dtype);\n\n for (let i = 0; i < numRows; i++) {\n for (let j = 0; j < numCols; j++) {\n const value = xBuf.get(i, j);\n if (value < 0) {\n throw new Error('Input x must be non-negative!');\n }\n\n if (value >= size) {\n continue;\n }\n\n if (binaryOutput) {\n outBuf.set(1, i, value);\n } else {\n if (weightsBuf.size > 0) {\n outBuf.set(outBuf.get(i, value) + weightsBuf.get(i, j), i, value);\n } else {\n outBuf.set(outBuf.get(i, value) + 1, i, value);\n }\n }\n }\n }\n\n return outBuf as TensorBuffer<R>;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {NumericDataType, util} from '@tensorflow/tfjs-core';\n\nimport {SimpleUnaryImpl, SimpleUnaryOperation} from './unary_types';\n\n/**\n * Template that creates implementation for unary op.\n */\nexport function createSimpleUnaryImpl(op: SimpleUnaryOperation):\n SimpleUnaryImpl {\n return (values, dtype, attrs) => {\n const newValues =\n util.getTypedArrayFromDType(dtype as NumericDataType, values.length);\n

for (let i = 0; i < values.length; ++i) {\n newValues[i] = op(values[i], attrs);\n }\n return newValues;\n };\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {DataType, KernelFunc, TypedArray, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\n\nimport {SimpleUnaryImpl, SimpleUnaryOperation} from './unary_types';\n\n/**\n * Template that creates a `KernelFunc` for unary ops.\n * @param name Kernel name.\n * @param op A `SimpleUnaryOperation` for the kernel.\n * @param dtype Optional. If set, the result has this dtype. Otherwise, the\n * result has the same dtype as the input. This is mainly used in certain\n * kernels that return bool type, such as isFinite, isInf, etc.\n */\nexport function unaryKernelFunc(\n name: string, op: SimpleUnaryOperation, dtype?: DataType): KernelFunc {\n return ({inputs, attrs, backend}) => {\n const {x} = inputs as UnaryInputs;\n assertNotComplex(x, name);\n if (x.dtype === 'string' || dtype === 'string') {\n throw new Error('unaryKernelFunc does not support string input/output');\n }\n\n const cpuBackend = backend as MathBackendCPU;\n const values = cpuBackend.data.get(x.dataId).values as TypedArray;\n const xSize = util.sizeFromShape(x.shape);\n const $dtype = dtype || x.dtype;\n const newValues = util.getArrayFromDType($dtype, xSize);\n for (let i = 0; i < xSize; ++i) {\n newValues[i] = op(values[i], attrs);\n }\n return cpuBackend.makeTensorInfo(x.shape, $dtype, newValues);\n };\n}\n\n/**\n * Template that creates a `KernelFunc` for unary ops from the given\n * `SimpleUnaryImpl`..\n * @param name Kernel name.\n * @param unaryImpl A `SimpleUnaryImpl` that implements the op.\n * @param dtype Optional. If set, the result has this dtype. Otherwise, the\n * result has the same dtype as the input. This is mainly used in certain\n * kernels that return bool type, such as isFinite, isInf, etc.\n */\nexport function unaryKernelFuncFromImpl(\n name: string, unaryImpl: SimpleUnaryImpl, dtype?: DataType): KernelFunc {\n return ({inputs, attrs, backend}) => {\n const {x} = inputs as UnaryInputs;\n assertNotComplex(x, name);\n if (x.dtype === 'string' || dtype === 'string') {\n throw new Error('unaryKernelFunc does not support string input/output');\n }\n\n const cpuBackend = backend as MathBackendCPU;\n const values = cpuBackend.data.get(x.dataId).values as TypedArray;\n const $dtype = dtype || x.dtype;\n const newValues = unaryImpl(values, $dtype, attrs);\n return cpuBackend.makeTensorInfo(x.shape, $dtype, newValues);\n };\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {Ceil, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport {unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const ceilImpl = createSimpleUnaryImpl((xi) => Math.ceil(xi));\nexport const ceil = unaryKernelFuncFromImpl(Ceil, ceilImpl);\n\nexport const ceilConfig: KernelConfig = {\n kernelName: Ceil,\n backendName: 'cpu',\n kernelFunc: ceil,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS

IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, BackendValues, DataType, TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function concatImpl(\n inputs: Array<{vals: BackendValues, shape: number[]}>, outShape: number[],\n dtype: DataType, simplyConcat: boolean): TypedArray|string[] {\n const outVals = util.getArrayFromDType(dtype, util.sizeFromShape(outShape));\n\n if (simplyConcat && dtype !== 'string') {\n // Use built-in TypedArray.set() method for speed.\n let offset = 0;\n inputs.forEach(input => {\n const size = util.sizeFromShape(input.shape);\n\n (outVals as TypedArray).set(input.vals as TypedArray, offset);\n offset += size;\n });\n } else {\n let colOffset = 0;\n\n inputs.forEach(input => {\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(input.vals as Uint8Array[]) :\n input.vals as TypedArray;\n\n let tIdx = 0;\n\n for (let row = 0; row < input.shape[0]; ++row) {\n const resIdx = row * outShape[1] + colOffset;\n for (let col = 0; col < input.shape[1]; ++col) {\n outVals[resIdx + col] = decodedData[tIdx++];\n }\n }\n\n colOffset += input.shape[1];\n });\n }\n\n return outVals;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Exp, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport {unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const expImpl = createSimpleUnaryImpl((xi) => Math.exp(xi));\nexport const exp = unaryKernelFuncFromImpl(Exp, expImpl);\n\nexport const expConfig: KernelConfig = {\n kernelName: Exp,\n backendName: 'cpu',\n kernelFunc: exp,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Expm1, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport {unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const expm1Impl = createSimpleUnaryImpl((xi) => Math.expm1(xi));\nexport const expm1 = unaryKernelFuncFromImpl(Expm1, expm1Impl);\n\nexport const expm1Config: KernelConfig = {\n kernelName: Expm1,\n backendName: 'cpu',\n kernelFunc: expm1,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Floor, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport {unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const floorImpl = createSimpleUnaryImpl((xi) => Math.floor(xi));\nexport const floor = unaryKernelFuncFromImpl(Floor,

floorImpl);\n\nexport const floorConfig: KernelConfig = {\n kernelName: Floor,\n backendName: 'cpu',\n kernelFunc: floor,\n};\n","/**\n
 * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {buffer, DataType, Rank, TensorBuffer} from '@tensorflow/tfjs-core';\n\nexport function gatherV2Impl<R extends Rank, D extends DataType>(\n   xBuf: TensorBuffer<R, D>, indicesBuf: TensorBuffer<R, D>,\n   flattenOutputShape: number[]): TensorBuffer<R, D> {\n const outBuf = buffer(flattenOutputShape, xBuf.dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n   const newLoc = outBuf.indexToLoc(i);\n\n   const originalLoc: number[] = newLoc.slice();\n   const batchIdx = originalLoc[0];\n const indicesIdx = originalLoc[2];\n   const indicesIndex = indicesBuf.locToIndex([batchIdx, indicesIdx]);\n originalLoc[2] = indicesBuf.values[indicesIndex] as number;\n\n   const originalIndex = xBuf.locToIndex(originalLoc);\n   outBuf.values[i] = xBuf.values[originalIndex];\n }\n\n return outBuf as TensorBuffer<R, D>;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on
 an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {Greater, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const greaterImpl =\n createSimpleBinaryKernelImpl((a: number, b: number) => (a > b) ? 1 : 0);\nexport const greater =\n binaryKernelFunc(Greater, greaterImpl, null / complexImpl */, 'bool');\n\nexport const greaterConfig: KernelConfig = {\n kernelName: Greater,\n backendName: 'cpu',\n kernelFunc: greater\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
 with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {KernelConfig, Less} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const lessImpl =\n createSimpleBinaryKernelImpl((a: number, b: number) => (a < b) ? 1 : 0);\nexport const less =\n binaryKernelFunc(Less, lessImpl, null / complexImpl */, 'bool');\n\nexport const lessConfig: KernelConfig = {\n kernelName: Less,\n backendName:
 'cpu',\n kernelFunc: less\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function linSpaceImpl(\n start: number, stop: number, num: number): TypedArray {\n const step = (stop - start) / (num - 1);\n\n const values = util.makeZerosTypedArray(num,
'float32');\n values[0] = start;\n for (let i = 1; i < values.length; i++) {\n values[i] = values[i - 1] + step;\n }\n\n return values;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Log} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport
{unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const logImpl = createSimpleUnaryImpl((xi) => Math.log(xi));\nexport const log = unaryKernelFuncFromImpl(Log, logImpl);\n\nexport const logConfig: KernelConfig = {\n kernelName: Log,\n backendName: 'cpu',\n kernelFunc: log,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {DataType, NumericDataType, TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function maxImpl(\n aVals: TypedArray, reduceSize: number, outShape: number[],\n dtype: DataType): TypedArray {\n const vals = util.getTypedArrayFromDType(\n dtype as NumericDataType, util.sizeFromShape(outShape));\n\n for (let i = 0; i < vals.length; ++i) {\n const offset = i * reduceSize;\n let max = aVals[offset];\n for (let j = 0; j < reduceSize; ++j) {\n const value = aVals[offset + j];\n if (value > max) {\n max = value;\n }\n }\n vals[i] = max;\n }\n return vals;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Maximum} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const maximumImpl = createSimpleBinaryKernelImpl(\n ((aValue, bValue) => Math.max(aValue, bValue)));\nexport const maximum = binaryKernelFunc(Maximum, maximumImpl);\n\nexport const maximumConfig: KernelConfig = {\n kernelName: Maximum,\n backendName: 'cpu',\n kernelFunc: maximum\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n

* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, Minimum} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const minimumImpl = createSimpleBinaryKernelImpl(\n ((aValue, bValue) => Math.min(aValue, bValue)));\nexport const minimum = binaryKernelFunc(Minimum, minimumImpl);\n\nexport const minimumConfig: KernelConfig = {\n kernelName: Minimum,\n backendName: 'cpu',\n kernelFunc: minimum\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, Multiply} from '@tensorflow/tfjs-core';\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc, createComplexBinaryKernelImpl} from '../utils/binary_utils';\n\nexport const multiplyImpl =\n createSimpleBinaryKernelImpl(((aValue, bValue) => aValue * bValue));\nexport const multiplyComplexImpl =\n createComplexBinaryKernelImpl(((aReal, aImag, bReal, bImag) => {\n return {\n real: aReal * bReal - aImag * bImag,\n imag: aReal * bImag + aImag * bReal\n };\n }));\n\nexport const multiply =\n binaryKernelFunc(Multiply, multiplyImpl, multiplyComplexImpl);\n\nexport const multiplyConfig: KernelConfig = {\n kernelName: Multiply,\n backendName: 'cpu',\n kernelFunc: multiply\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the\n License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {DataType, KernelConfig, KernelFunc, Neg, TensorInfo, TypedArray, UnaryInputs, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\nimport {multiplyImpl} from './Multiply';\n\nexport function negImpl(xVals: TypedArray, xShape: number[], xDtype: DataType):\n [TypedArray, number[]] {\n const minusOne =\n util.createScalarValue(-1 as {} as 'float32', xDtype) as TypedArray;\n return multiplyImpl([], xShape, minusOne, xVals, xDtype);\n}\n\nexport function neg(args: {inputs: UnaryInputs, backend: MathBackendCPU}):\n TensorInfo {\n const {inputs, backend} = args;\n const {x} =\n inputs;\n\n assertNotComplex(x, 'neg');\n\n const xVals = backend.data.get(x.dataId).values as TypedArray;\n const [res, newShape] = negImpl(xVals, x.shape, x.dtype);\n\n return backend.makeTensorInfo(newShape, x.dtype, res);\n}\n\nexport const negConfig: KernelConfig = {\n kernelName: Neg,\n backendName: 'cpu',\n kernelFunc: neg as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ===\n */\n\nimport {KernelConfig, NotEqual} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const notEqualImpl =\n   createSimpleBinaryKernelImpl(((a, b) => (a !== b) ? 1 : 0));\nexport const notEqual =\n binaryKernelFunc(NotEqual, notEqualImpl, null /* complexOp */, 'bool');\n\nexport const notEqualConfig: KernelConfig = {\n kernelName: NotEqual,\n backendName: 'cpu',\n kernelFunc: notEqual\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed
 under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ===\n */\n\nimport {DataType, NumericDataType, TypedArray} from '@tensorflow/tfjs-core';\nimport {util} from '@tensorflow/tfjs-core';\n\nexport function transposeImpl(\n   xVals: TypedArray, xShape: number[], dtype: DataType, perm: number[],\n   newShape: number[]): TypedArray {\n const xRank = xShape.length;\n const xSize = util.sizeFromShape(xShape);\n const xStrides = util.computeStrides(xShape);\n const newStrides = util.computeStrides(newShape);\n\n const result = util.getTypedArrayFromDType(\n   dtype as NumericDataType, util.sizeFromShape(newShape));\n\n for (let i = 0; i < xSize; ++i) {\n   const loc = util.indexToLoc(i, xRank, xStrides);\n\n   // Permute
 location.\n   const newLoc: number[] = new Array(loc.length);\n   for (let i = 0; i < newLoc.length; i++) {\n newLoc[i] = loc[perm[i]];\n   }\n\n   const newIndex = util.locToIndex(newLoc, xRank, newStrides);\n result[newIndex] = xVals[i];\n }\n return result;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ===\n
 */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Transpose, TransposeAttrs, TransposeInputs, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\n\nimport {transposeImpl} from './Transpose_impl';\n\nexport function transpose(args: {\n inputs: TransposeInputs,\n attrs: TransposeAttrs,\n backend: MathBackendCPU\n}): TensorInfo {\n const {inputs, attrs, backend} = args;\n const {x} = inputs;\n const {perm} = attrs;\n\n assertNotComplex(x, 'transpose');\n\n const xRank = x.shape.length;\n\n const newShape: number[] = new Array(xRank);\n for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = x.shape[perm[i]];\n }\n\n const values = backend.data.get(x.dataId).values as TypedArray;\n const result = transposeImpl(values, x.shape, x.dtype, perm, newShape);\n\n const dataId = backend.write(result, newShape, x.dtype);\n return {dataId, shape: newShape, dtype: x.dtype};\n}\n\nexport
 const transposeConfig: KernelConfig = {\n kernelName: Transpose,\n backendName: 'cpu',\n kernelFunc: transpose as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, DataType, KernelConfig, KernelFunc, Prod, ProdAttrs, ProdInputs, TensorInfo, TypedArray, upcastType, util}
from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\nimport {transpose} from './Transpose';\n\nexport function prodImpl(\n xShape: number[], xDtype: DataType, xVals: TypedArray,\n reductionAxes: number[]):\n {outVals: TypedArray, outShape: number[], outDtype: DataType} {\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(xShape, reductionAxes);\n const outDtype = upcastType(xDtype, 'int32');\n const outVals = util.makeZerosTypedArray(\n util.sizeFromShape(outShape), outDtype) as TypedArray;\n const reduceSize = util.sizeFromShape(reduceShape);\n\n for (let i = 0; i < outVals.length; ++i) {\n const offset = i * reduceSize;\n let prod = 1;\n for (let j = 0; j < reduceSize; ++j) {\n prod *= xVals[offset + j];\n }\n outVals[i] = prod;\n }\n\n return {outVals, outShape, outDtype};\n}\n\nexport function prod(\n args: {inputs: ProdInputs,
backend: MathBackendCPU, attrs: ProdAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, keepDims} = attrs;\n\n assertNotComplex(x, 'prod');\n\n const xRank = x.shape.length;\n const axes = util.parseAxisParam(axis, x.shape);\n\n const permutation = backend_util.getAxesPermutation(axes, xRank);\n let reductionAxes = axes;\n let permutedX = x;\n const intermediateTensorInfos = [];\n if (permutation != null) {\n permutedX = transpose({inputs: {x}, backend, attrs: {perm: permutation}});\n intermediateTensorInfos.push(permutedX);\n reductionAxes = backend_util.getInnerMostAxes(reductionAxes.length, xRank);\n }\n\n const xVals = backend.data.get(permutedX.dataId).values as TypedArray;\n const {outVals, outShape, outDtype} =\n prodImpl(permutedX.shape, permutedX.dtype, xVals, reductionAxes);\n\n let resultShape = outShape;\n if (keepDims) {\n resultShape = backend_util.expandShapeToKeepDim(outShape, axes);\n }\n\n intermediateTensorInfos.forEach(\n t => backend.disposeIntermediateTensorInfo(t));\n\n return backend.makeTensorInfo(resultShape, outDtype, outVals);\n}\n\nexport const prodConfig: KernelConfig = {\n kernelName: Prod,\n backendName: 'cpu',\n kernelFunc: prod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {DataTypeMap, util} from '@tensorflow/tfjs-core';\n\nexport function rangeImpl(\n start: number, stop: number, step: number,\n dtype: 'float32'|'int32'): DataTypeMap['float32' | 'int32'] {\n const sameStartStop = start === stop;\n const increasingRangeNegativeStep = start < stop && step < 0;\n const decreasingRangePositiveStep = stop < start && step > 1;\n\n if (sameStartStop || increasingRangeNegativeStep ||\n decreasingRangePositiveStep) {\n return util.makeZerosTypedArray(0, dtype);\n }\n\n const numElements = Math.abs(Math.ceil((stop - start) / step));\n const values = util.makeZerosTypedArray(numElements, dtype);\n\n if (stop < start && step === 1) {\n // Auto adjust the step's sign if it hasn't been set\n // (or was set to 1)\n step = -1;\n }\n\n values[0] = start;\n for (let i = 1; i < values.length; i++) {\n values[i] = values[i - 1] + step;\n }\n return values;\n}\n","/**\n * @license\n * Copyright
2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, Rsqrt} from '@tensorflow/tfjs-core';\n\nimport {createSimpleUnaryImpl} from '../utils/unary_impl';\nimport {unaryKernelFuncFromImpl} from '../utils/unary_utils';\n\nexport const rsqrtImpl = createSimpleUnaryImpl((xi) => 1 / Math.sqrt(xi));\nexport const rsqrt = unaryKernelFuncFromImpl(Rsqrt, rsqrtImpl);\n\nexport const rsqrtConfig: KernelConfig = {\n kernelName: Rsqrt,\n backendName: 'cpu',\n kernelFunc: rsqrt,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, BackendValues, buffer, DataType, KernelConfig, KernelFunc, Slice, slice_util, SliceAttrs, SliceInputs, TensorInfo,
TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendCPU} from '../backend_cpu';\nimport {assertNotComplex} from '../cpu_util';\n\nexport function sliceImpl(\n vals: BackendValues, begin: number[], size: number[], shape: number[],\n dtype: DataType): BackendValues {\n const isContinous = slice_util.isSliceContinous(shape, begin, size);\n const length = util.sizeFromShape(size);\n const xStrides = util.computeStrides(shape);\n\n if (isContinous) {\n const flatOffset = slice_util.computeFlatOffset(begin, xStrides);\n\n if (dtype === 'string') {\n return (vals as Uint8Array[]).slice(flatOffset, flatOffset + length);\n }\n\n return (vals as TypedArray).subarray(flatOffset, flatOffset + length);\n }\n\n const decodedData = dtype === 'string' ?\n backend_util.fromUint8ToStringArray(vals as Uint8Array[]) :\n vals as TypedArray;\n\n const inBuf = buffer(shape, dtype, decodedData);\n const outBuf = buffer(size, dtype);\n for (let i = 0; i < outBuf.size; ++i) {\n const outLoc = outBuf.indexToLoc(i);\n const inLoc = outLoc.map((idx: number, j) => idx + begin[j]);\n outBuf.set(inBuf.get(...inLoc), ...outLoc);\n }\n\n if (dtype === 'string') {\n return backend_util.fromStringArrayToUint8(outBuf.values as string[]);\n }\n return outBuf.values as TypedArray;\n}\n\nexport function slice(\n args: {inputs: SliceInputs, backend: MathBackendCPU, attrs: SliceAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {begin, size} = attrs;\n\n assertNotComplex(x, 'slice');\n\n const [$begin, $size] = slice_util.parseSliceParams(x, begin, size);\n slice_util.assertParamsValid(x, $begin, $size);\n\n const vals = backend.data.get(x.dataId).values;\n const outVals = sliceImpl(vals, $begin, $size, x.shape, x.dtype);\n return backend.makeTensorInfo($size, x.dtype, outVals);\n}\n\nexport const sliceConfig: KernelConfig = {\n kernelName: Slice,\n backendName: 'cpu',\n kernelFunc: slice as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, SquaredDifference} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc} from '../utils/binary_utils';\n\nexport const squaredDifferenceImpl

= createSimpleBinaryKernelImpl(((a, b) => {\n const diff = a - b;\n return diff * diff;\n}));\nexport const squaredDifference =\n   binaryKernelFunc(SquaredDifference, squaredDifferenceImpl);\n\nexport const squaredDifferenceConfig: KernelConfig = {\n kernelName: SquaredDifference,\n backendName: 'cpu',\n kernelFunc: squaredDifference\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {buffer, Rank, TensorBuffer} from '@tensorflow/tfjs-core';\n\nexport function stridedSliceImpl<R extends Rank>(\n   outShape: number[], xBuf: TensorBuffer<R>, strides: number[],\n   begin: number[]): TensorBuffer<R> {\n const outBuf = buffer(outShape, xBuf.dtype);\n\n for (let i = 0; i < outBuf.size; i++) {\n   const loc = outBuf.indexToLoc(i);\n\n   const newLoc: number[] = new Array(loc.length);\n   for (let j = 0; j < newLoc.length; j++) {\n   newLoc[j] = loc[j] * strides[j] + begin[j];\n   }\n   outBuf.set(xBuf.get(...newLoc), ...loc);\n }\n\n return outBuf as TensorBuffer<R>;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, Sub} from '@tensorflow/tfjs-core';\n\nimport {createSimpleBinaryKernelImpl} from '../utils/binary_impl';\nimport {binaryKernelFunc, createComplexBinaryKernelImpl} from '../utils/binary_utils';\n\nexport const subImpl =\n   createSimpleBinaryKernelImpl(((aValue, bValue) => aValue - bValue));\nexport const subComplexImpl =\n   createComplexBinaryKernelImpl(((aReal, aImag, bReal, bImag) => {\n   return {real: aReal - bReal, imag: aImag - bImag};\n   }));\nexport const sub = binaryKernelFunc(Sub, subImpl, subComplexImpl);\n\nexport const subConfig: KernelConfig = {\n kernelName: Sub,\n backendName: 'cpu',\n kernelFunc: sub\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {buffer, DataType, Rank, TensorBuffer} from '@tensorflow/tfjs-core';\n\n/**\n * An implementation of the tile kernel shared between webgl and cpu for string\n * tensors only.\n */\n\nexport function tileImpl<R extends Rank>(\n   xBuf: TensorBuffer<R, DataType>,\n   reps: number[]): TensorBuffer<R, DataType> {\n const newShape: number[] = new Array(xBuf.rank);\n for (let i = 0; i < newShape.length; i++) {\n   newShape[i] = xBuf.shape[i] * reps[i];\n }\n const result = buffer(newShape, xBuf.dtype);\n for (let i = 0; i < result.values.length; ++i) {\n   const newLoc = result.indexToLoc(i);\n\n   const originalLoc: number[] = new Array(xBuf.rank);\n   for (let j = 0; j < originalLoc.length; j++) {\n   originalLoc[j] = newLoc[j] % xBuf.shape[j];\n   }\n\n   const originalIndex = xBuf.locToIndex(originalLoc);\n\n   result.values[i] = xBuf.values[originalIndex];\n }\n return result as TensorBuffer<R, DataType>;\n}\n","/**\n * @license\n *

Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\n/** An implementation of the TopK kernel shared between webgl and cpu. */\n\nimport {buffer, NumericDataType, Rank, ShapeMap, Tensor, TensorBuffer, TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function topKImpl<T extends Tensor, R extends Rank>(\n x: TypedArray, xShape: number[], xDtype: NumericDataType, k: number,\n sorted: boolean):\n [TensorBuffer<R, NumericDataType>, TensorBuffer<R, 'int32'>] {\n // Reshape into a 2d tensor [batch, lastDim] and compute topk along lastDim.\n const lastDim = xShape[xShape.length - 1];\n const [batch, size] = [x.length / lastDim, lastDim];\n const allTopKVals = util.getTypedArrayFromDType(xDtype, batch * k);\n const allTopKIndices = util.getTypedArrayFromDType('int32', batch * k);\n\n for (let b = 0; b < batch; b++) {\n const offset = b * size;\n const vals = x.subarray(offset, offset + size);\n const valAndInd: Array<{value: number, index: number}> = [];\n for (let i = 0; i < vals.length; i++) {\n valAndInd.push({value: vals[i], index: i});\n }\n valAndInd.sort((a, b) => b.value - a.value);\n\n const outOffset = b * k;\n const topKVals = allTopKVals.subarray(outOffset, outOffset + k);\n const topKIndices = allTopKIndices.subarray(outOffset, outOffset + k);\n for (let i = 0; i < k; i++) {\n topKVals[i] = valAndInd[i].value;\n topKIndices[i] = valAndInd[i].index;\n }\n }\n // Reshape back to the original input shape, except that the last\n // dimension is k.\n const outputShape = xShape.slice();\n outputShape[outputShape.length - 1] = k;\n\n return [\n buffer(outputShape as ShapeMap[R], xDtype, allTopKVals),\n buffer(outputShape as ShapeMap[R], 'int32', allTopKIndices)\n];\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {BackendValues, DataType, TensorBuffer, TypedArray, util} from '@tensorflow/tfjs-core';\n\nexport function uniqueImpl(\n values: BackendValues, axis: number, shape: number[], dtype: DataType): {\n outputValues: BackendValues,\n outputShape: number[],\n indices: BackendValues\n} {\n // Normalize and validate axis.\n const $axis = util.parseAxisParam(axis, shape)[0];\n\n // Calculate the new shape that is suitable for extracting data along the\n // given axis.\n //\n // The rank is 3.\n // The size of the 1st dimension is the size of all the axes < the given axis.\n // The size of the 2nd dimension is the same as the size of the given axis.\n // The size of the 3rd dimension is the size of all the axes > the given axis.\n //\n // For example, for a 4D tensor with shape=[2, 3, 5, 4] and axis=2, the\n // newShape would be: [2*3, 5, 4].\n //\n // Note that this is not the final output shape. This will be the shape for an\n // intermediate TensorBuffer (see inputBuffer below) to allow us to extract\n // values along the given axis. To demonstrate how it works, consider the\n // following example:\n //\n // Input: a 3D tensor, with shape [1, 2, 3]\n // [\n // [\n // [1,2,3],\n // [4,5,6]\n //]\n //]\n // Axis: 2 (the last axis).\n // Along axis 2, we expect to extract 3 tensors: [1,4], [2,5], [3,6].\n //\n // For this example, newShape would be: [2, 3, 1], where 2 is calculated from\n // 1*2. The re-shaped data would look like:\n //\n // [\n // [\n // [1], [2], [3]\n //],\n // [\n // [4], [5], [6]\n //]\n //]\n //\n // Then, we can construct a 3-level nested loop by the following dimension\n // order to extract the values along the axis (dimension1):\n // i: dimension1 // 0,1,2 (newShape[1])\n // m: dimension0 // 0,1 (newShape[0])\n // n: dimension2 // 0 (newShape[2])\n //\n // m, i, n\n // ---------\n // Iteration 0: data at [0, 0, 0] => \"1\"\n // Iteration 1:

data at [1, 0, 0] => \"4\"\n // We got [1,4].\n // Iteration 2: data at [0, 1, 0] => \"2\"\n // Iteration 3: data at [1, 1, 0] => \"5\"\n // We got [2,5].\n // Iteration 4: data at [0, 2, 0] => \"3\"\n // Iteration 5: data at [1, 2, 0] => \"6\"\n // We got [3,6].\n const newShape = [1, shape[0], 1];\n for (let i = 0; i < $axis; i++) {\n   newShape[0] *= shape[i];\n }\n newShape[1] = shape[$axis];\n for (let i = $axis + 1; i < shape.length; i++) {\n   newShape[2] *= shape[i];\n }\n\n // A map from unique elements (their string representations) to their values\n // in \"indices\" (below).\n const uniqueElements: {[key: string]: number} = {};\n // The indices of each unique element in the original tensor along the given\n // axis. It is 1D and has the same size as the given axis.\n const indices = new Int32Array(shape[$axis]);\n // Create a buffer so we can easily extract value at a given location.\n const inputBuffer = new TensorBuffer(newShape, dtype, values as TypedArray);\n // The indices along the given axis that have unique elements. This is a\n // de-duped version of \"indices\" above.\n const uniqueIndices: number[] = [];\n const is1DTensor = newShape[0] === 1 && newShape[2] === 1;\n for (let i = 0; i < shape[$axis]; i++) {\n   // Extract values along the axis.\n   let element: string;\n   if (is1DTensor) {\n   // Fast path for 1D tensor input.\n   element = values[i].toString();\n   } else {\n   const axisValues = [];\n   for (let m = 0; m < newShape[0]; m++) {\n   for (let n = 0; n < newShape[2]; n++) {\n   axisValues.push(inputBuffer.get(m, i, n));\n   }\n   }\n   element = axisValues.join(',');\n   }\n\n   // Dedup and update various indices.\n   if (uniqueElements[element] !== undefined) {\n   indices[i] = uniqueElements[element];\n   } else {\n   const uniqueIndex = Object.keys(uniqueElements).length;\n   uniqueElements[element] = uniqueIndex;\n   indices[i] = uniqueIndex;\n   uniqueIndices.push(i);\n   }\n }\n\n // Now we know where each of the unique elements are located along the axis\n // (uniqueIndices). Extract them from input buffer and store them in the\n // output buffer.\n const outputTmpShape = newShape.slice();\n outputTmpShape[1] = Object.keys(uniqueElements).length;\n const outputBuffer = new TensorBuffer(outputTmpShape, dtype);\n uniqueIndices.forEach((uniqueElementIndex, i) => {\n   for (let m = 0; m < newShape[0]; m++) {\n   for (let n = 0; n < newShape[2]; n++) {\n   outputBuffer.set(inputBuffer.get(m, uniqueElementIndex, n), m, i, n);\n   }\n   }\n });\n\n // The output shape can be calculated from the input shape with the size of\n // the given axis replaced by the number of unique elements along that axis.\n const outputShape = shape.slice();\n outputShape[$axis] = outputTmpShape[1];\n\n return {\n   outputValues: outputBuffer.values as BackendValues,\n   outputShape,\n   indices,\n };\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// Shared functionality among backends.\nexport {simpleAbsImpl} from './kernels/Abs';\nexport {addImpl} from './kernels/Add';\nexport {bincountImpl, bincountReduceImpl} from './kernels/Bincount_impl';\nexport {ceilImpl} from './kernels/Ceil';\nexport {concatImpl} from './kernels/Concat_impl';\nexport {expImpl} from './kernels/Exp';\nexport {expm1Impl} from './kernels/Expm1';\nexport {floorImpl} from './kernels/Floor';\nexport {gatherV2Impl} from './kernels/GatherV2_impl';\nexport {greaterImpl} from './kernels/Greater';\nexport {lessImpl} from './kernels/Less';\nexport {linSpaceImpl} from './kernels/LinSpace_impl';\nexport {logImpl} from './kernels/Log';\nexport {maxImpl} from './kernels/Max_impl';\nexport {maximumImpl} from './kernels/Maximum';\nexport {minimumImpl} from './kernels/Minimum';\nexport {multiplyImpl} from './kernels/Multiply';\nexport {negImpl} from './kernels/Neg';\nexport {notEqualImpl} from './kernels/NotEqual';\nexport {prodImpl} from './kernels/Prod';\nexport {rangeImpl} from './kernels/Range_impl';\nexport {rsqrtImpl} from './kernels/Rsqrt';\nexport {sliceImpl} from './kernels/Slice';\nexport {squaredDifferenceImpl} from './kernels/SquaredDifference';\nexport {stridedSliceImpl} from './kernels/StridedSlice_impl';\nexport {subImpl} from './kernels/Sub';\nexport

{tileImpl} from './kernels/Tile_impl';\nexport {topKImpl} from './kernels/TopK_impl';\nexport {transposeImpl} from './kernels/Transpose_impl';\nexport {uniqueImpl} from './kernels/Unique_impl';\nexport {ComplexBinaryKernelImpl, SimpleBinaryKernelImpl} from './utils/binary_types';\n","\n/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n// Import shared functionality from tfjs-backend-cpu without triggering\n// side effects.\n// tslint:disable-next-line: no-imports-from-dist\nimport * as shared from '@tensorflow/tfjs-backend-cpu/dist/shared';\n// tslint:disable-next-line: no-imports-from-dist\nimport {SimpleBinaryKernelImpl} from '@tensorflow/tfjs-backend-cpu/dist/shared';\n// tslint:disable-next-line: no-imports-from-dist\nimport {SimpleUnaryImpl} from '@tensorflow/tfjs-backend-cpu/dist/utils/unary_types';\n\nexport type SimpleBinaryKernelImplCPU = SimpleBinaryKernelImpl;\nexport type SimpleUnaryKernelImplCPU = SimpleUnaryImpl;\nconst {\n addImpl: addImplCPU,\n bincountImpl: bincountImplCPU,\n bincountReduceImpl: bincountReduceImplCPU,\n ceilImpl: ceilImplCPU,\n concatImpl: concatImplCPU,\n expImpl: expImplCPU,\n expm1Impl: expm1ImplCPU,\n floorImpl: floorImplCPU,\n gatherV2Impl: gatherV2ImplCPU,\n greaterImpl: greaterImplCPU,\n lessImpl: lessImplCPU,\n linSpaceImpl: linSpaceImplCPU,\n logImpl: logImplCPU,\n maxImpl: maxImplCPU,\n maximumImpl: maximumImplCPU,\n minimumImpl: minimumImplCPU,\n multiplyImpl: multiplyImplCPU,\n negImpl: negImplCPU,\n prodImpl: prodImplCPU,\n rangeImpl: rangeImplCPU,\n rsqrtImpl: rsqrtImplCPU,\n simpleAbsImpl: simpleAbsImplCPU,\n sliceImpl: sliceImplCPU,\n stridedSliceImpl: stridedSliceImplCPU,\n subImpl: subImplCPU,\n tileImpl: tileImplCPU,\n topKImpl: topKImplCPU,\n transposeImpl: transposeImplCPU,\n uniqueImpl: uniqueImplCPU,\n} = shared;\n\nexport {\n addImplCPU,\n bincountImplCPU,\n bincountReduceImplCPU,\n ceilImplCPU,\n concatImplCPU,\n expImplCPU,\n expm1ImplCPU,\n floorImplCPU,\n gatherV2ImplCPU,\n greaterImplCPU,\n lessImplCPU,\n linSpaceImplCPU,\n logImplCPU,\n maxImplCPU,\n maximumImplCPU,\n minimumImplCPU,\n multiplyImplCPU,\n negImplCPU,\n prodImplCPU,\n simpleAbsImplCPU,\n sliceImplCPU,\n stridedSliceImplCPU,\n subImplCPU,\n rangeImplCPU,\n rsqrtImplCPU,\n tileImplCPU,\n topKImplCPU,\n transposeImplCPU,\n uniqueImplCPU,\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nexport function getVecChannels(name: string, rank: number): string[] {\n return ['x', 'y', 'z', 'w', 'u', 'v'].slice(0, rank).map(d => `${name}.${d}`);\n}\n\nexport function getChannels(name: string, rank: number): string[] {\n if (rank === 1) {\n return [name];\n }\n return getVecChannels(name, rank);\n}\n\nexport function getSourceCoords(rank: number, dims: string[]): string {\n if (rank === 1) {\n return 'rc';\n }\n\n let coords = '';\n for (let i = 0; i < rank; i++) {\n coords += dims[i];\n if (i < rank - 1) {\n coords += ',';\n }\n }\n return coords;\n}","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

```
implied.\n * See the License for the specific language governing permissions and\n * limitations
 under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport
{getCoordsDataType} from './shader_compiler';\n\nexport class PackProgram implements GPGPUProgram {\n
variableNames = ['A'];\n  outputShape: number[];\n  userCode: string;\n  packedInputs = false;\n  packedOutput =
true;\n\n  constructor(\n      outputShape:\n          number[]) {  //
TODO(https://github.com/tensorflow/tfjs/issues/893):\n                  // Only input / output 3D tensors.\n
this.outputShape = outputShape;\n    const rank = outputShape.length;\n\n    if (rank === 0) {\n      this.userCode =
`\n        void main() {\n          setOutput(vec4(getA(), 0., 0., 0.));\n        }\n      `;\n    } else {\n      const channels =
getChannels('rc', rank);\n      const dtype = getCoordsDataType(rank);\n      const outOfBoundsCondition =\n
getOutOfBoundsCondition(rank,
 outputShape, channels);\n      const setup = getSetup(\n          rank, outputShape[outputShape.length - 1],\n
outputShape[outputShape.length - 2], channels);\n      const output = getOutput(outputShape, channels);\n\n
this.userCode = `\n        void main() {\n          ${dtype} rc = getOutputCoords();\n\n
if(${outOfBoundsCondition}) {\n            setOutput(vec4(0));\n          } else {\n            ${setup}\n\n
setOutput(vec4(${output}));\n          }\n        }\n      `;\n    }\n  }\n}\n\nfunction getSourceCoordsArr(rank: number,
dims: string[]): string[] {\n  const coords = [];\n\n  for (let row = 0; row <= 1; row++) {\n    for (let col = 0; col <= 1;
col++) {\n      let coord = `${row === 0 ? 'r' : 'rp1'}, ${col === 0 ? 'c' : 'cp1'}`;\n\n      for (let d = 2; d < rank; d++)
{\n        coord = `${dims[dims.length - 1 - d]},` + coord;\n      }\n\n      coords.push(coord);\n    }\n  }\n  return
coords;\n}\n\nfunction getOutOfBoundsCondition(\n
    rank: number, shape: number[], dims: string[]): string {\n  if (rank === 1) {\n    return `rc > ${shape[0]}`;\n  }\n\n
let cond = '';\n  for (let i = rank - 2; i < rank; i++) {\n    cond += `${dims[i]} >= ${shape[i]}`;\n    if (i < rank - 1) {\n
  cond += '||';\n    }\n  }\n\n  return cond;\n}\n\nfunction getSetup(\n    rank: number, cols: number, rows: number,
dims: string[]): string {\n  if (rank === 1) {\n    return '';\n  }\n\n  const innerDims = dims.slice(-2);\n\n  return `\n
int r = ${innerDims[0]};\n    int c = ${innerDims[1]};\n    int rp1 = r + 1;\n    int cp1 = c + 1;\n\n    bool cEdge = cp1
>= ${cols};\n    bool rEdge = rp1 >= ${rows};\n  `;\n}\n\nfunction getOutput(shape: number[], dims: string[]):
string {\n  const rank = shape.length;\n  const sourceCoords = getSourceCoordsArr(rank, dims);\n  if (rank === 1)
{\n    return `getA(rc),\n            rc + 1 >= ${shape[0]} ? 0. : getA(rc + 1),\n            0, 0`;\n  }\n\n  return
`getA(${sourceCoords[0]}),\n
      cEdge ? 0. : getA(${sourceCoords[1]}),\n          rEdge ? 0. : getA(${sourceCoords[2]}),\n          rEdge || cEdge ?
0. : getA(${sourceCoords[3]})`;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport * as shader_util from
'./shader_compiler_util';\n\nexport class
 ReshapePackedProgram implements GPGPUProgram {\n  variableNames = ['A'];\n  packedInputs = true;\n
packedOutput = true;\n  outputShape: number[];\n  userCode: string;\n\n  constructor(outputShape: [number,
number, number], inputShape: [\n    number, number, number\n  ]) {\n    this.outputShape = outputShape;\n\n    let
mainLoop = ``;\n    for (let i = 0; i < 4; i++) {\n      let thisRC = `thisRC = rc;`;\n      if (i % 2 === 1) {\n        thisRC
+= `thisRC.z += 1;`;\n      }\n      if (i > 1) {\n        thisRC += `thisRC.y += 1;`;\n      }\n\n      mainLoop += `\n
${thisRC}\n        ${i > 0 ? `if(thisRC.y < rows && thisRC.z < cols){` : ''}\n          int flatIndex =
getFlatIndex(thisRC);\n\n          ivec3 inputRC = inputCoordsFromReshapedOutCoords(flatIndex);\n          vec2
```

```
inputRCInnerDims = vec2(float(inputRC.y),float(inputRC.z));\n\n         result[${i}] =\n getChannel(getA(inputRC.x, inputRC.y, inputRC.z), inputRCInnerDims);\n       ${i > 0 ? '}' : ''}\n   `;\n   }\n\n   this.userCode = `\n     ${getReshapedInputCoords(inputShape)}\n ${shader_util.getFlatIndexFrom3D(outputShape)}\n\n     void main() {\n       ivec3 rc = getOutputCoords();\n\n vec4 result = vec4(0.);\n\n       ivec3 thisRC;\n       int rows = ${outputShape[1]};\n       int cols = ${outputShape[2]};\n\n       ${mainLoop}\n\n       setOutput(result);\n     }\n   `;\n }\n}\n\nfunction getReshapedInputCoords(shape: [number, number, number]): string {\n  const coordsFromIndexSnippet =\n shader_util.getLogicalCoordinatesFromFlatIndex(['r', 'c', 'd'], shape);\n\n  return `\n   ivec3 inputCoordsFromReshapedOutCoords(int index) {\n     ${coordsFromIndexSnippet}\n     return ivec3(r, c, d);\n }\n  `;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
 License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {env} from '@tensorflow/tfjs-core';\n\nimport {GPGPUContext} from './gpgpu_context';\nimport
{getInternalFormatForFloat16MatrixTexture, getInternalFormatForFloat16PackedMatrixTexture,
getInternalFormatForFloat32MatrixTexture, getInternalFormatForPackedMatrixTexture,
getInternalFormatForUnsignedBytesMatrixTexture} from './gpgpu_util';\nimport
{getPackedMatrixTextureShapeWidthHeight, getUnpackedMatrixTextureShapeWidthHeight, PhysicalTextureType,
TextureConfig, TextureUsage} from './tex_util';\n\nexport class
 TextureManager {\n  private numUsedTextures = 0;\n  private numFreeTextures = 0;\n  private
_numBytesAllocated = 0;\n  private _numBytesFree = 0;  // How many bytes that have been allocated\n
     // are available for reuse.\n  private freeTextures: {[shape: string]: WebGLTexture[]} = {};\n  private
logEnabled = false;\n  private usedTextures: {[shape: string]: WebGLTexture[]} = {};\n\n  constructor(private
gpgpu: GPGPUContext) {}\n\n  acquireTexture(\n     shapeRC: [number, number], usage: TextureUsage,\n
isPacked: boolean): WebGLTexture {\n   const physicalTexType = getPhysicalFromLogicalTextureType(usage,
isPacked);\n\n   const shapeKey = getKeyFromTextureShape(shapeRC, physicalTexType, isPacked);\n   if
(!(shapeKey in this.freeTextures)) {\n     this.freeTextures[shapeKey] = [];\n   }\n   if (!(shapeKey in
this.usedTextures)) {\n     this.usedTextures[shapeKey] = [];\n   }\n\n   const texBytes = computeBytes(\n
shapeRC, physicalTexType,
 this.gpgpu.gl, this.gpgpu.textureConfig,\n       isPacked);\n\n   if (this.freeTextures[shapeKey].length > 0) {\n
this.numFreeTextures--;\n     this.numUsedTextures++;\n     this._numBytesFree -= texBytes;\n     this.log();\n
const newTexture = this.freeTextures[shapeKey].shift();\n     this.usedTextures[shapeKey].push(newTexture);\n
return newTexture;\n   }\n\n   let newTexture: WebGLTexture;\n   if (physicalTexType ===
PhysicalTextureType.PACKED_2X2_FLOAT32) {\n     newTexture =
this.gpgpu.createPackedMatrixTexture(shapeRC[0], shapeRC[1]);\n   } else if (physicalTexType ===
PhysicalTextureType.PACKED_2X2_FLOAT16) {\n     newTexture =\n
this.gpgpu.createFloat16PackedMatrixTexture(shapeRC[0], shapeRC[1]);\n   } else if (physicalTexType ===
PhysicalTextureType.UNPACKED_FLOAT32) {\n     newTexture =\n
this.gpgpu.createFloat32MatrixTexture(shapeRC[0], shapeRC[1]);\n   } else if (physicalTexType ===
PhysicalTextureType.UNPACKED_FLOAT16) {\n
    newTexture =\n       this.gpgpu.createFloat16MatrixTexture(shapeRC[0], shapeRC[1]);\n   } else if (\n
physicalTexType === PhysicalTextureType.PACKED_4X1_UNSIGNED_BYTE) {\n     newTexture =\n
this.gpgpu.createUnsignedBytesMatrixTexture(shapeRC[0], shapeRC[1]);\n   }\n
this.usedTextures[shapeKey].push(newTexture);\n\n   this.numUsedTextures++;\n   this._numBytesAllocated +=
```

```
texBytes;\n    this.log();\n\n    return newTexture;\n  }\n\n  releaseTexture(\n      texture: WebGLTexture, shape:
[number, number],\n      logicalTexType: TextureUsage, isPacked: boolean): void {\n    if (this.freeTextures == null)
{\n      // Already disposed.\n      return;\n    }\n    const physicalTexType =\n
getPhysicalFromLogicalTextureType(logicalTexType, isPacked);\n    const shapeKey =
getKeyFromTextureShape(shape, physicalTexType, isPacked);\n    if (!(shapeKey in this.freeTextures)) {\n
this.freeTextures[shapeKey] = [];\n    }\n\n    const texBytes = computeBytes(\n
      shape, physicalTexType, this.gpgpu.gl, this.gpgpu.textureConfig,\n        isPacked);\n    const
deleteTexThreshold = env().get('WEBGL_DELETE_TEXTURE_THRESHOLD');\n    if (deleteTexThreshold !== -
1 &&\n        this._numBytesAllocated > deleteTexThreshold) {\n      this.gpgpu.deleteMatrixTexture(texture);\n
this._numBytesAllocated -= texBytes;\n    } else {\n      this.freeTextures[shapeKey].push(texture);\n
this.numFreeTextures++;\n      this._numBytesFree += texBytes;\n    }\n\n    this.numUsedTextures--;\n\n    const
texList = this.usedTextures[shapeKey];\n    const texIndex = texList.indexOf(texture);\n    if (texIndex < 0) {\n
throw new Error(\n          'Cannot release a texture that was never provided by this ' +\n          'texture manager');\n
}\n    texList.splice(texIndex, 1);\n    this.log();\n  }\n\n  private log() {\n    if (!this.logEnabled) {\n      return;\n
}\n    const total = this.numFreeTextures + this.numUsedTextures;\n    console.log(\n
      'Free/Used', `${this.numFreeTextures} / ${this.numUsedTextures}`,\n        `(${total})`);\n    const freeRatio =
this._numBytesFree / this._numBytesAllocated;\n    console.log(`Bytes allocated: ${this._numBytesAllocated}`);\n
console.log(`Bytes unused: ${this._numBytesFree} (${\n        Math.round(100 * freeRatio)}%)`);\n  }\n\n  get
numBytesAllocated(): number {\n    return this._numBytesAllocated;\n  }\n\n  get numBytesFree(): number {\n
return this._numBytesFree;\n  }\n\n  getNumUsedTextures(): number {\n    return this.numUsedTextures;\n  }\n\n
getNumFreeTextures(): number {\n    return this.numFreeTextures;\n  }\n\n  dispose() {\n    if (this.freeTextures ==
null) {\n      // Already disposed.\n      return;\n    }\n    for (const texShape in this.freeTextures) {\n
this.freeTextures[texShape].forEach(tex => {\n        this.gpgpu.deleteMatrixTexture(tex);\n      });\n    }\n    for
(const texShape in this.usedTextures) {\n      this.usedTextures[texShape].forEach(tex
 => {\n        this.gpgpu.deleteMatrixTexture(tex);\n      });\n    }\n    this.freeTextures = null;\n    this.usedTextures =
null;\n    this.numUsedTextures = 0;\n    this.numFreeTextures = 0;\n    this._numBytesAllocated = 0;\n
this._numBytesFree = 0;\n  }\n}\n\nfunction numBytesForInternalFormat(\n    gl: WebGLRenderingContext,
internalFormat: number): number {\n  // tslint:disable-next-line:no-any\n  const glany = gl as any;\n  if
(internalFormat === glany.R32F) {\n    return 4;\n  } else if (internalFormat === glany.R16F) {\n    return 2;\n  }
else if (internalFormat === glany.RGBA32F) {\n    return 16;\n  } else if (internalFormat === gl.RGBA) {\n
return 16;\n  } else if (internalFormat === glany.RGBA16F) {\n    return 8;\n  }\n  throw new Error(`Unknown
internal format ${internalFormat}`);\n}\n\nexport function computeBytes(\n    shape: [number, number],
physicalTexType: PhysicalTextureType,\n    gl: WebGLRenderingContext, textureConfig: TextureConfig,\n
isPacked:
 boolean): number {\n  // It is not possible to infer packed status from the texture type because\n  // depending on the
textureConfig, different  texture types may resolve to the\n  // same internal format (e.g. in WebGL1, the internal
format for\n  // UNPACKED_FLOAT16 textures is gl.RGBA). Therefore we pass in `isPacked`\n  // explicitly.\n
const internalFormat =\n      internalFormatForPhysicalTexType(physicalTexType, textureConfig);\n\n  let
numElements: number;\n  if (isPacked) {\n    const [packedWidth, packedHeight] =\n
getPackedMatrixTextureShapeWidthHeight(shape[0], shape[1]);\n    numElements = packedWidth *
packedHeight;\n\n  } else {\n    const [width, height] =\n
getUnpackedMatrixTextureShapeWidthHeight(shape[0], shape[1]);\n    numElements = width * height;\n  }\n\n
const bytesPerElement = numBytesForInternalFormat(gl, internalFormat);\n  return numElements *
bytesPerElement;\n}\n\nfunction internalFormatForPhysicalTexType(\n    physicalTexType:
PhysicalTextureType,\n
   textureConfig: TextureConfig): number {\n  switch (physicalTexType) {\n    case
PhysicalTextureType.PACKED_2X2_FLOAT32:\n      return
getInternalFormatForPackedMatrixTexture(textureConfig);\n    case
```

PhysicalTextureType.PACKED_2X2_FLOAT16:\n return getInternalFormatForFloat16PackedMatrixTexture(textureConfig);\n case PhysicalTextureType.UNPACKED_FLOAT32:\n return getInternalFormatForFloat32MatrixTexture(textureConfig);\n case PhysicalTextureType.UNPACKED_FLOAT16:\n return getInternalFormatForFloat16MatrixTexture(textureConfig);\n case PhysicalTextureType.PACKED_4X1_UNSIGNED_BYTE:\n return getInternalFormatForUnsignedBytesMatrixTexture(textureConfig);\n default:\n throw new Error(`Unknown physical texture type ${physicalTexType}`);\n }\n}\n\nfunction getPhysicalTextureForRendering(isPacked: boolean):\n PhysicalTextureType {\n if (env().getBool('WEBGL_RENDER_FLOAT32_ENABLED')) {\n if (isPacked) {\n return PhysicalTextureType.PACKED_2X2_FLOAT32;\n }\n return PhysicalTextureType.UNPACKED_FLOAT32;\n }\n\n if (isPacked) {\n return PhysicalTextureType.PACKED_2X2_FLOAT16;\n }\n return PhysicalTextureType.UNPACKED_FLOAT16;\n}\n\nfunction getPhysicalFromLogicalTextureType(\n logicalTexType: TextureUsage, isPacked: boolean): PhysicalTextureType {\n if (logicalTexType === TextureUsage.UPLOAD) {\n return PhysicalTextureType.PACKED_2X2_FLOAT32;\n } else if (logicalTexType === TextureUsage.RENDER || logicalTexType == null) {\n return getPhysicalTextureForRendering(isPacked);\n } else if (\n logicalTexType === TextureUsage.DOWNLOAD ||\n logicalTexType === TextureUsage.PIXELS) {\n return PhysicalTextureType.PACKED_4X1_UNSIGNED_BYTE;\n }\n throw new Error(`Unknown logical texture type ${logicalTexType}`);\n}\n\nfunction getKeyFromTextureShape(\n shapeRowsCol: [number, number], physicalTexType: PhysicalTextureType,\n isPacked: boolean): string {\n return `${shapeRowsCol[0]}_${shapeRowsCol[1]}_${physicalTexType}_${isPacked}`;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class UnaryOpProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n\n constructor(aShape: number[], opSnippet: string) {\n this.outputShape = aShape;\n this.userCode = `\n float unaryOperation(float x) {\n ${opSnippet}\n }\n\n void main() {\n float x = getAAtOutCoords();\n float y = unaryOperation(x);\n\n setOutput(y);\n }\n `;\n }\n}\n\nexport const CHECK_NAN_SNIPPET = `if (isnan(x)) return x;`;\n\nexport const LINEAR = `return x;`;\n\nexport const ABS = `return abs(x);`;\n\nexport function STEP(alpha = 0.0) {\n return CHECK_NAN_SNIPPET + `\n return x > 0.0 ? 1.0 : float(${alpha});\n `;\n}\n\nexport const ELU = `return (x >= 0.0) ? x : (exp(x) - 1.0);`;\n\nexport const RELU = CHECK_NAN_SNIPPET + `\n return (x < 0.0) ? 0.0 : x;\n`;\n\nexport const RELU6 = CHECK_NAN_SNIPPET + `\n return (x < 0.0) ? 0.0 : min(6.0, x);\n`;\n\nexport const CLONE = 'return x;';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========

*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport const LINEAR = `return x;`;\n\nexport const ELU = `\n  vec4 result;\n\n  result.r = (x.r >= 0.0) ? x.r : (exp(x.r) - 1.0);\n  result.g = (x.g >= 0.0) ? x.g : (exp(x.g) - 1.0);\n  result.b = (x.b >= 0.0) ? x.b : (exp(x.b) - 1.0);\n  result.a = (x.a >= 0.0) ? x.a : (exp(x.a) - 1.0);\n\n  return result;\n`;\n\nexport const RELU = `\n  vec4 result = x * vec4(greaterThanEqual(x, vec4(0.0)));\n  bvec4 isNaN = isnan(x);\n\n  result.r = isNaN.r ? x.r : result.r;\n  result.g = isNaN.g ? x.g : result.g;\n  result.b = isNaN.b ? x.b : result.b;\n  result.a = isNaN.a ? x.a : result.a;\n\n  return result;\n`;\n\nexport const RELU6 = `\n  vec4 result = min(x, vec4(6.)) * vec4(greaterThanEqual(x, vec4(0.0)));\n  bvec4 isNaN = isnan(x);\n\n  result.r = isNaN.r ? x.r : result.r;\n  result.g = isNaN.g ? x.g : result.g;\n  result.b = isNaN.b ? x.b : result.b;\n  result.a = isNaN.a ? x.a : result.a;\n\n  return result;\n`;\n\nexport class UnaryOpPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n packedInputs = true;\n packedOutput = true;\n\n constructor(aShape: number[], opSnippet: string) {\n   this.outputShape = aShape;\n   this.userCode = `\n   vec4 unaryOperation(vec4 x) {\n ${opSnippet}\n   }\n\n   void main() {\n   vec4 x = getAAtOutCoords();\n   vec4 y = unaryOperation(x);\n\n
  setOutput(y);\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels, getSourceCoords} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class UnpackProgram implements GPGPUProgram {\n variableNames
  = ['A'];\n packedInputs = true;\n packedOutput = false;\n outputShape: number[];\n userCode: string;\n\n
constructor(outputShape: number[]) {\n   this.outputShape = outputShape;\n   const rank = outputShape.length;\n\n
  const channels = getChannels('rc', rank);\n   const dtype = getCoordsDataType(rank);\n   const sourceCoords =
getSourceCoords(rank, channels);\n   const innerDims = channels.slice(-2);\n   const coords = rank <= 1 ? 'rc' :
`vec2(${innerDims.join(',')})`;\n\n   this.userCode = `\n   void main() {\n ${dtype} rc = getOutputCoords();\n
      vec4 packedInput = getA(${sourceCoords});\n\n   setOutput(getChannel(packedInput, ${coords}));\n   }\n
`;\n }\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
  *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==\n
*/\n\n// Import webgl flags.\nimport './flags_webgl';\n\nimport * as tf from '@tensorflow/tfjs-core';\nimport
{backend_util, BackendValues, buffer, DataId, DataStorage, DataType, DataValues, engine, env, kernel_impls,
KernelBackend, MemoryInfo, NumericDataType, Rank, RecursiveArray, scalar, ShapeMap, Tensor, Tensor2D,
TensorBuffer, TensorInfo, tidy, TimingInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport
{getWebGLContext} from './canvas_util';\nimport {DecodeMatrixProgram} from './decode_matrix_gpu';\nimport
{DecodeMatrixPackedProgram} from './decode_matrix_packed_gpu';\nimport
  {EncodeFloatProgram} from './encode_float_gpu';\nimport {EncodeFloatPackedProgram} from
'./encode_float_packed_gpu';\nimport {EncodeMatrixProgram} from './encode_matrix_gpu';\nimport
{EncodeMatrixPackedProgram} from './encode_matrix_packed_gpu';\nimport {GPGPUContext} from
'./gpgpu_context';\nimport * as gpgpu_math from './gpgpu_math';\nimport {GPGPUBinary, GPGPUProgram,

```
TensorData} from './gpgpu_math';\nimport {simpleAbsImplCPU} from './kernel_utils/shared';\nimport
{PackProgram} from './pack_gpu';\nimport {ReshapePackedProgram} from './reshape_packed_gpu';\nimport * as
tex_util from './tex_util';\nimport {TextureData, TextureUsage} from './tex_util';\nimport {TextureManager} from
'./texture_manager';\nimport * as unary_op from './unaryop_gpu';\nimport {UnaryOpProgram} from
'./unaryop_gpu';\nimport {UnaryOpPackedProgram} from './unaryop_packed_gpu';\nimport {UnpackProgram} from
'./unpack_gpu';\nimport * as webgl_util from './webgl_util';\n\nconst whereImpl
 = kernel_impls.whereImpl;\n\nexport const EPSILON_FLOAT32 = 1e-7;\nexport const EPSILON_FLOAT16 =
1e-4;\n\ntype KernelInfo = {\n  name: string; query: Promise<number>;\n};\n\nexport type TimerNode =
RecursiveArray<KernelInfo>|KernelInfo;\nexport interface CPUTimerQuery {\n  startMs: number;\n  endMs?:
number;\n}\n\nexport interface WebGLMemoryInfo extends MemoryInfo {\n  numBytesInGPU: number;\n  //
Tracks the total number of bytes allocated on the GPU, accounting for the\n  // physical texture type.\n
numBytesInGPUAllocated: number;\n  // Tracks byte size of textures that were created and then made available
for\n  // reuse (disposed).\n  numBytesInGPUFree: number;\n  unreliable: boolean;\n}\n\nexport interface
WebGLTimingInfo extends TimingInfo {\n  uploadWaitMs: number;\n  downloadWaitMs: number;\n}\n\nconst
binaryCaches: {[webGLVersion: string]: {[key: string]: GPGPUBinary}} = {};\n\nexport function
getBinaryCache(webGLVersion: number) {\n  if (webGLVersion in binaryCaches)
 {\n    return binaryCaches[webGLVersion];\n  }\n  binaryCaches[webGLVersion] = {};\n  return
binaryCaches[webGLVersion];\n}\n\n// Empirically determined constant used to determine size threshold for
handing\n// off execution to the CPU.\nconst CPU_HANDOFF_SIZE_THRESHOLD = 128;\n\n// Empirically
determined constant used to decide the number of MB on GPU\n// before we warn about high memory use. The MB
are this constant * screen area\n// * dpi / 1024 / 1024.\nconst BEFORE_PAGING_CONSTANT = 600;\nfunction
numMBBeforeWarning(): number {\n  if (env().global.screen == null) {\n    return 1024;  // 1 GB.\n  }\n  return
(env().global.screen.height * env().global.screen.width *\n          window.devicePixelRatio) *\n
BEFORE_PAGING_CONSTANT / 1024 / 1024;\n}\n\nexport class MathBackendWebGL extends KernelBackend
{\n  texData: DataStorage<TextureData>;\n  gpgpu: GPGPUContext;\n\n  private static nextDataId = 0;\n  private
nextDataId(): number {\n    return MathBackendWebGL.nextDataId++;\n  }\n
  // Maps data ids that have a pending read operation, to list of subscribers.\n  private pendingRead = new
WeakMap<DataId, Array<(arr: TypedArray) => void>>();\n  // List of data ids that are scheduled for disposal, but
are waiting on a\n  // pending read operation.\n  private pendingDisposal = new WeakSet<DataId>();\n\n  // Used to
count the number of 'shallow' sliced tensors that point to the\n  // same data id.\n  dataRefCount = new
WeakMap<DataId, number>();\n  private numBytesInGPU = 0;\n\n  private canvas:
HTMLCanvasElement|OffscreenCanvas;\n\n  private programTimersStack: TimerNode[];\n  private activeTimers:
TimerNode[];\n  // Accumulated time spent (including blocking) in uploading data to webgl.\n  private
uploadWaitMs = 0;\n  // Accumulated time spent (including blocking in downloading data from webgl.\n  private
downloadWaitMs = 0;\n  private cpuBackend: KernelBackend;\n\n  // Number of bits of precision of this backend.\n
private floatPrecisionValue: 32|16;\n\n  private
 textureManager: TextureManager;\n  private binaryCache: {[key: string]: GPGPUBinary};\n  private
gpgpuCreatedLocally: boolean;\n  private numMBBeforeWarning: number;\n  private warnedAboutMemory =
false;\n  private warnedAboutCPUBackend = false;\n\n  constructor(gpgpu?: GPGPUContext) {\n    super();\n    if
(!env().getBool('HAS_WEBGL')) {\n      throw new Error('WebGL is not supported on this device');\n    }\n\n    if
(gpgpu == null) {\n      const gl = getWebGLContext(env().getNumber('WEBGL_VERSION'));\n
this.binaryCache = getBinaryCache(env().getNumber('WEBGL_VERSION'));\n      this.gpgpu = new
GPGPUContext(gl);\n      this.canvas = gl.canvas;\n      this.gpgpuCreatedLocally = true;\n    } else {\n      this.gpgpu
= gpgpu;\n      this.binaryCache = {};\n      this.gpgpuCreatedLocally = false;\n      this.canvas = gpgpu.gl.canvas;\n
}\n    this.textureManager = new TextureManager(this.gpgpu);\n    this.numMBBeforeWarning =
numMBBeforeWarning();\n\n    this.texData = new DataStorage(this,
 engine());\n  }\n\n  numDataIds() {\n    return this.texData.numDataIds() +\n        (this.cpuBackend ?
this.cpuBackend.numDataIds() : 0) -\n        this.pendingDeletes;\n  }\n\n  write(values: BackendValues, shape:
```

```
number[], dtype: DataType): DataId {\n    if (env().getBool('WEBGL_CHECK_NUMERICAL_PROBLEMS') ||\n
  env().getBool('DEBUG')) {\n      this.checkNumericalProblems(values);\n    }\n    if (dtype === 'complex64' &&
values != null) {\n      throw new Error(\n          `Cannot write to a complex64 dtype. ` +\n          `Please use
tf.complex(real, imag).`);\n    }\n    const dataId = {id: this.nextDataId()};\n    this.texData.set(\n        dataId,\n
{shape, dtype, values, usage: TextureUsage.UPLOAD, refCount: 1});\n    return dataId;\n  }\n\n  /** Return
refCount of a `TensorData`. */\n  refCount(dataId: DataId): number {\n    if (this.texData.has(dataId)) {\n      const
tensorData = this.texData.get(dataId);\n      return tensorData.refCount;\n    }\n
    return 0;\n  }\n\n  /** Increase refCount of a `TextureData`. */\n  incRef(dataId: DataId): void {\n    const texData
= this.texData.get(dataId);\n    texData.refCount++;\n  }\n\n  /** Decrease refCount of a `TextureData`. */\n
decRef(dataId: DataId): void {\n    if (this.texData.has(dataId)) {\n      const texData = this.texData.get(dataId);\n
texData.refCount--;\n    }\n  }\n\n  move(\n      dataId: DataId, values: BackendValues, shape: number[], dtype:
DataType,\n      refCount: number): void {\n    if (env().getBool('DEBUG')) {\n
this.checkNumericalProblems(values);\n    }\n    if (dtype === 'complex64') {\n      throw new Error(\n          `Cannot
write to a complex64 dtype. ` +\n          `Please use tf.complex(real, imag).`);\n    }\n    this.texData.set(\n
dataId, {shape, dtype, values, usage: TextureUsage.UPLOAD, refCount});\n  }\n\n
disposeIntermediateTensorInfo(tensorInfo: TensorInfo): void {\n    this.disposeData(tensorInfo.dataId);\n  }\n\n
readSync(dataId:
 DataId): BackendValues {\n    const texData = this.texData.get(dataId);\n    const {values, dtype,
complexTensorInfos, slice, shape, isPacked} = texData;\n\n    // The presence of `slice` indicates this tensor is a
shallow slice of a\n    // different tensor, and is using that original tensor's texture. Run\n    // `clone` in order to copy
that texture and read from it.\n    if (slice != null) {\n      let program;\n      if (isPacked) {\n        program = new
UnaryOpPackedProgram(shape, unary_op.CLONE);\n      } else {\n        program = new UnaryOpProgram(shape,
unary_op.CLONE);\n      }\n      const res =\n          this.runWebGLProgram(program, [{dataId, shape, dtype}],
dtype);\n      const data = this.readSync(res.dataId);\n      this.disposeIntermediateTensorInfo(res);\n      return data;\n
  }\n    if (values != null) {\n      return this.convertAndCacheOnCPU(dataId);\n    }\n    if (dtype === 'string') {\n
return values;\n    }\n    const shouldTimeProgram = this.activeTimers
 != null;\n    let start: number;\n    if (shouldTimeProgram) {\n      start = util.now();\n    }\n\n    let result:
Float32Array;\n    if (dtype === 'complex64') {\n      const realValues =\n
this.readSync(complexTensorInfos.real.dataId) as Float32Array;\n      const imagValues =\n
this.readSync(complexTensorInfos.imag.dataId) as Float32Array;\n      result =
backend_util.mergeRealAndImagArrays(realValues, imagValues);\n    } else {\n      result =
this.getValuesFromTexture(dataId);\n    }\n\n    if (shouldTimeProgram) {\n      this.downloadWaitMs += util.now()
- start;\n    }\n    return this.convertAndCacheOnCPU(dataId, result);\n  }\n\n  async read(dataId: DataId):
Promise<BackendValues> {\n    if (this.pendingRead.has(dataId)) {\n      const subscribers =
this.pendingRead.get(dataId);\n      return new Promise<TypedArray>(resolve => subscribers.push(resolve));\n    }\n
  const texData = this.texData.get(dataId);\n    const {values, shape, slice, dtype,
 complexTensorInfos, isPacked} = texData;\n\n    // The presence of `slice` indicates this tensor is a shallow slice of
a\n    // different tensor, and is using that original tensor's texture. Run\n    // `clone` in order to copy that texture and
read from it.\n    if (slice != null) {\n      let program;\n      if (isPacked) {\n        program = new
UnaryOpPackedProgram(shape, unary_op.CLONE);\n      } else {\n        program = new UnaryOpProgram(shape,
unary_op.CLONE);\n      }\n      const res =\n          this.runWebGLProgram(program, [{dataId, shape, dtype}],
dtype);\n      const data = this.read(res.dataId);\n      this.disposeIntermediateTensorInfo(res);\n      return data;\n
}\n\n    if (values != null) {\n      return this.convertAndCacheOnCPU(dataId);\n    }\n\n    if
(!env().getBool('WEBGL_DOWNLOAD_FLOAT_ENABLED') &&\n
env().getNumber('WEBGL_VERSION') === 2) {\n      throw new Error(\n          `tensor.data() with
WEBGL_DOWNLOAD_FLOAT_ENABLED=false and ` +\n
      `WEBGL_VERSION=2 not yet supported.`);\n    }\n\n    let buffer = null;\n    let tmpDownloadTarget:
TensorInfo;\n\n    if (dtype !== 'complex64' && env().get('WEBGL_BUFFER_SUPPORTED')) {\n      // Possibly
```

```
copy the texture into a buffer before inserting a fence.\n      tmpDownloadTarget = this.decode(dataId);\n      const
tmpData = this.texData.get(tmpDownloadTarget.dataId);\n\n      buffer = this.gpgpu.createBufferFromTexture(\n
  tmpData.texture, ...tex_util.getDenseTexShape(shape));\n    }\n\n    this.pendingRead.set(dataId, []);\n\n    if (dtype
!== 'complex64') {\n      // Create a fence and wait for it to resolve.\n      await
this.gpgpu.createAndWaitForFence();\n    }\n\n    // Download the values from the GPU.\n    let vals:
Float32Array;\n    if (dtype === 'complex64') {\n      const ps = await Promise.all([\n
this.read(complexTensorInfos.real.dataId),\n        this.read(complexTensorInfos.imag.dataId)\n      ]);\n\n      const
realValues = ps[0];\n      const
 imagValues = ps[1];\n      vals = backend_util.mergeRealAndImagArrays(\n          realValues as Float32Array,
imagValues as Float32Array);\n    } else if (buffer == null) {\n      vals = this.getValuesFromTexture(dataId);\n    }
else {\n      const size = util.sizeFromShape(shape);\n      vals =
this.gpgpu.downloadFloat32MatrixFromBuffer(buffer, size);\n    }\n    if (tmpDownloadTarget != null) {\n
this.disposeIntermediateTensorInfo(tmpDownloadTarget);\n    }\n    const dTypeVals =
this.convertAndCacheOnCPU(dataId, vals);\n\n    const subscribers = this.pendingRead.get(dataId);\n
this.pendingRead.delete(dataId);\n\n    // Notify all pending reads.\n    subscribers.forEach(resolve =>
resolve(dTypeVals));\n    if (this.pendingDisposal.has(dataId)) {\n      this.pendingDisposal.delete(dataId);\n      if
(this.disposeData(dataId)) {\n        engine().removeDataId(dataId, this);\n      }\n      this.pendingDeletes--;\n    }\n
return dTypeVals;\n  }\n\n  bufferSync<R extends Rank>(t:
 TensorInfo): TensorBuffer<R> {\n    const data = this.readSync(t.dataId);\n    let decodedData = data as
DataValues;\n    if (t.dtype === 'string') {\n      try {\n        // Decode the bytes into string.\n        decodedData = (data
as Uint8Array[]).map(d => util.decodeString(d));\n      } catch {\n        throw new Error('Failed to decode encoded
string bytes into utf-8');\n      }\n    }\n    return buffer(t.shape as ShapeMap[R], t.dtype, decodedData) as\n
TensorBuffer<R>;\n  }\n\n  private checkNumericalProblems(values: BackendValues): void {\n    if (values == null)
{\n      return;\n    }\n    for (let i = 0; i < values.length; i++) {\n      const num = values[i] as number;\n      if
(!webgl_util.canBeRepresented(num)) {\n        if (env().getBool('WEBGL_RENDER_FLOAT32_CAPABLE')) {\n
      throw Error(\n            `The value ${num} cannot be represented with your ` +\n            `current settings.
Consider enabling float32 rendering: ` +\n            `'tf.env().set('WEBGL_RENDER_FLOAT32_ENABLED',
 true);'`);\n        }\n        throw Error(`The value ${num} cannot be represented on this device.`);\n      }\n    }\n  }\n\n
private getValuesFromTexture(dataId: DataId): Float32Array {\n    const {shape, dtype, isPacked} =
this.texData.get(dataId);\n    const size = util.sizeFromShape(shape);\n    if
(env().getBool('WEBGL_DOWNLOAD_FLOAT_ENABLED')) {\n      const tmpTarget = this.decode(dataId);\n
const tmpData = this.texData.get(tmpTarget.dataId);\n      const vals = this.gpgpu\n
.downloadMatrixFromPackedTexture(\n                tmpData.texture, ...tex_util.getDenseTexShape(shape))\n
            .subarray(0, size);\n\n      this.disposeIntermediateTensorInfo(tmpTarget);\n\n      return vals;\n    }\n\n
const shouldUsePackedProgram =\n        env().getBool('WEBGL_PACK') && isPacked === true;\n    const
outputShape =\n        shouldUsePackedProgram ? webgl_util.getShapeAs3D(shape) : shape;\n
    const program = shouldUsePackedProgram ?\n        new EncodeFloatPackedProgram(outputShape as [number,
number, number]) :\n        new EncodeFloatProgram(outputShape);\n    const output = this.runWebGLProgram(\n
 program, [{shape: outputShape, dtype, dataId}], 'float32');\n    const tmpData = this.texData.get(output.dataId);\n
const vals =\n        this.gpgpu\n            .downloadByteEncodedFloatMatrixFromOutputTexture(\n
tmpData.texture, tmpData.texShape[0], tmpData.texShape[1])\n            .subarray(0, size);\n
this.disposeIntermediateTensorInfo(output);\n\n    return vals;\n  }\n\n  timerAvailable(): boolean {\n    return
env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE') > 0;\n  }\n\n  async time(f:
() => void): Promise<WebGLTimingInfo> {\n    const oldActiveTimers = this.activeTimers;\n    const
newActiveTimers: TimerNode[] = [];\n\n    let outerMostTime = false;\n    if (this.programTimersStack == null) {\n
   this.programTimersStack
 = newActiveTimers;\n      outerMostTime = true;\n    } else {\n      this.activeTimers.push(newActiveTimers);\n
}\n    this.activeTimers = newActiveTimers;\n\n    f();\n\n    // needing to split these up because util.flatten only
```

```
accepts certain types\n    const flattenedActiveTimerQueries =\n        util.flatten(this.activeTimers.map((d:
KernelInfo) => d.query))\n            .filter(d => d != null);\n    const flattenedActiveTimerNames =\n
util.flatten(this.activeTimers.map((d: KernelInfo) => d.name))\n            .filter(d => d != null);\n\n
this.activeTimers = oldActiveTimers;\n\n    if (outerMostTime) {\n      this.programTimersStack = null;\n    }\n\n
const res: WebGLTimingInfo = {\n      uploadWaitMs: this.uploadWaitMs,\n      downloadWaitMs:
this.downloadWaitMs,\n      kernelMs: null,\n      wallMs: null  // will be filled by the engine\n    };\n\n    if
(env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE') > 0) {\n      const kernelMs
= await Promise.all(flattenedActiveTimerQueries);\n\n
      res['kernelMs'] = util.sum(kernelMs);\n      res['getExtraProfileInfo'] = () =>\n        kernelMs.map((d, i) =>
({name: flattenedActiveTimerNames[i], ms: d}))\n            .map(d => `${d.name}: ${d.ms}`)\n            .join(', ');\n
    } else {\n      res['kernelMs'] = {\n        error: 'WebGL query timers are not supported in this environment.'\n      };\n
    }\n\n    this.uploadWaitMs = 0;\n    this.downloadWaitMs = 0;\n    return res;\n  }\n  memory():
WebGLMemoryInfo {\n    return {\n      unreliable: false,\n      numBytesInGPU: this.numBytesInGPU,\n
numBytesInGPUAllocated: this.textureManager.numBytesAllocated,\n      numBytesInGPUFree:
this.textureManager.numBytesFree\n    } as WebGLMemoryInfo;\n  }\n\n  private startTimer():
WebGLQuery|CPUTimerQuery {\n    if
(env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE') > 0) {\n      return
this.gpgpu.beginQuery();\n    }\n    return {startMs: util.now(), endMs: null};\n
  }\n\n  private endTimer(query: WebGLQuery|CPUTimerQuery): WebGLQuery|CPUTimerQuery {\n    if
(env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE') > 0) {\n
this.gpgpu.endQuery();\n      return query;\n    }\n    (query as CPUTimerQuery).endMs = util.now();\n    return
query;\n  }\n\n  private async getQueryTime(query: WebGLQuery|CPUTimerQuery): Promise<number> {\n    if
(env().getNumber('WEBGL_DISJOINT_QUERY_TIMER_EXTENSION_RELIABLE') > 0) {\n      return
this.gpgpu.waitForQueryAndGetTime(query as WebGLQuery);\n    }\n    const timerQuery = query as
CPUTimerQuery;\n    return timerQuery.endMs - timerQuery.startMs;\n  }\n\n  private pendingDeletes = 0;\n\n
/**\n   * Decrease the RefCount on the dataId and dispose the memory if the dataId\n   * has 0 refCount. If there are
pending read on the data, the disposal would\n   * added to the pending delete queue. Return true if the dataId is
removed\n   * from backend or the backend does not contain the dataId, false if
 the\n   * dataId is not removed. Memory may or may not be released even when dataId\n   * is removed, which also
depends on dataRefCount, see `releaseGPU`.\n   * @param dataId\n   * @oaram force Optional, remove the data
regardless of refCount\n   */\n  disposeData(dataId: DataId, force = false): boolean {\n    if
(this.pendingDisposal.has(dataId)) {\n      return false;\n    }\n\n    // No-op if already disposed.\n    if
(!this.texData.has(dataId)) {\n      return true;\n    }\n\n    // if force flag is set, change refCount to 0, this would
ensure disposal\n    // when added to the pendingDisposal queue. Memory may or may not be\n    // released, which
also depends on dataRefCount, see `releaseGPU`.\n    if (force) {\n      this.texData.get(dataId).refCount = 0;\n    }
else {\n      this.texData.get(dataId).refCount--;\n    }\n\n    if (!force && this.texData.get(dataId).refCount > 0) {\n
 return false;\n    }\n\n    if (this.pendingRead.has(dataId)) {\n      this.pendingDisposal.add(dataId);\n
      this.pendingDeletes++;\n      return false;\n    }\n\n    this.releaseGPUData(dataId);\n    const
{complexTensorInfos} = this.texData.get(dataId);\n    if (complexTensorInfos != null) {\n
this.disposeData(complexTensorInfos.real.dataId, force);\n      this.disposeData(complexTensorInfos.imag.dataId,
force);\n    }\n\n    this.texData.delete(dataId);\n\n    return true;\n  }\n\n  private releaseGPUData(dataId: DataId):
void {\n    const {texture, dtype, texShape, usage, isPacked, slice} =\n        this.texData.get(dataId);\n    const key =
slice && slice.origDataId || dataId;\n    const refCount = this.dataRefCount.get(key);\n\n    if (refCount > 1) {\n
this.dataRefCount.set(key, refCount - 1);\n    } else {\n      this.dataRefCount.delete(key);\n      if (texture != null) {\n
      this.numBytesInGPU -= this.computeBytes(texShape, dtype);\n        this.textureManager.releaseTexture(texture,
texShape, usage, isPacked);\n      }\n    }\n\n    const texData
 = this.texData.get(dataId);\n    texData.texture = null;\n    texData.texShape = null;\n    texData.isPacked = false;\n
texData.slice = null;\n  }\n\n  getTexture(dataId: DataId): WebGLTexture {\n    this.uploadToGPU(dataId);\n
```

return this.texData.get(dataId).texture;\n }\n\n /**\n * Returns internal information for the specific data bucket. Used in unit\n * tests.\n */\n getDataInfo(dataId: DataId): TextureData {\n return this.texData.get(dataId);\n }\n\n private getCPUBackend(): KernelBackend|null {\n if (!env().getBool('WEBGL_CPU_FORWARD')) {\n return null;\n }\n\n if (this.cpuBackend == null) {\n this.cpuBackend = engine().findBackend('cpu');\n }\n\n return this.cpuBackend;\n }\n\n /*\n Tests whether all the inputs to an op are small and on the CPU. This heuristic\n determines when it would be faster to execute a kernel on the CPU. WebGL\n kernels opt into running this check and forwarding when appropriate.\n TODO(https://github.com/tensorflow/tfjs/issues/872): Develop a more\n sustainable strategy for optimizing backend execution of ops.\n */\n shouldExecuteOnCPU(\n inputs: TensorInfo[],\n sizeThreshold = CPU_HANDOFF_SIZE_THRESHOLD): boolean {\n const cpuBackend = this.getCPUBackend();\n if (!env().getBool('IS_TEST') && !this.warnedAboutCPUBackend &&\n cpuBackend == null) {\n console.warn(\n 'Your application contains ops that are small enough to be ' +\n 'executed on the CPU backend, however the CPU backend cannot ' +\n 'be found. Consider importing the CPU backend ' +\n '(@tensorflow/tfjs-backend-cpu) for better performance.');\n\n this.warnedAboutCPUBackend = true;\n }\n\n return cpuBackend != null &&\n inputs.every(\n input => this.texData.get(input.dataId).texture == null &&\n util.sizeFromShape(input.shape) < sizeThreshold);\n }\n\n getGPGPUContext(): GPGPUContext {\n return this.gpgpu;\n }\n\n where(condition: Tensor): Tensor2D {\n backend_util.warn(\n 'tf.where() in webgl locks the UI thread. ' +\n 'Call tf.whereAsync() instead');\n const condVals = condition.dataSync();\n return whereImpl(condition.shape, condVals);\n }\n\n private packedUnaryOp(x: TensorInfo, op: string, dtype: DataType) {\n const program = new UnaryOpPackedProgram(x.shape, op);\n const outInfo = this.compileAndRun(program, [x], dtype);\n return engine().makeTensorFromDataId(\n outInfo.dataId, outInfo.shape, outInfo.dtype);\n }\n\n // TODO(msoulanille) remove this once the backend has been modularized\n // a copy is needed here to break a circular dependency.\n // Also remove the op from unary_op.\n abs<T extends Tensor>(x: T): T {\n // TODO: handle cases when x is complex.\n if (this.shouldExecuteOnCPU([x]) &&\n x.dtype !== 'complex64') {\n const outValues =\n simpleAbsImplCPU(this.texData.get(x.dataId).values as TypedArray);\n\n return this.makeOutput(x.shape, x.dtype, outValues);\n }\n\n if (env().getBool('WEBGL_PACK_UNARY_OPERATIONS')) {\n return this.packedUnaryOp(x, unary_op.ABS, x.dtype) as T;\n }\n\n const program = new UnaryOpProgram(x.shape, unary_op.ABS);\n const outInfo = this.compileAndRun(program, [x]);\n return engine().makeTensorFromDataId(\n outInfo.dataId, outInfo.shape, outInfo.dtype) as T;\n }\n\n makeTensorInfo(\n shape: number[], dtype: DataType,\n values?: BackendValues|string[]): TensorInfo {\n let dataId;\n if (dtype === 'string' && values != null && values.length > 0 &&\n util.isString(values[0])) {\n const encodedValues =\n (values as {} as string[]).map(d => util.encodeString(d));\n\n dataId = this.write(encodedValues, shape, dtype);\n } else {\n dataId = this.write(values as TypedArray, shape, dtype);\n }\n\n this.texData.get(dataId).usage = null;\n return {dataId, shape, dtype};\n }\n\n private makeOutput<T extends Tensor>(\n shape: number[], dtype: DataType, values?: BackendValues): T {\n const {dataId} = this.makeTensorInfo(shape, dtype, values);\n return engine().makeTensorFromDataId(dataId, shape, dtype, this) as T;\n }\n\n private unpackTensor(input: TensorInfo): TensorInfo {\n const program = new UnpackProgram(input.shape);\n return this.runWebGLProgram(program, [input], input.dtype);\n }\n\n private packTensor(input: TensorInfo): TensorInfo {\n const program = new PackProgram(input.shape);\n const preventEagerUnpackingOutput = true;\n return this.runWebGLProgram(\n program, [input], input.dtype, null /* customSetup */,\n preventEagerUnpackingOutput);\n }\n\n private packedReshape(input: TensorInfo, afterShape: number[]): TensorInfo {\n const input3DShape = [\n webgl_util.getBatchDim(input.shape),\n ...webgl_util.getRowsCols(input.shape)\n] as [number, number, number];\n const input3D: TensorInfo = {\n dtype: input.dtype,\n shape: input3DShape,\n dataId: input.dataId\n };\n const afterShapeAs3D = [\n webgl_util.getBatchDim(afterShape), ...webgl_util.getRowsCols(afterShape)\n] as [number, number, number];\n\n const program = new ReshapePackedProgram(afterShapeAs3D, input3DShape);\n const

```
preventEagerUnpackingOfOutput = true;\n    const output = this.runWebGLProgram(\n        program, [input3D],
input.dtype, null /* customSetup */,\n        preventEagerUnpackingOfOutput);\n    return {dataId: output.dataId,
shape: afterShape, dtype: output.dtype};\n  }\n\n  private decode(dataId: DataId): TensorInfo {\n    const texData =
this.texData.get(dataId);\n    const {isPacked, shape, dtype} = texData;\n    const shapeAs3D =\n
webgl_util.getShapeAs3D(shape) as [number, number, number];\n    let program;\n    if (isPacked) {\n      program =
new DecodeMatrixPackedProgram(shapeAs3D);\n    } else {\n      program = new
DecodeMatrixProgram(shapeAs3D);\n
    }\n    const preventEagerUnpackingOfOutput = true;\n    const out = this.runWebGLProgram(\n        program,
[{shape: shapeAs3D, dtype, dataId}], dtype,\n        null /* customSetup */, preventEagerUnpackingOfOutput);\n
return {dtype, shape, dataId: out.dataId};\n  }\n\n  runWebGLProgram(\n      program: GPGPUProgram, inputs:
TensorInfo[], outputDtype: DataType,\n      customSetup?: (gpgpu: GPGPUContext, webGLProgram:
WebGLProgram) => void,\n      preventEagerUnpackingOfOutput = false): TensorInfo {\n    const output =
this.makeTensorInfo(program.outputShape, outputDtype);\n    const outData = this.texData.get(output.dataId);\n    if
(program.packedOutput) {\n      outData.isPacked = true;\n    }\n    if (program.outPackingScheme ===
tex_util.PackingScheme.DENSE) {\n      const texelShape = tex_util.getDenseTexShape(program.outputShape);\n
// For a densely packed output, we explicitly set texShape\n      // so it doesn't get assigned later according to our
typical packing\n
      // scheme wherein a single texel can only contain values from adjacent\n      // rows/cols.\n      outData.texShape
= texelShape.map(d => d * 2) as [number, number];\n    }\n    if (program.outTexUsage != null) {\n
outData.usage = program.outTexUsage;\n    }\n    if (util.sizeFromShape(output.shape) === 0) {\n      // Short-circuit
the computation since the result is empty (has 0 in its\n      // shape).\n      outData.values =\n
util.getTypedArrayFromDType(output.dtype as 'float32', 0);\n      return output;\n    }\n\n    const dataToDispose:
TensorInfo[] = [];\n    const inputsData: TensorData[] = inputs.map(input => {\n      if (input.dtype === 'complex64')
{\n        throw new Error(\n            `GPGPUProgram does not support complex64 input. For complex64 ` +\n
`dtypes, please separate the program into real and imaginary ` +\n            `parts.`);\n      }\n\n      let texData =
this.texData.get(input.dataId);\n\n      if (texData.texture ==
 null) {\n        if (!program.packedInputs &&\n            util.sizeFromShape(input.shape) <=\n
env().getNumber('WEBGL_SIZE_UPLOAD_UNIFORM')) {\n          // Upload small tensors that live on the CPU
as uniforms, not as\n          // textures. Do this only when the environment supports 32bit floats\n          // due to
problems when comparing 16bit floats with 32bit floats.\n          //
TODO(https://github.com/tensorflow/tfjs/issues/821): Make it\n          // possible for packed shaders to sample from
uniforms.\n          return {\n            shape: input.shape,\n            texData: null,\n            isUniform: true,\n
uniformValues: texData.values as TypedArray\n          };\n        }\n\n        // This ensures that if a packed program's
inputs have not yet been\n        // uploaded to the GPU, they get uploaded as packed right off the bat.\n        if
(program.packedInputs) {\n          texData.isPacked = true;\n          texData.shape = input.shape;\n
        }\n      } else if (!!texData.isPacked !== !!program.packedInputs) {\n        input = texData.isPacked ?
this.unpackTensor(input) :\n                                this.packTensor(input);\n        dataToDispose.push(input);\n
texData = this.texData.get(input.dataId);\n      } else if (\n          texData.isPacked &&\n
!webgl_util.isReshapeFree(texData.shape, input.shape)) {\n        // This is a special case where a texture exists for a
tensor\n        // but the shapes are incompatible (due to packing constraints) because\n        // the tensor did not have
a chance to go through the packed reshape\n        // shader. This only happens when we reshape the *same* tensor to
form\n        // *distinct* inputs to an op, e.g. dotting a vector with itself. This\n        // case will disappear once
packed uploading is the default.\n\n        const savedInput = input;\n        const targetShape = input.shape;\n\n
input.shape = texData.shape;\n        input =
 this.packedReshape(input as Tensor, targetShape);\n        dataToDispose.push(input);\n        texData =
this.texData.get(input.dataId);\n\n        savedInput.shape = targetShape;\n      }\n\n
this.uploadToGPU(input.dataId);\n      return {shape: input.shape, texData, isUniform: false};\n    });\n\n
this.uploadToGPU(output.dataId);\n    const outputData:\n        TensorData = {shape: output.shape, texData:
```

outData, isUniform: false};\n const key = gpgpu_math.makeShaderKey(program, inputsData, outputData);\n const binary = this.getAndSaveBinary(key, () => {\n return gpgpu_math.compileProgram(\n this.gpgpu, program, inputsData, outputData);\n });\n const shouldTimeProgram = this.activeTimers != null;\n let query: WebGLQuery|CPUTimerQuery;\n if (shouldTimeProgram) {\n query = this.startTimer();\n }\n\n gpgpu_math.runProgram(\n this.gpgpu, binary, inputsData, outputData, customSetup);\n\n dataToDispose.forEach(info => this.disposeIntermediateTensorInfo(info));\n\n if (shouldTimeProgram) {\n query = this.endTimer(query);\n this.activeTimers.push(\n {name: program.constructor.name, query: this.getQueryTime(query)});\n }\n\n if (!env().getBool('WEBGL_LAZILY_UNPACK') && outData.isPacked &&\n preventEagerUnpackingOfOutput === false) {\n const unpacked = this.unpackTensor(output);\n this.disposeIntermediateTensorInfo(output);\n return unpacked;\n }\n return output;\n }\n\n compileAndRun(\n program: GPGPUProgram, inputs: TensorInfo[], outputDtype?: DataType,\n customSetup?: (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => void,\n preventEagerUnpackingOfOutput = false): TensorInfo {\n outputDtype = outputDtype || inputs[0].dtype;\n const outInfo = this.runWebGLProgram(\n program, inputs, outputDtype, customSetup,\n preventEagerUnpackingOfOutput);\n return outInfo;\n }\n\n private getAndSaveBinary(key: string, getBinary: () => GPGPUBinary):\n GPGPUBinary {\n if (!(key in this.binaryCache)) {\n this.binaryCache[key] = getBinary();\n }\n return this.binaryCache[key];\n }\n\n getTextureManager(): TextureManager {\n return this.textureManager;\n }\n\n private disposed = false;\n\n dispose() {\n if (this.disposed) {\n return;\n }\n // Avoid disposing the compiled webgl programs during unit testing because\n // it slows down test execution.\n if (!env().getBool('IS_TEST')) {\n const allKeys = Object.keys(this.binaryCache);\n allKeys.forEach(key => {\n this.gpgpu.deleteProgram(this.binaryCache[key].webGLProgram);\n delete this.binaryCache[key];\n });\n }\n this.textureManager.dispose();\n if (this.canvas != null &&\n (typeof (HTMLCanvasElement) !== 'undefined' &&\n this.canvas instanceof HTMLCanvasElement)) {\n this.canvas.remove();\n } else {\n this.canvas = null;\n }\n if (this.gpgpuCreatedLocally) {\n this.gpgpu.program = null;\n this.gpgpu.dispose();\n }\n this.disposed = true;\n }\n\n floatPrecision(): 16|32 {\n if (this.floatPrecisionValue == null) {\n this.floatPrecisionValue = tidy(() => {\n if (!env().get('WEBGL_RENDER_FLOAT32_ENABLED')) {\n // Momentarily switching DEBUG flag to false so we don't throw an\n // error trying to upload a small value.\n const debugFlag = env().getBool('DEBUG');\n env().set('DEBUG', false);\n const underflowCheckValue = this.abs(scalar(1e-8)).dataSync()[0];\n env().set('DEBUG', debugFlag);\n\n if (underflowCheckValue > 0) {\n return 32;\n }\n }\n return 16;\n });\n }\n return this.floatPrecisionValue;\n }\n\n /** Returns the smallest representable number. */\n epsilon(): number {\n return this.floatPrecision() === 32 ? EPSILON_FLOAT32 : EPSILON_FLOAT16;\n }\n\n uploadToGPU(dataId: DataId): void {\n const texData = this.texData.get(dataId);\n const {shape, dtype, values, texture, usage, isPacked} = texData;\n\n if (texture != null) {\n // Array is already on GPU. No-op.\n return;\n }\n const shouldTimeProgram = this.activeTimers != null;\n let start: number;\n if (shouldTimeProgram) {\n start = util.now();\n }\n\n let texShape = texData.texShape;\n if (texShape == null) {\n texShape = webgl_util.getTextureShapeFromLogicalShape(shape, isPacked);\n texData.texShape = texShape;\n }\n\n if (values != null) {\n const shapeAs3D = webgl_util.getShapeAs3D(shape);\n\n let program;\n let width = texShape[1], height = texShape[0];\n const isByteArray = values instanceof Uint8Array;\n\n if (isPacked) {\n [width, height] = tex_util.getPackedMatrixTextureShapeWidthHeight(\n texShape[0], texShape[1]);\n program = new EncodeMatrixPackedProgram(\n shapeAs3D, [height, width], isByteArray);\n } else {\n program =\n new EncodeMatrixProgram(shapeAs3D, [height, width], isByteArray);\n }\n\n const tempDenseInputHandle = this.makeTensorInfo([height, width], dtype);\n if (isByteArray) {\n this.texData.get(tempDenseInputHandle.dataId).usage =\n TextureUsage.PIXELS;\n } else {\n this.texData.get(tempDenseInputHandle.dataId).usage =\n TextureUsage.UPLOAD;\n }\n this.gpgpu.uploadDenseMatrixToTexture(\n this.getTexture(tempDenseInputHandle.dataId), width,

height,\n values as TypedArray);\n\n // We want the output to remain packed regardless of the value of\n // WEBGL_PACK.\n const preventEagerUnpacking = true;\n const encodedOutputTarget = this.runWebGLProgram(\n program, [tempDenseInputHandle], dtype, null, preventEagerUnpacking);\n\n // Have the original texture assume the identity of the encoded output.\n const outputTexData = this.texData.get(encodedOutputTarget.dataId);\n texData.texture = outputTexData.texture;\n texData.texShape = outputTexData.texShape;\n texData.isPacked = outputTexData.isPacked;\n texData.usage = outputTexData.usage;\n\n this.disposeIntermediateTensorInfo(tempDenseInputHandle);\n this.texData.delete(encodedOutputTarget.dataId);\n\n // Once uploaded, don't store the values on cpu.\n texData.values = null;\n if (shouldTimeProgram) {\n this.uploadWaitMs += util.now() - start;\n }\n } else {\n const newTexture = this.acquireTexture(texShape, usage, dtype, isPacked);\n texData.texture = newTexture;\n }\n }\n\n private convertAndCacheOnCPU(dataId: DataId, float32Values?: Float32Array):\n TypedArray {\n const texData = this.texData.get(dataId);\n const {dtype} = texData;\n\n this.releaseGPUData(dataId);\n\n if (float32Values != null) {\n texData.values = float32ToTypedArray(float32Values, dtype as 'float32');\n }\n return texData.values as TypedArray;\n }\n\n private acquireTexture(\n texShape: [number, number], texType: TextureUsage, dtype: DataType,\n isPacked: boolean): WebGLTexture {\n this.numBytesInGPU += this.computeBytes(texShape, dtype);\n if (!this.warnedAboutMemory &&\n this.numBytesInGPU > this.numMBBeforeWarning * 1024 * 1024) {\n const mb = (this.numBytesInGPU / 1024 / 1024).toFixed(2);\n this.warnedAboutMemory = true;\n console.warn(\n `High memory usage in GPU: ${mb} MB, ` +\n `most likely due to a memory leak`);\n }\n return this.textureManager.acquireTexture(texShape, texType, isPacked);\n }\n\n private computeBytes(shape: [number, number], dtype: DataType) {\n return shape[0] * shape[1] * util.bytesPerElement(dtype);\n }\n}\n\nfunction float32ToTypedArray<D extends NumericDataType>(\n a: Float32Array, dtype: D): tf.DataTypeMap[D] {\n if (dtype === 'float32' || dtype === 'complex64') {\n return a as tf.DataTypeMap[D];\n } else if (dtype === 'int32' || dtype === 'bool') {\n const result = (dtype === 'int32') ? new Int32Array(a.length) :\n new Uint8Array(a.length);\n for (let i = 0; i < result.length; ++i) {\n result[i] = Math.round(a[i]);\n }\n return result as tf.DataTypeMap[D];\n } else {\n throw new Error(`Unknown dtype ${dtype}`);\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {env} from '@tensorflow/tfjs-core';\n\nimport * as gpgpu_util from './gpgpu_util';\nimport * as webgl_util from './webgl_util';\n\nexport {MathBackendWebGL, WebGLMemoryInfo, WebGLTimingInfo} from './backend_webgl';\nexport {setWebGLContext} from './canvas_util';\nexport {GPGPUContext} from './gpgpu_context';\nexport {GPGPUProgram} from './gpgpu_math';\n// WebGL specific utils.\nexport {gpgpu_util, webgl_util};\n\n/**\n * Enforce use of half precision textures if available on the platform.\n *\n * @doc {heading: 'Environment', namespace: 'webgl'}\n */\nexport function forceHalfFloat(): void {\n env().set('WEBGL_FORCE_F16_TEXTURES', true);\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport const CHECK_NAN_SNIPPET = `\n  if (isnan(a)) return a;\n  if (isnan(b)) return
b;\n`;\n\nexport const SQUARED_DIFFERENCE = 'return (a - b) * (a - b);';\nexport class BinaryOpProgram
implements GPGPUProgram {\n  variableNames = ['A', 'B'];\n  outputShape: number[];\n  userCode: string;\n\n
constructor(op: string, aShape: number[],
 bShape: number[]) {\n    this.outputShape = backend_util.assertAndGetBroadcastShape(aShape, bShape);\n
this.userCode = `\n      float binaryOperation(float a, float b) {\n        ${op}\n      }\n\n      void main() {\n        float a
= getAAtOutCoords();\n        float b = getBAtOutCoords();\n        setOutput(binaryOperation(a, b));\n      }\n    `;\n
}\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the
 License.\n *
==========================================================================\n
*/\n\nimport {backend_util, util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUProgram} from
'./gpgpu_math';\nimport {getChannels} from './packing_util';\nimport {getCoordsDataType} from
'./shader_compiler';\n\nexport const CHECK_NAN_SNIPPET = `\n  result.r = isNaN.r > 0. ? NAN : result.r;\n
result.g = isNaN.g > 0. ? NAN : result.g;\n  result.b = isNaN.b > 0. ? NAN : result.b;\n  result.a = isNaN.a > 0. ?
NAN : result.a;\n`;\n\nexport const ELU_DER = `\n  vec4 bGTEZero = vec4(greaterThanEqual(b, vec4(0.)));\n
return (bGTEZero * a) + ((vec4(1.0) - bGTEZero) * (a * (b + vec4(1.0))));\n`;\n\nexport const NOT_EQUAL = `\n
return vec4(notEqual(a, b));\n`;\n\nexport class BinaryOpPackedProgram implements GPGPUProgram {\n
variableNames = ['A', 'B'];\n  outputShape: number[];\n  userCode: string;\n  supportsBroadcasting = true;\n
packedInputs = true;\n  packedOutput = true;\n\n  constructor(\n
    op: string, aShape: number[], bShape: number[],\n    checkOutOfBounds = false) {\n    this.outputShape =
backend_util.assertAndGetBroadcastShape(aShape, bShape);\n    const rank = this.outputShape.length;\n    let
checkOutOfBoundsString = '';\n    if (checkOutOfBounds) {\n      if (rank === 0 ||
util.sizeFromShape(this.outputShape) === 1) {\n        checkOutOfBoundsString = `\n          result.y = 0.;\n
result.z = 0.;\n          result.w = 0.;\n        `;\n      } else {\n        const dtype = getCoordsDataType(rank);\n
checkOutOfBoundsString = `\n          ${dtype} coords = getOutputCoords();\n        `;\n        if (rank === 1) {\n
checkOutOfBoundsString += `\n            result.y = (coords + 1) >= ${this.outputShape[0]} ? 0. : result.y;\n
result.z = 0.;\n            result.w = 0.;\n          `;\n        } else {\n          const channels = getChannels('coords', rank);\n
    checkOutOfBoundsString += `\n            bool nextRowOutOfBounds
 =\n              (${channels[rank - 2]} + 1) >= ${this.outputShape[rank - 2]};\n            bool nextColOutOfBounds =\n
          (${channels[rank - 1]} + 1) >= ${this.outputShape[rank - 1]};\n            result.y = nextColOutOfBounds ? 0. :
result.y;\n            result.z = nextRowOutOfBounds ? 0. : result.z;\n            result.w = nextColOutOfBounds ||
nextRowOutOfBounds ? 0. : result.w;\n          `;\n        }\n      }\n    }\n\n    this.userCode = `\n      vec4
binaryOperation(vec4 a, vec4 b) {\n        ${op}\n      }\n\n      void main() {\n        vec4 a = getAAtOutCoords();\n
  vec4 b = getBAtOutCoords();\n\n        vec4 result = binaryOperation(a, b);\n        ${checkOutOfBoundsString}\n\n
    setOutput(result);\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain
 a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
```

```
==========================================================================\n
*/\n\nimport {env, KernelConfig, KernelFunc, LeakyRelu, LeakyReluAttrs, LeakyReluInputs, TensorInfo, util}
from '@tensorflow/tfjs-core';\nimport {MathBackendWebGL} from '../backend_webgl';\nimport
{BinaryOpProgram} from '../binaryop_gpu';\nimport {BinaryOpPackedProgram} from
'../binaryop_packed_gpu';\n\nexport const LEAKYRELU = `return (a < 0.) ? b * a : a;`;\nexport const
LEAKYRELU_PACKED = `\n  vec4 aLessThanZero = vec4(lessThan(a, vec4(0.)));\n  return (aLessThanZero * (b
* a)) + ((vec4(1.0) - aLessThanZero)
 * a);\n`;\n\nexport function leakyRelu(args: {\n  inputs: LeakyReluInputs,\n  backend: MathBackendWebGL,\n
attrs: LeakyReluAttrs\n}): TensorInfo {\n  const {inputs, backend, attrs} = args;\n  const {x} = inputs;\n  const
{alpha} = attrs;\n\n  const $alpha = backend.makeTensorInfo(\n      [], 'float32',\n      util.createScalarValue(alpha as
{} as 'float32', 'float32'));\n\n  const program = env().getBool('WEBGL_PACK_BINARY_OPERATIONS') ?\n
new BinaryOpPackedProgram(LEAKYRELU_PACKED, x.shape, $alpha.shape) :\n      new
BinaryOpProgram(LEAKYRELU, x.shape, $alpha.shape);\n  const result = backend.runWebGLProgram(program,
[x, $alpha], x.dtype);\n\n  backend.disposeIntermediateTensorInfo($alpha);\n\n  return result;\n}\n\nexport const
leakyReluConfig: KernelConfig = {\n  kernelName: LeakyRelu,\n  backendName: 'webgl',\n  kernelFunc: leakyRelu
as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License,
 Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {env, KernelConfig, KernelFunc, Prelu, PreluInputs, TensorInfo} from '@tensorflow/tfjs-
core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {BinaryOpProgram} from
'../binaryop_gpu';\nimport {BinaryOpPackedProgram} from '../binaryop_packed_gpu';\n\nexport const PRELU =
`return (a < 0.) ? b * a : a;`;\nexport const PRELU_PACKED = `\n  vec4 aLessThanZero = vec4(lessThan(a,
 vec4(0.)));\n  return (aLessThanZero * (b * a)) + ((vec4(1.0) - aLessThanZero) * a);\n`;\n\nexport function
prelu(args: {inputs: PreluInputs, backend: MathBackendWebGL}):\n    TensorInfo {\n  const {inputs, backend} =
args;\n  const {x, alpha} = inputs;\n\n  const program = env().getBool('WEBGL_PACK_BINARY_OPERATIONS')
?\n      new BinaryOpPackedProgram(PRELU_PACKED, x.shape, alpha.shape) :\n      new
BinaryOpProgram(PRELU, x.shape, alpha.shape);\n  return backend.runWebGLProgram(program, [x, alpha],
x.dtype);\n}\n\nexport const preluConfig: KernelConfig = {\n  kernelName: Prelu,\n  backendName: 'webgl',\n
kernelFunc: prelu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
 by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, BinaryInputs, DataType, env, KernelFunc, TypedArray, UnaryInputs, upcastType}
from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport
{BinaryOpProgram} from '../binaryop_gpu';\nimport {BinaryOpPackedProgram} from
'../binaryop_packed_gpu';\nimport {complex} from '../kernels/Complex';\nimport {LEAKYRELU,
LEAKYRELU_PACKED} from '../kernels/LeakyRelu';\nimport {PRELU, PRELU_PACKED} from
'../kernels/Prelu';\nimport * as unary_op from '../unaryop_gpu';\nimport {UnaryOpProgram} from
'../unaryop_gpu';\nimport * as unary_packed_op from '../unaryop_packed_gpu';\nimport
```

{UnaryOpPackedProgram} from '../unaryop_packed_gpu';\n\nimport {SimpleBinaryKernelImplCPU, SimpleUnaryKernelImplCPU} from './shared';\n\nexport const CHECK_NAN_SNIPPET_UNARY = `if (isnan(x)) return x;`;\n\nexport const CHECK_NAN_SNIPPET_BINARY = `\n  if (isnan(a)) return a;\n  if (isnan(b)) return b;\n`;\n\nexport const CHECK_NAN_SNIPPET_BINARY_PACKED = `\n  result.r = isNaN.r > 0. ? NAN : result.r;\n  result.g = isNaN.g > 0. ? NAN : result.g;\n  result.b = isNaN.b > 0. ? NAN : result.b;\n  result.a = isNaN.a > 0. ? NAN : result.a;\n`;\n\ntype UnaryKernelFuncConfig = {\n opSnippet: string,\n packedOpSnippet?: string,\n cpuKernelImpl?: SimpleUnaryKernelImplCPU,\n dtype?: DataType\n};\n\n/**\n * Template that creates a `KernelFunc` for unary ops.\n * @param opSnippet Op snippet to create `UnaryOpProgram`.\n * @param packedOpSnippet Op snippet to create `UnaryOpPackedProgram`.\n * @param dtype Optional. If set, the result has this dtype. Otherwise, the\n *
result has the same dtype as the first input. This is mainly used in\n *   comparison kernels, such as Equal, Less, Greater, etc.\n */\nexport function unaryKernelFunc(\n   {opSnippet, packedOpSnippet, cpuKernelImpl, dtype}: UnaryKernelFuncConfig):\n   KernelFunc {\n return ({inputs, backend}) => {\n   const {x} = inputs as UnaryInputs;\n   const webglBackend = backend as MathBackendWebGL;\n\n   const $dtype = dtype || x.dtype;\n   if (webglBackend.shouldExecuteOnCPU([x]) && cpuKernelImpl != null) {\n   const xData = webglBackend.texData.get(x.dataId);\n   const outValues = cpuKernelImpl(xData.values as TypedArray, $dtype);\n   return webglBackend.makeTensorInfo(x.shape, $dtype, outValues);\n   }\n\n   const shouldUsePackedProgram =\n   env().getBool('WEBGL_PACK_UNARY_OPERATIONS') && packedOpSnippet != null;\n   let program: UnaryOpProgram|UnaryOpPackedProgram;\n   if (shouldUsePackedProgram) {\n   program = new UnaryOpPackedProgram(x.shape, packedOpSnippet);\n   } else {\n   program = new UnaryOpProgram(x.shape, opSnippet);\n   }\n\n   return webglBackend.runWebGLProgram(program, [x], $dtype);\n };\n}\n\ntype BinaryKernelFuncConfig = {\n opSnippet: string,\n packedOpSnippet?: string,\n checkOutOfBounds?: boolean,\n supportsComplex?: boolean,\n cpuKernelImpl?: SimpleBinaryKernelImplCPU,\n dtype?: DataType\n};\n\n/**\n * Template that creates a `KernelFunc` for binary ops.\n * @param opSnippet Op snippet to create `BinaryOpProgram`.\n * @param packedOpSnippet Op snippet to create `BinaryOpPackedProgram`.\n * @param checkOutOfBoundsForPackedProgram Whether to set checkOutOfBounds=true\n *   when creating BinaryOpPackedProgram.\n * @param dtype Optional. If set, the result has this dtype. Otherwise, the\n *   result has the same dtype as the first input. This is mainly used in\n *   comparison kernels, such as Equal, Less, Greater, etc.\n */\nexport function binaryKernelFunc({\n opSnippet,\n packedOpSnippet,\n checkOutOfBounds = false,\n supportsComplex = false,\n cpuKernelImpl,\n dtype\n}: BinaryKernelFuncConfig): KernelFunc {\n return ({inputs, backend}) => {\n   const {a, b} = inputs as BinaryInputs;\n   const webglBackend = backend as MathBackendWebGL;\n\n   if (supportsComplex && a.dtype === 'complex64') {\n   const aData = webglBackend.texData.get(a.dataId);\n   const bData = webglBackend.texData.get(b.dataId);\n\n   const [real, imag] = [\n   [aData.complexTensorInfos.real, bData.complexTensorInfos.real],\n   [aData.complexTensorInfos.imag, bData.complexTensorInfos.imag]\n   ].map(complexParts => {\n   const [aPart, bPart] = complexParts;\n\n   const aHandle = {\n   dataId: aPart.dataId,\n   dtype: aPart.dtype,\n   shape: a.shape\n   };\n   const bHandle = {\n   dataId: bPart.dataId,\n   dtype: bPart.dtype,\n   shape: b.shape\n   };\n\n   const program = new BinaryOpProgram(opSnippet, a.shape, b.shape);\n   return webglBackend.runWebGLProgram(\n   program, [aHandle, bHandle], upcastType(aPart.dtype, bPart.dtype));\n   });\n\n   const complexOutput =\n   complex({inputs: {real, imag}, backend: webglBackend});\n\n   webglBackend.disposeIntermediateTensorInfo(real);\n   webglBackend.disposeIntermediateTensorInfo(imag);\n\n   // TODO(annxingyuan): Implement CPU forwarding for complex inputs.\n\n   return complexOutput;\n   }\n\n   const $dtype = dtype || upcastType(a.dtype, b.dtype);\n   if (webglBackend.shouldExecuteOnCPU([a, b]) && cpuKernelImpl != null) {\n   const aData = webglBackend.texData.get(a.dataId);\n   const bData = webglBackend.texData.get(b.dataId);\n   const [outValues, outShape] = cpuKernelImpl(\n   a.shape, b.shape, aData.values as TypedArray,\n   bData.values as TypedArray, $dtype);\n\n   const out = webglBackend.makeTensorInfo(outShape, $dtype);\n   const outData

= webglBackend.texData.get(out.dataId);\n
outData.values = outValues;\n return out;\n }\n\n const shouldUsePackedProgram =\n env().getBool('WEBGL_PACK_BINARY_OPERATIONS') &&\n packedOpSnippet != null;\n let program: BinaryOpProgram|BinaryOpPackedProgram;\n if (shouldUsePackedProgram) {\n program = new BinaryOpPackedProgram(\n packedOpSnippet, a.shape, b.shape, checkOutOfBounds);\n } else {\n program = new BinaryOpProgram(opSnippet, a.shape, b.shape);\n }\n\n return webglBackend.runWebGLProgram(program, [a, b], $dtype);\n };\n}\n\nexport function mapActivationToShaderProgram(\n activation: backend_util.Activation, packed = false): string {\n if (activation === 'linear') {\n if (packed) {\n return unary_packed_op.LINEAR;\n }\n return unary_op.LINEAR;\n } else if (activation === 'relu') {\n if (packed) {\n return unary_packed_op.RELU;\n }\n return unary_op.RELU;\n } else if (activation === 'elu') {\n if (packed) {\n return unary_packed_op.ELU;\n }\n return unary_op.ELU;\n } else if (activation === 'relu6') {\n if (packed) {\n return unary_packed_op.RELU6;\n }\n return unary_op.RELU6;\n } else if (activation === 'prelu') {\n if (packed) {\n return PRELU_PACKED;\n }\n return PRELU;\n } else if (activation === 'leakyrelu') {\n if (packed) {\n return LEAKYRELU_PACKED;\n }\n return LEAKYRELU;\n }\n throw new Error(`Activation ${\n activation} has not been implemented for the WebGL backend.`);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class MatMulPackedProgram implements GPGPUProgram {\n variableNames = ['matrixA', 'matrixB'];\n packedInputs = true;\n packedOutput = true;\n outputShape: number[];\n userCode: string;\n\n constructor(\n aShape: [number, number, number], bShape: [number, number, number],\n outputShape: [number, number, number], transposeA = false,\n transposeB = false, addBias = false, activation: string = null,\n hasPreluActivation = false, hasLeakyreluActivation = false) {\n this.outputShape = outputShape;\n\n const sharedDim = transposeA ? aShape[1] : aShape[2];\n const sharedDimensionPacked = Math.ceil(sharedDim / 2);\n\n const aSample = transposeA ? 'i * 2, rc.y' : 'rc.y, i * 2';\n const bSample = transposeB ? 'rc.z, i * 2' : 'i * 2, rc.z';\n const aSwizzle = transposeA ? ['a.xxyy', 'a.zzww'] : ['a.xxzz', 'a.yyww'];\n const bSwizzle = transposeB ? ['b.xzxz', 'b.ywyw'] : ['b.xyxy', 'b.zwzw'];\n\n let activationSnippet = '', applyActivationSnippet = '';\n if (activation) {\n if (hasPreluActivation) {\n activationSnippet = `vec4 activation(vec4 a) {\n vec4 b = getPreluActivationWeightsAtOutCoords();\n ${activation}\n }`;\n } else if (hasLeakyreluActivation) {\n activationSnippet = `vec4 activation(vec4 a) {\n vec4 b = getLeakyreluAlphaAtOutCoords();\n ${activation}\n }`;\n } else {\n activationSnippet = `vec4 activation(vec4 x) {\n ${activation}\n }`;\n }\n\n applyActivationSnippet = `result = activation(result);`;\n }\n\n const addBiasSnippet = addBias ? 'result += getBiasAtOutCoords();' : '';\n if (addBias) {\n this.variableNames.push('bias');\n }\n\n if (hasPreluActivation) {\n this.variableNames.push('preluActivationWeights');\n }\n\n if (hasLeakyreluActivation) {\n this.variableNames.push('leakyreluAlpha');\n }\n\n let batchASnippet = 'rc.x';\n let batchBSnippet = 'rc.x';\n if (aShape[0] < bShape[0]) {\n batchASnippet = `int(min(float(rc.x), ${aShape[0] - 1}.))`;\n } else if (bShape[0] < aShape[0]) {\n batchBSnippet = `int(min(float(rc.x), ${bShape[0] - 1}.))`;\n }\n\n this.userCode = `\n ${activationSnippet}\n\n const float sharedDimension = ${sharedDimensionPacked}.0;\n\n vec4 dot2x2ARowBCol(ivec3 rc) {\n vec4 result = vec4(0);\n for (int i = 0; i < ${sharedDimensionPacked}; i++) {\n int batchA = ${batchASnippet};\n int batchB = ${batchBSnippet};\n vec4 a = getMatrixA(batchA, ${aSample});\n vec4 b = getMatrixB(batchB, ${bSample});\n\n

```
// These swizzled products need to be separately added.\n // See:
https://github.com/tensorflow/tfjs/issues/1735\n result += (${aSwizzle[0]} * ${bSwizzle[0]});\n result
+= (${aSwizzle[1]} * ${bSwizzle[1]});\n }\n return result;\n }\n\n void main() {\n ivec3 rc =
getOutputCoords();\n vec4 result = dot2x2ARowBCol(rc);\n\n ${addBiasSnippet}\n\n
${applyActivationSnippet}\n\n setOutput(result);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\n//
(Ar + Ai)(Br + Bi) =\n// ArBr + ArBi + AiBr + AiBi = ArBr - AB + ArBi + AiBr\n// Yr = ArBr - AB\n// Yi = ArBi
+ AiBr\nexport const COMPLEX_MULTIPLY = {\n REAL: 'return areal * breal - aimag * bimag;',\n IMAG:
'return areal * bimag + aimag * breal;'\n};\n\nexport class BinaryOpComplexProgram implements GPGPUProgram
{\n variableNames = ['AReal', 'AImag', 'BReal', 'BImag'];\n userCode: string;\n outputShape: number[];\n\n
constructor(op: string, aShape: number[], bShape: number[]) {\n this.outputShape =
backend_util.assertAndGetBroadcastShape(aShape, bShape);\n\n this.userCode = `\n float
binaryOpComplex(\n float areal, float
 aimag, float breal, float bimag) {\n ${op}\n }\n\n void main() {\n float areal =
getARealAtOutCoords();\n float aimag = getAImagAtOutCoords();\n float breal =
getBRealAtOutCoords();\n float bimag = getBImagAtOutCoords();\n setOutput(binaryOpComplex(areal,
aimag, breal, bimag));\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n
 * ==========================================================================\n
*/\n\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from
'../backend_webgl';\nimport {ReshapePackedProgram} from '../reshape_packed_gpu';\nimport {getBatchDim,
getRowsCols} from '../webgl_util';\n\nexport function packedReshape(\n input: TensorInfo, afterShape:
number[],\n backend: MathBackendWebGL): TensorInfo {\n const input3DShape =\n
[getBatchDim(input.shape),\n ...getRowsCols(input.shape)] as [number, number, number];\n const input3D:
TensorInfo = {\n dtype: input.dtype,\n shape: input3DShape,\n dataId: input.dataId\n };\n const
afterShapeAs3D =\n [getBatchDim(afterShape),\n ...getRowsCols(afterShape)] as [number, number,
number];\n\n const program = new ReshapePackedProgram(afterShapeAs3D, input3DShape);\n const
preventEagerUnpackingOfOutput = true;\n const output = backend.runWebGLProgram(\n program, [input3D],
input.dtype,
 null /* customSetup */,\n preventEagerUnpackingOfOutput);\n return {dataId: output.dataId, shape: afterShape,
dtype: output.dtype};\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
```

implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {KernelConfig, KernelFunc, Reshape, ReshapeAttrs, ReshapeInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {packedReshape} from '../kernel_utils/reshape';\nimport {isReshapeFree} from '../webgl_util';\n\nexport function reshape(args: {\n inputs: ReshapeInputs,\n backend: MathBackendWebGL,\n attrs: ReshapeAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {shape} = attrs;\n const webglBackend = backend;\n\n const xSize = util.sizeFromShape(x.shape);\n const $shape = util.inferFromImplicitShape(shape, xSize);\n const $xSize = util.sizeFromShape($shape);\n\n util.assert(\n   xSize === $xSize,\n   () => `The new shape (${$shape}) has ${$xSize} elements and the old ` +\n   `shape (${x.shape}) has ${xSize} elements. The new shape and old ` +\n   `shape must have the same number of elements.`);\n\n const xTexData = webglBackend.texData.get(x.dataId);\n if (xTexData.isPacked && !isReshapeFree(x.shape, $shape) &&\n   !(xTexData.texture !== null && isReshapeFree(xTexData.shape,\n $shape))) {\n   return packedReshape(x, $shape, webglBackend);\n }\n\n webglBackend.incRef(x.dataId);\n\n return {dataId: x.dataId, shape: $shape, dtype: x.dtype};\n}\n\nexport const reshapeConfig: KernelConfig = {\n kernelName: Reshape,\n backendName: 'webgl',\n kernelFunc: reshape as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n */\n\nimport {backend_util, util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class MeanProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape: number[];\n userCode: string;\n\n constructor(reduceInfo: backend_util.ReduceInfo, divisor?: number) {\n   const {windowSize, batchSize, inSize, outSize} = reduceInfo;\n   this.outputShape = [batchSize, outSize];\n\n   const windowSizeNearestVec4 = Math.floor(windowSize / 4) * 4;\n   const windowSizeVec4Remainder = windowSize % 4;\n\n   let updateSnippet = `sumValue += dot(values, ones);`;\n   if (divisor != null) {\n   const denominator = 1 / divisor;\n   updateSnippet = `sumValue += dot(values * ${\n          util.isInt(denominator) ? denominator.toPrecision(2) :\n                                    denominator}, ones);`;\n   }\n\n   let checkOutOfBounds = '';\n   if (inSize % windowSize > 0) {\n   checkOutOfBounds = `\n        if (inIdx < 0 || inIdx >= ${inSize}) {\n          return 0.0;\n        }\n      `;\n   }\n\n   this.userCode = `\n   const vec4 ones = vec4(1.0, 1.0, 1.0, 1.0);\n\n   float getValue(int batch, int inIdx) {\n ${checkOutOfBounds}\n   return getX(batch, inIdx);\n   }\n\n   void main() {\n   ivec2 coords = getOutputCoords();\n   int batch = coords[0];\n   int outIdx = coords[1];\n   int inOffset = outIdx * ${windowSize};\n\n   float sumValue = 0.0;\n\n   for (int i = 0; i < ${windowSizeNearestVec4}; i += 4) {\n   int inIdx = inOffset + i;\n   vec4 values = vec4(\n   getValue(batch, inIdx),\n   getValue(batch, inIdx + 1),\n   getValue(batch, inIdx + 2),\n   getValue(batch, inIdx + 3)\n   );\n\n ${updateSnippet}\n   }\n\n   int inIdx = inOffset + ${windowSizeNearestVec4};\n   if (${windowSizeVec4Remainder === 1}) {\n   vec4 values =\n   vec4(getValue(batch, inIdx), 0.0, 0.0, 0.0);\n\n ${updateSnippet}\n   } else if (${windowSizeVec4Remainder === 2}) {\n   vec4 values = vec4(\n   getValue(batch, inIdx),\n   getValue(batch, inIdx + 1), 0.0, 0.0);\n\n ${updateSnippet}\n   } else if (${windowSizeVec4Remainder === 3}) {\n   vec4 values = vec4(\n   getValue(batch, inIdx),\n   getValue(batch, inIdx + 1),\n   getValue(batch, inIdx + 2), 0.0);\n\n ${updateSnippet}\n   }\n   setOutput(sumValue);\n   }\n   `;\n

}\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License
is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport class ReduceProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n reduceInfo: backend_util.ReduceInfo,\n reduceType: 'all'|'any'|'max'|'min'|'sum'|'prod') {\n const {windowSize, batchSize, inSize, outSize} = reduceInfo;\n this.outputShape = [batchSize, outSize];\n\n let initializationValue = '0.0';\n let compareOp = ``;\n\n if (reduceType === 'prod') {\n initializationValue = '1.0';\n } else if (reduceType === 'min') {\n // WebGL on Firefox Linux can't compile
1/0 so we do 1/eps.\n initializationValue = '1.0 / 1e-20';\n compareOp = `min`;\n } else if (reduceType === 'max') {\n // WebGL on Firefox Linux can't compile 1/0 so we do 1/eps.\n initializationValue = '-1.0 / 1e-20';\n compareOp = `max`;\n }\n\n let returnValue = `${reduceType}(${reduceType}(${reduceType}(` +\n 'minMaxValue[0], minMaxValue[1]), minMaxValue[2]), minMaxValue[3])';\n\n if (reduceType === 'sum') {\n returnValue = `sumValue`;\n } else if (reduceType === 'prod') {\n returnValue = `prodValue`;\n } else if (reduceType === 'all') {\n returnValue = `allValue`;\n } else if (reduceType === 'any') {\n returnValue = `anyValue`;\n }\n\n const windowSizeNearestVec4 = Math.floor(windowSize / 4) * 4;\n const windowSizeVec4Remainder = windowSize % 4;\n\n let updateSnippet = `\n if (${reduceType === 'sum'}) {\n sumValue += dot(values, ones);\n } else if (${reduceType === 'prod'}) {\n vec2 tmp = vec2(values[0], values[1]) * vec2(values[2], values[3]);\n prodValue *= tmp[0] * tmp[1];\n } else {\n minMaxValue = ${compareOp}(values, minMaxValue);\n }\n `;\n\n let vecType = `vec4`;\n\n if (reduceType === 'all') {\n initializationValue = '1.0';\n updateSnippet = `\n bool reducedAllValue = all(values);\n float floatedReducedAllValue = float(reducedAllValue);\n allValue = float(allValue >= 1.0 && floatedReducedAllValue >= 1.0);\n `;\n vecType = `bvec4`;\n } else if (reduceType === 'any') {\n initializationValue = '0.0';\n updateSnippet = `\n bool reducedAnyValue = any(values);\n float floatedReducedAnyValue = float(reducedAnyValue);\n anyValue = float(anyValue >= 1.0 || floatedReducedAnyValue >= 1.0);\n `;\n vecType = `bvec4`;\n }\n\n let checkOutOfBounds = '';\n if (inSize % windowSize > 0) {\n checkOutOfBounds = `\n if (inIdx < 0
|| inIdx >= ${inSize}) {\n return initializationValue;\n }\n `;\n }\n this.userCode = `\n const float initializationValue = ${initializationValue};\n const vec4 ones = vec4(1.0, 1.0, 1.0, 1.0);\n\n float getValue(int batch, int inIdx) {\n ${checkOutOfBounds}\n return getX(batch, inIdx);\n }\n\n void main() {\n ivec2 coords = getOutputCoords();\n int batch = coords[0];\n int outIdx = coords[1];\n int inOffset = outIdx * ${windowSize};\n\n vec4 minMaxValue = vec4(${initializationValue});\n float prodValue = 1.0;\n float sumValue = 0.0;\n float allValue = 1.0;\n float anyValue = 0.0;\n\n for (int i = 0; i < ${windowSizeNearestVec4}; i += 4) {\n int inIdx = inOffset + i;\n ${vecType} values = ${vecType}(\n getValue(batch, inIdx),\n getValue(batch, inIdx + 1),\n getValue(batch, inIdx + 2),\n getValue(batch,
inIdx + 3)\n);\n\n ${updateSnippet}\n }\n\n int inIdx = inOffset + ${windowSizeNearestVec4};\n if (${windowSizeVec4Remainder === 1}) {\n ${vecType} values = ${vecType}(\n getValue(batch, inIdx),\n initializationValue,\n initializationValue,\n initializationValue\n);\n\n ${updateSnippet}\n } else if (${windowSizeVec4Remainder === 2}) {\n ${vecType} values = ${vecType}(\n getValue(batch, inIdx),\n getValue(batch, inIdx + 1),\n initializationValue,\n initializationValue\n);\n\n ${updateSnippet}\n } else if

(${windowSizeVec4Remainder === 3}) {\n ${vecType} values = ${vecType}(\n getValue(batch, inIdx),\n getValue(batch, inIdx + 1),\n getValue(batch, inIdx + 2),\n initializationValue\n);\n\n ${updateSnippet}\n }\n setOutput(${returnValue});\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, DataType, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {MeanProgram} from '../mean_gpu';\nimport {ReduceProgram} from '../reduce_gpu';\n\ntype ReduceTypes = 'all'|'any'|'max'|'min'|'sum'|'prod'|'mean';\n\n// Returns an array of configuration objects that describe each stage of the\n// reduction.\nfunction getReductionStages(inShape: number[]):\n Array<{inSize: number, windowSize: number, outSize: number}> {\n const stages = [];\n\n while (stages.length === 0 || stages[stages.length - 1].outSize !== 1) {\n const outSize: number =\n stages.length ? stages[stages.length - 1].outSize : inShape[1];\n const windowSize = backend_util.computeOptimalWindowSize(outSize);\n stages.push({\n inSize: outSize,\n windowSize,\n outSize: Math.ceil(outSize / windowSize)\n });\n }\n\n return stages;\n}\n\nexport function reduce(\n x: TensorInfo, dtype: DataType, reductionType: ReduceTypes,\n backend: MathBackendWebGL): TensorInfo {\n const reductionStages = getReductionStages(x.shape);\n\n let result = x;\n for (let i = 0; i < reductionStages.length; i++) {\n const {inSize, windowSize, outSize} = reductionStages[i];\n\n let program: ReduceProgram|MeanProgram;\n let previousResult: TensorInfo;\n if (reductionType === 'mean') {\n program = i === 0 ?\n new MeanProgram(\n {windowSize, inSize, batchSize: x.shape[0], outSize}, inSize) :\n new MeanProgram({windowSize, inSize, batchSize: x.shape[0], outSize});\n } else {\n program = new ReduceProgram(\n {windowSize, inSize, batchSize: x.shape[0], outSize}, reductionType);\n }\n\n previousResult = result;\n result = backend.runWebGLProgram(program, [result], dtype);\n\n if (previousResult.dataId !== x.dataId) {\n backend.disposeIntermediateTensorInfo(previousResult);\n }\n }\n\n return result;\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class TransposeProgram implements GPGPUProgram {\n variableNames = ['A'];\n outputShape: number[];\n userCode: string;\n rank: number;\n\n constructor(aShape: number[], newDim: number[]) {\n const outputShape: number[] = new Array(aShape.length);\n for (let i = 0; i < outputShape.length; i++) {\n outputShape[i] = aShape[newDim[i]];\n }\n this.outputShape = outputShape;\n this.rank = outputShape.length;\n const dtype = getCoordsDataType(this.rank);\n const switched = getSwitchedCoords(newDim);\n\n this.userCode = `\n void main() {\n ${dtype} resRC = getOutputCoords();\n setOutput(getA(${switched}));\n }\n `;\n }\n}\n\nfunction getSwitchedCoords(newDim: number[]): string {\n const rank = newDim.length;\n if (rank > 6) {\n throw Error(`Transpose for rank ${rank} is not yet supported`);\n }\n const originalOrder =\n ['resRC.x', 'resRC.y',

'resRC.z', 'resRC.w', 'resRC.u', 'resRC.v'];\n const switchedCoords = new Array(rank);\n for (let i = 0; i < newDim.length; i++) {\n   switchedCoords[newDim[i]] = originalOrder[i];\n }\n return switchedCoords.join();\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getVecChannels} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class TransposePackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n outputShape: number[];\n userCode: string;\n rank: number;\n packedInputs = true;\n packedOutput = true;\n\n constructor(aShape: number[], newDim: number[]) {\n   const outputShape: number[] = new Array(aShape.length);\n   for (let i = 0; i < outputShape.length; i++) {\n   outputShape[i]
= aShape[newDim[i]];\n   }\n   this.outputShape = outputShape;\n   this.rank = outputShape.length;\n   if (this.rank > 6) {\n   throw Error(\n   `Packed transpose for rank ${this.rank} is not yet supported.`);\n   }\n   const dtype = getCoordsDataType(this.rank);\n\n   const outputOrder = getVecChannels('rc', this.rank);\n   const switchedOrder = new Array(this.rank);\n   for (let i = 0; i < newDim.length; i++) {\n   switchedOrder[newDim[i]] = outputOrder[i];\n   }\n   const innerDims = `vec2(${switchedOrder.slice(-2).join()})`;\n   const nextColumn =\n   `++${outputOrder[this.rank - 1]} < ${outputShape[this.rank - 1]}`;\n   const getc =
`getChannel(getA(${switchedOrder.join()}), ${innerDims})`;\n\n   this.userCode = `\n   void main() {\n ${dtype} rc = getOutputCoords();\n   vec4 result = vec4(0.);\n   result[0] = ${getc};\n   if(${nextColumn}) {\n   result[1] = ${getc};\n   }\n   --${outputOrder[this.rank - 1]};\n   if(++${outputOrder[this.rank
- 2]} < ${outputShape[this.rank - 2]}) {\n   result[2] = ${getc};\n   if(${nextColumn}) {\n   result[3] = ${getc};\n   }\n   }\n   setOutput(result);\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, sumOutType, TensorInfo,
util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {reduce} from '../kernel_utils/reduce';\nimport {reshape} from './Reshape';\n\nimport {transposeImpl} from './Transpose_impl';\n\nexport function sumImpl(\n   x: TensorInfo, axis: number|number[], keepDims: boolean,\n backend: MathBackendWebGL): TensorInfo {\n const reductionIndices = axis;\n\n const xRank = x.shape.length;\n\n const origAxes = util.parseAxisParam(reductionIndices, x.shape);\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n const sumInputIsTransposed = permutedAxes != null;\n\n let sumInput = x;\n if (sumInputIsTransposed) {\n   sumInput = transposeImpl(x, permutedAxes, backend);\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n }\n\n backend_util.assertAxesAreInnerMostDims('sum', axes, xRank);\n const [sumOutShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(sumInput.shape, axes);\n\n
  let outShape = sumOutShape;\n if (keepDims) {\n   // rather than reshape at the end, set the target shape here.\n outShape = backend_util.expandShapeToKeepDim(sumOutShape, origAxes);\n }\n\n const inSize = util.sizeFromShape(reduceShape);\n const xSize = util.sizeFromShape(x.shape);\n const batchSize = xSize /

inSize;\n const reshapedInput = reshape(\n   {inputs: {x: sumInput}, attrs: {shape: [batchSize, inSize]}, backend});\n\n const outType = sumOutType(x.dtype);\n\n const reduced = reduce(reshapedInput, outType, 'sum', backend);\n const out =\n   reshape({inputs: {x: reduced}, attrs: {shape: outShape}, backend});\n\n backend.disposeIntermediateTensorInfo(reshapedInput);\n backend.disposeIntermediateTensorInfo(reduced);\n if (sumInputIsTransposed) {\n   backend.disposeIntermediateTensorInfo(sumInput);\n }\n\n return out;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
 \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Sum, SumAttrs, SumInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {sumImpl} from './Sum_impl';\n\nexport function sum(\n   args: {inputs: SumInputs, attrs: SumAttrs, backend: MathBackendWebGL}) {\n const {inputs, backend, attrs} = args;\n\n const {x} = inputs;\n const {axis, keepDims} = attrs;\n\n return sumImpl(x,
 axis, keepDims, backend);\n}\n\nexport const sumConfig: KernelConfig = {\n kernelName: Sum,\n backendName: 'webgl',\n kernelFunc: sum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, TensorInfo, upcastType, util} from '@tensorflow/tfjs-core';\n\nimport
{MathBackendWebGL}
 from '../backend_webgl';\nimport {mapActivationToShaderProgram} from
'../kernel_utils/kernel_funcs_utils';\nimport {MatMulPackedProgram} from '../mulmat_packed_gpu';\n\nimport
{multiply} from './Multiply';\nimport {reshape} from './Reshape';\nimport {sum} from './Sum';\nimport {transpose}
from './Transpose';\n\n// Empirically determined minimal shared dimension in matmul before we forward\n// to
a.mul(b).sum() in order to take advantage of GPU parallelism. See\n// https://github.com/tensorflow/tfjs-
core/pull/1379 for benchmarks.\nexport const MATMUL_SHARED_DIM_THRESHOLD = 1000;\n\ntype
BatchMatMulConfig = {\n a: TensorInfo,\n b: TensorInfo,\n transposeA: boolean,\n transposeB: boolean,\n
backend: MathBackendWebGL,\n bias?: TensorInfo,\n preluActivationWeights?: TensorInfo,\n leakyreluAlpha?:
number,\n activation?: backend_util.Activation\n};\n\nexport function batchMatMulImpl({\n a,\n b,\n
transposeA,\n transposeB,\n backend,\n bias = null,\n preluActivationWeights
 = null,\n leakyreluAlpha = 0,\n activation = null\n}: BatchMatMulConfig): TensorInfo {\n const aRank =
a.shape.length;\n const bRank = b.shape.length;\n\n const innerShapeA = transposeA ? a.shape[aRank - 2] :
a.shape[aRank - 1];\n const innerShapeB = transposeB ? b.shape[bRank - 1] : b.shape[bRank - 2];\n\n const
outerShapeA = transposeA ? a.shape[aRank - 1] : a.shape[aRank - 2];\n const outerShapeB = transposeB ?
b.shape[bRank - 2] : b.shape[bRank - 1];\n\n const outerDimsA = a.shape.slice(0, -2);\n const outerDimsB =
b.shape.slice(0, -2);\n\n const batchDimA = util.sizeFromShape(outerDimsA);\n const batchDimB =
util.sizeFromShape(outerDimsB);\n\n const batchDimsCompatible =\n   batchDimA === batchDimB ||
batchDimA === 1 || batchDimB === 1;\n\n util.assert(\n   aRank >= 2 && bRank >= 2 &&
batchDimsCompatible,\n   () => `Error in matMul: the input batch dimensions must either be the ` +\n   `same
or at least one input batch dimension must be 1. Got

```
input ` +\n      `batch dimensions of (${outerDimsA}) and (${outerDimsB}).`);\n\n  const outShapeOuterDims
=\n      batchDimA > batchDimB ? a.shape.slice(0, -2) : b.shape.slice(0, -2);\n  const outShape =
outShapeOuterDims.concat([outerShapeA, outerShapeB]);\n\n  util.assert(\n      innerShapeA === innerShapeB,\n
() => `Error in matMul: inner shapes (${innerShapeA}) and (` +\n      `${innerShapeB}) of Tensors with shapes
${a.shape} and ` +\n      `${b.shape} and transposeA=${transposeA}` +\n      ` and transposeB=${transposeB}
must match.`);\n\n  const a3dShape: [number, number, number] = transposeA ?\n      [batchDimA, innerShapeA,
outerShapeA] :\n      [batchDimA, outerShapeA, innerShapeA];\n  const b3dShape: [number, number, number] =
transposeB ?\n      [batchDimB, outerShapeB, innerShapeB] :\n      [batchDimB, innerShapeB, outerShapeB];\n\n  //
The rest of the implementation is designed to operate on rank-3 tensors\n  const a3d = reshape({inputs: {x: a},
backend,
 attrs: {shape: a3dShape}});\n  const b3d = reshape({inputs: {x: b}, backend, attrs: {shape: b3dShape}});\n\n  const
intermediates: TensorInfo[] = [a3d, b3d];\n\n  const batchDim = Math.max(batchDimA, batchDimB);\n  const
sharedDim = transposeA ? a3d.shape[1] : a3d.shape[2];\n\n  const hasBias = bias != null;\n  const
hasPreluActivationWeights = preluActivationWeights != null;\n  const hasLeakyreluAlpha = activation ===
'leakyrelu';\n  const fusedActivation = activation != null ?\n      mapActivationToShaderProgram(activation, true) :\n
    null;\n  const containsFusedOps = hasBias || hasPreluActivationWeights ||\n      hasLeakyreluAlpha ||
fusedActivation != null;\n  let out: TensorInfo;\n\n  // Since the matrices are vectors, it is faster to call mul().sum()\n
// because sum() is O(sqrt(N)) due to divide-and-conquer.\n  if ((outerShapeA === 1 || outerShapeB === 1) &&\n
sharedDim > MATMUL_SHARED_DIM_THRESHOLD && containsFusedOps === false) {\n    let aVec = a3d;\n
 let bVec
 = b3d;\n    if (transposeA) {\n      aVec = transpose({inputs: {x: a3d}, backend, attrs: {perm: [0, 2, 1]}});\n
intermediates.push(aVec);\n    }\n    if (transposeB) {\n      bVec = transpose({inputs: {x: b3d}, backend, attrs:
{perm: [0, 2, 1]}});\n      intermediates.push(bVec);\n    }\n\n    const shouldReshapeA = outerShapeB !== 1;\n
const shouldReshapeB = outerShapeB === 1;\n\n    let aVec3d = aVec;\n    if (shouldReshapeA) {\n      aVec3d =
reshape({\n        inputs: {x: aVec},\n        backend,\n        attrs: {shape: [batchDim, sharedDim, 1]}\n      });\n\n
intermediates.push(aVec3d);\n    }\n\n    const axis = outerShapeB === 1 ? 2 : 1;\n\n    let bVec3d = bVec;\n    if
(shouldReshapeB) {\n      bVec3d = reshape({\n        inputs: {x: bVec},\n        backend,\n        attrs: {shape:
[batchDim, 1, sharedDim]}\n      });\n\n      intermediates.push(bVec3d);\n    }\n\n    const product =
multiply({inputs: {a: aVec3d, b: bVec3d}, backend});\n    out = sum({inputs: {x:
 product}, backend, attrs: {axis, keepDims: true}});\n    intermediates.push(product);\n  } else {\n    const dtype =
upcastType(a.dtype, b.dtype);\n\n    const program = new MatMulPackedProgram(\n        a3dShape, b3dShape,
[batchDim, outerShapeA, outerShapeB], transposeA,\n        transposeB, hasBias, fusedActivation,
hasPreluActivationWeights,\n        hasLeakyreluAlpha);\n\n    const inputs: TensorInfo[] = [a3d, b3d];\n    if (bias !=
null) {\n      inputs.push(bias);\n    }\n    if (hasPreluActivationWeights) {\n
inputs.push(preluActivationWeights);\n    }\n    if (hasLeakyreluAlpha) {\n      const $leakyreluAlpha =
backend.makeTensorInfo(\n          [], 'float32',\n          util.createScalarValue(leakyreluAlpha as {} as 'float32',
'float32'));\n      inputs.push($leakyreluAlpha);\n      intermediates.push($leakyreluAlpha);\n    }\n\n    out =
backend.runWebGLProgram(program, inputs, dtype);\n  }\n\n  const outReshaped =\n      reshape({inputs: {x: out},
backend, attrs: {shape:
 outShape}});\n  intermediates.push(out);\n  for (const i of intermediates) {\n
backend.disposeIntermediateTensorInfo(i);\n  }\n  return outReshaped;\n}\n","/**\n * @license\n * Copyright 2020
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may
not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR
CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========================================================================\n
```

*/\n\nimport {_FusedMatMul, _FusedMatMulAttrs, _FusedMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {batchMatMulImpl} from './BatchMatMul_impl';\n\nexport function _fusedMatMul(args: {\n inputs: _FusedMatMulInputs,\n attrs: _FusedMatMulAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b, bias, preluActivationWeights} = inputs;\n const {transposeA, transposeB, activation, leakyreluAlpha} = attrs;\n\n return batchMatMulImpl({\n   a,\n   b,\n   transposeA,\n   transposeB,\n   backend,\n   bias,\n   preluActivationWeights,\n   leakyreluAlpha,\n   activation\n });\n}\n\nexport const _fusedMatMulConfig: KernelConfig = {\n kernelName: _FusedMatMul,\n backendName: 'webgl',\n kernelFunc: _fusedMatMul as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Acos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst ACOS = CHECK_NAN_SNIPPET + `\n  if (abs(x) > 1.) {\n    return NAN;\n  }\n  return acos(x);\n`;\n\nexport const acos = unaryKernelFunc({opSnippet: ACOS});\n\nexport const acosConfig: KernelConfig = {\n kernelName: Acos,\n backendName: 'webgl',\n kernelFunc: acos,\n};\n","\n/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Acosh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst ACOSH = CHECK_NAN_SNIPPET + `\n  if (x < 1.0) return NAN;\nreturn log(x + sqrt(x * x - 1.0));`;\n\nexport const acosh = unaryKernelFunc({opSnippet: ACOSH});\n\nexport const acoshConfig: KernelConfig = {\n kernelName: Acosh,\n backendName: 'webgl',\n kernelFunc: acosh,\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class AddNProgram implements GPGPUProgram {\n variableNames: string[];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(outputShape: number[], shapes: number[][]) {\n   this.outputShape = outputShape;\n   this.variableNames = shapes.map((_, i) => `T${i}`);\n\n   const snippets: string[] = [];\n   // Get target elements from every input tensor.\n   this.variableNames.forEach(variable => {\n   snippets.push(`float v${variable} = get${variable}AtOutCoords();`);\n   });\n\n   // Calculate the sum of all

elements.\n const operation = this.variableNames\n .map(variable => {\n return `v${variable}`;\n })\n .join(' + ');\n\n this.userCode = `\n void main() {\n ${snippets.join('\\n ')}\n\n float result = ${operation};\n setOutput(result);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class AddNPackedProgram implements GPGPUProgram {\n variableNames: string[];\n outputShape: number[] = [];\n userCode: string;\n packedInputs = true;\n packedOutput = true;\n\n constructor(outputShape: number[], shapes: number[][]) {\n this.outputShape = outputShape;\n this.variableNames = shapes.map((_, i) => `T${i}`);\n\n const snippets: string[] = [];\n // Get target elements from every input tensor.\n this.variableNames.forEach(variable => {\n snippets.push(`vec4 v${variable} = get${variable}AtOutCoords();`);\n });\n\n // Calculate the sum of all elements.\n const operation = this.variableNames\n .map(variable => {\n return `v${variable}`;\n })\n .join(' + ');\n\n this.userCode = `\n void main() {\n ${snippets.join('\\n ')}\n\n vec4 result = ${operation};\n setOutput(result);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {AddN, AddNInputs, env, KernelConfig, KernelFunc, TensorInfo, upcastType} from '@tensorflow/tfjs-core';\n\nimport {AddNProgram} from '../addn_gpu';\nimport {AddNPackedProgram} from '../addn_packed_gpu';\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {identity} from './Identity';\n\nexport function addN(args: {inputs: AddNInputs, backend: MathBackendWebGL}):\n TensorInfo {\n const {inputs, backend} = args;\n\n const tensors = inputs;\n if (tensors.length === 1) {\n return identity({inputs: {x: tensors[0]}, backend});\n }\n\n // Limit the number of uploaded textures for optimization.\n if (tensors.length > env().get('WEBGL_MAX_TEXTURES_IN_SHADER'))
{\n const midIndex = Math.floor(tensors.length / 2);\n const leftSide = addN({inputs: tensors.slice(0, midIndex), backend});\n const rightSide = addN({inputs: tensors.slice(midIndex), backend});\n return addN({inputs: [leftSide, rightSide], backend});\n }\n\n const dtype =\n tensors.map(t => t.dtype).reduce((d1, d2) => upcastType(d1, d2));\n const shapes = tensors.map(t => t.shape);\n // We can make sure shapes are identical in op level.\n const usePackedOp = env().getBool('WEBGL_PACK');\n const program = usePackedOp ?\n new AddNPackedProgram(tensors[0].shape, shapes) :\n new AddNProgram(tensors[0].shape, shapes);\n return backend.runWebGLProgram(program, tensors, dtype);\n}\n\nexport const addNConfig: KernelConfig = {\n kernelName: AddN,\n backendName: 'webgl',\n kernelFunc: addN as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the

License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {All, AllAttrs, AllInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {reduce} from '../kernel_utils/reduce';\n\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nexport function all(\n args: {inputs: AllInputs, backend: MathBackendWebGL, attrs: AllAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, keepDims} = attrs;\n\n const xRank = x.shape.length;\n\n const origAxes = util.parseAxisParam(axis, x.shape);\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let permutedX = x;\n if (permutedAxes != null) {\n permutedX = transpose({inputs: {x}, backend, attrs: {perm: permutedAxes}});\n axes = backend_util.getInnerMostAxes(axes.length, xRank);\n }\n\n backend_util.assertAxesAreInnerMostDims('all', axes, xRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(permutedX.shape, axes);\n const inSize = util.sizeFromShape(reduceShape);\n\n const a2D =\n reshape({inputs: {x: permutedX}, backend, attrs: {shape: [-1, inSize]}});\n const reduced = reduce(a2D, a2D.dtype, 'all', backend);\n\n let res;\n if (keepDims) {\n const newShape = backend_util.expandShapeToKeepDim(outShape, origAxes);\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: newShape}});\n } else {\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: outShape}});\n }\n\n backend.disposeIntermediateTensorInfo(a2D);\n backend.disposeIntermediateTensorInfo(reduced);\n\n if (permutedAxes != null) {\n backend.disposeIntermediateTensorInfo(permutedX);\n }\n\n return res;\n}\n\nexport const allConfig: KernelConfig = {\n kernelName: All,\n backendName: 'webgl',\n kernelFunc: all as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Any, AnyAttrs, AnyInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {reduce} from '../kernel_utils/reduce';\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nexport function any(\n args: {inputs: AnyInputs, backend: MathBackendWebGL, attrs: AnyAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, keepDims} = attrs;\n\n const xRank = x.shape.length;\n\n const origAxes = util.parseAxisParam(axis, x.shape);\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let permutedX = x;\n if (permutedAxes != null) {\n permutedX = transpose({inputs: {x}, backend, attrs: {perm: permutedAxes}});\n axes = backend_util.getInnerMostAxes(axes.length, xRank);\n }\n\n backend_util.assertAxesAreInnerMostDims('any', axes, xRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(permutedX.shape, axes);\n const inSize = util.sizeFromShape(reduceShape);\n\n const a2D =\n reshape({inputs: {x: permutedX}, backend, attrs: {shape: [-1, inSize]}});\n const reduced = reduce(a2D, a2D.dtype, 'any', backend);\n\n let res;\n if (keepDims) {\n const newShape = backend_util.expandShapeToKeepDim(outShape, origAxes);\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: newShape}});\n } else {\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: outShape}});\n }\n\n backend.disposeIntermediateTensorInfo(a2D);\n backend.disposeIntermediateTensorInfo(reduced);\n\n if (permutedAxes != null) {\n backend.disposeIntermediateTensorInfo(permutedX);\n

```
}\n\n  return res;\n}\n\nexport const anyConfig: KernelConfig = {\n  kernelName: Any,\n  backendName: 'webgl',\n  kernelFunc: any as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport
 class ArgMinMaxProgram implements GPGPUProgram {\n  variableNames = ['A'];\n  outputShape: number[];\n
userCode: string;\n\n  constructor(\n      reduceInfo: backend_util.ReduceInfo, op: 'max'|'min',\n      firstPass:
boolean) {\n    const {windowSize, batchSize, outSize} = reduceInfo;\n    if (!firstPass) {\n
this.variableNames.push('bestIndicesA');\n    }\n    this.outputShape = [batchSize, outSize];\n    const compOp = (op
=== 'max') ? '>' : '<';\n    const indexSnippet = firstPass ?\n        'inOffset + i;' :\n        'round(getBestIndicesA(batch,
inOffset + i));';\n\n    this.userCode = `\n      void main() {\n        ivec2 coords = getOutputCoords();\n        int batch
= coords[0];\n        int outIdx = coords[1];\n        int inOffset = outIdx * ${windowSize};\n\n        int bestIndex =
inOffset;\n        float bestValue = getA(batch, bestIndex);\n\n        for (int i = 0; i < ${windowSize}; i++) {\n
int inIdx = ${indexSnippet};\n
 float candidate = getA(batch, inIdx);\n          if (candidate ${compOp} bestValue) {\n            bestValue =
candidate;\n            bestIndex = inIdx;\n          }\n        }\n        setOutput(float(bestIndex));\n      }\n    `;\n
}\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {util} from '@tensorflow/tfjs-core';\n\nimport
 {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport
{getCoordsDataType} from './shader_compiler';\n\nexport class ArgMinMaxPackedProgram implements
GPGPUProgram {\n  variableNames = ['A'];\n  outputShape: number[];\n  userCode: string;\n  packedInputs =
true;\n  packedOutput = true;\n\n  constructor(\n      shape: number[], windowSize: number, op: 'max'|'min',\n
firstPass: boolean) {\n    util.assert(\n        shape.length > 2,\n        () => `Packed arg${\n
op.charAt(0).toUpperCase() +\n            op.slice(1)} supports only inputs with rank above 2.`);\n    const inSize =
shape[shape.length - 1];\n    const outSize = Math.ceil(inSize / windowSize);\n    this.outputShape = shape.slice(0, -
1);\n    if (outSize > 1) {\n      this.outputShape.push(outSize);\n    }\n    if (!firstPass) {\n
this.variableNames.push('bestIndicesA');\n    }\n    const outShape = this.outputShape;\n    const rank =
outShape.length;\n
    const dtype = getCoordsDataType(rank);\n    const coords = getChannels('coords', rank);\n\n    let
sourceLocSetup;\n    let sourceRank;\n    if (outSize === 1) {\n      sourceRank = rank + 1;\n      const
sourceLocDType = getCoordsDataType(sourceRank);\n      sourceLocSetup = `\n        ${sourceLocDType}
sourceLocR = ${sourceLocDType}(${coords.join()}, 0);\n        ++${coords[rank - 1]};\n        ${sourceLocDType}
sourceLocG = ${sourceLocDType}(${coords.join()}, 0);\n        ++${coords[rank - 2]};\n        ${sourceLocDType}
sourceLocA = ${sourceLocDType}(${coords.join()}, 0);\n        --${coords[rank - 1]};\n        ${sourceLocDType}
sourceLocB = ${sourceLocDType}(${coords.join()}, 0);\n        --${coords[rank - 2]};`;\n    } else {\n
sourceRank = rank;\n      sourceLocSetup = `\n        ${dtype} sourceLocR = coords;\n        ++${coords[rank - 1]};\n
```

```
    ${dtype} sourceLocG = coords;\n        ++${coords[rank - 2]};\n        ${dtype} sourceLocA = coords;\n        --${coords[rank
 - 1]};\n        ${dtype} sourceLocB = coords;\n        --${coords[rank - 2]};`;\n    }\n    const channels = ['x', 'y', 'z',
'w', 'u', 'v'].slice(0, sourceRank);\n    const inChannel = '.' + channels[sourceRank - 1];  // e.g. \".b\" for rank 3.\n
const intChannels = channels.map(x => 'int ' + x);\n    const srcRCoords =\n        getChannels('sourceLocR',
sourceRank - 1).concat('inIdx.r');\n    const srcGCoords =\n        getChannels('sourceLocG', sourceRank -
1).concat('inIdx.g');\n    const srcBCoords =\n        getChannels('sourceLocB', sourceRank - 1).concat('inIdx.b');\n
const srcACoords =\n        getChannels('sourceLocA', sourceRank - 1).concat('inIdx.a');\n\n    const compOp = (op
=== 'max') ? 'greaterThan' : 'lessThan';\n    const fetchCandidateIdx = firstPass ? '' : `\n          inIdx =
round(vec4(getBestIndicesAChannel(${srcRCoords.join()}),\n
getBestIndicesAChannel(${srcGCoords.join()}),\n
getBestIndicesAChannel(${srcBCoords.join()}),\n
                    getBestIndicesAChannel(${srcACoords.join()})));`;\n\n    const fetchValue = `vec4(\n
getAChannel(${srcRCoords.join()}),\n            hasNextCol ? getAChannel(${srcGCoords.join()}) : 0.,\n
hasNextRow ? getAChannel(${srcBCoords.join()}) : 0.,\n            hasNextRow && hasNextCol ?
getAChannel(${srcACoords.join()}) : 0.)`;\n\n    const getBestIndicesAChannelSnippet = firstPass ? '' : `\n      float
getBestIndicesAChannel(${intChannels.join()}) {\n        return getChannel(getBestIndicesA(${channels.join()}),\n
                    vec2(${channels.slice(-2).join()}));\n      }`;\n\n    this.userCode = `\n      float
getAChannel(${intChannels.join()}) {\n        return getChannel(getA(${channels.join()}),\n
vec2(${channels.slice(-2).join()}));\n      }\n      ${getBestIndicesAChannelSnippet}\n      void main() {\n
${dtype} coords = getOutputCoords();\n
      bool hasNextCol = ${coords[rank - 1]} < ${outShape[rank - 1] - 1};\n        bool hasNextRow = ${coords[rank -
2]} < ${outShape[rank - 2] - 1};\n        ${sourceLocSetup}\n        ivec4 srcIdx = ivec4(sourceLocR${inChannel},
sourceLocG${inChannel},\n          sourceLocB${inChannel}, sourceLocA${inChannel}) * ${windowSize};\n
ivec4 inIdx = srcIdx;\n        vec4 bestIndex = vec4(inIdx);\n        vec4 bestValue = ${fetchValue};\n\n        for (int i
= 0; i < ${windowSize}; i++) {\n          inIdx = srcIdx;\n          ${fetchCandidateIdx}\n          vec4 candidate =
${fetchValue};\n          bvec4 nan = isnan(candidate);\n          bvec4 replace = bvec4(\n
vec4(${compOp}(candidate, bestValue)) * (vec4(1.0) - vec4(nan)));\n\n          bestValue = vec4(replace.x  ?
candidate.x : bestValue.x,\n                           replace.y  ? candidate.y : bestValue.y,\n                           replace.z  ?
candidate.z : bestValue.z,\n                           replace.w  ? candidate.w
 : bestValue.w);\n          bestIndex = mix(bestIndex, vec4(inIdx), vec4(replace));\n          srcIdx++;\n        }\n
setOutput(bestIndex);\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, env, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {ArgMinMaxProgram}
 from '../argminmax_gpu';\nimport {ArgMinMaxPackedProgram} from '../argminmax_packed_gpu';\nimport
{MathBackendWebGL} from '../backend_webgl';\nimport {reshape} from '../kernels/Reshape';\n\nfunction
argReduce(\n    backend: MathBackendWebGL, x: TensorInfo, reduceType: 'max'|'min',\n    bestIndicesA:
TensorInfo = null): TensorInfo {\n  let batchSize = x.shape[0];\n  let inSize = x.shape[1];\n  if (bestIndicesA != null)
{\n    batchSize = bestIndicesA.shape[0];\n    inSize = bestIndicesA.shape[1];\n  }\n  const windowSize =
backend_util.computeOptimalWindowSize(inSize);\n  const reduceInfo =\n      {windowSize, inSize, batchSize,
outSize: Math.ceil(inSize / windowSize)};\n  const program =\n      new ArgMinMaxProgram(reduceInfo,
reduceType, bestIndicesA == null);\n  const inputs = [x];\n  if (bestIndicesA != null) {\n
```

inputs.push(bestIndicesA);\n }\n const output = backend.runWebGLProgram(program, inputs, 'int32');\n // No need to run another GPGPU program.\n if (output.shape[1] === 1) {\n   return output;\n }\n const result = argReduce(backend, x, reduceType, output);\n backend.disposeIntermediateTensorInfo(output);\n return result;\n}\n\nfunction argReducePacked(\n   backend: MathBackendWebGL, x: TensorInfo, reduceType: 'max'|'min',\n   bestIndicesA: TensorInfo = null): TensorInfo {\n const inShape = bestIndicesA != null ? bestIndicesA.shape : x.shape;\n const inSize = inShape[inShape.length - 1];\n const windowSize = backend_util.computeOptimalWindowSize(inSize);\n const program = new ArgMinMaxPackedProgram(\n   inShape, windowSize, reduceType, bestIndicesA == null);\n const inputs = bestIndicesA == null ? [x] : [x, bestIndicesA];\n const output = backend.runWebGLProgram(program, inputs, 'int32');\n if (output.shape.length === x.shape.length) {\n   const result = argReducePacked(backend, x, reduceType, output);\n   backend.disposeIntermediateTensorInfo(output);\n   return result;\n }\n return output;\n}\n\nexport function argMinMaxReduce(\n   backend: MathBackendWebGL, x: TensorInfo, axis: number,\n   reduceType: 'min'|'max'): TensorInfo {\n const axes = [axis];\n backend_util.assertAxesAreInnerMostDims(\n   'arg' + reduceType.charAt(0).toUpperCase() + reduceType.slice(1), axes,\n   x.shape.length);\n if (!env().getBool('WEBGL_PACK_REDUCE') || x.shape.length <= 2) {\n   const intermediateTensorInfos = [];\n const [outShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(x.shape, axes);\n   const inSize = util.sizeFromShape(reduceShape);\n   const a2D = reshape({inputs: {x}, backend, attrs: {shape: [-1, inSize]}});\n intermediateTensorInfos.push(a2D);\n\n   const reduced = argReduce(backend, a2D, reduceType);\n intermediateTensorInfos.push(reduced);\n   const reshaped =\n   reshape({inputs: {x: reduced}, backend, attrs: {shape: outShape}});\n\n   intermediateTensorInfos.forEach(\n   t => backend.disposeIntermediateTensorInfo(t));\n   return reshaped;\n }\n return argReducePacked(backend, x, reduceType);\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {ArgMax, ArgMaxAttrs, ArgMaxInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {argMinMaxReduce} from '../kernel_utils/arg_min_max';\n\nimport {transpose} from './Transpose';\n\nexport function argMax(\n   args:\n {inputs: ArgMaxInputs, backend: MathBackendWebGL, attrs: ArgMaxAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis} = attrs;\n\n let axes = util.parseAxisParam(axis, x.shape);\n const permutedAxes = backend_util.getAxesPermutation(axes, x.shape.length);\n let $x = x;\n const intermediateTensorInfos = [];\n if (permutedAxes != null) {\n $x = transpose({inputs: {x}, backend, attrs: {perm: permutedAxes}});\n   intermediateTensorInfos.push($x);\n   axes = backend_util.getInnerMostAxes(axes.length, $x.shape.length);\n }\n\n backend_util.assertAxesAreInnerMostDims('argMax', [axes[0]], $x.shape.length);\n const out = argMinMaxReduce(backend, $x, axes[0], 'max');\n\n intermediateTensorInfos.forEach(\n   t => backend.disposeIntermediateTensorInfo(t));\n return out;\n}\n\nexport const argMaxConfig: KernelConfig = {\n kernelName: ArgMax,\n backendName: 'webgl',\n kernelFunc: argMax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {ArgMin, ArgMinAttrs, ArgMinInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {argMinMaxReduce} from '../kernel_utils/arg_min_max';\nimport {transpose} from './Transpose';\n\nexport function argMin(\n args:\n {inputs: ArgMinInputs, backend: MathBackendWebGL, attrs: ArgMinAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis} = attrs;\n\n let axes = util.parseAxisParam(axis, x.shape);\n const permutedAxes = backend_util.getAxesPermutation(axes, x.shape.length);\n let $x = x;\n const intermediateTensorInfos = [];\n if (permutedAxes != null) {\n $x = transpose({inputs: {x}, backend, attrs: {perm: permutedAxes}});\n intermediateTensorInfos.push($x);\n axes = backend_util.getInnerMostAxes(axes.length, $x.shape.length);\n }\n\n backend_util.assertAxesAreInnerMostDims('argMin', [axes[0]], $x.shape.length);\n\n const out = argMinMaxReduce(backend, $x, axes[0], 'min');\n\n intermediateTensorInfos.forEach(\n t => backend.disposeIntermediateTensorInfo(t));\n return out;\n}\n\nexport const argMinConfig: KernelConfig = {\n kernelName: ArgMin,\n backendName: 'webgl',\n kernelFunc: argMin as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Asin, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst ASIN = CHECK_NAN_SNIPPET + `\n if (abs(x) > 1.) {\n return NAN;\n }\n return asin(x);\n`;\n\nexport const asin = unaryKernelFunc({opSnippet: ASIN});\n\nexport const asinConfig: KernelConfig = {\n kernelName: Asin,\n backendName: 'webgl',\n kernelFunc: asin,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Asinh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst ASINH = CHECK_NAN_SNIPPET + `return log(x + sqrt(x * x + 1.0));`;\n\nexport const asinh = unaryKernelFunc({opSnippet: ASINH});\n\nexport const asinhConfig: KernelConfig = {\n kernelName: Asinh,\n backendName: 'webgl',\n kernelFunc: asinh,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\n\nimport {Atan, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst ATAN = CHECK_NAN_SNIPPET + `\n  return atan(x);\n`;\n\nexport const atan = unaryKernelFunc({opSnippet: ATAN});\n\nexport const atanConfig: KernelConfig = {\n  kernelName: Atan,\n  backendName: 'webgl',\n  kernelFunc: atan,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {Atan2} from '@tensorflow/tfjs-core';\nimport {KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {binaryKernelFunc, CHECK_NAN_SNIPPET_BINARY, CHECK_NAN_SNIPPET_BINARY_PACKED} from '../kernel_utils/kernel_funcs_utils';\n\nconst ATAN2 = CHECK_NAN_SNIPPET_BINARY + `\n  return atan(a, b);\n`;\n\nconst ATAN2_PACKED = `\n  vec4 result = atan(a, b);\n  vec4 isNaN = min(vec4(isnan(a)) + vec4(isnan(b)), vec4(1.0));\n  ` +\n CHECK_NAN_SNIPPET_BINARY_PACKED + `\n  return result;\n`;\n\nexport const atan2 =\n binaryKernelFunc({opSnippet: ATAN2, packedOpSnippet: ATAN2_PACKED});\n\nexport const atan2Config:
 KernelConfig = {\n  kernelName: Atan2,\n  backendName: 'webgl',\n  kernelFunc: atan2,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n*/\n\nimport {Atanh, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst
 ATANH = CHECK_NAN_SNIPPET + `\n  if ((x < -1.0) || (x > 1.0)) return NAN;\nreturn (log(1.0 + x) - log(1.0 - x)) / 2.0;`;\n\nexport const atanh = unaryKernelFunc({opSnippet: ATANH});\n\nexport const atanhConfig: KernelConfig = {\n  kernelName: Atanh,\n  backendName: 'webgl',\n  kernelFunc: atanh,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class Pool2DProgram implements GPGPUProgram {\n  variableNames = ['x'];\n outputShape: number[];\n  userCode: string;\n\n  constructor(\n      convInfo: backend_util.Conv2DInfo, poolType: 'max'|'avg',\n      computePositions: boolean, flattenPositions = false,\n      includeBatchInIndex = false) {\n    if (poolType === 'avg' && computePositions) {\n      throw new Error('Cannot compute positions for average pool.');\n    }\n\n    const filterWidth = convInfo.filterWidth;\n    const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n    const dilationHeight = convInfo.dilationHeight;\n    const dilationWidth = convInfo.dilationWidth;\n    const effectiveFilterHeight = convInfo.effectiveFilterHeight;\n    const
```

```
effectiveFilterWidth = convInfo.effectiveFilterWidth;\n\n    const padTop = convInfo.padInfo.top;\n
    const padLeft = convInfo.padInfo.left;\n    this.outputShape = convInfo.outShape;\n\n    const isAvgPool =
poolType === 'avg';\n    const batchFlattenPositionStr = `((batch  * ${convInfo.inHeight} + xR) * ${\n
convInfo.inWidth} + xC) * ${convInfo.inChannels} + d`;\n    const flattenPositionStr =\n        `(xR *
${convInfo.inWidth} + xC) * ${convInfo.inChannels} + d`;\n\n    let initializationValue = '0.0';\n    if (!isAvgPool)
{\n      // WebGL on Firefox Linux can't compile 1/0 so we do 1/eps.\n      initializationValue = '-1.0 / 1e-20';\n
}\n\n    if (computePositions) {\n      const compareOp = '>=';\n\n      this.userCode = `\n        const ivec2 strides =
ivec2(${strideHeight}, ${strideWidth});\n        const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n        void
main() {\n          ivec4 coords = getOutputCoords();\n          int batch = coords[0];\n          int d = coords[3];\n\n
ivec2 xRCCorner = coords.yz * strides - pads;\n          int xRCorner
 = xRCCorner.x;\n          int xCCorner = xRCCorner.y;\n\n          // max/min x(?, ?, d) to get y(yR, yC, d).\n          // ?
= to be determined\n          float minMaxValue = 0.0;\n          float minMaxValueFound = 0.0;\n          int
minMaxPosition = 0;\n          float avgValue = 0.0;\n\n          for (int wR = 0; wR < ${effectiveFilterHeight};\n
  wR += ${dilationHeight}) {\n            int xR = xRCorner + wR;\n\n            if (xR < 0 || xR >=
${convInfo.inHeight}) {\n              continue;\n            }\n\n            for (int wC = 0; wC < ${effectiveFilterWidth};\n
            wC += ${dilationWidth}) {\n              int xC = xCCorner + wC;\n\n              if (xC < 0 || xC >=
${convInfo.inWidth}) {\n                continue;\n              }\n\n              float value = getX(batch, xR, xC, d);\n\n
  // If a min / max value has already been found, use it. If not,\n              // use the current value.\n              float
currMinMaxValue = mix(\n
                  value, minMaxValue, minMaxValueFound);\n              if (value ${compareOp} currMinMaxValue) {\n
          minMaxValue = value;\n                minMaxValueFound = 1.0;\n                minMaxPosition = ${\n
flattenPositions ? (includeBatchInIndex ? batchFlattenPositionStr :\n
flattenPositionStr) :\n                    `wR * ${effectiveFilterWidth} + wC`};\n              }\n            }\n          }\n
  setOutput(float(minMaxPosition));\n        }\n      `;\n      return;\n    }\n\n    const compareOp = 'max';\n\n    let
returnValue = `${poolType}(${poolType}(${poolType}(` +\n        'minMaxValue[0], minMaxValue[1]),
minMaxValue[2]), minMaxValue[3])';\n    if (poolType === 'avg') {\n      returnValue = `avgValue / count`;\n
}\n\n    const filterWidthNearestVec4 = Math.floor(filterWidth / 4) * 4;\n    const filterWidthVec4Remainder =
filterWidth % 4;\n\n    const updateSnippet = `\n
    if (${isAvgPool}) {\n        avgValue += dot(values, ones);\n      } else {\n        minMaxValue =
${compareOp}(values, minMaxValue);\n      }\n    `;\n\n    this.userCode = `\n      const ivec2 strides =
ivec2(${strideHeight}, ${strideWidth});\n      const ivec2 pads = ivec2(${padTop}, ${padLeft});\n      const float
initializationValue = ${initializationValue};\n      const vec4 ones = vec4(1.0, 1.0, 1.0, 1.0);\n\n      float count =
0.0;\n\n      float getValue(int batch, int xR, int xC, int d) {\n        if (xC < 0 || xC >= ${convInfo.inWidth}) {\n
return initializationValue;\n        }\n        count += 1.0;\n        return getX(batch, xR, xC, d);\n      }\n\n      void
main() {\n        ivec4 coords = getOutputCoords();\n        int batch = coords[0];\n        int d = coords[3];\n\n
ivec2 xRCCorner = coords.yz * strides - pads;\n        int xRCorner = xRCCorner.x;\n        int xCCorner =
xRCCorner.y;\n\n        // max/min x(?, ?, d) to get y(yR, yC, d).\n
    // ? = to be determined\n        vec4 minMaxValue = vec4(${initializationValue});\n        float avgValue = 0.0;\n
 count = 0.0;\n\n        for (int wR = 0; wR < ${effectiveFilterHeight};\n            wR += ${dilationHeight}) {\n
int xR = xRCorner + wR;\n\n          if (xR < 0 || xR >= ${convInfo.inHeight}) {\n            continue;\n          }\n\n
for (int wC = 0; wC < ${filterWidthNearestVec4}; wC += 4) {\n            int xC = xCCorner + wC *
${dilationWidth};\n\n            vec4 values = vec4(\n              getValue(batch, xR, xC, d),\n              getValue(batch,
xR, xC + ${dilationWidth}, d),\n              getValue(batch, xR, xC + 2 * ${dilationWidth}, d),\n
getValue(batch, xR, xC + 3 * ${dilationWidth}, d)\n            );\n\n            ${updateSnippet}\n          }\n\n          int xC
= xCCorner + ${filterWidthNearestVec4};\n          if (${filterWidthVec4Remainder === 1}) {\n            vec4 values
= vec4(\n              getValue(batch,
 xR, xC, d),\n              initializationValue,\n              initializationValue,\n              initializationValue\n            );\n\n
        ${updateSnippet}\n          } else if (${filterWidthVec4Remainder === 2}) {\n            vec4 values = vec4(\n
```

```
    getValue(batch, xR, xC, d),\n          getValue(batch, xR, xC + ${dilationWidth}, d),\n
initializationValue,\n          initializationValue\n        );\n\n        ${updateSnippet}\n      } else if
(${filterWidthVec4Remainder === 3}) {\n        vec4 values = vec4(\n          getValue(batch, xR, xC, d),\n
  getValue(batch, xR, xC + ${dilationWidth}, d),\n          getValue(batch, xR, xC + 2 * ${dilationWidth}, d),\n
      initializationValue\n        );\n\n        ${updateSnippet}\n      }\n    }\n
setOutput(${returnValue});\n    }\n  `;\n}\n\nexport class Pool3DProgram implements GPGPUProgram {\n
variableNames = ['x'];\n
 outputShape: number[];\n  userCode: string;\n\n  constructor(\n    convInfo: backend_util.Conv3DInfo, poolType:
'max'|'avg',\n    computePositions: boolean, flattenPositions = false,\n    includeBatchInIndex = false) {\n  if
(poolType === 'avg' && computePositions) {\n    throw new Error('Cannot compute positions for average
pool.');\n  }\n\n  const filterWidth = convInfo.filterWidth;\n  const strideDepth = convInfo.strideDepth;\n  const
strideHeight = convInfo.strideHeight;\n  const strideWidth = convInfo.strideWidth;\n  const dilationDepth =
convInfo.dilationDepth;\n  const dilationHeight = convInfo.dilationHeight;\n  const dilationWidth =
convInfo.dilationWidth;\n  const effectiveFilterDepth = convInfo.effectiveFilterDepth;\n  const
effectiveFilterHeight = convInfo.effectiveFilterHeight;\n  const effectiveFilterWidth =
convInfo.effectiveFilterWidth;\n\n  const padFront = convInfo.padInfo.front;\n  const padTop =
convInfo.padInfo.top;\n  const padLeft
 = convInfo.padInfo.left;\n  this.outputShape = convInfo.outShape;\n\n  const isAvgPool = poolType ===
'avg';\n\n  let initializationValue = '0.0';\n  if (!isAvgPool) {\n    // WebGL on Firefox Linux can't compile 1/0 so
we do 1/eps.\n    initializationValue = '-1.0 / 1e-20';\n  }\n\n  if (computePositions) {\n    const compareOp =
'>=';\n\n    this.userCode = `\n      const ivec3 strides =\n          ivec3(${strideDepth}, ${strideHeight},
${strideWidth});\n      const ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n\n      void main() {\n
  ivec5 coords = getOutputCoords();\n        int batch = coords.x;\n        int ch = coords.u;\n\n        ivec3 xCorner
= ivec3(coords.y, coords.z, coords.w) * strides - pads;\n        int xDCorner = xCorner.x;\n        int xRCorner =
xCorner.y;\n        int xCCorner = xCorner.z;\n\n        // max/min x(?, ?, ?, ch) to get y(yD, yR, yC, ch).\n        // ?
= to be determined\n        float
 minMaxValue = 0.0;\n        float minMaxValueFound = 0.0;\n        int minMaxPosition = 0;\n\n        for (int wD
= 0; wD < ${effectiveFilterDepth};\n            wD += ${dilationDepth}) {\n          int xD = xDCorner + wD;\n\n
    if (xD < 0 || xD >= ${convInfo.inDepth}) {\n            continue;\n          }\n\n          for (int wR = 0; wR <
${effectiveFilterHeight};\n              wR += ${dilationHeight}) {\n            int xR = xRCorner + wR;\n\n            if
(xR < 0 || xR >= ${convInfo.inHeight}) {\n              continue;\n            }\n\n            for (int wC = 0; wC <
${effectiveFilterWidth};\n                wC += ${dilationWidth}) {\n              int xC = xCCorner + wC;\n\n
if (xC < 0 || xC >= ${convInfo.inWidth}) {\n                continue;\n              }\n\n              float value =
getX(batch, xD, xR, xC, ch);\n\n              // If a min / max value has already been found, use it. If not,\n
        // use the current value.\n              float currMinMaxValue = mix(\n                  value, minMaxValue,
minMaxValueFound);\n              if (value ${compareOp} currMinMaxValue) {\n                minMaxValue =
value;\n                minMaxValueFound = 1.0;\n                minMaxPosition = ${\n        flattenPositions ?\n
(includeBatchInIndex ?\n                `(((batch * ${convInfo.inDepth} + xD) * ${\n
convInfo.inHeight} + xR) * ${convInfo.inWidth} + xC) * ${\n                  convInfo.inChannels} + ch` :\n
    `((xD * ${convInfo.inHeight} + xR) * ${\n                  convInfo.inWidth} + xC) * ${convInfo.inChannels} +
ch`) :\n            `wD * ${effectiveFilterHeight} * ${effectiveFilterWidth} +\n                wR *
${effectiveFilterWidth} + wC`};\n              }\n            }\n          }\n        }\n
setOutput(float(minMaxPosition));\n      }\n    `;\n
  return;\n  }\n\n  const compareOp = 'max';\n\n  let returnValue = `${poolType}(${poolType}(${poolType}(`
+\n      'minMaxValue[0], minMaxValue[1]), minMaxValue[2]), minMaxValue[3])';\n  if (poolType === 'avg')
{\n    returnValue = `avgValue / count`;\n  }\n\n  const filterWidthNearestVec4 = Math.floor(filterWidth / 4) *
4;\n  const filterWidthVec4Remainder = filterWidth % 4;\n\n  const updateSnippet = `\n    if (${isAvgPool}) {\n
    avgValue += dot(values, ones);\n    } else {\n      minMaxValue = ${compareOp}(values, minMaxValue);\n
```

```
}\n    `;\n\n    this.userCode = `\n      const ivec3 strides =\n          ivec3(${strideDepth}, ${strideHeight},
${strideWidth});\n      const ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n      const float
initializationValue = ${initializationValue};\n      const vec4 ones = vec4(1.0, 1.0, 1.0, 1.0);\n\n      float count =
0.0;\n\n      float getValue(int batch, int xD, int xR, int xC, int ch) {\n        if (xC
< 0 || xC >= ${convInfo.inWidth}) {\n          return initializationValue;\n        }\n        count += 1.0;\n        return
getX(batch, xD, xR, xC, ch);\n      }\n\n      void main() {\n        ivec5 coords = getOutputCoords();\n        int batch =
coords.x;\n        int ch = coords.u;\n\n        ivec3 xCorner = ivec3(coords.y, coords.z, coords.w) * strides - pads;\n
int xDCorner = xCorner.x;\n        int xRCorner = xCorner.y;\n        int xCCorner = xCorner.z;\n\n        // max/min
x(?, ?, ?, d) to get y(yD, yR, yC, ch).\n        // ? = to be determined\n        vec4 minMaxValue =
vec4(${initializationValue});\n        float avgValue = 0.0;\n        count = 0.0;\n\n        for (int wD = 0; wD <
${effectiveFilterDepth};\n            wD += ${dilationDepth}) {\n          int xD = xDCorner + wD;\n\n          if (xD < 0
|| xD >= ${convInfo.inDepth}) {\n            continue;\n          }\n\n          for (int wR = 0; wR <
${effectiveFilterHeight};\n              wR += ${dilationHeight})
{\n            int xR = xRCorner + wR;\n\n            if (xR < 0 || xR >= ${convInfo.inHeight}) {\n              continue;\n
}\n\n            for (int wC = 0; wC < ${filterWidthNearestVec4}; wC += 4) {\n              int xC = xCCorner + wC *
${dilationWidth};\n\n              vec4 values = vec4(\n                getValue(batch, xD, xR, xC, ch),\n
getValue(batch, xD, xR, xC + ${dilationWidth}, ch),\n                getValue(batch, xD, xR, xC + 2 *
${dilationWidth}, ch),\n                getValue(batch, xD, xR, xC + 3 * ${dilationWidth}, ch)\n              );\n\n
${updateSnippet}\n            }\n\n            int xC = xCCorner + ${filterWidthNearestVec4};\n            if
(${filterWidthVec4Remainder === 1}) {\n              vec4 values = vec4(\n                getValue(batch, xD, xR, xC,
ch),\n                initializationValue,\n                initializationValue,\n                initializationValue\n              );\n\n
${updateSnippet}\n
          } else if (${filterWidthVec4Remainder === 2}) {\n              vec4 values = vec4(\n                getValue(batch,
xD, xR, xC, ch),\n                getValue(batch, xD, xR, xC + ${dilationWidth}, ch),\n                initializationValue,\n
initializationValue\n              );\n\n              ${updateSnippet}\n            } else if (${filterWidthVec4Remainder
=== 3}) {\n              vec4 values = vec4(\n                getValue(batch, xD, xR, xC, ch),\n                getValue(batch,
xD, xR, xC + ${dilationWidth}, ch),\n                getValue(batch, xD, xR, xC + 2 * ${dilationWidth}, ch),\n
initializationValue\n              );\n\n              ${updateSnippet}\n            }\n          }\n
setOutput(${returnValue});\n        }\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\nimport {AvgPool, AvgPoolAttrs, AvgPoolInputs, backend_util, KernelConfig, KernelFunc, TensorInfo, util}
from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport
{Pool2DProgram} from '../pool_gpu';\nimport {assertNotComplex} from '../webgl_util';\nimport {identity} from
'./Identity';\n\nexport function avgPool(args: {\n  inputs: AvgPoolInputs,\n  backend: MathBackendWebGL,\n  attrs:
AvgPoolAttrs\n}): TensorInfo
 {\n  const {inputs, backend, attrs} = args;\n  const {x} = inputs;\n  assertNotComplex(x, 'avgPool');\n  const
{filterSize, strides, pad, dimRoundingMode} = attrs;\n  const dilations = 1;\n\n  util.assert(\n
backend_util.eitherStridesOrDilationsAreOne(strides, dilations),\n      () => 'Error in avgPool: Either strides or
dilations must be 1. ' +\n          `Got strides ${strides} and dilations '${dilations}'`);\n\n  const convInfo =
backend_util.computePool2DInfo(\n      x.shape as [number, number, number, number], filterSize, strides,\n
dilations, pad, dimRoundingMode);\n  if (convInfo.filterWidth === 1 && convInfo.filterHeight === 1 &&\n
util.arraysEqual(convInfo.inShape, convInfo.outShape)) {\n    return identity({inputs: {x}, backend});\n  }\n  const
```

avgPoolProgram = new Pool2DProgram(convInfo, 'avg', false);\n return backend.runWebGLProgram(avgPoolProgram, [x], 'float32');\n}\n\nexport const avgPoolConfig: KernelConfig = {\n kernelName: AvgPool,\n backendName: 'webgl',\n kernelFunc: avgPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {AvgPool3D, AvgPool3DAttrs, AvgPool3DInputs, backend_util, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Pool3DProgram} from '../pool_gpu';\n\nexport function avgPool3D(args: {\n inputs: AvgPool3DInputs,\n backend: MathBackendWebGL,\n attrs: AvgPool3DAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {filterSize, strides, pad, dimRoundingMode, dataFormat} = attrs;\n const dilations: [number, number, number] = [1, 1, 1];\n\n const convInfo = backend_util.computePool3DInfo(\n   x.shape as [number, number, number, number], filterSize, strides,\n   dilations, pad, dimRoundingMode, dataFormat);\n const avgPoolProgram = new Pool3DProgram(convInfo, 'avg', false);\n return backend.runWebGLProgram(avgPoolProgram, [x], 'float32');\n}\n\nexport const avgPool3DConfig: KernelConfig = {\n kernelName: AvgPool3D,\n backendName: 'webgl',\n kernelFunc: avgPool3D as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class AvgPool2DBackpropProgram implements GPGPUProgram {\n variableNames = ['dy'];\n outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv2DInfo) {\n   this.outputShape = convInfo.inShape;\n   const filterHeight = convInfo.filterHeight;\n   const filterWidth = convInfo.filterWidth;\n   const strideHeight = convInfo.strideHeight;\n   const strideWidth = convInfo.strideWidth;\n   const dilationHeight = convInfo.dilationHeight;\n   const dilationWidth = convInfo.dilationWidth;\n   const effectiveFilterHeight = convInfo.effectiveFilterHeight;\n   const effectiveFilterWidth = convInfo.effectiveFilterWidth;\n\n   const padTop = effectiveFilterHeight - 1 - convInfo.padInfo.top;\n   const padLeft = effectiveFilterWidth - 1 - convInfo.padInfo.left;\n\n   const avgMultiplier = 1 / (filterHeight * filterWidth);\n\n   this.userCode = `\n   const ivec2 pads = ivec2(${padTop}, ${padLeft});\n   const float avgMultiplier = float(${avgMultiplier});\n\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int b = coords[0];\n   int d = coords[3];\n\n   ivec2 dyRCCorner = coords.yz - pads;\n   int dyRCorner = dyRCCorner.x;\n   int dyCCorner = dyRCCorner.y;\n\n   // Convolve dy(?, ?, d) with pos mask(:, :, d) to get dx(xR, xC, d).\n   // ? = to be determined. : = across all values in that axis.\n   float dotProd = 0.0;\n   for (int wR = 0; wR < ${effectiveFilterHeight};\n   wR += ${dilationHeight}) {\n   float dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n   if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 || fract(dyR) > 0.0) {\n   continue;\n   }\n   int idyR = int(dyR);\n\n   for (int wC = 0; wC < ${effectiveFilterWidth};\n

wC+= ${dilationWidth}) {\n float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n if (dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n fract(dyC) > 0.0) {\n continue;\n }\n int idyC = int(dyC);\n\n float dyValue = getDy(b, idyR, idyC, d);\n\n dotProd += dyValue * avgMultiplier;\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n\nexport class AvgPool3DBackpropProgram implements GPGPUProgram {\n variableNames = ['dy'];\n outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv3DInfo) {\n this.outputShape = convInfo.inShape;\n const filterDepth = convInfo.filterDepth;\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n const strideDepth = convInfo.strideDepth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const dilationDepth = convInfo.dilationDepth;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const effectiveFilterDepth = convInfo.effectiveFilterDepth;\n const effectiveFilterHeight = convInfo.effectiveFilterHeight;\n const effectiveFilterWidth = convInfo.effectiveFilterWidth;\n\n const padFront = effectiveFilterDepth - 1 - convInfo.padInfo.front;\n const padTop = effectiveFilterHeight - 1 - convInfo.padInfo.top;\n const padLeft = effectiveFilterWidth - 1 - convInfo.padInfo.left;\n\n const avgMultiplier = 1 / (filterDepth * filterHeight * filterWidth);\n\n this.userCode = `\n const ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n const float avgMultiplier = float(${avgMultiplier});\n\n void main() {\n ivec5 coords = getOutputCoords();\n int batch = coords.x;\n int ch = coords.u;\n\n ivec3 dyCorner = ivec3(coords.y, coords.z, coords.w) - pads;\n int dyDCorner = dyCorner.x;\n int dyRCorner = dyCorner.y;\n int dyCCorner = dyCorner.z;\n\n // Convolve dy(?, ?, ?, d) with pos mask(:, :, :, ch) to get\n // dx(xD, xR, xC, ch).\n // ? = to be determined. : = across all values in that axis.\n float dotProd = 0.0;\n\n for (int wD = 0; wD < ${effectiveFilterDepth};\n wD += ${dilationDepth}) {\n float dyD = float(dyDCorner + wD) / ${strideDepth}.0;\n\n if (dyD < 0.0 || dyD >= ${convInfo.outDepth}.0 || fract(dyD) > 0.0) {\n continue;\n }\n int idyD = int(dyD);\n\n for (int wR = 0; wR < ${effectiveFilterHeight};\n wR += ${dilationHeight}) {\n float dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 ||\n fract(dyR) > 0.0) {\n continue;\n }\n int idyR = int(dyR);\n\n for (int wC = 0; wC < ${effectiveFilterWidth};\n wC += ${dilationWidth}) {\n float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n if (dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n fract(dyC) > 0.0) {\n continue;\n }\n int idyC = int(dyC);\n\n float dyValue = getDy(batch, idyD, idyR, idyC, ch);\n\n dotProd += dyValue * avgMultiplier;\n }\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\nimport {AvgPool3DGrad, AvgPool3DGradAttrs, AvgPool3DGradInputs, backend_util, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {AvgPool3DBackpropProgram} from '../avg_pool_backprop_gpu';\nimport {MathBackendWebGL} from '../backend_webgl';\n\nexport function avgPool3DGrad(args: {\n inputs: AvgPool3DGradInputs,\n backend: MathBackendWebGL,\n attrs: AvgPool3DGradAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {dy, input} = inputs;\n const x = input;\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const dilations: [number, number, number] = [1, 1, 1];\n\n const convInfo = backend_util.computePool3DInfo(\n x.shape as [number, number, number, number, number], filterSize, strides,\n dilations, pad, dimRoundingMode);\n const avgPoolBackpropProgram = new AvgPool3DBackpropProgram(convInfo);\n return

backend.runWebGLProgram(avgPoolBackpropProgram, [dy], x.dtype);\n}\n\nexport const avgPoolGrad3DConfig: KernelConfig = {\n kernelName: AvgPool3DGrad,\n backendName: 'webgl',\n kernelFunc: avgPool3DGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
 * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {AvgPoolGrad, AvgPoolGradAttrs, AvgPoolGradInputs, backend_util, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {AvgPool2DBackpropProgram} from '../avg_pool_backprop_gpu';\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {assertNotComplex} from '../webgl_util';\n\nexport function avgPoolGrad(args: {\n inputs: AvgPoolGradInputs,\n backend: MathBackendWebGL,\n attrs:
 AvgPoolGradAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {dy, input} = inputs;\n const x = input;\n assertNotComplex([dy, input], 'avgPoolGrad');\n const {filterSize, strides, pad} = attrs;\n\n const convInfo = backend_util.computePool2DInfo(\n   x.shape as [number, number, number, number], filterSize, strides,\n   1 /* dilations */, pad);\n const avgPoolBackpropProgram = new AvgPool2DBackpropProgram(convInfo);\n return backend.runWebGLProgram(avgPoolBackpropProgram, [dy], x.dtype);\n}\n\nexport const avgPoolGradConfig: KernelConfig = {\n kernelName: AvgPoolGrad,\n backendName: 'webgl',\n kernelFunc: avgPoolGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {BatchMatMul, BatchMatMulAttrs, BatchMatMulInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {batchMatMulImpl} from './BatchMatMul_impl';\n\nexport function batchMatMul(args: {\n inputs: BatchMatMulInputs,\n attrs: BatchMatMulAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {a, b} = inputs;\n const {transposeA, transposeB} = attrs;\n\n return batchMatMulImpl({a, b, transposeA, transposeB, backend});\n}\n\nexport const batchMatMulConfig: KernelConfig
 = {\n kernelName: BatchMatMul,\n backendName: 'webgl',\n kernelFunc: batchMatMul as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class BatchNormProgram implements GPGPUProgram {\n

```
  variableNames: string[];\n  outputShape: number[] = [];\n  userCode: string;\n\n  constructor(\n      xShape:
number[], meanShape: number[], varianceShape: number[],\n      offsetShape: number[]|null, scaleShape:
number[]|null,\n      varianceEpsilon: number) {\n    this.variableNames = ['x', 'mean', 'variance'];\n
backend_util.assertAndGetBroadcastShape(xShape, meanShape);\n
backend_util.assertAndGetBroadcastShape(xShape, varianceShape);\n\n    let offsetSnippet = '0.0';\n    if
(offsetShape != null) {\n      backend_util.assertAndGetBroadcastShape(xShape, offsetShape);\n
this.variableNames.push('offset');\n      offsetSnippet = 'getOffsetAtOutCoords()';\n    }\n\n    let scaleSnippet =
'1.0';\n    if (scaleShape != null) {\n      backend_util.assertAndGetBroadcastShape(xShape, scaleShape);\n
this.variableNames.push('scale');\n      scaleSnippet = 'getScaleAtOutCoords()';\n    }\n\n    this.outputShape =
xShape;\n    this.userCode = `\n      void main() {\n        float
 x = getXAtOutCoords();\n        float mean = getMeanAtOutCoords();\n        float variance =
getVarianceAtOutCoords();\n        float offset = ${offsetSnippet};\n        float scale = ${scaleSnippet};\n        float
inv = scale * inversesqrt(variance + float(${varianceEpsilon}));\n        setOutput(dot(vec3(x, -mean, offset),
vec3(inv, inv, 1)));\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under
 the License.\n *
==========================================================================\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport class BatchNormPackedProgram implements GPGPUProgram {\n  variableNames:
string[];\n  outputShape: number[];\n  userCode: string;\n  packedInputs = true;\n  packedOutput = true;\n\n
constructor(\n      xShape: number[], meanShape: number[], varianceShape: number[],\n      offsetShape:
number[]|null, scaleShape: number[]|null,\n      varianceEpsilon: number) {\n    this.variableNames = ['x', 'mean',
'variance'];\n    backend_util.assertAndGetBroadcastShape(xShape, meanShape);\n
backend_util.assertAndGetBroadcastShape(xShape, varianceShape);\n\n    let offsetSnippet = 'vec4(0.0)';\n    if
(offsetShape != null) {\n      backend_util.assertAndGetBroadcastShape(xShape, offsetShape);\n
this.variableNames.push('offset');\n      offsetSnippet = 'getOffsetAtOutCoords()';\n    }\n\n
    let scaleSnippet = 'vec4(1.0)';\n    if (scaleShape != null) {\n
backend_util.assertAndGetBroadcastShape(xShape, scaleShape);\n      this.variableNames.push('scale');\n
scaleSnippet = 'getScaleAtOutCoords()';\n    }\n\n    this.outputShape = xShape;\n    this.userCode = `\n      void
main() {\n        vec4 offset = ${offsetSnippet};\n        vec4 scale = ${scaleSnippet};\n\n        vec4 x =
getXAtOutCoords();\n        vec4 mean = getMeanAtOutCoords();\n        vec4 variance =
getVarianceAtOutCoords();\n\n        vec4 inv = scale * inversesqrt(variance + vec4(${varianceEpsilon}));\n\n
setOutput((x - mean) * inv + offset);\n      }\n    `;\n  }\n}\n","\n/**\n * @license\n * Copyright 2020 Google LLC.
All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
 required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {env, FusedBatchNorm, FusedBatchNormAttrs, FusedBatchNormInputs, KernelConfig, KernelFunc,
TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport
{BatchNormProgram} from '../batchnorm_gpu';\nimport {BatchNormPackedProgram} from
```

'../batchnorm_packed_gpu';\n\nexport const batchNorm: (params: {\n inputs: FusedBatchNormInputs,\n backend: MathBackendWebGL,\n attrs: FusedBatchNormAttrs\n}) => TensorInfo = ({inputs, backend, attrs}) => {\n const {x, mean, variance, offset, scale} = inputs;\n\n util.assert(\n   mean.shape.length === variance.shape.length,\n   () => 'Batch normalization gradient requires mean and variance to have ' +\n 'equal ranks.');\n util.assert(\n   offset == null || mean.shape.length === offset.shape.length,\n   () => 'Batch normalization gradient requires mean and offset to have ' +\n   'equal ranks.');\n util.assert(\n   scale == null || mean.shape.length === scale.shape.length,\n   () => 'Batch normalization gradient requires mean and scale to have ' +\n   'equal ranks.');\n\n let {varianceEpsilon} = attrs;\n if (varianceEpsilon == null) {\n   varianceEpsilon = 0.001;\n }\n\n const finalInputs = [x, mean, variance];\n\n let offsetShape = null;\n if (offset != null) {\n   offsetShape = offset.shape;\n   finalInputs.push(offset);\n }\n\n let scaleShape = null;\n if (scale != null) {\n   scaleShape = scale.shape;\n   finalInputs.push(scale);\n }\n\n const program = env().getBool('WEBGL_PACK_NORMALIZATION') ?\n   new BatchNormPackedProgram(\n   x.shape, mean.shape, variance.shape, offsetShape, scaleShape,\n   varianceEpsilon) :\n   new BatchNormProgram(\n   x.shape, mean.shape, variance.shape, offsetShape, scaleShape,\n varianceEpsilon);\n const output =\n   backend.runWebGLProgram(program, finalInputs, finalInputs[0].dtype);\n\n return output;\n};\n\nexport const batchNormConfig: KernelConfig = {\n kernelName: FusedBatchNorm,\n backendName: 'webgl',\n kernelFunc: batchNorm as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class SliceProgram implements GPGPUProgram {\n variableNames = ['source'];\n outputShape: number[];\n userCode: string;\n rank: number;\n\n // Caching uniform location for speed.\n startLoc: WebGLUniformLocation;\n\n constructor(destSize: number[]) {\n   this.outputShape = destSize;\n   this.rank = destSize.length;\n\n   const dtype = getCoordsDataType(this.rank);\n   const uniformPart = `uniform int start[${this.rank}];`;\n   const sourceCoords = getCoords(this.rank);\n\n   let body: string;\n   const coordSum = destSize.map((_, i) => {\n   return `sourceLoc.${coords[i]} = start[${i}] + coords.${coords[i]};`;\n   });\n   body = `\n      ${dtype} sourceLoc;\n      ${dtype} coords = getOutputCoords();\n      ${coordSum.join('\\n')}\n    `;\n   this.userCode = `\n      ${uniformPart}\n      void main() {\n        ${body}\n        setOutput(getSource(${sourceCoords}));\n      }\n    `;\n }\n\n getCustomSetupFunc(start: number[]) {\n   if (start.length !== this.rank) {\n   throw Error(\n   `The rank (${this.rank}) of the program must match the ` +\n   `length of start (${start.length})`);\n   }\n   return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n   if (this.startLoc == null) {\n   this.startLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'start');\n   if (this.startLoc == null) {\n   // This means the compiler has optimized and realized it doesn't need\n   // the uniform.\n   return;\n   }\n   }\n   gpgpu.gl.uniform1iv(this.startLoc, start);\n   };\n }\n}\n\nconst
 coords = ['x', 'y', 'z', 'w', 'u', 'v'];\n\nfunction getCoords(rank: number): string {\n if (rank === 1) {\n   return 'sourceLoc';\n } else if (rank <= 6) {\n   return coords.slice(0, rank).map(x => 'sourceLoc.' + x).join(',');\n } else {\n   throw Error(`Slicing for rank ${rank} is not yet supported`);\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class SlicePackedProgram implements GPGPUProgram {\n variableNames = ['source'];\n packedInputs = true;\n packedOutput = true;\n outputShape: number[];\n userCode: string;\n rank: number;\n\n // Caching uniform location for speed.\n startLoc: WebGLUniformLocation;\n\n constructor(destSize: number[]) {\n this.outputShape = destSize;\n this.rank = destSize.length;\n\n const dtype = getCoordsDataType(this.rank);\n const coords = getChannels('coords', this.rank);\n const sourceLoc = getChannels('sourceLoc', this.rank);\n\n const innerDims =\n this.rank === 1 ? 'sourceLoc' : `vec2(${sourceLoc.slice(-2).join()})`;\n const getChannel =\n `getChannel(getSource(${sourceLoc.join()}), ${innerDims})`;\n const upperRow = `\n result.x = ${getChannel};\n if (++${coords[this.rank - 1]} < ${destSize[this.rank - 1]}) {\n ++${sourceLoc[this.rank - 1]};\n result.y = ${getChannel};\n --${sourceLoc[this.rank - 1]};\n }\n `;\n const lowerRow = this.rank === 1 ? '' : `\n --${coords[this.rank - 1]};\n if (++${coords[this.rank - 2]} < ${destSize[this.rank - 2]}) {\n ++${sourceLoc[this.rank - 2]};\n result.z = ${getChannel};\n if (++${coords[this.rank - 1]} < ${destSize[this.rank - 1]}) {\n ++${sourceLoc[this.rank - 1]};\n result.w = ${getChannel};\n }\n }\n `;\n\n const sourceLocSetup = this.rank <= 4 ?\n `sourceLoc = coords +\n ${dtype}(${destSize.map((_, i) => `start[${i}]`).join()});` :\n destSize.map((_, i) => `${sourceLoc[i]} = ${coords[i]} + start[${i}];`)\n .join('\\n');\n this.userCode = `\n uniform int start[${this.rank}];\n void main() {\n ${dtype} coords = getOutputCoords();\n ${dtype} sourceLoc;\n ${sourceLocSetup}\n vec4 result = vec4(0.);\n ${upperRow}\n ${lowerRow}\n setOutput(result);\n }\n `;\n }\n\n getCustomSetupFunc(start: number[]) {\n if (start.length !== this.rank) {\n throw Error(\n `The rank (${this.rank}) of the program must match the ` +\n `length of start (${start.length})`);\n }\n return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n if (this.startLoc == null) {\n this.startLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'start');\n if (this.startLoc == null) {\n // This means the compiler has optimized and realized it doesn't need\n // the uniform.\n return;\n }\n }\n gpgpu.gl.uniform1iv(this.startLoc, start);\n };\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, BatchToSpaceND, BatchToSpaceNDAttrs, BatchToSpaceNDInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\nimport {transpose} from './Transpose';\n\nexport const batchToSpaceND = (args: {\n inputs: BatchToSpaceNDInputs,\n backend: MathBackendWebGL,\n attrs: BatchToSpaceNDAttrs\n}): TensorInfo => {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockShape, crops} = attrs;\n\n util.assert(\n x.shape.length <= 4,\n () => 'batchToSpaceND for rank > 4 with a WebGL backend not ' +\n 'implemented yet');\n const prod = blockShape.reduce((a, b) => a * b);\n\n const reshaped = backend_util.getReshaped(x.shape, blockShape, prod);\n const permuted = backend_util.getPermuted(reshaped.length, blockShape.length);\n const reshapedPermuted =\n backend_util.getReshapedPermuted(x.shape, blockShape, prod);\n const sliceBeginCoords =\n backend_util.getSliceBeginCoords(crops, blockShape.length);\n const sliceSize =\n backend_util.getSliceSize(reshapedPermuted, crops, blockShape.length);\n\n const toDispose = [];\n\n const reshapedIntermediate =\n reshape({inputs: {x}, backend, attrs: {shape: reshaped}});\n const

transposedIntermediate
= transpose(\n {inputs: {x: reshapedIntermediate}, backend, attrs: {perm: permuted}});\n const reshapedIntermediate2 = reshape({\n inputs: {x: transposedIntermediate},\n backend,\n attrs: {shape: reshapedPermuted}\n });\n const sliced = slice({\n inputs: {x: reshapedIntermediate2},\n backend,\n attrs: {begin: sliceBeginCoords, size: sliceSize}\n });\n\n toDispose.push(reshapedIntermediate);\n toDispose.push(transposedIntermediate);\n toDispose.push(reshapedIntermediate2);\n\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return sliced;\n};\n\nexport const batchToSpaceNDConfig: KernelConfig = {\n kernelName: BatchToSpaceND,\n backendName: 'webgl',\n kernelFunc: batchToSpaceND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Bincount, BincountAttrs, BincountInputs, KernelConfig, KernelFunc, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {bincountImplCPU} from '../kernel_utils/shared';\n\nexport function bincount(args: {\n inputs: BincountInputs,\n backend: MathBackendWebGL,\n attrs: BincountAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x, weights} = inputs;\n const {size} = attrs;\n\n const xVals =
backend.readSync(x.dataId) as TypedArray;\n const weightsVals = backend.readSync(weights.dataId) as TypedArray;\n\n const outVals =\n bincountImplCPU(xVals, weightsVals, weights.dtype, weights.shape, size);\n\n return backend.makeTensorInfo([size], weights.dtype, outVals);\n}\n\nexport const bincountConfig: KernelConfig = {\n kernelName: Bincount,\n backendName: 'webgl',\n kernelFunc: bincount as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {UnaryOpProgram} from '../unaryop_gpu';\n\nconst TO_INT = `return float(int(x));`;\n\nexport function int(input: TensorInfo, backend: MathBackendWebGL): TensorInfo {\n const program = new UnaryOpProgram(input.shape, TO_INT);\n const output = backend.runWebGLProgram(program, [input], 'int32');\n return {dataId: output.dataId, shape: output.shape, dtype: output.dtype};\n}\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ClipProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape:

number[];\n\n // Caching uniform locations for speed.\n minLoc: WebGLUniformLocation;\n maxLoc: WebGLUniformLocation;\n\n constructor(aShape: number[]) {\n   this.outputShape = aShape;\n   this.userCode = `\n      uniform float minVal;\n      uniform float maxVal;\n\n      void main() {\n        float value = getAAtOutCoords();\n        if (isnan(value)) {\n          setOutput(value);\n          return;\n        }\n\n        setOutput(clamp(value, minVal, maxVal));\n      }\n    `;\n }\n\n getCustomSetupFunc(min: number, max: number) {\n   return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n   if (this.minLoc == null) {\n   this.minLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'minVal');\n   this.maxLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'maxVal');\n   }\n   gpgpu.gl.uniform1f(this.minLoc, min);\n   gpgpu.gl.uniform1f(this.maxLoc, max);\n   };\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ClipPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n packedInputs = true;\n packedOutput = true;\n userCode: string;\n outputShape: number[];\n\n // Caching uniform locations for speed.\n minLoc: WebGLUniformLocation;\n maxLoc: WebGLUniformLocation;\n\n constructor(aShape: number[]) {\n   this.outputShape = aShape;\n   this.userCode = `\n      uniform float minVal;\n      uniform float maxVal;\n\n      void main() {\n        vec4 value = getAAtOutCoords();\n\n        if (any(isnan(value))) {\n          setOutput(value);\n          return;\n        }\n\n        setOutput(clamp(value, vec4(minVal), vec4(maxVal)));\n      }\n    `;\n }\n\n getCustomSetupFunc(min: number, max: number) {\n   return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n   if (this.minLoc == null) {\n   this.minLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'minVal');\n   this.maxLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'maxVal');\n   }\n   gpgpu.gl.uniform1f(this.minLoc, min);\n   gpgpu.gl.uniform1f(this.maxLoc, max);\n   };\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
 the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {ClipByValue, ClipByValueAttrs, ClipByValueInputs, env, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ClipProgram} from '../clip_gpu';\nimport {ClipPackedProgram} from '../clip_packed_gpu';\n\nexport function clipByValue(args: {\n inputs: ClipByValueInputs,\n backend: MathBackendWebGL,\n attrs: ClipByValueAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {clipValueMin, clipValueMax} = attrs;\n\n let program;\n if (env().getBool('WEBGL_PACK_CLIP')) {\n   program = new ClipPackedProgram(x.shape);\n } else {\n   program = new ClipProgram(x.shape);\n }\n const customSetup = program.getCustomSetupFunc(clipValueMin, clipValueMax);\n return backend.runWebGLProgram(program,
 [x], x.dtype, customSetup);\n}\n\nexport const clipByValueConfig: KernelConfig = {\n kernelName: ClipByValue,\n backendName: 'webgl',\n kernelFunc: clipByValue as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the

License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ComplexAbsProgram implements GPGPUProgram {\n variableNames = ['real', 'imag'];\n userCode: string;\n outputShape: number[];\n\n constructor(shape: number[]) {\n this.outputShape = shape;\n this.userCode = `\n void main() {\n float re = abs(getRealAtOutCoords());\n float im = abs(getImagAtOutCoords());\n float mx = max(re, im);\n\n // sadly the length function in glsl is not underflow-safe\n // (at least not on Intel GPUs). So the safe solution is\n // to ensure underflow-safety in all cases.\n setOutput(\n mx == 0.0 ? 0.0 : mx * length(vec2(1, min(re, im)/mx))\n);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {ComplexAbs, ComplexAbsInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ComplexAbsProgram} from '../complex_abs_gpu';\n\n// Returns a TensorInfo with the complex shape and the dataId of the\n// underlying part. We need to do this because a reshaped complex tensor is\n// not reflected in its parts.\nfunction makeComplexComponentTensorInfo(\n complexTensor: TensorInfo, complexPart: TensorInfo): TensorInfo {\n return {\n dataId: complexPart.dataId,\n dtype: complexPart.dtype,\n shape: complexTensor.shape\n };\n}\n\nexport function complexAbs(\n args: {inputs: ComplexAbsInputs, backend: MathBackendWebGL}): TensorInfo {\n const {inputs, backend} = args;\n const {x} = inputs;\n\n const xData = backend.texData.get(x.dataId);\n\n const program = new ComplexAbsProgram(x.shape);\n const programInputs = [\n makeComplexComponentTensorInfo(x, xData.complexTensorInfos.real),\n makeComplexComponentTensorInfo(x, xData.complexTensorInfos.imag),\n];\n\n return backend.runWebGLProgram(\n program, programInputs, programInputs[0].dtype);\n}\n\nexport const complexAbsConfig: KernelConfig = {\n kernelName: ComplexAbs,\n backendName: 'webgl',\n kernelFunc: complexAbs as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ConcatProgram implements GPGPUProgram {\n variableNames: string[];\n outputShape: number[] = [];\n userCode: string;\n\n // Concats 2d tensors along axis=1. See comments in MathBackendWebGL.concat().\n constructor(shapes: Array<[number, number]>) {\n this.outputShape = backend_util.computeOutShape(shapes, 1 /* axis */);\n this.variableNames = shapes.map((_, i) => `T${i}`);\n\n const offsets: number[] = new Array(shapes.length - 1);\n

```
 offsets[0] = shapes[0][1];\n    for (let i = 1; i < offsets.length; i++) {\n      offsets[i] = offsets[i - 1] + shapes[i][1];\n    }\n\n    const snippets = [`if (yC < ${offsets[0]}) setOutput(getT0(yR, yC));`];\n    for (let i = 1; i < offsets.length; i++) {\n      const shift = offsets[i - 1];\n      snippets.push(\n          `else if (yC < ${offsets[i]}) ` +\n          `setOutput(getT${i}(yR, yC-${shift}));`);\n    }\n    const lastIndex = offsets.length;\n    const lastShift = offsets[offsets.length - 1];\n    snippets.push(`else setOutput(getT${lastIndex}(yR, yC-${lastShift}));`);\n\n    this.userCode = `\n      void main() {\n        ivec2 coords = getOutputCoords();\n        int yR = coords.x;\n        int yC = coords.y;\n\n        ${snippets.join('\n        ')}\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
 with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class ConcatPackedProgram implements GPGPUProgram {\n  variableNames: string[];\n  packedInputs = true;\n  packedOutput = true;\n  outputShape: number[] = [];\n  userCode: string;\n\n  constructor(shapes: number[][], axis: number) {\n    this.outputShape =
 backend_util.computeOutShape(shapes, axis);\n    const shape = this.outputShape;\n    const rank = shape.length;\n    const dtype = getCoordsDataType(rank);\n    const coords = getChannels('coords', rank);\n    const channels = ['x', 'y', 'z', 'w', 'u', 'v'].slice(0, rank);\n    this.variableNames = shapes.map((_, i) => `T${i}`);\n\n    const offsets: number[] = new Array(shapes.length - 1);\n    offsets[0] = shapes[0][axis];\n    for (let i = 1; i < offsets.length; i++) {\n      offsets[i] = offsets[i - 1] + shapes[i][axis];\n    }\n\n    const channel = channels[axis];\n    const lastChannels = channels.slice(-2);\n    const allChannels = channels.join();\n\n    let getValueSnippet = `if (${channel} < ${offsets[0]}) {\n        return getChannel(\n            getT0(${allChannels}), vec2(${lastChannels.join()}));\n      }`;\n    for (let i = 1; i < offsets.length; i++) {\n      const shift = offsets[i - 1];\n      // Note: the >= comparison below may seem unnecessary given the check\n
      // above but is needed to workaround branch execution issues on some\n      // devices. It makes all the conditions exclusive without relying on\n      // execution order.\n      getValueSnippet += `\n        if (${channel} < ${offsets[i]}  && ${channel} >= ${offsets[i - 1]}) {\n          return getChannel(\n            getT${i}(${shiftedChannels(channels, channel, shift)}),\n            vec2(${shiftedChannels(lastChannels, channel, shift)}));\n        }`;\n    }\n    const lastIndex = offsets.length;\n    const shift = offsets[offsets.length - 1];\n    getValueSnippet += `\n        return getChannel(\n          getT${lastIndex}(${shiftedChannels(channels, channel, shift)}),\n          vec2(${shiftedChannels(lastChannels, channel, shift)}));`;\n\n    this.userCode = `\n      float getValue(${channels.map(x => 'int ' + x)}) {\n        ${getValueSnippet}\n      }\n\n      void main() {\n        ${dtype} coords = getOutputCoords();\n        vec4 result = vec4(getValue(${coords}), 0.,
 0., 0.);\n\n        ${coords[rank - 1]} = ${coords[rank - 1]} + 1;\n        if (${coords[rank - 1]} < ${shape[rank - 1]}) {\n          result.g = getValue(${coords});\n        }\n\n        ${coords[rank - 2]} = ${coords[rank - 2]} + 1;\n        if (${coords[rank - 2]} < ${shape[rank - 2]}) {\n          result.a = getValue(${coords});\n        }\n\n        ${coords[rank - 1]} = ${coords[rank - 1]} - 1;\n        if (${coords[rank - 2]} < ${shape[rank - 2]} &&\n            ${coords[rank - 1]} < ${shape[rank - 1]}) {\n          result.b = getValue(${coords});\n        }\n        setOutput(result);\n      }\n    `;\n  }\n}\n\n/**\n * Return an expression for coordinates into a vector where a given channel\n * will be offset by [shift].\n *\n * @param channels the channels to consider\n * @param channel the channel we want shifted\n * @param shift  the amount to subtract from the channel.\n *\n * @returns a string of the form 'x, y-[shift], z' where any one channel can\n * have the shift
```

applied.\n */\nfunction shiftedChannels(channels: string[], channel: string, shift: number) {\n const channelIdx = channels.indexOf(channel);\n const res = channels.map((c, idx) => {\n   if (idx === channelIdx) {\n   return `${c} - ${shift}`;\n   } else {\n   return c;\n   }\n });\n return res.join();\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {Imag, ImagInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {identity} from './Identity';\n\nexport function imag(args: {inputs: ImagInputs, backend: MathBackendWebGL}):\n   TensorInfo {\n const {inputs, backend} = args;\n const {input} = inputs;\n const inputData = backend.texData.get(input.dataId);\n\n return identity({inputs: {x: inputData.complexTensorInfos.imag}, backend});\n}\n\nexport const imagConfig: KernelConfig = {\n kernelName: Imag,\n backendName: 'webgl',\n kernelFunc: imag as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required\n by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, Concat, ConcatAttrs, ConcatInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {concatImpl} from './Concat_impl';\nimport {identity} from './Identity';\n\nexport function concat(\n   args:\n   {inputs: ConcatInputs, attrs: ConcatAttrs, backend: MathBackendWebGL}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, inputs[0].shape)[0];\n const outShape =\n   backend_util.computeOutShape(inputs.map(t\n => t.shape), $axis);\n\n if (util.sizeFromShape(outShape) === 0) {\n   return backend.makeTensorInfo(outShape, inputs[0].dtype, []);\n }\n\n // Keep only non-empty tensors (ignore tensors with 0 in their shape).\n const $inputs = inputs.filter(t => util.sizeFromShape(t.shape) > 0);\n if ($inputs.length === 1) {\n   return identity({inputs: {x: $inputs[0]}, backend});\n }\n\n const shapes = $inputs.map(t => t.shape);\n backend_util.assertParamsConsistent(shapes, $axis);\n\n return concatImpl($inputs, $axis, backend);\n}\n\nexport const concatConfig: KernelConfig = {\n kernelName: Concat,\n backendName: 'webgl',\n kernelFunc: concat as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless\n required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class Conv2DProgram implements GPGPUProgram {\n variableNames = ['x', 'W'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n   convInfo: backend_util.Conv2DInfo, addBias = false,\n   activation: string = null, hasPreluActivationWeights = false,\n   hasLeakyreluAlpha = false) {\n   this.outputShape = convInfo.outShape;\n   const padTop = convInfo.padInfo.top;\n   const padLeft =

```
convInfo.padInfo.left;\n    const strideHeight = convInfo.strideHeight;\n
    const strideWidth = convInfo.strideWidth;\n    const dilationHeight = convInfo.dilationHeight;\n    const
dilationWidth = convInfo.dilationWidth;\n    const filterHeight = convInfo.filterHeight;\n    const filterWidth =
convInfo.filterWidth;\n\n    const inputDepthNearestVec4 = Math.floor(convInfo.inChannels / 4) * 4;\n    const
inputDepthVec4Remainder = convInfo.inChannels % 4;\n    const isChannelsLast = convInfo.dataFormat ===
'channelsLast';\n\n    const rowDim = isChannelsLast ? 1 : 2;\n    const colDim = isChannelsLast ? 2 : 3;\n    const
channelDim = isChannelsLast ? 3 : 1;\n\n    let activationSnippet = '', applyActivationSnippet = '';\n    if (activation)
{\n      if (hasPreluActivationWeights) {\n        activationSnippet = `float activation(float a) {\n          float b =
getPreluActivationWeightsAtOutCoords();\n          ${activation}\n        }`;\n      } else if (hasLeakyreluAlpha) {\n
activationSnippet = `float activation(float a) {\n          float b = getLeakyreluAlphaAtOutCoords();\n
          ${activation}\n        }`;\n      } else {\n        activationSnippet = `\n          float activation(float x) {\n
${activation}\n        }\n        `;\n      }\n\n      applyActivationSnippet = `result = activation(result);`;\n    }\n\n
const addBiasSnippet = addBias ? 'result += getBiasAtOutCoords();' : '';\n    if (addBias) {\n
this.variableNames.push('bias');\n    }\n\n    if (hasPreluActivationWeights) {\n
this.variableNames.push('preluActivationWeights');\n    }\n\n    if (hasLeakyreluAlpha) {\n
this.variableNames.push('leakyreluAlpha');\n    }\n\n    this.userCode = `\n      ${activationSnippet}\n\n      const
ivec2 strides = ivec2(${strideHeight}, ${strideWidth});\n      const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n
  void main() {\n        ivec4 coords = getOutputCoords();\n        int batch = coords[0];\n        int d2 =
coords[${channelDim}];\n\n        ivec2 xRCCorner =\n            ivec2(coords[${rowDim}],
 coords[${colDim}]) * strides - pads;\n        int xRCorner = xRCCorner.x;\n        int xCCorner = xRCCorner.y;\n\n
  // Convolve x(?, ?, d1) with w(:, :, d1, d2) to get y(yR, yC, d2).\n        // ? = to be determined. : = across all values
in that axis.\n        float dotProd = 0.0;\n        for (int wR = 0; wR < ${filterHeight}; wR++) {\n          int xR =
xRCorner + wR * ${dilationHeight};\n\n          if (xR < 0 || xR >= ${convInfo.inHeight}) {\n            continue;\n
}\n\n          for (int wC = 0; wC < ${filterWidth}; wC++) {\n            int xC = xCCorner + wC *
${dilationWidth};\n\n            if (xC < 0 || xC >= ${convInfo.inWidth}) {\n              continue;\n            }\n\n
for (int d1 = 0; d1 < ${inputDepthNearestVec4}; d1 += 4) {\n              vec4 wValues = vec4(\n                getW(wR,
wC, d1, d2),\n                getW(wR, wC, d1 + 1, d2),\n                getW(wR, wC, d1 + 2, d2),\n                getW(wR,
wC, d1 + 3, d2)\n
          );\n\n            if (${isChannelsLast}) {\n              vec4 xValues = vec4(\n                getX(batch, xR, xC,
d1),\n                getX(batch, xR, xC, d1 + 1),\n                getX(batch, xR, xC, d1 + 2),\n                getX(batch, xR,
xC, d1 + 3)\n              );\n              dotProd += dot(xValues, wValues);\n            } else {\n              vec4 xValues
= vec4(\n                getX(batch, d1, xR, xC),\n                getX(batch, d1 + 1, xR, xC),\n                getX(batch, d1
+ 2, xR, xC),\n                getX(batch, d1 + 3, xR, xC)\n              );\n              dotProd += dot(xValues,
wValues);\n            }\n          }\n\n          if (${inputDepthVec4Remainder === 1}) {\n\n            if
(${isChannelsLast}) {\n              dotProd +=\n                getX(batch, xR, xC, ${inputDepthNearestVec4}) *\n
            getW(wR, wC, ${inputDepthNearestVec4}, d2);\n            } else {\n
  dotProd +=\n                getX(batch, ${inputDepthNearestVec4}, xR, xC) *\n                getW(wR, wC,
${inputDepthNearestVec4}, d2);\n            }\n\n          } else if (${inputDepthVec4Remainder === 2}) {\n
vec2 wValues = vec2(\n              getW(wR, wC, ${inputDepthNearestVec4}, d2),\n              getW(wR, wC,
${inputDepthNearestVec4} + 1, d2)\n            );\n\n            if (${isChannelsLast}) {\n              vec2 xValues =
vec2(\n                getX(batch, xR, xC, ${inputDepthNearestVec4}),\n                getX(batch, xR, xC,
${inputDepthNearestVec4} + 1)\n              );\n              dotProd += dot(xValues, wValues);\n            } else {\n
            vec2 xValues = vec2(\n                getX(batch, ${inputDepthNearestVec4}, xR, xC),\n                getX(batch,
${inputDepthNearestVec4} + 1, xR, xC)\n              );\n              dotProd += dot(xValues, wValues);\n
}\n\n          } else if
 (${inputDepthVec4Remainder === 3}) {\n            vec3 wValues = vec3(\n              getW(wR, wC,
${inputDepthNearestVec4}, d2),\n              getW(wR, wC, ${inputDepthNearestVec4} + 1, d2),\n
getW(wR, wC, ${inputDepthNearestVec4} + 2, d2)\n            );\n\n            if (${isChannelsLast}) {\n
```

```
vec3 xValues = vec3(\n getX(batch, xR, xC, ${inputDepthNearestVec4}),\n getX(batch, xR, xC, ${inputDepthNearestVec4} + 1),\n getX(batch, xR, xC, ${inputDepthNearestVec4} + 2)\n );\n dotProd += dot(xValues, wValues);\n } else {\n vec3 xValues = vec3(\n getX(batch, ${inputDepthNearestVec4}, xR, xC),\n getX(batch, ${inputDepthNearestVec4} + 1, xR, xC),\n getX(batch, ${inputDepthNearestVec4} + 2, xR, xC)\n );\n dotProd += dot(xValues, wValues);\n }\n\n }\n }\n }\n\n float result = dotProd;\n ${addBiasSnippet}\n ${applyActivationSnippet}\n setOutput(result);\n }\n `;\n }\n}\n\nexport class Conv3DProgram implements GPGPUProgram {\n variableNames = ['x', 'W'];\n outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv3DInfo) {\n this.outputShape = convInfo.outShape;\n const padFront = convInfo.padInfo.front;\n const padTop = convInfo.padInfo.top;\n const padLeft = convInfo.padInfo.left;\n const strideDepth = convInfo.strideDepth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n const dilationDepth = convInfo.dilationDepth;\n const dilationHeight = convInfo.dilationHeight;\n const dilationWidth = convInfo.dilationWidth;\n const filterDepth = convInfo.filterDepth;\n const filterHeight = convInfo.filterHeight;\n const filterWidth = convInfo.filterWidth;\n\n const inputDepthNearestVec4 = Math.floor(convInfo.inChannels / 4) * 4;\n const inputDepthVec4Remainder = convInfo.inChannels % 4;\n\n this.userCode = `\n const ivec3 strides = ivec3(${strideDepth}, ${strideHeight}, ${\n strideWidth});\n const ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n\n void main() {\n ivec5 coords = getOutputCoords();\n int batch = coords.x;\n int d2 = coords.u;\n\n ivec3 xFRCCorner = ivec3(coords.y, coords.z, coords.w) * strides - pads;\n int xFCorner = xFRCCorner.x;\n int xRCorner = xFRCCorner.y;\n int xCCorner = xFRCCorner.z;\n\n // Convolve x(?, ?, ?, d1) with w(:, :, :, d1, d2) to get\n // y(yF, yR, yC, d2). ? = to be determined. : = across all\n // values in that axis.\n float dotProd = 0.0;\n for (int wF = 0; wF < ${filterDepth}; wF++) {\n int xF = xFCorner + wF * ${dilationDepth};\n\n if (xF < 0 || xF >= ${convInfo.inDepth}) {\n continue;\n }\n\n for (int wR = 0; wR < ${filterHeight}; wR++) {\n int xR = xRCorner + wR * ${dilationHeight};\n\n if (xR < 0 || xR >= ${convInfo.inHeight}) {\n continue;\n }\n\n for (int wC = 0; wC < ${filterWidth}; wC++) {\n int xC = xCCorner + wC * ${dilationWidth};\n\n if (xC < 0 || xC >= ${convInfo.inWidth}) {\n continue;\n }\n\n for (int d1 = 0; d1 < ${inputDepthNearestVec4}; d1 += 4) {\n vec4 xValues = vec4(\n getX(batch, xF, xR, xC, d1),\n getX(batch, xF, xR, xC, d1 + 1),\n getX(batch, xF, xR, xC, d1 + 2),\n getX(batch, xF, xR, xC, d1 + 3)\n );\n vec4 wValues = vec4(\n getW(wF, wR, wC, d1, d2),\n getW(wF, wR, wC, d1 + 1, d2),\n getW(wF, wR, wC, d1 + 2, d2),\n getW(wF, wR, wC, d1 + 3, d2)\n );\n\n dotProd += dot(xValues, wValues);\n }\n\n if (${inputDepthVec4Remainder === 1}) {\n dotProd +=\n getX(batch, xF, xR, xC, ${inputDepthNearestVec4}) *\n getW(wF, wR, wC, ${inputDepthNearestVec4}, d2);\n } else if (${inputDepthVec4Remainder === 2}) {\n vec2 xValues = vec2(\n getX(batch, xF, xR, xC, ${inputDepthNearestVec4}),\n getX(batch, xF, xR, xC, ${inputDepthNearestVec4} + 1)\n );\n vec2 wValues = vec2(\n getW(wF, wR, wC, ${inputDepthNearestVec4}, d2),\n getW(wF, wR, wC, ${inputDepthNearestVec4} + 1, d2)\n );\n dotProd += dot(xValues, wValues);\n } else if (${inputDepthVec4Remainder === 3}) {\n vec3 xValues = vec3(\n getX(batch, xF,\n xR, xC, ${inputDepthNearestVec4}),\n getX(batch, xF, xR, xC, ${inputDepthNearestVec4} + 1),\n getX(batch, xF, xR, xC, ${inputDepthNearestVec4} + 2)\n );\n vec3 wValues = vec3(\n getW(wF, wR, wC, ${inputDepthNearestVec4}, d2),\n getW(wF, wR, wC,\n ${inputDepthNearestVec4} + 1, d2),\n getW(wF, wR, wC, ${inputDepthNearestVec4} + 2, d2)\n );\n dotProd += dot(xValues, wValues);\n }\n }\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
```

Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {getGlslDifferences} from './glsl_version';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class Im2ColPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n packedInputs = true;\n packedOutput = true;\n outputShape: number[];\n userCode: string;\n\n constructor(\n outputShape: number[], inputShape: number[],\n convInfo: backend_util.Conv2DInfo) {\n this.outputShape = outputShape;\n\n const {\n filterWidth,\n inChannels,\n strideWidth,\n strideHeight,\n padInfo,\n outWidth,\n dilationWidth,\n dilationHeight,\n dataFormat\n } = convInfo;\n const {left, top} = padInfo;\n const itemsPerBlockRow = inChannels * filterWidth;\n const glsl = getGlslDifferences();\n const isChannelsLast = dataFormat === 'channelsLast';\n const rowDim = isChannelsLast ? 0 : 1;\n const colDim = isChannelsLast ? 1 : 2;\n\n let unrolled = ``;\n\n for (let row = 0; row <= 1; row++) {\n for (let col = 0; col <= 1; col++) {\n unrolled += `\n blockIndex = rc.y + ${col};\n pos = rc.x + ${row};\n\n if(blockIndex < ${outputShape[1]} && pos < ${outputShape[0]}) {\n offsetY = int(blockIndex / (${outWidth})) * ${strideHeight} - ${\n top};\n d0 = offsetY + ${dilationHeight} * (pos / ${itemsPerBlockRow});\n\n if(d0 < ${inputShape[rowDim]} && d0 >= 0) {\n\n offsetX = int(mod(float(blockIndex), ${outWidth}.) * ${\n strideWidth}. - ${left}.);\n d1 = offsetX + ${dilationWidth}\n * (int(mod(float(pos), ${\n itemsPerBlockRow}.) / ${inChannels}.));\n\n if(d1 < ${inputShape[colDim]} && d1 >= 0) {\n\n ch = int(mod(float(pos), ${inChannels}.));\n\n if (${isChannelsLast}) {\n innerDims = vec2(d1, ch);\n result[${row * 2 + col}] = getChannel(\n getA(d0, int(innerDims.x),\n int(innerDims.y)), innerDims);\n } else {\n innerDims = vec2(d0, d1);\n result[${row * 2 + col}] = getChannel(\n getA(ch, int(innerDims.x),\n int(innerDims.y)), innerDims);\n }\n }\n }\n }\n `;\n }\n }\n\n this.userCode = `\n void main() {\n ivec2 rc = getOutputCoords();\n\n vec4 result = vec4(0);\n\n int blockIndex, pos, offsetY, d0, offsetX, d1, ch;\n vec2 innerDims;\n\n ${unrolled}\n\n ${glsl.output} = result;\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, env, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Im2ColPackedProgram} from '../im2col_packed_gpu';\nimport {mapActivationToShaderProgram}
from '../kernel_utils/kernel_funcs_utils';\nimport {MatMulPackedProgram} from '../mulmat_packed_gpu';\nimport * as webgl_util from '../webgl_util';\n\nimport {batchMatMulImpl, MATMUL_SHARED_DIM_THRESHOLD} from './BatchMatMul_impl';\nimport {identity} from './Identity';\nimport {reshape} from './Reshape';\n\ntype Conv2DConfig = {\n x: TensorInfo,\n filter: TensorInfo,\n convInfo: backend_util.Conv2DInfo,\n backend: MathBackendWebGL,\n bias?: TensorInfo,\n preluActivationWeights?: TensorInfo,\n leakyreluAlpha?: number,\n activation?: backend_util.Activation\n};\n\n// For 1x1 kernels that iterate through every point in the input, convolution\n// can be expressed as matrix multiplication (without need for memory\n// remapping).\nexport

```
function conv2dByMatMul({\n  x,\n  filter,\n  convInfo,\n  backend,\n  bias = null,\n  preluActivationWeights = null,\n  leakyreluAlpha = 0,\n  activation = null\n}: Conv2DConfig) {\n  // Reshapes conv2D input to 2D tensors, uses
 matMul and then reshape the\n  // result from 2D to 4D.\n  const xShape = x.shape;\n  const xTexData = backend.texData.get(x.dataId);\n  const sharedMatMulDim = convInfo.inChannels;\n  const outerShapeX = xShape[0] * xShape[1] * xShape[2];\n  const outerShapeFilter = convInfo.outChannels;\n  const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n  const transposeA = false;\n  const transposeB = false;\n\n  let out: TensorInfo;\n  const intermediates: TensorInfo[] = [];\n\n  // TODO: Once reduction ops are packed, batchMatMul will always be packed\n  // and we can remove this condition.\n  const batchMatMulWillBeUnpacked =\n  (outerShapeX === 1 || outerShapeFilter === 1) &&\n      sharedMatMulDim > MATMUL_SHARED_DIM_THRESHOLD;\n  const reshapeWillBeExpensive = xShape[2] % 2 !== 0 && !!xTexData.isPacked;\n\n  if (batchMatMulWillBeUnpacked || !env().getBool('WEBGL_LAZILY_UNPACK') ||\n  !env().getBool('WEBGL_PACK_BINARY_OPERATIONS') ||\n      !reshapeWillBeExpensive) {\n    const targetShape = isChannelsLast ? xShape[0] * xShape[1] * xShape[2] :\n                                         xShape[0] * xShape[2] * xShape[3];\n    const xReshaped = reshape({\n      inputs: {x},\n      backend,\n      attrs: {shape: [1, targetShape, convInfo.inChannels]}\n    });\n    const filterReshaped = reshape({\n      inputs: {x: filter},\n      backend,\n      attrs: {shape: [1, convInfo.inChannels, convInfo.outChannels]}\n    });\n    const result = batchMatMulImpl({\n      a: xReshaped,\n      b: filterReshaped,\n      transposeA,\n      transposeB,\n      backend,\n      bias,\n      activation,\n      preluActivationWeights,\n      leakyreluAlpha\n    });\n\n    out = reshape(\n        {inputs: {x: result}, backend, attrs: {shape: convInfo.outShape}});\n\n    intermediates.push(xReshaped);\n    intermediates.push(filterReshaped);\n    intermediates.push(result);\n  } else {\n    // Following optimization is specific to packed |x| with odd row count\n    // (For
 example, in channelLast mode, 'row count' refers to x.shape[2]):\n    // we avoid expensive packed 2x2 reshape by padding row count to next,\n    // even number. When x.shape[2] is odd, the result of packed batchMatMul is\n    // the same (has the same texture layout and and values in the texture) as\n    // it is for even x.shape[2] + 1. We make the odd-rows tensor to look like\n    // even-rows tensor before the operation and, after the batchMatMul,\n    // fix the even-rows result to have odd number of rows.\n    const targetShape = isChannelsLast ?\n        xShape[0] * xShape[1] * (xShape[2] + 1) :\n        xShape[0] * xShape[2] * (xShape[3] + 1);\n    const xReshaped: TensorInfo = {\n      dataId: x.dataId,\n      shape: [1, targetShape, convInfo.inChannels],\n      dtype: x.dtype\n    };\n    // xTexData.shape gets referenced from GPGPUBinary.inShapeInfos.\n    // Decrementing row count, after batchMatMul->...->compileProgram leads to\n    // invalid row count within the reference
 in GPGPUBinary.inShapeInfos.\n    // Alternative fix would be to provide a copy to GPGPUBinary.inShapeInfos\n    // in compileProgram method, but that would affect compilation of all\n    // programs - instead, provide a copy here, with even row count, before\n    // calling batchMatMul->...->compileProgram and after that, the original\n    // xTexData.shape is restored.\n    const originalXTexDataShape = xTexData.shape;\n    xTexData.shape = xTexData.shape.slice();\n    xTexData.shape[xTexData.shape.length - 2]++;\n    util.assert(\n        webgl_util.isReshapeFree(xTexData.shape, xReshaped.shape),\n        () => `packed reshape ${xTexData.shape} to ${\n            xReshaped.shape} isn't free`);\n    const filterReshaped = reshape({\n      inputs: {x: filter},\n      backend,\n      attrs: {shape: [1, convInfo.inChannels, convInfo.outChannels]}\n    });\n    intermediates.push(filterReshaped);\n    const pointwiseConv = batchMatMulImpl({\n      a: xReshaped,\n      b: filterReshaped,\n
      backend,\n      transposeA,\n      transposeB,\n      bias,\n      activation,\n      preluActivationWeights,\n      leakyreluAlpha\n    });\n\n    const pointwiseConvTexData = backend.texData.get(pointwiseConv.dataId);\n    util.assert(\n        pointwiseConvTexData.isPacked,\n        () => 'batchMatMul result is expected to be packed');\n    // Restore the input shape to original.\n    xTexData.shape = originalXTexDataShape;\n    // Set the output shape - there is no need for expensive reshape as data\n    // layout is already correct.\n    pointwiseConvTexData.shape = convInfo.outShape;\n\n    out = identity({inputs: {x: pointwiseConv}, backend});\n    out.shape = convInfo.outShape;\n\n    intermediates.push(pointwiseConv);\n  }\n\n  for (const i of intermediates) {\n
```

backend.disposeIntermediateTensorInfo(i);\n }\n\n return out;\n}\n\n// Implements the im2row algorithm as outlined in \"High Performance\n// Convolutional Neural Networks for Document Processing\" (Suvisoft, 2006)\nexport function conv2dWithIm2Row({\n x,\n filter,\n convInfo,\n backend,\n bias = null,\n preluActivationWeights = null,\n leakyreluAlpha = 0,\n activation = null\n}: Conv2DConfig) {\n // Rearranges conv2d input so each block to be convolved over forms the\n // column of a new matrix with shape [filterWidth * filterHeight *\n // inChannels, outHeight * outWidth]. The filter is also rearranged so each\n // output channel forms a row of a new matrix with shape [outChannels,\n // filterWidth * filterHeight * inChannels]. The convolution is then\n // computed by multiplying these matrices and reshaping the result.\n const {\n filterWidth,\n filterHeight,\n inChannels,\n outWidth,\n outHeight,\n dataFormat\n } = convInfo;\n\n const isChannelsLast = dataFormat === 'channelsLast';\n\n const sharedDim = filterWidth * filterHeight * inChannels;\n const numCols = outHeight * outWidth;\n const x2ColShape = [sharedDim, numCols];\n const transposeA
  = true;\n const transposeB = false;\n\n const intermediates: TensorInfo[] = [];\n\n const xSqueezed =\n reshape({inputs: {x}, backend, attrs: {shape: x.shape.slice(1)}});\n const w2Row = reshape({\n   inputs: {x: filter},\n   backend,\n   attrs: {shape: [1, sharedDim, util.sizeFromShape(filter.shape) / sharedDim]}\n });\n\n intermediates.push(xSqueezed);\n intermediates.push(w2Row);\n\n const im2ColProgram =\n   new Im2ColPackedProgram(x2ColShape, xSqueezed.shape, convInfo);\n const im2Col =
  backend.runWebGLProgram(im2ColProgram, [xSqueezed], 'float32');\n const im2ColReshaped = reshape({\n inputs: {x: im2Col},\n   backend,\n   attrs: {shape: [1, x2ColShape[0], x2ColShape[1]]}\n });\n\n intermediates.push(im2Col);\n intermediates.push(im2ColReshaped);\n\n const hasBias = bias != null;\n const hasPreluActivationWeights = preluActivationWeights != null;\n const hasLeakyreluAlpha = activation ===
  'leakyrelu';\n const fusedActivation =\n   activation ?
  mapActivationToShaderProgram(activation, true) : null;\n const matmulProgram = new MatMulPackedProgram(\n   im2ColReshaped.shape as [number, number, number],\n   w2Row.shape as [number, number, number],\n   [1, numCols, convInfo.outChannels], transposeA, transposeB, hasBias,\n   fusedActivation,
  hasPreluActivationWeights, hasLeakyreluAlpha);\n const inputs: TensorInfo[] = [im2ColReshaped, w2Row];\n if (bias) {\n   inputs.push(bias);\n }\n if (hasPreluActivationWeights) {\n   inputs.push(preluActivationWeights);\n }\n if (hasLeakyreluAlpha) {\n   const $leakyreluAlpha = backend.makeTensorInfo(\n   [], 'float32',\n util.createScalarValue(leakyreluAlpha as {} as 'float32', 'float32'));\n   inputs.push($leakyreluAlpha);\n intermediates.push($leakyreluAlpha);\n }\n const product = backend.runWebGLProgram(matmulProgram, inputs,
  'float32');\n\n const outShape = isChannelsLast ?\n   [1, outHeight, outWidth, convInfo.outChannels] :\n   [1, convInfo.outChannels,
  outHeight, outWidth];\n const out =\n   reshape({inputs: {x: product}, backend, attrs: {shape: outShape}});\n\n intermediates.push(product);\n for (const i of intermediates) {\n   backend.disposeIntermediateTensorInfo(i);\n }\n\n return out;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport
  {backend_util, Conv2D, Conv2DAttrs, Conv2DInputs, env, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv2DProgram} from '../conv_gpu';\nimport {conv2dByMatMul, conv2dWithIm2Row} from './Conv2D_impl';\nimport {reshape} from './Reshape';\n\nexport function conv2d(\n   args:\n   {inputs: Conv2DInputs, attrs: Conv2DAttrs, backend: MathBackendWebGL}) {\n const {inputs, backend, attrs} = args;\n const {x, filter} = inputs;\n const {strides, pad,

dataFormat, dilations, dimRoundingMode} = attrs;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n x.shape as [number, number, number, number],\n   filter.shape as [number, number, number, number], strides, dilations, pad,\n   dimRoundingMode, false /* depthwise */, $dataFormat);\n let out: TensorInfo;\n\n if (convInfo.filterHeight === 1 && convInfo.filterWidth ===
 1 &&\n   convInfo.dilationHeight === 1 && convInfo.dilationWidth === 1 &&\n   convInfo.strideHeight === 1 && convInfo.strideWidth === 1 &&\n   (convInfo.padInfo.type === 'SAME' || convInfo.padInfo.type === 'VALID')) {\n   out = conv2dByMatMul({x, filter, convInfo, backend});\n } else if (env().getBool('WEBGL_CONV_IM2COL') && x.shape[0] === 1) {\n   out = conv2dWithIm2Row({x, filter, convInfo, backend});\n } else {\n   const program = new Conv2DProgram(convInfo);\n   out = backend.runWebGLProgram(program, [x, filter], 'float32');\n }\n\n const outReshaped =\n   reshape({inputs: {x: out}, backend, attrs: {shape: convInfo.outShape}});\n backend.disposeIntermediateTensorInfo(out);\n\n return outReshaped;\n}\n\nexport const conv2DConfig: KernelConfig = {\n kernelName: Conv2D,\n backendName: 'webgl',\n kernelFunc: conv2d as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class Conv2DDerFilterProgram implements GPGPUProgram {\n variableNames = ['x', 'dy'];\n outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv2DInfo) {\n   this.outputShape = convInfo.filterShape;\n\n   const strideHeight = convInfo.strideHeight;\n   const strideWidth = convInfo.strideWidth;\n   const padTop = convInfo.padInfo.top;\n   const padLeft = convInfo.padInfo.left;\n   const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n\n   this.userCode = `\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int wR = coords.x;\n   int wC = coords.y;\n   int d1 = coords.z;\n   int d2 = coords.w;\n\n   // Convolve x(?, ?, d1) with dy(:, :, d2) to get dw(wR, wC, d1, d2).\n   // ? = to be determined. : = across all values in that axis.\n   float dotProd = 0.0;\n\n   for (int b = 0; b < ${convInfo.batchSize}; b++) {\n   for (int yR = 0; yR < ${convInfo.outHeight}; yR++) {\n   int xR = wR + yR * ${strideHeight} - ${padTop};\n\n   if (xR < 0 || xR >= ${convInfo.inHeight}) {\n   continue;\n   }\n\n   for (int yC = 0; yC < ${convInfo.outWidth}; yC++) {\n   int xC = wC + yC * ${strideWidth} - ${padLeft};\n\n
              if (xC < 0 || xC >= ${convInfo.inWidth}) {\n   continue;\n   }\n\n   if (${isChannelsLast}) {\n   float dyValue = getDy(b, yR, yC, d2);\n   float xValue = getX(b, xR, xC, d1);\n   dotProd += (xValue * dyValue);\n   } else {\n   float dyValue = getDy(b, d2, yR, yC);\n   float xValue = getX(b, d1, xR, xC);\n   dotProd += (xValue * dyValue);\n   }\n\n   }\n   }\n   }\n   setOutput(dotProd);\n   }\n   `;\n }\n}\n\nexport class Conv2DDerInputProgram implements GPGPUProgram {\n variableNames = ['dy', 'W'];\n outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv2DInfo) {\n   this.outputShape = convInfo.inShape;\n\n   const filterHeight = convInfo.filterHeight;\n   const filterWidth = convInfo.filterWidth;\n   const strideHeight = convInfo.strideHeight;\n   const strideWidth
 = convInfo.strideWidth;\n   const isChannelsLast = convInfo.dataFormat === 'channelsLast';\n\n   const padTop = filterHeight - 1 - convInfo.padInfo.top;\n   const padLeft = filterWidth - 1 - convInfo.padInfo.left;\n\n   const rowDim = isChannelsLast ? 1 : 2;\n   const colDim = isChannelsLast ? 2 : 3;\n   const channelDim = isChannelsLast ? 3 : 1;\n\n   this.userCode = `\n   const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int batch = coords[0];\n   int d1 =

```
coords[${channelDim}];\n\n        ivec2 dyCorner = ivec2(coords[${rowDim}], coords[${colDim}]) - pads;\n        int dyRCorner = dyCorner.x;\n        int dyCCorner = dyCorner.y;\n\n        // Convolve dy(?, ?, d2) with w(:, :, d1, d2) to compute dx(xR, xC, d1).\n        // ? = to be determined. : = across all values in that axis.\n        float dotProd = 0.0;\n    for (int wR = 0; wR < ${filterHeight}; wR++) {\n          float dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n          if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 || fract(dyR) > 0.0) {\n            continue;\n          }\n          int idyR = int(dyR);\n\n          int wRPerm = ${filterHeight} - 1 - wR;\n\n          for (int wC = 0; wC < ${filterWidth}; wC++) {\n            float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n            if (dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n                fract(dyC) > 0.0) {\n              continue;\n            }\n            int idyC = int(dyC);\n\n            int wCPerm = ${filterWidth} - 1 - wC;\n\n            for (int d2 = 0; d2 < ${convInfo.outChannels}; d2++) {\n\n              if (${isChannelsLast}) {\n                float xValue = getDy(batch, idyR, idyC, d2);\n                float wValue = getW(wRPerm, wCPerm, d1, d2);\n                dotProd += xValue * wValue;\n              } else {\n                float xValue = getDy(batch, d2, idyR, idyC);\n                float wValue = getW(wRPerm,\n                  wCPerm, d1, d2);\n                dotProd += xValue * wValue;\n              }\n\n            }\n          }\n        }\n        setOutput(dotProd);\n      }\n    `;\n  }\n}\n\nexport class Conv3DDerFilterProgram implements GPGPUProgram {\n  variableNames = ['x', 'dy'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(convInfo: backend_util.Conv3DInfo) {\n    this.outputShape = convInfo.filterShape;\n\n    const strideDepth = convInfo.strideDepth;\n    const strideHeight = convInfo.strideHeight;\n    const strideWidth = convInfo.strideWidth;\n    const padFront = convInfo.padInfo.front;\n    const padTop = convInfo.padInfo.top;\n    const padLeft = convInfo.padInfo.left;\n\n    this.userCode = `\n      void main() {\n        ivec5 coords = getOutputCoords();\n        int wF = coords.x;\n        int wR = coords.y;\n        int wC = coords.z;\n        int d1 = coords.w;\n        int d2 = coords.u;\n\n        float dotProd = 0.0;\n\n        for (int b = 0; b < ${convInfo.batchSize}; b++) {\n          for (int yF = 0; yF < ${convInfo.outDepth}; yF++) {\n            int xF = wF + yF * ${strideDepth} - ${padFront};\n\n            if (xF < 0 || xF >= ${convInfo.inDepth}) {\n              continue;\n            }\n\n            for (int yR = 0; yR < ${convInfo.outHeight}; yR++) {\n              int xR = wR + yR * ${strideHeight} - ${padTop};\n\n              if (xR < 0 || xR >= ${convInfo.inHeight}) {\n                continue;\n              }\n\n              for (int yC = 0; yC < ${convInfo.outWidth}; yC++) {\n                int xC = wC + yC * ${strideWidth} - ${padLeft};\n\n                if (xC < 0 || xC >= ${convInfo.inWidth}) {\n                  continue;\n                }\n\n                float dyValue = getDy(b, yF, yR, yC, d2);\n                float xValue = getX(b, xF, xR, xC, d1);\n                dotProd += (xValue * dyValue);\n              }\n            }\n          }\n        }\n        setOutput(dotProd);\n      }\n    `;\n  }\n}\n\nexport class Conv3DDerInputProgram implements GPGPUProgram {\n  variableNames = ['dy', 'W'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(convInfo: backend_util.Conv3DInfo) {\n    this.outputShape = convInfo.inShape;\n\n    const filterDepth = convInfo.filterDepth;\n    const filterHeight = convInfo.filterHeight;\n    const filterWidth = convInfo.filterWidth;\n    const strideDepth = convInfo.strideDepth;\n    const strideHeight = convInfo.strideHeight;\n    const strideWidth = convInfo.strideWidth;\n\n    const padFront = filterDepth - 1 - convInfo.padInfo.front;\n    const padTop = filterHeight - 1 - convInfo.padInfo.top;\n    const padLeft = filterWidth - 1 - convInfo.padInfo.left;\n\n    this.userCode = `\n      const ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n\n      void main() {\n        ivec5 coords = getOutputCoords();\n        int batch = coords.x;\n        int d1 = coords.u;\n\n\n        ivec3 dyCorner = ivec3(coords.y, coords.z, coords.w)
 - pads;\n        int dyFCorner = dyCorner.x;\n        int dyRCorner = dyCorner.y;\n        int dyCCorner = dyCorner.z;\n\n        float dotProd = 0.0;\n        for (int wF = 0; wF < ${filterDepth}; wF++) {\n          float dyF = float(dyFCorner + wF) / ${strideDepth}.0;\n\n          if (dyF < 0.0 || dyF >= ${convInfo.outDepth}.0 || fract(dyF) > 0.0) {\n            continue;\n          }\n          int idyF = int(dyF);\n\n          int wFPerm = ${filterDepth} - 1 - wF;\n\n          for (int wR = 0; wR < ${filterHeight}; wR++) {\n            float dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n            if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 ||\n                fract(dyR) > 0.0) {\n              continue;\n            }\n            int idyR = int(dyR);\n\n            int wRPerm = ${filterHeight} - 1 - wR;\n\n            for (int wC = 0; wC < ${filterWidth}; wC++) {\n              float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n              if (dyC < 0.0 || dyC
```

>= ${convInfo.outWidth}.0 ||\n fract(dyC) > 0.0) {\n continue;\n }\n int idyC = int(dyC);\n\n int wCPerm = ${filterWidth} - 1 - wC;\n\n for (int d2 = 0; d2 < ${convInfo.outChannels}; d2++) {\n float xValue = getDy(batch, idyF, idyR, idyC, d2);\n float wValue = getW(wFPerm, wRPerm, wCPerm, d1, d2);\n dotProd += xValue * wValue;\n }\n }\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {backend_util, Conv2DBackpropFilter, Conv2DBackpropFilterAttrs, Conv2DBackpropFilterInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv2DDerFilterProgram} from '../conv_backprop_gpu';\n\nexport function conv2DBackpropFilter(args: {\n inputs: Conv2DBackpropFilterInputs,\n attrs: Conv2DBackpropFilterAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, dy} = inputs;\n const {strides, pad, dataFormat, dimRoundingMode, filterShape} = attrs;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n x.shape as [number, number, number, number], filterShape, strides,\n 1 / dilations */, pad, dimRoundingMode, false /* depthwise */,\n $dataFormat);\n\n const program = new Conv2DDerFilterProgram(convInfo);\n return backend.runWebGLProgram(program, [x, dy], 'float32');\n}\n\nexport const conv2DBackpropFilterConfig: KernelConfig = {\n kernelName: Conv2DBackpropFilter,\n backendName: 'webgl',\n kernelFunc: conv2DBackpropFilter as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
/\n\nimport {backend_util, Conv2DBackpropInput, Conv2DBackpropInputAttrs, Conv2DBackpropInputInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv2DDerInputProgram} from '../conv_backprop_gpu';\n\nexport function conv2DBackpropInput(args: {\n inputs: Conv2DBackpropInputInputs,\n attrs: Conv2DBackpropInputAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {dy, filter} = inputs;\n const {inputShape, strides, pad, dataFormat, dimRoundingMode} = attrs;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n inputShape, filter.shape as [number, number, number, number], strides,\n 1 / dilations
*/, pad, dimRoundingMode, false, $dataFormat);\n\n const program = new Conv2DDerInputProgram(convInfo);\n return backend.runWebGLProgram(program, [dy, filter], 'float32');\n}\n\nexport const conv2DBackpropInputConfig: KernelConfig = {\n kernelName: Conv2DBackpropInput,\n backendName: 'webgl',\n kernelFunc: conv2DBackpropInput as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==========\n
*/\n\nimport {backend_util, Conv3D, Conv3DAttrs, Conv3DInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv3DProgram} from '../conv_gpu';\n\nexport function conv3D(\n args:\n {inputs: Conv3DInputs, attrs: Conv3DAttrs, backend: MathBackendWebGL}) {\n const {inputs, backend, attrs} = args;\n const {x, filter} = inputs;\n const {strides, pad, dilations} = attrs;\n\n const convInfo = backend_util.computeConv3DInfo(\n x.shape as [number, number, number, number, number],\n filter.shape as [number, number, number, number, number], strides,\n dilations, pad);\n\n const program = new Conv3DProgram(convInfo);\n return backend.runWebGLProgram(program, [x, filter], 'float32');\n}\n\nexport const conv3DConfig: KernelConfig = {\n kernelName: Conv3D,\n backendName: 'webgl',\n kernelFunc: conv3D as {} as KernelFunc,\n};\n","/**\n
 * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 * ==========\n
*/\n\nimport {backend_util, Conv3DBackpropFilterV2, Conv3DBackpropFilterV2Attrs, Conv3DBackpropFilterV2Inputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv3DDerFilterProgram} from '../conv_backprop_gpu';\n\nexport
 function conv3DBackpropFilterV2(args: {\n inputs: Conv3DBackpropFilterV2Inputs,\n attrs: Conv3DBackpropFilterV2Attrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, dy} = inputs;\n const {strides, pad, filterShape} = attrs;\n\n const convInfo = backend_util.computeConv3DInfo(\n x.shape as [number, number, number, number, number], filterShape, strides,\n 1 /* dilations */, pad);\n\n const program = new Conv3DDerFilterProgram(convInfo);\n return backend.runWebGLProgram(program, [x, dy], 'float32');\n}\n\nexport const conv3DBackpropFilterV2Config: KernelConfig = {\n kernelName: Conv3DBackpropFilterV2,\n backendName: 'webgl',\n kernelFunc: conv3DBackpropFilterV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
 may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 * ==========\n
*/\n\nimport {backend_util, Conv3DBackpropInputV2, Conv3DBackpropInputV2Attrs, Conv3DBackpropInputV2Inputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv3DDerInputProgram} from '../conv_backprop_gpu';\n\nexport function conv3DBackpropInput(args: {\n inputs: Conv3DBackpropInputV2Inputs,\n attrs: Conv3DBackpropInputV2Attrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {dy, filter}
 = inputs;\n const {pad, strides, inputShape} = attrs;\n\n const convInfo = backend_util.computeConv3DInfo(\n inputShape, filter.shape as [number, number, number, number, number],\n strides, 1 /* dilations */, pad);\n\n const program = new Conv3DDerInputProgram(convInfo);\n return backend.runWebGLProgram(program, [dy,

filter], 'float32');\n}\n\nexport const conv3DBackpropInputConfig: KernelConfig = {\n kernelName: Conv3DBackpropInputV2,\n backendName: 'webgl',\n kernelFunc: conv3DBackpropInput as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Cos, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {CHECK_NAN_SNIPPET_UNARY, unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst COS = CHECK_NAN_SNIPPET_UNARY + `\n  return cos(x);\n`;\n\nexport const cos = unaryKernelFunc({opSnippet: COS});\n\nexport const cosConfig: KernelConfig = {\n kernelName: Cos,\n backendName: 'webgl',\n kernelFunc: cos,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {Cosh, KernelConfig} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst COSH = `\n  float e2x = exp(-x);\n  return (e2x + 1.0 / e2x) / 2.0;\n`;\n\nexport const cosh = unaryKernelFunc({opSnippet: COSH});\n\nexport const coshConfig: KernelConfig = {\n kernelName: Cosh,\n backendName: 'webgl',\n kernelFunc: cosh,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may
 obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class CropAndResizeProgram implements GPGPUProgram {\n variableNames = ['Image', 'Boxes', 'BoxInd'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n   imageShape: [number, number, number, number], boxShape: [number, number],\n   cropSize: [number, number], method: 'bilinear'|'nearest',\n   extrapolationValue: number) {\n   const [batch, imageHeight, imageWidth, depth] = imageShape;\n   const [numBoxes,
 ] = boxShape;\n   const [cropHeight, cropWidth] = cropSize;\n   this.outputShape = [numBoxes, cropHeight, cropWidth, depth];\n   const methodId = method === 'bilinear' ? 1 : 0;\n\n   const [inputHeightFloat, inputWidthFloat] =\n   [`${imageHeight - 1}.0`, `${imageWidth - 1}.0`];\n\n   const [heightRatio, heightScale, inY] = cropHeight > 1 ?\n   [\n   `${(imageHeight - 1) / (cropHeight - 1)}`,\n   '(y2-y1) * height_ratio',\n   `y1*${inputHeightFloat} + float(y)*(height_scale)`,\n   ] :\n   [\n   '0.0',\n   '0.0',\n   `0.5 * (y1+y2) * ${inputHeightFloat}`,\n   ];\n   const [widthRatio, widthScale, inX] = cropWidth > 1 ?\n   [\n   `${(imageWidth - 1) / (cropWidth - 1)}`,\n   '(x2-x1) * width_ratio',\n   `x1*${inputWidthFloat} + float(x)*(width_scale)`,\n   ] :\n   [\n   '0.0',\n   '0.0',\n   `0.5 * (x1+x2) * ${inputWidthFloat}`,\n   ];\n\n   // Reference
 implementation\n   // tslint:disable-next-line:max-line-length\n   // https://github.com/tensorflow/tensorflow/blob/master/tensorflow/core/kernels/crop_and_resize_op_gpu.cu.cc\n

```
this.userCode = `\n      const float height_ratio = float(${heightRatio});\n      const float width_ratio =
float(${widthRatio});\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int b = coords[0];\n        int
y = coords[1];\n        int x = coords[2];\n        int d = coords[3];\n\n        // get box vals\n        float y1 =
getBoxes(b,0);\n        float x1 = getBoxes(b,1);\n        float y2 = getBoxes(b,2);\n        float x2 = getBoxes(b,3);\n\n
  // get image in batch index\n        int bInd = round(getBoxInd(b));\n        if(bInd < 0 || bInd >= ${batch}) {\n
return;\n        }\n\n        float height_scale = ${heightScale};\n        float width_scale = ${widthScale};\n\n        float
in_y = ${inY};\n        if( in_y < 0.0 || in_y > ${inputHeightFloat} ) {\n
   setOutput(float(${extrapolationValue}));\n          return;\n        }\n        float in_x = ${inX};\n        if( in_x < 0.0 ||
in_x > ${inputWidthFloat} ) {\n          setOutput(float(${extrapolationValue}));\n          return;\n        }\n\n        vec2
sourceFracIndexCR = vec2(in_x,in_y);\n        if(${methodId} == 1) {\n          // Compute the four integer indices.\n
     ivec2 sourceFloorCR = ivec2(sourceFracIndexCR);\n          ivec2 sourceCeilCR =
ivec2(ceil(sourceFracIndexCR));\n\n          float topLeft = getImage(b, sourceFloorCR.y, sourceFloorCR.x, d);\n
 float bottomLeft = getImage(b, sourceCeilCR.y, sourceFloorCR.x, d);\n          float topRight = getImage(b,
sourceFloorCR.y, sourceCeilCR.x, d);\n          float bottomRight = getImage(b, sourceCeilCR.y, sourceCeilCR.x,
d);\n\n          vec2 fracCR = sourceFracIndexCR - vec2(sourceFloorCR);\n\n          float top = topLeft + (topRight -
topLeft) * fracCR.x;\n          float bottom = bottomLeft + (bottomRight
 - bottomLeft) * fracCR.x;\n          float newValue = top + (bottom - top) * fracCR.y;\n
setOutput(newValue);\n        } else {\n          // Compute the coordinators of nearest neighbor point.\n          ivec2
sourceNearestCR = ivec2(floor(\n            sourceFracIndexCR + vec2(0.5,0.5)));\n          float newValue =
getImage(b, sourceNearestCR.y, sourceNearestCR.x, d);\n          setOutput(newValue);\n        }\n      }\n    `;\n
}\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License
 for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {CropAndResize, CropAndResizeAttrs, CropAndResizeInputs, KernelConfig, KernelFunc,
TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport
{CropAndResizeProgram} from '../crop_and_resize_gpu';\n\nexport const cropAndResize = (args: {\n  inputs:
CropAndResizeInputs,\n  backend: MathBackendWebGL,\n  attrs: CropAndResizeAttrs\n}): TensorInfo => {\n
const {inputs, backend, attrs} = args;\n  const {image, boxes, boxInd} = inputs;\n  const {cropSize, method,
extrapolationValue} = attrs;\n\n  const program = new CropAndResizeProgram(\n      image.shape as [number,
number, number, number],\n      boxes.shape as [number, number], cropSize, method, extrapolationValue);\n  return
backend.runWebGLProgram(program, [image, boxes, boxInd], 'float32');\n};\n\nexport const
 cropAndResizeConfig: KernelConfig = {\n  kernelName: CropAndResize,\n  backendName: 'webgl',\n  kernelFunc:
cropAndResize as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights
Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\nimport
{getCoordsDataType} from
```

'./shader_compiler';\n\nexport class CumSumProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape: number[];\n userCode: string;\n\n // Caching uniform location for speed.\n index: WebGLUniformLocation;\n\n constructor(shape: number[], exclusive: boolean, reverse: boolean) {\n this.outputShape = shape;\n const rank = shape.length;\n const val = exclusive ? '0.0' : `getX(${getCoords(rank, 'coords')})`;\n const length = shape[shape.length - 1];\n let condition = '';\n let idxString = '';\n // When exclusive is set, the cumsum op becomes roll op that copies the\n // value from the previous index based on the direction specified by the\n // reverse flag.\n if (exclusive) {\n condition = reverse ? `end != ${length - 1}` : 'end != 0';\n idxString = reverse ? 'end + 1' : 'end - 1';\n } else {\n condition = reverse ? `end + pow2 < ${length}` : 'end >= pow2';\n idxString = (reverse ? 'end + pow2' : 'end - pow2');\n }\n\n this.userCode = `\n uniform float index;\n void main() {\n ${getCoordsDataType(rank)} coords = getOutputCoords();\n int end = ${getFinalCoord(rank, 'coords')};\n float val = ${val};\n int pow2 = int(pow(2.0, index));\n if (${condition}) {\n int idx = ${idxString};\n ${getFinalCoord(rank, 'coords')} = idx;\n val += getX(${getCoords(rank, 'coords')});\n }\n setOutput(val);\n }\n `;\n }\n\n getCustomSetupFunc(index: number) {\n return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n if (this.index == null) {\n this.index = gpgpu.getUniformLocation(webGLProgram, 'index');\n }\n gpgpu.gl.uniform1f(this.index, index);\n };\n }\n}\n\nfunction getCoords(rank: number, name: string): string {\n if (rank === 1) {\n return `${name}`;\n } else if (rank === 2) {\n return `${name}.x, ${name}.y`;\n } else if (rank === 3) {\n return `${name}.x, ${name}.y, ${name}.z`;\n } else if (rank === 4) {\n return `${name}.x, ${name}.y, ${name}.z, ${name}.w`;\n } else {\n throw Error(`Cumulative sum for rank ${rank} is not yet supported`);\n }\n}\n\nfunction getFinalCoord(rank: number, name: string): string {\n if (rank === 1) {\n return `${name}`;\n } else if (rank === 2) {\n return `${name}.y`;\n } else if (rank === 3) {\n return `${name}.z`;\n } else if (rank === 4) {\n return `${name}.w`;\n } else {\n throw Error(`Cumulative sum for rank ${rank} is not yet supported`);\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, Cumsum, CumsumAttrs, CumsumInputs, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {CumSumProgram} from '../cumsum_gpu';\n\nimport {identity} from './Identity';\nimport {transpose} from './Transpose';\n\nexport function cumsum(\n args:\n {inputs: CumsumInputs, backend: MathBackendWebGL, attrs: CumsumAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, exclusive, reverse} = attrs;\n\n const xRank = x.shape.length;\n const permutation = backend_util.getAxesPermutation([axis], xRank);\n let permutedX = x;\n if (permutation != null) {\n permutedX = transpose({inputs: {x}, backend, attrs: {perm: permutation}});\n }\n const permutedAxis = backend_util.getInnerMostAxes(1, xRank)[0];\n\n if (permutedAxis !== xRank - 1) {\n throw new Error(\n `WebGL cumsum shader expects an inner-most axis=${\n x.shape.length - 1} ` +\n `but got axis=${axis}`);\n }\n const size = permutedX.shape[permutedAxis];\n let result = identity({inputs: {x: permutedX}, backend});\n // Use cumsum parallel algorithm, ref:\n // https://developer.nvidia.com/gpugems/gpugems3/part-vi-gpu-computing/chapter-39-parallel-prefix-sum-scan-cuda\n\n for (let i = 0; i <= Math.ceil(Math.log2(size)) - 1; i++) {\n const program = new CumSumProgram(permutedX.shape, false, reverse);\n const customSetup = program.getCustomSetupFunc(i);\n const prevResult = result;\n result =\n backend.runWebGLProgram(program, [result], result.dtype, customSetup);\n backend.disposeIntermediateTensorInfo(prevResult);\n }\n // For

exclusive cumsum, shift the end result in the direction of sum\n // and add 0 to the front index.\n if (exclusive) {\n const program = new CumSumProgram(permutedX.shape, exclusive, reverse);\n   const prevResult = result;\n result = backend.runWebGLProgram(program, [result], result.dtype);\n backend.disposeIntermediateTensorInfo(prevResult);\n }\n\n if (permutation != null) {\n   const reversePermutation = backend_util.getUndoAxesPermutation(permutation);\n   const reverseTransposedResult = transpose(\n   {inputs: {x: result}, backend, attrs: {perm: reversePermutation}});\n\n backend.disposeIntermediateTensorInfo(result);\n   backend.disposeIntermediateTensorInfo(permutedX);\n\n return reverseTransposedResult;\n }\n\n return result;\n}\n\nexport const cumsumConfig: KernelConfig = {\n kernelName: Cumsum,\n backendName: 'webgl',\n kernelFunc: cumsum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed
 under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {DenseBincount, DenseBincountAttrs, DenseBincountInputs, KernelConfig, KernelFunc, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {bincountImplCPU, bincountReduceImplCPU} from '../kernel_utils/shared';\n\nexport function denseBincount(args: {\n inputs: DenseBincountInputs,\n
  backend: MathBackendWebGL,\n attrs: DenseBincountAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x, weights} = inputs;\n const {size, binaryOutput} = attrs;\n\n if (x.shape.length === 1) {\n   const xVals = backend.readSync(x.dataId) as TypedArray;\n   const weightsVals = backend.readSync(weights.dataId) as TypedArray;\n\n   const outVals =\n   bincountImplCPU(xVals, weightsVals, weights.dtype, weights.shape, size);\n\n   return backend.makeTensorInfo([size], weights.dtype, outVals);\n } else if (x.shape.length === 2) {\n const xBuf = backend.bufferSync(x);\n   const weightsBuf = backend.bufferSync(weights);\n\n   const outBuf = bincountReduceImplCPU(xBuf, weightsBuf, size, binaryOutput);\n\n   return backend.makeTensorInfo(outBuf.shape, weights.dtype, outBuf.values);\n }\n\n throw new Error(\n   `Error in denseBincount: input must be at most rank 2, but got rank` +\n   `${x.shape.length}.`);\n}\n\nexport const denseBincountConfig:
 KernelConfig = {\n kernelName: DenseBincount,\n backendName: 'webgl',\n kernelFunc: denseBincount as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class DepthToSpaceProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape:
 number[] = [];\n userCode: string;\n blockSize: number;\n dataFormat: string;\n\n constructor(\n   outputShape: number[], blockSize: number, dataFormat: 'NHWC'|'NCHW') {\n   this.outputShape = outputShape;\n this.blockSize = blockSize;\n   this.dataFormat = dataFormat;\n   this.userCode = `\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int b = coords[0];\n   int h = ${this.getHeightCoordString()};\n   int w = ${this.getWidthCoordString()};\n   int d = ${this.getDepthCoordString()};\n\n   int in_h = h / ${blockSize};\n int offset_h = imod(h, ${blockSize});\n   int in_w = w / ${blockSize};\n   int offset_w = imod(w,

${blockSize});\n int offset_d = (offset_h * ${blockSize} + offset_w) *\n ${this.getOutputDepthSize()};\n int in_d = d + offset_d;\n\n float result = ${this.getInputSamplingString()};\n setOutput(result);\n }\n `;\n }\n\n private getHeightCoordString(): string {\n if (this.dataFormat === 'NHWC') {\n return `coords[1]`;\n } else {\n return `coords[2]`;\n }\n }\n\n private getWidthCoordString(): string {\n if (this.dataFormat === 'NHWC') {\n return `coords[2]`;\n } else {\n return `coords[3]`;\n }\n }\n\n private getDepthCoordString(): string {\n if (this.dataFormat === 'NHWC') {\n return `coords[3]`;\n } else {\n return `coords[1]`;\n }\n }\n\n private getOutputDepthSize(): number {\n if (this.dataFormat === 'NHWC') {\n return this.outputShape[3];\n } else {\n return this.outputShape[1];\n }\n }\n\n private getInputSamplingString(): string {\n if (this.dataFormat === 'NHWC') {\n return `getX(b, in_h, in_w, in_d)`;\n } else {\n return `getX(b, in_d, in_h, in_w)`;\n }\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {DepthToSpace, DepthToSpaceAttrs, DepthToSpaceInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {DepthToSpaceProgram} from '../depth_to_space_gpu';\n\nexport function depthToSpace(args: {\n inputs: DepthToSpaceInputs,\n backend: MathBackendWebGL,\n attrs: DepthToSpaceAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {blockSize, dataFormat} = attrs;\n\n util.assert(\n blockSize > 1,\n () => `blockSize should be > 1 for depthToSpace, but was: ${blockSize}`);\n\n const batchSize = x.shape[0];\n const inputHeight = (dataFormat === 'NHWC') ? x.shape[1] : x.shape[2];\n const inputWidth = (dataFormat === 'NHWC') ? x.shape[2] : x.shape[3];\n const inputDepth = (dataFormat === 'NHWC') ? x.shape[3] : x.shape[1];\n\n const outputHeight = inputHeight * blockSize;\n const outputWidth = inputWidth * blockSize;\n const outputDepth = inputDepth / (blockSize * blockSize);\n\n const outputShape = (dataFormat === 'NHWC') ?\n [batchSize, outputHeight, outputWidth, outputDepth] :\n [batchSize, outputDepth, outputHeight, outputWidth];\n\n const program = new DepthToSpaceProgram(outputShape, blockSize, dataFormat);\n return backend.runWebGLProgram(program, [x], x.dtype);\n}\n\nexport const depthToSpaceConfig: KernelConfig = {\n kernelName: DepthToSpace,\n backendName: 'webgl',\n kernelFunc: depthToSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class DepthwiseConv2DProgram implements GPGPUProgram {\n variableNames = ['x', 'W'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n convInfo: backend_util.Conv2DInfo, addBias = false,\n activation: string = null, hasPreluActivation = false,\n hasLeakyReluAlpha = false) {\n this.outputShape = convInfo.outShape;\n\n const xNumRows = convInfo.inHeight;\n const xNumCols = convInfo.inWidth;\n const padTop = convInfo.padInfo.top;\n const padLeft = convInfo.padInfo.left;\n const strideHeight = convInfo.strideHeight;\n

```
const strideWidth = convInfo.strideWidth;\n    const dilationHeight = convInfo.dilationHeight;\n    const dilationWidth = convInfo.dilationWidth;\n    const filterHeight = convInfo.filterHeight;\n    const filterWidth = convInfo.filterWidth;\n    const channelMul = convInfo.outChannels / convInfo.inChannels;\n\n    let activationSnippet = '', applyActivationSnippet = '';\n    if (activation) {\n      if (hasPreluActivation) {\n activationSnippet = `float activation(float a) {\n          float b = getPreluActivationWeightsAtOutCoords();\n          ${activation}\n        }`;\n      } else if (hasLeakyReluAlpha) {\n        activationSnippet = `float activation(float a) {\n          float b = getLeakyreluAlphaAtOutCoords();\n          ${activation}\n        }`;\n      } else {\n activationSnippet = `\n          float activation(float x) {\n            ${activation}\n          }\n        `;\n      }\n\n applyActivationSnippet = `result = activation(result);`;\n    }\n\n    const addBiasSnippet = addBias ? 'result += getBiasAtOutCoords();' : '';\n    if (addBias) {\n      this.variableNames.push('bias');\n    }\n\n    if (hasPreluActivation) {\n      this.variableNames.push('preluActivationWeights');\n    }\n    if (hasLeakyReluAlpha) {\n      this.variableNames.push('leakyreluAlpha');\n    }\n\n    this.userCode = `\n      ${activationSnippet}\n\n      const ivec2 strides = ivec2(${strideHeight}, ${strideWidth});\n      const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n      void main() {\n        ivec4
 coords = getOutputCoords();\n        int batch = coords.x;\n        ivec2 xRCCorner = coords.yz * strides - pads;\n        int d2 = coords.w;\n        int d1 = d2 / ${channelMul};\n        int q = d2 - d1 * ${channelMul};\n\n        int xRCorner = xRCCorner.x;\n        int xCCorner = xRCCorner.y;\n\n        // Convolve x(?, ?, d1) with w(:, :, d1, q) to get y(yR, yC, d2).\n        // ? = to be determined. : = across all values in that axis.\n        float dotProd = 0.0;\n        // TODO(dsmilkov): Flatten the two for loops and vec4 the operations.\n        for (int wR = 0; wR < ${filterHeight}; wR++) {\n          int xR = xRCorner + wR * ${dilationHeight};\n\n          if (xR < 0 || xR >= ${xNumRows}) {\n            continue;\n          }\n\n          for (int wC = 0; wC < ${filterWidth}; wC++) {\n            int xC = xCCorner + wC * ${dilationWidth};\n\n            if (xC < 0 || xC >= ${xNumCols}) {\n              continue;\n            }\n\n            float xVal = getX(batch, xR,
 xC, d1);\n            float wVal = getW(wR, wC, d1, q);\n            dotProd += xVal * wVal;\n          }\n        }\n\n        float result = dotProd;\n        ${addBiasSnippet}\n        ${applyActivationSnippet}\n        setOutput(result);\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\n\nimport
 {backend_util, util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class DepthwiseConvPacked2DProgram implements GPGPUProgram {\n  variableNames = ['x', 'W'];\n  packedInputs = true;\n  packedOutput = true;\n  outputShape: number[];\n  userCode: string;\n\n  constructor(\n      convInfo: backend_util.Conv2DInfo, addBias = false,\n      activation: string = null, hasPreluActivation = false,\n      hasLeakyReluAlpha = false) {\n    this.outputShape = convInfo.outShape;\n\n    const xNumRows = convInfo.inHeight;\n    const xNumCols = convInfo.inWidth;\n    const padTop = convInfo.padInfo.top;\n    const padLeft = convInfo.padInfo.left;\n    const strideHeight = convInfo.strideHeight;\n    const strideWidth = convInfo.strideWidth;\n    const dilationHeight = convInfo.dilationHeight;\n    const dilationWidth = convInfo.dilationWidth;\n    const filterHeight = convInfo.filterHeight;\n    const filterWidth = convInfo.filterWidth;\n    const texelsAcross
 = filterWidth;\n\n    let mainLoop = `int xR; int xC; int xCOffset;`;\n\n    for (let r = 0; r < filterHeight; r++) {\n      for (let c = 0; c < filterWidth; c++) {\n        mainLoop += `\n          vec4 xTexelR${r}C${c * 2} = vec4(0.);\n          vec4 wR${r}C${c} = vec4(0.);\n          vec4 xR${r}C${c} = vec4(0.);`;\n      }\n    }\n\n    /**\n     * This vectorized implementation works by gathering the values needed for\n     * each output channel's dot product into vec4's and
```

```
then multiplying them\n     * all together (this happens in the final double for-loop below). Most of\n     * the main loop consists of constructing these vec4's with the minimum\n     * number of texture2D calls, which means making use of all four returned\n     * values from a texture2D call at once.\n     */\n    for (let r = 0; r < filterHeight; r++) {\n      for (let texelC = 0; texelC < texelsAcross; texelC++) {\n        const c = texelC * 2;\n\n        mainLoop += `\n xR = xRCorner + ${r *
 dilationHeight};\n          xC = xCCorner + ${c * dilationWidth};\n        `;\n\n        if (strideWidth === 1) {\n          if (c < filterWidth) {\n            // If padding is odd, the outer texels have to be composed.\n            if (padLeft % 2 === 1) {\n              // TODO: Ensure vec4 previous does not result in redundant sample,\n              // and avoid setting xTexelRC's that exceed the boundary in the\n              // first place rather than resetting them to vec4(0)).\n\n              // To compute xCOffset:\n              // - If padding is odd, we must add 1 to ensure we ask for an\n              // even-numbered row.\n              // - We subtract 2 to access the previous texel.\n\n              mainLoop += `\n xCOffset = xC + 1;\n              if(xR >= 0 && xR < ${xNumRows} && xCOffset >= 0 && xCOffset < ${\n
    xNumCols}) {\n                xTexelR${r}C${c} = getX(batch, xR, xCOffset, d1);\n\n                // Need to manually
 clear unused channels in case\n                // we're reading from recycled texture.\n                if(xCOffset + 1 >= ${xNumCols}) {\n                  xTexelR${r}C${c}.zw = vec2(0.);\n                }\n              } else {\n xTexelR${r}C${c} = vec4(0.);\n              }\n\n              xCOffset = xC + 1 - 2;\n              if(xR >= 0 && xR < ${xNumRows} && xCOffset >= 0 && xCOffset < ${\n                xNumCols}) {\n                vec4 previous = getX(batch, xR, xCOffset, d1);\n\n                // Need to manually clear unused channels in case\n                // we're reading from recycled texture.\n                if(xCOffset + 1 >= ${xNumCols}) {\n                  previous.zw = vec2(0.);\n                }\n\n                xR${r}C${c} = vec4(previous.zw, xTexelR${r}C${c}.xy);\n              } else {\n                xR${r}C${c} = vec4(0, 0, xTexelR${r}C${c}.xy);\n              }\n            `;\n          } else
 {\n            // Padding is even, so xRC corresponds to a single texel.\n            mainLoop += `\n              if(xR >= 0 && xR < ${xNumRows} && xC >= 0 && xC < ${xNumCols}) {\n                xTexelR${r}C${c} = getX(batch, xR, xC, d1);\n              } else {\n                xTexelR${r}C${c} = vec4(0.);\n              }\n\n              xR${r}C${c} = xTexelR${r}C${c};\n            `;\n          }\n\n          if (c + 1 < filterWidth) {\n            // If dilation is even, the second entry should match the first\n            // (either both are composed or both are single samples). But if\n            // dilation is odd, then the second entry should be the opposite\n            // of the first (if the first is composed, the second is a single\n            // sample, and vice versa.)\n\n            const nextTexelOffset = padLeft % 2 === 0 ?\n                util.nearestLargerEven(dilationWidth) :\n                dilationWidth;\n\n            if ((dilationWidth % 2 === 0 && padLeft % 2 === 1) ||\n                (dilationWidth % 2 !== 0 && padLeft % 2 !== 1)) {\n              mainLoop += `\n                xCOffset = xC + ${padLeft % 2} + ${nextTexelOffset};\n\n
    if(xR >= 0 && xR < ${xNumRows} &&\n                  xCOffset >= 0 && xCOffset < ${xNumCols}) {\n
      xTexelR${r}C${c + 2} = getX(batch, xR, xCOffset, d1);\n                }\n              `;\n\n              // If dilation > 1 then the xRC's will not be able to share any\n              // values, so each xRC will require two unique calls to getX.\n              if (dilationWidth > 1) {\n                mainLoop += `\n                  xCOffset -= 2;\n
if(xR >= 0 && xR < ${xNumRows} &&\n                    xCOffset >= 0 && xCOffset < ${xNumCols}) {\n
      xTexelR${r}C${c} = getX(batch, xR, xCOffset, d1);\n                  } else {\n                    xTexelR${r}C${c}
 = vec4(0.);\n                  }\n                `;\n              }\n\n              mainLoop += `\n                xR${r}C${c + 1}
= vec4(\n                  xTexelR${r}C${c}.zw, xTexelR${r}C${c + 2}.xy);\n                `;\n            } else {\n
mainLoop += `\n                xCOffset = xC + ${nextTexelOffset};\n\n                if(xR >= 0 && xR <
${xNumRows} &&\n                  xCOffset >= 0 && xCOffset < ${xNumCols}) {\n                  xTexelR${r}C${c
+ 2} = getX(batch, xR, xCOffset, d1);\n                }\n\n                xR${r}C${c + 1} = xTexelR${r}C${c + 2};\n
            `;\n            }\n          }\n        }\n      } else {  // stride > 1\n        if (c < filterWidth) {\n          mainLoop
+= `\n            if(xR >= 0 && xR < ${xNumRows}) {\n              `;\n\n            // Depending on whether padLeft is
even or odd, we want either the\n            // xy or zw channels from X texels for xR${r}C${c}.
 If padLeft is\n            // even, xR${r}C${c + 1} is simply the zw channels of texels we've\n            // already
sampled. But if padLeft is odd, xR${r}C{$c + 1}.zw will\n            // need to come from the xy channels of a new
```

```
texel, hence the `vec4\n          // final` initialized below.\n          if (padLeft % 2 === 1) {\n            mainLoop +=
`\n              xCOffset = xC + 1 - ${strideWidth};\n              if(xCOffset >= 0 && xCOffset < ${xNumCols}) {\n
          xTexelR${r}C${c} = getX(batch, xR, xCOffset, d1);\n            } else {\n              xTexelR${r}C${c} =
vec4(0.);\n            }\n\n            if(xC + 1 >= 0 && xC + 1 < ${xNumCols}) {\n              xTexelR${r}C${c +
2} = getX(batch, xR, xC + 1, d1);\n            } else {\n              xTexelR${r}C${c + 2} = vec4(0.);\n
}\n\n            xR${r}C${c} = vec4(\n              xTexelR${r}C${c}.zw, xTexelR${r}C${c + 2}.zw);\n
`;\n\n
          if (c + 1 < filterWidth) {\n            mainLoop += `\n              vec4 final = vec4(0.);\n
xCOffset = xC + 1 + ${strideWidth};\n              if(xCOffset >= 0 && xCOffset < ${xNumCols}) {\n
final = getX(batch, xR, xCOffset, d1);\n              }\n              xR${r}C${c + 1} = vec4(xTexelR${r}C${c +
2}.xy, final.xy);\n            `;\n          }\n        } else {\n          mainLoop += `\n            if(xC >= 0 && xC <
${xNumCols}) {\n              xTexelR${r}C${c} = getX(batch, xR, xC, d1);\n            } else {\n
xTexelR${r}C${c} = vec4(0.);\n            }\n\n            xCOffset = xC + ${strideWidth};\n            if(xCOffset
>= 0 && xCOffset < ${xNumCols}) {\n              xTexelR${r}C${c + 2} = getX(batch, xR, xCOffset, d1);\n
    } else {\n              xTexelR${r}C${c + 2} = vec4(0.);\n            }\n\n            xR${r}C${c}
 = vec4(\n              xTexelR${r}C${c}.xy, xTexelR${r}C${c + 2}.xy);\n            `;\n\n          if (c + 1 <
filterWidth) {\n            mainLoop += `\n              xR${r}C${c + 1} = vec4(\n
xTexelR${r}C${c}.zw, xTexelR${r}C${c + 2}.zw);\n            `;\n          }\n        }\n\n        mainLoop +=
`}`;\n      }\n    }\n\n    if (c < filterWidth) {\n      mainLoop += `\n        vec4 wTexelR${r}C${c} =
getW(${r}, ${c}, d1, q);\n        wR${r}C${c} = vec4(wTexelR${r}C${c}.xz, wTexelR${r}C${c}.xz);\n
`;\n\n      if (c + 1 < filterWidth) {\n        mainLoop += `\n          vec4 wTexelR${r}C${c + 1} = getW(${r},
${c + 1}, d1, q);\n          wR${r}C${c + 1} =\n            vec4(wTexelR${r}C${c + 1}.xz, wTexelR${r}C${c +
1}.xz);`;\n      }\n    }\n  }\n\n  for (let r = 0; r < filterHeight; r++) {\n    for (let c = 0; c < filterWidth;
c++) {\n      mainLoop +=
 `dotProd += xR${r}C${c} * wR${r}C${c};`;\n    }\n  }\n\n  let activationSnippet = '', applyActivationSnippet =
'';\n  if (activation) {\n    if (hasPreluActivation) {\n      activationSnippet = `vec4 activation(vec4 a) {\n
vec4 b = getPreluActivationWeightsAtOutCoords();\n        ${activation}\n      }`;\n    } else if
(hasLeakyReluAlpha) {\n      activationSnippet = `vec4 activation(vec4 a) {\n        vec4 b =
getLeakyreluAlphaAtOutCoords();\n        ${activation}\n      }`;\n    } else {\n      activationSnippet = `vec4
activation(vec4 x) {\n        ${activation}\n      }`;\n    }\n\n    applyActivationSnippet = `result =
activation(result);`;\n  }\n\n  const addBiasSnippet = addBias ? 'result += getBiasAtOutCoords();' : '';\n  if
(addBias) {\n    this.variableNames.push('bias');\n  }\n\n  if (hasPreluActivation) {\n
this.variableNames.push('preluActivationWeights');\n  }\n  if (hasLeakyReluAlpha) {\n
this.variableNames.push('leakyreluAlpha');\n
  }\n\n  this.userCode = `\n    ${activationSnippet}\n\n    const ivec2 strides = ivec2(${strideHeight},
${strideWidth});\n    const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n    void main() {\n\n      ivec4 coords
= getOutputCoords();\n      int batch = coords.x;\n      ivec2 xRCCorner = coords.yz * strides - pads;\n      int d2
= coords.w;\n      int d1 = d2;\n      int q = 0;\n      int xRCorner = xRCCorner.x;\n      int xCCorner =
xRCCorner.y;\n\n      vec4 dotProd = vec4(0.);\n\n      ${mainLoop}\n\n      vec4 result = dotProd;\n
${addBiasSnippet}\n      ${applyActivationSnippet}\n      setOutput(result);\n    }\n  `;\n}\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========================================================================\n
```

```
*/\n\nimport {backend_util, DepthwiseConv2dNative, DepthwiseConv2dNativeAttrs,
DepthwiseConv2dNativeInputs, env, KernelConfig, KernelFunc, util} from '@tensorflow/tfjs-core';\n\nimport
{MathBackendWebGL} from '../backend_webgl';\nimport {DepthwiseConv2DProgram} from
'../conv_gpu_depthwise';\nimport {DepthwiseConvPacked2DProgram} from
'../conv_packed_gpu_depthwise';\n\nexport function depthwiseConv2dNative(args: {\n  inputs:
DepthwiseConv2dNativeInputs,\n  attrs: DepthwiseConv2dNativeAttrs,\n  backend: MathBackendWebGL\n}) {\n
const {inputs, backend,
 attrs} = args;\n  const {x, filter} = inputs;\n  const {strides, pad, dilations, dimRoundingMode} = attrs;\n\n  let
$dilations = dilations;\n  if ($dilations == null) {\n    $dilations = [1, 1];\n  }\n\n  util.assert(\n
backend_util.eitherStridesOrDilationsAreOne(strides, $dilations),\n      () => 'Error in depthwiseConv2d: Either
strides or dilations must be ' +\n          `1. Got strides ${strides} and dilations '${$dilations}'`);\n\n  const convInfo =
backend_util.computeConv2DInfo(\n      x.shape as [number, number, number, number],\n      filter.shape as
[number, number, number, number], strides, $dilations,\n      pad, dimRoundingMode, true /* depthwise */);\n\n  let
program: DepthwiseConv2DProgram|DepthwiseConvPacked2DProgram;\n  if
(env().getBool('WEBGL_PACK_DEPTHWISECONV') && convInfo.strideWidth <= 2 &&\n
convInfo.outChannels / convInfo.inChannels === 1) {\n    program = new
DepthwiseConvPacked2DProgram(convInfo);\n  } else {\n    program = new
DepthwiseConv2DProgram(convInfo);\n
  }\n\n  return backend.runWebGLProgram(program, [x, filter], 'float32');\n}\n\nexport const
depthwiseConv2dNativeConfig: KernelConfig = {\n  kernelName: DepthwiseConv2dNative,\n  backendName:
'webgl',\n  kernelFunc: depthwiseConv2dNative as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
 */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport class DepthwiseConv2DDerFilterProgram implements GPGPUProgram {\n
variableNames = ['x', 'dy'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(convInfo:
backend_util.Conv2DInfo) {\n    this.outputShape = convInfo.filterShape;\n\n    const strideHeight =
convInfo.strideHeight;\n    const strideWidth = convInfo.strideWidth;\n    const padTop = convInfo.padInfo.top;\n
const padLeft = convInfo.padInfo.left;\n    const channelMul = convInfo.outChannels / convInfo.inChannels;\n\n
this.userCode = `\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int wR = coords.x;\n        int
wC = coords.y;\n        int d1 = coords.z;\n        int dm = coords.w;\n        int d2 = d1 * ${channelMul} + dm;\n\n
float dotProd = 0.0;\n\n        // TO DO: Vec4 over the batch size\n        for (int b = 0; b < ${convInfo.batchSize};
b++) {\n
        for (int yR = 0; yR < ${convInfo.outHeight}; yR++) {\n          int xR = wR + yR * ${strideHeight} -
${padTop};\n\n          if (xR < 0 || xR >= ${convInfo.inHeight}) {\n            continue;\n          }\n\n          for (int
yC = 0; yC < ${convInfo.outWidth}; yC++) {\n            int xC = wC + yC * ${strideWidth} - ${padLeft};\n\n
  if (xC < 0 || xC >= ${convInfo.inWidth}) {\n              continue;\n            }\n\n            float dyValue = getDy(b,
yR, yC, d2);\n            float xValue = getX(b, xR, xC, d1);\n            dotProd += (xValue * dyValue);\n          }\n
    }\n        }\n        setOutput(dotProd);\n      }\n    `;\n  }\n}\n\nexport class DepthwiseConv2DDerInputProgram
implements GPGPUProgram {\n  variableNames = ['dy', 'W'];\n  outputShape: number[];\n  userCode: string;\n\n
constructor(convInfo: backend_util.Conv2DInfo) {\n    this.outputShape = convInfo.inShape;\n\n    const
filterHeight = convInfo.filterHeight;\n
```

const filterWidth = convInfo.filterWidth;\n const strideHeight = convInfo.strideHeight;\n const strideWidth = convInfo.strideWidth;\n\n const padTop = filterHeight - 1 - convInfo.padInfo.top;\n const padLeft = filterWidth - 1 - convInfo.padInfo.left;\n const channelMul = convInfo.outChannels / convInfo.inChannels;\n\n this.userCode = `\n const ivec2 pads = ivec2(${padTop}, ${padLeft});\n\n void main() {\n ivec4 coords = getOutputCoords();\n int batch = coords[0];\n int d1 = coords[3];\n ivec2 dyCorner = coords.yz - pads;\n int dyRCorner = dyCorner.x;\n int dyCCorner = dyCorner.y;\n\n float dotProd = 0.0;\n\n for (int wR = 0; wR < ${filterHeight}; wR++) {\n float dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 || fract(dyR) > 0.0) {\n continue;\n }\n int idyR = int(dyR);\n\n int wRPerm = ${filterHeight} - 1 - wR;\n\n for (int wC = 0; wC < ${filterWidth}; wC++) {\n float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n if (dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n fract(dyC) > 0.0) {\n continue;\n }\n int idyC = int(dyC);\n\n int wCPerm = ${filterWidth} - 1 - wC;\n\n // TO DO: Vec4 over the channelMul\n for (int dm = 0; dm < ${channelMul}; dm++) {\n int d2 = d1 * ${channelMul} + dm;\n float xValue = getDy(batch, idyR, idyC, d2);\n float wValue = getW(wRPerm, wCPerm, d1, dm);\n dotProd += xValue * wValue;\n }\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
 * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
 /\n\nimport {backend_util, DepthwiseConv2dNativeBackpropFilter, DepthwiseConv2dNativeBackpropFilterAttrs, DepthwiseConv2dNativeBackpropFilterInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {DepthwiseConv2DDerFilterProgram} from '../conv_backprop_gpu_depthwise';\n\nexport function depthwiseConv2dNativeBackpropFilter(args: {\n inputs: DepthwiseConv2dNativeBackpropFilterInputs,\n attrs: DepthwiseConv2dNativeBackpropFilterAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, dy} = inputs;\n const {strides, dilations, pad, dimRoundingMode, filterShape} = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n x.shape as [number, number, number, number], filterShape, strides,\n dilations, pad, dimRoundingMode, true / depthwise */);\n\n const program = new DepthwiseConv2DDerFilterProgram(convInfo);\n return backend.runWebGLProgram(program, [x, dy], 'float32');\n}\n\nexport const depthwiseConv2dNativeBackpropFilterConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNativeBackpropFilter,\n backendName: 'webgl',\n kernelFunc: depthwiseConv2dNativeBackpropFilter as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
 */\n\nimport {backend_util, DepthwiseConv2dNativeBackpropInput, DepthwiseConv2dNativeBackpropInputAttrs, DepthwiseConv2dNativeBackpropInputInputs, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {DepthwiseConv2DDerInputProgram} from '../conv_backprop_gpu_depthwise';\n\nexport function depthwiseConv2dNativeBackpropInput(args: {\n inputs: DepthwiseConv2dNativeBackpropInputInputs,\n attrs: DepthwiseConv2dNativeBackpropInputAttrs,\n backend:

MathBackendWebGL\n})
{\n const {inputs, backend, attrs} = args;\n const {dy, filter} = inputs;\n const {strides, dilations, pad, dimRoundingMode, inputShape} = attrs;\n\n const convInfo = backend_util.computeConv2DInfo(\n   inputShape, filter.shape as [number, number, number, number], strides,\n   dilations, pad, dimRoundingMode, true /* depthwise */);\n\n const program = new DepthwiseConv2DDerInputProgram(convInfo);\n return backend.runWebGLProgram(program, [dy, filter], 'float32');\n}\n\nexport const depthwiseConv2dNativeBackpropInputConfig: KernelConfig = {\n kernelName: DepthwiseConv2dNativeBackpropInput,\n backendName: 'webgl',\n kernelFunc: depthwiseConv2dNativeBackpropInput as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class DiagProgram implements GPGPUProgram {\n variableNames = ['X'];\n outputShape: number[];\n userCode: string;\n\n constructor(size: number) {\n   this.outputShape = [size, size];\n   this.userCode = `\n      void main() {\n        ivec2 coords = getOutputCoords();\n        float val = coords[0] == coords[1] ? getX(coords[0]) : 0.0;\n        setOutput(val);\n      }\n    `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Diag, DiagInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {DiagProgram} from '../diag_gpu';\nimport {reshape} from './Reshape';\n\nexport function diag(args: {inputs: DiagInputs, backend: MathBackendWebGL}):\n   TensorInfo {\n const {inputs, backend} = args;\n const {x} = inputs;\n\n const outShape = [...x.shape, ...x.shape];\n const xSize = util.sizeFromShape(x.shape);\n\n const flat = reshape({inputs: {x}, backend, attrs: {shape: [xSize]}});\n\n const program = new DiagProgram(xSize);\n const res = backend.runWebGLProgram(program, [flat], flat.dtype);\n\n const out = reshape({inputs: {x: res}, backend, attrs: {shape: outShape}});\n\n backend.disposeIntermediateTensorInfo(flat);\n backend.disposeIntermediateTensorInfo(res);\n\n return out;\n}\n\nexport const diagConfig: KernelConfig = {\n kernelName: Diag,\n backendName: 'webgl',\n kernelFunc: diag as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
 writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class Dilation2DProgram implements GPGPUProgram {\n variableNames = ['x', 'W'];\n

outputShape: number[];\n userCode: string;\n\n constructor(convInfo: backend_util.Conv2DInfo) {\n this.outputShape = convInfo.outShape;\n\n   const {\n   inHeight,\n   inWidth,\n   padInfo,\n   strideHeight,\n   strideWidth,\n   filterHeight,\n   filterWidth,\n   dilationHeight,\n   dilationWidth\n   } = convInfo;\n\n const {top: padTop, left: padLeft} = padInfo;\n\n   this.userCode = `\n   const ivec2
 strides = ivec2(${strideHeight}, ${strideWidth});\n   const ivec2 pads = ivec2(${padTop}, ${padLeft});\n const float neg_infinity = -3.4e38;\n\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int batch = coords.x;\n   int d1 = coords.w;\n   ivec2 outTopLeftCorner =\n   coords.yz * strides - pads;\n   int hBeg = outTopLeftCorner.x;\n   int wBeg = outTopLeftCorner.y;\n\n   float curVal = neg_infinity;\n   for (int h = 0; h < ${filterHeight}; h++) {\n   int hIn = hBeg + h * ${dilationHeight};\n\n   if (hIn >= 0 && hIn < ${inHeight}) {\n   for (int w = 0; w < ${filterWidth}; w++) {\n   int wIn = wBeg + w * ${dilationWidth};\n\n   if (wIn >= 0 && wIn < ${inWidth}) {\n   float xVal = getX(batch, hIn, wIn, d1);\n   float wVal = getW(h, w, d1);\n\n   float val = xVal + wVal;\n   if (val > curVal) {\n
curVal =
 val;\n   }\n   }\n   }\n   }\n\n   float result = curVal;\n   setOutput(result);\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {backend_util, Dilation2D, Dilation2DAttrs, Dilation2DInputs, KernelConfig, KernelFunc, TensorInfo}
 from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Dilation2DProgram} from '../dilation_gpu';\nimport {reshape} from './Reshape';\n\nexport function dilation2D(args: {\n inputs: Dilation2DInputs,\n attrs: Dilation2DAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, filter} = inputs;\n const {strides, pad, dilations} = attrs;\n\n const convInfo = backend_util.computeDilation2DInfo(\n   x.shape as [number, number, number, number],\n filter.shape as [number, number, number], strides, pad,\n   'NHWC' /* dataFormat */, dilations);\n let out: TensorInfo;\n\n const program = new Dilation2DProgram(convInfo);\n out = backend.runWebGLProgram(program, [x, filter], 'float32');\n\n const outReshaped =\n   reshape({inputs: {x: out}, backend, attrs: {shape: convInfo.outShape}});\n backend.disposeIntermediateTensorInfo(out);\n\n return outReshaped;\n}\n\nexport const dilation2DConfig: KernelConfig
 = {\n kernelName: Dilation2D,\n backendName: 'webgl',\n kernelFunc: dilation2D as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Elu, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst ELU = `return
 (x >= 0.0) ? x : (exp(x) - 1.0);`;\n\nconst ELU_PACKED = `\n vec4 result;\n\n result.r = (x.r >= 0.0) ? x.r : (exp(x.r) - 1.0);\n result.g = (x.g >= 0.0) ? x.g : (exp(x.g) - 1.0);\n result.b = (x.b >= 0.0) ? x.b : (exp(x.b) - 1.0);\n result.a = (x.a >= 0.0) ? x.a : (exp(x.a) - 1.0);\n\n return result;\n`;\n\nconst elu = unaryKernelFunc({opSnippet:

ELU, packedOpSnippet: ELU_PACKED});\n\nexport const eluConfig: KernelConfig = {\n kernelName: Elu,\n backendName: 'webgl',\n kernelFunc: elu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {EluGrad, EluGradInputs, env, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {BinaryOpProgram} from '../binaryop_gpu';\nimport {BinaryOpPackedProgram} from '../binaryop_packed_gpu';\n\nconst ELU_DER = `return (b >= 1.0) ? a : a * (b + 1.0);`;\nconst ELU_DER_PACKED = `\n  vec4 bGTEZero = vec4(greaterThanEqual(b, vec4(0.)));\n  return (bGTEZero * a) + ((vec4(1.0) - bGTEZero) * (a * (b + vec4(1.0))));\n`;\n\nexport const eluGrad =\n   (args: {inputs: EluGradInputs, backend: MathBackendWebGL}): TensorInfo => {\n   const {inputs, backend} = args;\n   const {dy, y} = inputs;\n\n   const program = env().getBool('WEBGL_PACK_BINARY_OPERATIONS')\n   ?\n   new BinaryOpPackedProgram(ELU_DER_PACKED, dy.shape, y.shape) :\n   new BinaryOpProgram(ELU_DER, dy.shape, y.shape);\n   return backend.runWebGLProgram(program, [dy, y], dy.dtype);\n   };\n\nexport const eluGradConfig: KernelConfig = {\n kernelName: EluGrad,\n backendName: 'webgl',\n kernelFunc: eluGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n * ===\n */\n\nimport {Equal, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst PACKED_EQUAL = `\n  return vec4(equal(a, b));\n`;\n\nconst EQUAL = `return float(a == b);`;\n\nexport const equal = binaryKernelFunc(\n   {opSnippet: EQUAL, packedOpSnippet: PACKED_EQUAL, dtype: 'bool'});\n\nexport const equalConfig: KernelConfig = {\n kernelName: Equal,\n backendName: 'webgl',\n kernelFunc: equal as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
 distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\n\nimport {backend_util, Erf, KernelConfig} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst ERF = `\n // Error function is calculated approximately with elementary function.\n // See \"Handbook of Mathematical Functions with Formulas,\n // Graphs, and Mathematical Tables\", Abramowitz and Stegun.\n float p = ${backend_util.ERF_P};\n float a1 = ${backend_util.ERF_A1};\n float a2 = ${backend_util.ERF_A2};\n float a3 = ${backend_util.ERF_A3};\n float a4 = ${backend_util.ERF_A4};\n float a5 = ${backend_util.ERF_A5};\n\n float sign = sign(x);\n x = abs(x);\n float t = 1.0 / (1.0 + p * x);\n return sign * (1.0 - (((((a5*t

+ a4)*t) + a3)*t + a2)*t + a1)*t*exp(-x*x));\n`;\n\nexport const erf = unaryKernelFunc({opSnippet: ERF});\n\nexport const erfConfig: KernelConfig = {\n kernelName: Erf,\n backendName: 'webgl',\n kernelFunc: erf,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {ExpandDims, ExpandDimsAttrs, ExpandDimsInputs,\n KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {reshape} from './Reshape';\n\nexport function expandDims(args: {\n inputs: ExpandDimsInputs,\n attrs: ExpandDimsAttrs,\n backend: MathBackendWebGL\n}): TensorInfo {\n const {inputs, attrs, backend} = args;\n const {dim} = attrs;\n const {input} = inputs;\n\n const inputRank = input.shape.length;\n const newShape = input.shape.slice();\n let $dim = dim;\n if (dim < 0) {\n // Negative value is counted from the tail of rank.\n util.assert(\n -(inputRank + 1) <= dim,\n () => `Axis must be in the interval [${- (inputRank + 1)}, ${\n inputRank}]`);\n $dim = inputRank + dim + 1;\n }\n newShape.splice($dim, 0, 1);\n\n return reshape({inputs: {x: input}, backend, attrs: {shape: newShape}});\n}\n\nexport const expandDimsConfig: KernelConfig = {\n kernelName: ExpandDims,\n backendName: 'webgl',\n kernelFunc: expandDims\n as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class FFTProgram implements GPGPUProgram {\n variableNames = ['real', 'imag'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n component: 'real'|'imag', inputShape:\n [number, number],\n inverse: boolean) {\n const innerDim = inputShape[1];\n this.outputShape = inputShape;\n\n const exponentMultiplierSnippet =\n inverse ? `2.0 * ${Math.PI}` : `-2.0 * ${Math.PI}`;\n const resultDenominator = inverse ? `${innerDim}.0` : '1.0';\n\n let opString: string;\n if (component === 'real') {\n opString = 'return real * expR - imag * expI;';\n } else if (component === 'imag') {\n opString = 'return real * expI + imag * expR;';\n } else {\n throw new Error(\n `FFT component must be either \"real\" or \"imag\", got ${component}.`);\n }\n\n this.userCode = `\n const float exponentMultiplier = ${exponentMultiplierSnippet};\n\n float unaryOpComplex(float real, float expR, float imag, float expI) {\n ${opString}\n }\n\n float mulMatDFT(int batch, int index) {\n float indexRatio = float(index) / float(${innerDim});\n float exponentMultiplierTimesIndexRatio =\n exponentMultiplier * indexRatio;\n\n float result = 0.0;\n\n for (int i = 0; i < ${innerDim}; i++) {\n // x = (-2|2 * PI / N) * index * i;\n float x = exponentMultiplierTimesIndexRatio * float(i);\n float expR = cos(x);\n float expI = sin(x);\n float real = getReal(batch, i);\n float imag = getImag(batch, i);\n\n result +=\n unaryOpComplex(real, expR, imag, expI) / ${resultDenominator};\n }\n\n return result;\n }\n\n void main() {\n ivec2 coords = getOutputCoords();\n setOutput(mulMatDFT(coords[0], coords[1]));\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless
required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an
\"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from
'../backend_webgl';\nimport {FFTProgram} from '../fft_gpu';\n\nimport {complex} from './Complex';\nimport
{reshape} from './Reshape';\n\nexport function fftImpl(\n x: TensorInfo, inverse: boolean, backend:
MathBackendWebGL): TensorInfo {\n const xData = backend.texData.get(x.dataId);\n\n const inputSize =
util.sizeFromShape(x.shape);\n // Collapse all outer dimensions to a single batch dimension.\n const
innerDimensionSize = x.shape[x.shape.length - 1];\n const batch = inputSize / innerDimensionSize;\n\n
const input2D = reshape(\n {inputs: {x}, backend, attrs: {shape: [batch, innerDimensionSize]}});\n\n const
xShape = input2D.shape as [number, number];\n const realProgram = new FFTProgram('real', xShape, inverse);\n
const imagProgram = new FFTProgram('imag', xShape, inverse);\n\n const inputs = [\n {\n dataId:
xData.complexTensorInfos.real.dataId,\n dtype: xData.complexTensorInfos.real.dtype,\n shape: xShape\n
},\n {\n dataId: xData.complexTensorInfos.imag.dataId,\n dtype: xData.complexTensorInfos.imag.dtype,\n
shape: xShape\n }\n];\n\n const realPart = backend.runWebGLProgram(realProgram, inputs, 'float32');\n const
imagPart = backend.runWebGLProgram(imagProgram, inputs, 'float32');\n\n const complexOutput =\n
complex({inputs: {real: realPart, imag: imagPart}, backend});\n\n
backend.disposeIntermediateTensorInfo(realPart);\n backend.disposeIntermediateTensorInfo(imagPart);\n\n const
complexOutputReshaped
=\n reshape({inputs: {x: complexOutput}, backend, attrs: {shape: x.shape}});\n\n
backend.disposeIntermediateTensorInfo(input2D);\n backend.disposeIntermediateTensorInfo(complexOutput);\n
return complexOutputReshaped;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {FFT, FFTInputs, KernelConfig,
TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport
{fftImpl} from './FFT_impl';\n\nexport function fft(args: {inputs: FFTInputs, backend: MathBackendWebGL}):\n
TensorInfo {\n const {inputs, backend} = args;\n const {input} = inputs;\n\n return fftImpl(input, false /* inverse
*/, backend);\n}\n\nexport const fftConfig: KernelConfig = {\n kernelName: FFT,\n backendName: 'webgl',\n
kernelFunc: fft\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport
class FillProgram implements GPGPUProgram {\n variableNames: string[];\n outputShape: number[] = [];\n
userCode: string;\n\n valueLoc: WebGLUniformLocation;\n\n constructor(shape: number[], value: number) {\n
this.variableNames = ['x'];\n this.outputShape = shape;\n\n this.userCode = `\n uniform float value;\n void

main() {\n // Input can be obtained from uniform value.\n setOutput(value);\n }\n `;\n }\n\n getCustomSetupFunc(value: number) {\n return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n if (this.valueLoc == null) {\n this.valueLoc = gpgpu.getUniformLocationNoThrow(webGLProgram, 'value');\n }\n gpgpu.gl.uniform1f(this.valueLoc, value);\n };\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Fill, FillAttrs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {FillProgram} from '../fill_gpu';\n\nexport function fill(args: {backend: MathBackendWebGL, attrs: FillAttrs}):\n TensorInfo {\n const {backend, attrs} = args;\n const {shape, value} = attrs;\n let {dtype} = attrs;\n\n dtype = dtype || util.inferDtype(value);\n\n if (dtype === 'string') {\n // String type should be handled in CPU memory.\n const values = util.getArrayFromDType(dtype, util.sizeFromShape(shape));\n values.fill(value as string);\n return backend.makeTensorInfo(shape, dtype, values);\n } else {\n const program = new FillProgram(shape, value as number);\n const customSetup = program.getCustomSetupFunc(value as number);\n return backend.runWebGLProgram(program, [], dtype, customSetup);\n }\n}\n\nexport const fillConfig: KernelConfig = {\n kernelName: Fill,\n backendName: 'webgl',\n kernelFunc: fill as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class FlipLeftRightProgram implements GPGPUProgram {\n variableNames = ['Image'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(imageShape: [number, number, number, number]) {\n const imageWidth = imageShape[2];\n this.outputShape = imageShape;\n\n this.userCode = `\n void main() {\n ivec4 coords = getOutputCoords();\n int x = coords[2];\n\n int coordX = ${imageWidth} - x;\n float outputValue;\n if(coordX >= 0 && coordX < ${imageWidth}) {\n outputValue = getImage(coords[0], coords[1], coordX, coords[3]);\n } else {\n outputValue = getImage(coords[0], coords[1], coords[2], coords[3]);\n }\n setOutput(outputValue);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, Tensor4D} from '@tensorflow/tfjs-core';\nimport {FlipLeftRight, FlipLeftRightInputs}

from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {FlipLeftRightProgram} from '../flip_left_right_gpu';\n\nexport const flipLeftRightConfig: KernelConfig = {\n kernelName: FlipLeftRight,\n backendName: 'webgl',\n kernelFunc: ({inputs, backend}) => {\n const {image} = inputs as FlipLeftRightInputs;\n const webglBackend = backend as MathBackendWebGL;\n\n const program = new FlipLeftRightProgram((image as Tensor4D).shape);\n const output = webglBackend.runWebGLProgram(program, [image], image.dtype);\n return output;\n }\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {FloorDiv, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\n\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\n// We use native integer division to deal with floating point imprecision. Since\n// we implement floor division and glsl implements truncated division, we\n// correct for this by subtracting 1 from result when the result is negative and\n// there is a remainder.\nconst INT_DIV = `\n float s = sign(a) * sign(b);\n int ia = round(a);\n int ib = round(b);\n if (ib != 0) {\n // Windows (D3D) wants guaranteed non-zero int division at compile-time.\n return float(idiv(ia, ib, s));\n } else {\n return NAN;\n }\n`;\n\nconst INT_DIV_PACKED = `\n ivec4 ia = round(a);\n ivec4 ib = round(b);\n bvec4 cond = notEqual(ib, ivec4(0));\n ivec4 result = ivec4(0);\n vec4 s = sign(a) * sign(b);\n\n // Windows (D3D) wants guaranteed non-zero int division at compile-time.\n if (cond[0]) {\n result[0] = idiv(ia[0], ib[0], s[0]);\n }\n if (cond[1]) {\n result[1] = idiv(ia[1], ib[1], s[1]);\n }\n if (cond[2]) {\n result[2] = idiv(ia[2], ib[2], s[2]);\n }\n if (cond[3]) {\n result[3] = idiv(ia[3], ib[3], s[3]);\n }\n return vec4(result);\n`;\n\nexport const floorDiv = binaryKernelFunc(\n {opSnippet: INT_DIV, packedOpSnippet: INT_DIV_PACKED, dtype: 'int32'});\n\nexport const floorDivConfig: KernelConfig = {\n kernelName: FloorDiv,\n backendName: 'webgl',\n kernelFunc: floorDiv as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {getGlslDifferences} from '../../glsl_version';\nimport {GPGPUProgram} from '../../gpgpu_math';\n\nexport class FromPixelsProgram implements GPGPUProgram {\n variableNames = ['A'];\n userCode: string;\n outputShape: number[];\n\n constructor(outputShape: number[]) {\n const glsl = getGlslDifferences();\n const [height, width,] = outputShape;\n this.outputShape = outputShape;\n this.userCode = `\n void main() {\n ivec3 coords = getOutputCoords();\n int texR = coords[0];\n int texC = coords[1];\n int depth = coords[2];\n vec2 uv = (vec2(texC, texR) + halfCR) / vec2(${width}.0, ${height}.0);\n\n vec4 values = ${glsl.texture2D}(A, uv);\n float value;\n if (depth == 0) {\n value = values.r;\n } else if (depth == 1) {\n value = values.g;\n } else if (depth == 2) {\n value = values.b;\n } else if (depth == 3) {\n value = values.a;\n }\n\n setOutput(floor(value * 255.0 + 0.5));\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in

```
 compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {getGlslDifferences} from '../../glsl_version';\nimport {GPGPUProgram} from
'../../gpgpu_math';\n\nexport class FromPixelsPackedProgram implements GPGPUProgram {\n  variableNames =
['A'];\n  userCode: string;\n  outputShape: number[];\n  packedInputs = false;\n  packedOutput = true;\n\n
constructor(outputShape: number[]) {\n    const glsl = getGlslDifferences();\n    const [height, width, ] =
outputShape;\n    this.outputShape = outputShape;\n
    this.userCode = `\n      void main() {\n        ivec3 coords = getOutputCoords();\n        int texR = coords[0];\n
int texC = coords[1];\n        int depth = coords[2];\n\n        vec4 result = vec4(0.);\n\n        for(int row=0; row<=1;
row++) {\n          for(int col=0; col<=1; col++) {\n            texC = coords[1] + row;\n            depth = coords[2] +
col;\n\n            vec2 uv = (vec2(texC, texR) + halfCR) /\n                       vec2(${width}.0, ${height}.0);\n
vec4 values = ${glsl.texture2D}(A, uv);\n            float value;\n            if (depth == 0) {\n              value = values.r;\n
          } else if (depth == 1) {\n              value = values.g;\n            } else if (depth == 2) {\n              value =
values.b;\n            } else if (depth == 3) {\n              value = values.a;\n            }\n\n            result[row * 2 + col] =
floor(value * 255.0 + 0.5);\n          }\n        }\n\n        ${glsl.output} = result;\n      }\n
    `;\n  }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========================================================================\n
*/\n\nimport {env, KernelConfig, KernelFunc, TensorInfo} from '@tensorflow/tfjs-core';\nimport {FromPixels,
FromPixelsAttrs, FromPixelsInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from
'../backend_webgl';\nimport {TextureUsage} from '../tex_util';\n\nimport
 {FromPixelsProgram} from './FromPixels_utils/from_pixels_gpu';\nimport {FromPixelsPackedProgram} from
'./FromPixels_utils/from_pixels_packed_gpu';\n\nexport const fromPixelsConfig: KernelConfig = {\n  kernelName:
FromPixels,\n  backendName: 'webgl',\n  kernelFunc: fromPixels as {} as KernelFunc,\n};\n\nlet
fromPixels2DContext: CanvasRenderingContext2D;\n\nfunction fromPixels(args: {\n  inputs: FromPixelsInputs,\n
backend: MathBackendWebGL,\n  attrs: FromPixelsAttrs\n}): TensorInfo {\n  const {inputs, backend, attrs} =
args;\n  let {pixels} = inputs;\n  const {numChannels} = attrs;\n\n  const isVideo = typeof (HTMLVideoElement)
!== 'undefined' &&\n      pixels instanceof HTMLVideoElement;\n  const isImage = typeof (HTMLImageElement)
!== 'undefined' &&\n      pixels instanceof HTMLImageElement;\n  const isImageBitmap = typeof(ImageBitmap)
!== 'undefined' &&\n      pixels instanceof ImageBitmap;\n  const [width, height] = isVideo ?\n      [\n        (pixels as
HTMLVideoElement).videoWidth,\n
        (pixels as HTMLVideoElement).videoHeight\n      ] :\n      [pixels.width, pixels.height];\n\n  const texShape:
[number, number] = [height, width];\n  const outShape = [height, width, numChannels];\n\n  if (isImage || isVideo ||
isImageBitmap) {\n    if (fromPixels2DContext == null) {\n      fromPixels2DContext =
document.createElement('canvas').getContext('2d');\n    }\n\n    fromPixels2DContext.canvas.width = width;\n
fromPixels2DContext.canvas.height = height;\n    fromPixels2DContext.drawImage(\n        pixels as
HTMLVideoElement | HTMLImageElement | ImageBitmap,\n        0, 0, width, height);\n    pixels =
fromPixels2DContext.canvas;\n  }\n\n  const tempPixelHandle = backend.makeTensorInfo(texShape, 'int32');\n  //
This is a byte texture with pixels.\n  backend.texData.get(tempPixelHandle.dataId).usage =
```

TextureUsage.PIXELS;\n backend.gpgpu.uploadPixelDataToTexture(\n backend.getTexture(tempPixelHandle.dataId), pixels as ImageData);\n const program = env().getBool('WEBGL_PACK') ?\n   new FromPixelsPackedProgram(outShape) :\n   new FromPixelsProgram(outShape);\n const res = backend.runWebGLProgram(program, [tempPixelHandle], 'int32');\n backend.disposeData(tempPixelHandle.dataId);\n return res;\n}\n\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, env, FusedConv2D, FusedConv2DAttrs, FusedConv2DInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Conv2DProgram} from '../conv_gpu';\nimport {mapActivationToShaderProgram} from '../kernel_utils/kernel_funcs_utils';\n\nimport {conv2dByMatMul, conv2dWithIm2Row} from './Conv2D_impl';\nimport {reshape} from './Reshape';\n\nexport function fusedConv2d(args: {\n inputs: FusedConv2DInputs,\n attrs: FusedConv2DAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {\n   strides,\n   pad,\n   dataFormat,\n   dilations,\n   dimRoundingMode,\n   activation,\n   leakyreluAlpha\n } = attrs;\n\n const $dataFormat = backend_util.convertConv2DDataFormat(dataFormat);\n const convInfo = backend_util.computeConv2DInfo(\n   x.shape as [number, number, number, number],\n   filter.shape as [number, number, number, number], strides, dilations, pad,\n   dimRoundingMode, false /* depthwise */, $dataFormat);\n let out: TensorInfo;\n const intermediates: TensorInfo[] = [];\n\n if (convInfo.filterHeight === 1 && convInfo.filterWidth === 1 &&\n   convInfo.dilationHeight === 1 && convInfo.dilationWidth === 1 &&\n   convInfo.strideHeight === 1 && convInfo.strideWidth === 1 &&\n   (convInfo.padInfo.type === 'SAME' || convInfo.padInfo.type === 'VALID')) {\n   out = conv2dByMatMul({\n   x,\n   filter,\n   convInfo,\n   backend,\n   bias,\n   activation,\n   preluActivationWeights,\n   leakyreluAlpha\n   });\n } else if (env().getBool('WEBGL_CONV_IM2COL') && x.shape[0] === 1) {\n   out = conv2dWithIm2Row({\n   x,\n   filter,\n   convInfo,\n   backend,\n   bias,\n   activation,\n   preluActivationWeights,\n   leakyreluAlpha\n   });\n } else {\n   const hasBias = bias != null;\n   const hasPreluActivationWeights = preluActivationWeights != null;\n   const hasLeakyreluAlpha = activation === 'leakyrelu';\n   const fusedActivation =\n   activation ? mapActivationToShaderProgram(activation, false) : null;\n   const program = new Conv2DProgram(\n   convInfo, hasBias, fusedActivation, hasPreluActivationWeights,\n   hasLeakyreluAlpha);\n   const inputs: TensorInfo[] = [x, filter];\n   if (bias) {\n   inputs.push(bias);\n   }\n   if (preluActivationWeights) {\n   inputs.push(preluActivationWeights);\n   }\n   if (hasLeakyreluAlpha) {\n   const $leakyreluAlpha = backend.makeTensorInfo(\n   [], 'float32',\n   util.createScalarValue(leakyreluAlpha as {} as 'float32', 'float32'));\n   inputs.push($leakyreluAlpha);\n   intermediates.push($leakyreluAlpha);\n   }\n   out = backend.runWebGLProgram(program, inputs, 'float32');\n }\n\n const outReshaped =\n   reshape({inputs: {x: out}, backend, attrs: {shape: convInfo.outShape}});\n\n intermediates.push(out);\n intermediates.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return outReshaped;\n}\n\nexport const fusedConv2DConfig: KernelConfig = {\n kernelName: FusedConv2D,\n backendName: 'webgl',\n kernelFunc: fusedConv2d as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, env, FusedDepthwiseConv2D, FusedDepthwiseConv2DAttrs, FusedDepthwiseConv2DInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {DepthwiseConv2DProgram} from '../conv_gpu_depthwise';\nimport {DepthwiseConvPacked2DProgram} from '../conv_packed_gpu_depthwise';\nimport {mapActivationToShaderProgram} from '../kernel_utils/kernel_funcs_utils';\n\nexport function fusedDepthwiseConv2D(args: {\n inputs: FusedDepthwiseConv2DInputs,\n attrs: FusedDepthwiseConv2DAttrs,\n backend: MathBackendWebGL\n}) {\n const {inputs, backend, attrs} = args;\n const {x, filter, bias, preluActivationWeights} = inputs;\n const {strides, pad, dilations, dimRoundingMode, activation, leakyreluAlpha} =\n   attrs;\n\n const intermediates: TensorInfo[] = [];\n\n let $dilations = dilations;\n if ($dilations == null) {\n $dilations = [1, 1];\n }\n\n util.assert(\n   backend_util.eitherStridesOrDilationsAreOne(strides, $dilations),\n   () => 'Error in depthwiseConv2d: Either strides or dilations must be ' +\n   `1. Got strides ${strides} and dilations '${$dilations}'`);\n\n const convInfo = backend_util.computeConv2DInfo(\n   x.shape as [number, number, number, number],\n   filter.shape as [number, number, number, number], strides, $dilations,\n   pad, dimRoundingMode, true /* depthwise */);\n\n const shouldPackDepthwiseConv =\n   env().getBool('WEBGL_PACK_DEPTHWISECONV') &&\n   convInfo.strideWidth <= 2 &&\n   convInfo.outChannels / convInfo.inChannels === 1;\n const fusedActivation = activation ?\n   mapActivationToShaderProgram(activation, shouldPackDepthwiseConv) :\n   null;\n const programInputs: TensorInfo[] = [x, filter];\n\n const hasBias = bias != null;\n const hasPreluActivationWeights = preluActivationWeights != null;\n const hasLeakyreluAlpha = activation === 'leakyrelu';\n\n if (hasBias) {\n   programInputs.push(bias);\n }\n
  if (hasPreluActivationWeights) {\n   programInputs.push(preluActivationWeights);\n }\n if (hasLeakyreluAlpha) {\n   const $leakyreluAlpha = backend.makeTensorInfo(\n   [], 'float32',\n   util.createScalarValue(leakyreluAlpha as {} as 'float32', 'float32'));\n   programInputs.push($leakyreluAlpha);\n   intermediates.push($leakyreluAlpha);\n }\n\n let program: DepthwiseConv2DProgram|DepthwiseConvPacked2DProgram;\n if (shouldPackDepthwiseConv) {\n   program = new DepthwiseConvPacked2DProgram(\n   convInfo, hasBias, fusedActivation, hasPreluActivationWeights,\n   hasLeakyreluAlpha);\n } else {\n   program = new DepthwiseConv2DProgram(\n   convInfo, hasBias, fusedActivation, hasPreluActivationWeights,\n   hasLeakyreluAlpha);\n }\n\n const result =\n   backend.runWebGLProgram(program, programInputs, 'float32');\n\n intermediates.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return result;\n}\n\nexport const fusedDepthwiseConv2DConfig: KernelConfig = {\n kernelName: FusedDepthwiseConv2D,\n backendName: 'webgl',\n kernelFunc: fusedDepthwiseConv2D as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class GatherNDProgram implements GPGPUProgram {\n variableNames = ['x', 'indices'];\n outputShape: number[];\n userCode: string;\n constructor(\n   private sliceDim: number, private strides: number[], shape: number[]) {\n   this.outputShape =

shape;\n const stridesType = getCoordsDataType(strides.length);\n const dtype = getCoordsDataType(shape.length);\n const strideString = this.sliceDim > 1 ? 'strides[j]' : 'strides';\n this.userCode = `\n ${stridesType} strides = ${stridesType}(${this.strides});\n void main() {\n ${dtype} coords = getOutputCoords();\n int flattenIndex = 0;\n for (int j = 0; j < ${this.sliceDim}; j++) {\n int index = round(getIndices(coords[0], j));\n flattenIndex += index * ${strideString};\n }\n setOutput(getX(flattenIndex, coords[1]));\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {backend_util, GatherNd, GatherNdInputs, KernelConfig, KernelFunc, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {GatherNDProgram} from '../gather_nd_gpu';\nimport {reshape} from './Reshape';\n\nexport function gatherNd(\n args: {inputs: GatherNdInputs, backend: MathBackendWebGL}): TensorInfo {\n const {inputs, backend} = args;\n const {params, indices} = inputs;\n\n const indicesShape = indices.shape;\n const sliceRank = indicesShape[indicesShape.length - 1];\n\n const [resultShape, numSlices, sliceSize, strides] =\n backend_util.prepareAndValidate(params, indices);\n\n const flattenIndices = reshape(\n {inputs: {x: indices}, backend, attrs: {shape: [numSlices, sliceRank]}});\n const flattenX = reshape({\n inputs: {x: params},\n backend,\n attrs: {shape: [(util.sizeFromShape(params.shape) / sliceSize), sliceSize]}\n });\n\n const program =\n new GatherNDProgram(sliceRank, strides, [numSlices, sliceSize]);\n const res = backend.runWebGLProgram(\n program, [flattenX, flattenIndices], flattenX.dtype);\n\n const reshaped =\n reshape({inputs: {x: res}, backend, attrs: {shape: resultShape}});\n\n backend.disposeIntermediateTensorInfo(flattenIndices);\n backend.disposeIntermediateTensorInfo(flattenX);\n backend.disposeIntermediateTensorInfo(res);\n\n return reshaped;\n}\n\nexport const gatherNdConfig: KernelConfig = {\n kernelName: GatherNd,\n backendName: 'webgl',\n kernelFunc: gatherNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class GatherProgram implements GPGPUProgram {\n variableNames = ['A', 'indices'];\n outputShape: number[];\n userCode: string;\n rank: number;\n\n constructor(aShape: number[], outputShape: number[]) {\n this.outputShape = outputShape;\n this.rank = outputShape.length;\n const dtype = getCoordsDataType(this.rank);\n const sourceCoords = getSourceCoords(aShape, 2);\n\n this.userCode = `\n void main() {\n  ${dtype} resRC = getOutputCoords();\n  setOutput(getA(${sourceCoords}));\n }\n `;\n}\n\n// The input and output are always flattened into rank 4 tensors.\nfunction getSourceCoords(aShape: number[], axis: number): string {\n const currentCoords = ['resRC.x', 'resRC.y', 'resRC.z', 'resRC.w'];\n\n const sourceCoords = [];\n for (let i = 0; i < aShape.length; i++) {\n if (i === 2) {\n sourceCoords.push('int(getIndices(resRC.x, resRC.z))');\n } else {\n sourceCoords.push(`${currentCoords[i]}`);\n }\n }\n return sourceCoords.join();\n}\n","/**\n

* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, GatherV2, GatherV2Attrs, GatherV2Inputs, KernelConfig, KernelFunc, TensorInfo, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {GatherProgram} from '../gather_gpu';\nimport {gatherV2ImplCPU} from '../kernel_utils/shared';\n\nimport {reshape} from './Reshape';\n\nexport function gatherV2(args: {\n inputs: GatherV2Inputs,\n backend: MathBackendWebGL,\n attrs: GatherV2Attrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x, indices} = inputs;\n const {axis, batchDims} = attrs;\n\n const parsedAxis = util.parseAxisParam(axis, x.shape)[0];\n const shapeInfo = backend_util.segment_util.collectGatherOpShapeInfo(\n x, indices, parsedAxis, batchDims);\n\n const indicesSize = util.sizeFromShape(indices.shape);\n\n const toDispose = [];\n\n const flattenX = reshape({\n inputs: {x},\n backend,\n attrs: {\n shape: [\n shapeInfo.batchSize, shapeInfo.outerSize, shapeInfo.dimSize,\n shapeInfo.sliceSize\n]\n }\n });\n\n const flattenIndex = reshape({\n inputs: {x: indices},\n backend,\n attrs: {shape: [shapeInfo.batchSize, indicesSize / shapeInfo.batchSize]}\n });\n\n toDispose.push(flattenX);\n toDispose.push(flattenIndex);\n\n const flattenOutputShape = [\n shapeInfo.batchSize, shapeInfo.outerSize, indicesSize / shapeInfo.batchSize,\n shapeInfo.sliceSize\n];\n\n if (backend.shouldExecuteOnCPU([x, indices]) || x.dtype === 'string') {\n const indicesBuf = backend.bufferSync(flattenIndex);\n const xBuf = backend.bufferSync(flattenX);\n const outBuf = gatherV2ImplCPU(xBuf, indicesBuf, flattenOutputShape);\n\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return backend.makeTensorInfo(\n shapeInfo.outputShape, outBuf.dtype, outBuf.values as TypedArray);\n }\n\n const program = new GatherProgram(flattenX.shape, flattenOutputShape);\n const res = backend.runWebGLProgram(\n program, [flattenX, flattenIndex], flattenX.dtype);\n toDispose.push(res);\n\n const reshaped = reshape(\n {inputs: {x: res}, backend, attrs: {shape: shapeInfo.outputShape}});\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return reshaped;\n}\n\nexport const gatherV2Config: KernelConfig = {\n kernelName: GatherV2,\n backendName: 'webgl',\n kernelFunc: gatherV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {GreaterEqual, KernelConfig, KernelFunc} from '@tensorflow/tfjs-core';\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst GREATER_EQUAL = `return float(a >= b);`;\nconst GREATER_EQUAL_PACKED = `\n return vec4(greaterThanEqual(a, b));\n`;\n\nexport const greaterEqual = binaryKernelFunc({\n opSnippet: GREATER_EQUAL,\n packedOpSnippet: GREATER_EQUAL_PACKED,\n dtype: 'bool'\n});\n\nexport const greaterEqualConfig: KernelConfig = {\n kernelName: GreaterEqual,\n backendName: 'webgl',\n kernelFunc: greaterEqual as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES

OR CONDITIONS OF ANY KIND, either express
or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
/\n\nimport {IFFT, IFFTInputs, KernelConfig, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {fftImpl} from './FFT_impl';\n\nexport function ifft(args: {inputs: IFFTInputs, backend: MathBackendWebGL}):\n TensorInfo {\n const {inputs, backend} = args;\n const {input} = inputs;\n\n return fftImpl(input, true / inverse */, backend);\n}\n\nexport const ifftConfig: KernelConfig = {\n kernelName: IFFT,\n backendName: 'webgl',\n kernelFunc: ifft\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {IsFinite, KernelConfig} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst IS_FINITE = `return float(!isnan(x) && !isinf(x));`;\n\nexport const isFinite = unaryKernelFunc({opSnippet: IS_FINITE, dtype: 'bool'});\n\nexport const isFiniteConfig: KernelConfig = {\n kernelName: IsFinite,\n backendName: 'webgl',\n kernelFunc: isFinite,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {IsInf, KernelConfig} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst IS_INF = `return float(isinf(x));`;\n\nexport const isInf = unaryKernelFunc({opSnippet: IS_INF, dtype: 'bool'});\n\nexport const isInfConfig: KernelConfig = {\n kernelName: IsInf,\n backendName: 'webgl',\n kernelFunc: isInf,\n};\n","/**\n * @license\n * Copyright 2020 Google
LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {IsNan, KernelConfig} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst IS_NAN = `return float(isnan(x));`;\n\nexport const isNaN = unaryKernelFunc({opSnippet: IS_NAN, dtype: 'bool'});\n\nexport const isNaNConfig: KernelConfig = {\n kernelName: IsNan,\n
  backendName: 'webgl',\n kernelFunc: isNaN,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, LessEqual} from '@tensorflow/tfjs-core';\n\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nexport const LESS_EQUAL = `return float(a <= b);`;\nexport const LESS_EQUAL_PACKED
= `\n  return vec4(lessThanEqual(a, b));\n`;\n\nexport const lessEqual = binaryKernelFunc(\n   {opSnippet: LESS_EQUAL, packedOpSnippet: LESS_EQUAL_PACKED, dtype: 'bool'});\n\nexport const lessEqualConfig: KernelConfig = {\n kernelName: LessEqual,\n backendName: 'webgl',\n kernelFunc: lessEqual as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, LinSpace, LinSpaceAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {linSpaceImplCPU} from '../kernel_utils/shared';\n\nexport function linSpace(\n   args: {backend: MathBackendWebGL, attrs: LinSpaceAttrs}): TensorInfo {\n const {backend, attrs} = args;\n const {start, stop, num} = attrs;\n\n // TODO: Use CPU implementation due to the precision problem in Safari.\n const outVals = linSpaceImplCPU(start, stop, num);\n return backend.makeTensorInfo([outVals.length], 'float32', outVals);\n}\n\nexport const linSpaceConfig: KernelConfig = {\n kernelName: LinSpace,\n backendName: 'webgl',\n kernelFunc: linSpace as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Log1p} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst LOG1P = `return log(1.0 + x);`;\n\nexport const log1p = unaryKernelFunc({opSnippet: LOG1P});\n\nexport const log1pConfig: KernelConfig = {\n kernelName: Log1p,\n backendName: 'webgl',\n kernelFunc: log1p,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, LogicalAnd} from '@tensorflow/tfjs-core';\n\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst LOGICAL_AND = `return float(a >= 1.0 && b >= 1.0);`;\nconst LOGICAL_AND_PACKED = `\n return vec4(\n   vec4(greaterThanEqual(a, vec4(1.0))) *\n

vec4(greaterThanEqual(b, vec4(1.0))));\n`;\n\nexport const logicalAnd = binaryKernelFunc({\n opSnippet: LOGICAL_AND,\n packedOpSnippet: LOGICAL_AND_PACKED,\n dtype: 'bool'\n});\n\nexport const logicalAndConfig: KernelConfig = {\n kernelName: LogicalAnd,\n backendName: 'webgl',\n kernelFunc: logicalAnd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig,\n LogicalNot} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst LOGICAL_NOT = `return float(!(x >= 1.0));`;\n\nexport const logicalNot = unaryKernelFunc({opSnippet: LOGICAL_NOT});\n\nexport const logicalNotConfig: KernelConfig = {\n kernelName: LogicalNot,\n backendName: 'webgl',\n kernelFunc: logicalNot,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under\n the License.\n *\n ==\n */\n\nimport {KernelConfig, KernelFunc, LogicalOr} from '@tensorflow/tfjs-core';\n\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst LOGICAL_OR = `return float(a >= 1.0 || b >= 1.0);`;\nconst LOGICAL_OR_PACKED = `\n return min(\n vec4(greaterThanEqual(a, vec4(1.0))) +\n vec4(greaterThanEqual(b, vec4(1.0))),\n vec4(1.0));\n`;\n\nexport const logicalOr = binaryKernelFunc(\n {opSnippet: LOGICAL_OR, packedOpSnippet: LOGICAL_OR_PACKED, dtype: 'bool'});\n\nexport const logicalOrConfig: KernelConfig = {\n kernelName: LogicalOr,\n backendName: 'webgl',\n kernelFunc: logicalOr as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class LRNProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n xShape: number[], radius: number, bias: number, alpha: number,\n beta: number) {\n const rad = radius;\n const maxD = xShape[3] - 1;\n this.outputShape = xShape;\n\n // optimize pow(bias + alpha * sum, -beta)\n // src: https://github.com/tensorflow/tensorflow/..\n // blob/26033a1644a9c4a5fbe3170ab2e864b6a4ccd4ca/..\n // tensorflow/core/kernels/mkl_lrn_op.cc#L320\n let powOperator;\n const basis = `float(${bias}) + float(${alpha}) * sum`;\n if (beta === 0.5) {\n powOperator = `inversesqrt(${basis})`;\n } else if (beta === 1.0) {\n powOperator = `1.0/(${basis})`;\n } else {\n powOperator = `exp(log(${basis}) * float(-${beta}));`;\n }\n\n this.userCode = `\n void main() {\n ivec4 coords = getOutputCoords();\n int b = coords[0];\n int r = coords[1];\n int c = coords[2];\n int d = coords[3];\n float x = getX(b, r, c, d);\n

```
    float sum = 0.0;\n      for (int j = -${rad}; j <= ${rad}; j++) {\n        int idx = d + j;\n        if (idx >= 0 && idx <=  ${maxD}) {\n          float z = getX(b, r, c, idx);\n          sum += z * z;\n        }\n      }\n      float val = x * ${powOperator};\n      setOutput(val);\n    }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights
 Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class LRNPackedProgram implements GPGPUProgram {\n  variableNames = ['x'];\n  outputShape: number[] = [];\n  userCode: string;\n  packedInputs = true;\n  packedOutput = true;\n\n  constructor(\n      xShape: number[], radius: number, bias: number, alpha: number,\n      beta:
 number) {\n    const rad = radius;\n    const maxD = xShape[3] - 1;\n    this.outputShape = xShape;\n\n    // optimize pow(bias + alpha * sum, -beta)\n    // src: https://github.com/tensorflow/tensorflow/..\n    //
blob/26033a1644a9c4a5fbe3170ab2e864b6a4ccd4ca/..\n    // tensorflow/core/kernels/mkl_lrn_op.cc#L320\n    let powOperator;\n    const basis = `float(${bias}) + float(${alpha}) * sum`;\n    if (beta === 0.5) {\n      powOperator = `inversesqrt(${basis})`;\n    } else if (beta === 1.0) {\n      powOperator = `1.0/(${basis})`;\n    } else {\n      powOperator = `exp(log(${basis}) * float(-${beta}));`;\n    }\n\n    this.userCode = `\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int b = coords.x;\n        int r = coords.y;\n        int c = coords.z;\n        int d = coords.w;\n\n        bool hasNextCol = d < ${this.outputShape[3]};\n        bool hasNextRow = c < ${this.outputShape[2]};\n\n        vec4 sum = vec4(0.);\n        vec4 xFragAtOutputCoords =
 getX(b, r, c, d);\n\n        vec4 xAtOutputCoords = vec4(\n          getChannel(xFragAtOutputCoords, vec2(c, d)),\n
    hasNextCol ?\n            getChannel(xFragAtOutputCoords, vec2(c, d + 1)) : 0.0,\n          hasNextRow ?\n
getChannel(xFragAtOutputCoords , vec2(c + 1, d)) : 0.0,\n          (hasNextRow && hasNextCol) ?\n
getChannel(xFragAtOutputCoords, vec2(c + 1, d + 1)) : 0.0\n        );\n\n        int firstChannel = d - ${rad};\n
vec2 cache = vec2(0.);\n        if(firstChannel >= 0){\n          vec4 firstChannelFrag = getX(b, r, c, firstChannel);\n
  cache.x = getChannel(firstChannelFrag, vec2(c, firstChannel));\n          if(hasNextRow){\n            cache.y =
getChannel(firstChannelFrag, vec2(c + 1, firstChannel));\n          }\n        }\n\n        ivec2 depth = ivec2(d, d + 1);\n
    for (int j = - ${rad}; j <= ${rad}; j++) {\n          ivec2 idx = depth + j;\n          bvec2 aboveLowerBound =
greaterThanEqual(idx, ivec2(0));\n
          bvec2 belowUpperBound = lessThanEqual(idx, ivec2(${maxD}));\n\n          bool depthInRange =
aboveLowerBound.x && belowUpperBound.x;\n          bool depthPlusOneInRange = aboveLowerBound.y &&
belowUpperBound.y;\n\n          if(depthInRange || depthPlusOneInRange){\n            vec4 z = vec4(0.);\n            vec4
xFragAtCurrentDepth;\n            z.xz = cache.xy;\n            if(depthPlusOneInRange && hasNextCol){\n
xFragAtCurrentDepth = idx.y != d ?\n                getX(b, r, c, idx.y) : xFragAtOutputCoords;\n              z.y =
getChannel(xFragAtCurrentDepth, vec2(c, idx.y));\n              if(hasNextRow){\n                z.w =
getChannel(xFragAtCurrentDepth, vec2(c + 1, idx.y));\n              }\n            }\n            cache.xy = z.yw;\n
sum += z * z;\n          }\n        }\n        vec4 result = xAtOutputCoords * ${powOperator};\n        setOutput(result);\n
  }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
 Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
```

```
==========================================================================\n
*/\n\nimport {env, KernelConfig, KernelFunc, LRN, LRNAttrs, LRNInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {LRNProgram} from '../lrn_gpu';\nimport {LRNPackedProgram} from '../lrn_packed_gpu';\n\nexport const lrn =\n    (args: {inputs: LRNInputs, backend: MathBackendWebGL,
 attrs: LRNAttrs}):\n        TensorInfo => {\n          const {inputs, backend, attrs} = args;\n          const {x} = inputs;\n
        const {depthRadius, bias, alpha, beta} = attrs;\n\n          const program =
env().getBool('WEBGL_PACK_NORMALIZATION') ?\n              new LRNPackedProgram(x.shape, depthRadius, bias, alpha, beta) :\n              new LRNProgram(x.shape, depthRadius, bias, alpha, beta);\n          return backend.runWebGLProgram(program, [x], x.dtype);\n        };\n\n// tslint:disable-next-line: variable-name\nexport const LRNConfig: KernelConfig = {\n  kernelName: LRN,\n  backendName: 'webgl',\n  kernelFunc: lrn as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class LRNGradProgram implements GPGPUProgram {\n  variableNames = ['inputImage', 'outputImage', 'dy'];\n  outputShape: number[] = [];\n  userCode: string;\n  depthRadius: number;\n  bias: number;\n  alpha: number;\n  beta: number;\n  depth: number;\n\n  constructor(\n      inputShape: number[], depthRadius: number, bias: number, alpha: number,\n      beta: number) {\n    this.outputShape = inputShape;\n    this.depth = inputShape[3];\n    this.depthRadius = depthRadius;\n    this.bias = bias;\n    this.alpha = alpha;\n    this.beta = beta;\n    this.userCode
    = `\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int b = coords[0];\n        int r = coords[1];\n
      int c = coords[2];\n\n        float result = 0.0;\n        for (int d = 0; d < ${this.depth}; ++d) {\n          int depthBegin = int(max(0.0, float(d - ${depthRadius})));\n          int depthEnd = int(min(float(${this.depth}),\n              float(d + ${depthRadius} + 1)));\n\n          const int MIN_DEPTH_BEGIN = 0;\n          const int MAX_DEPTH_END = ${this.depth};\n\n          float norm = 0.0;\n          for (int k = MIN_DEPTH_BEGIN; k < MAX_DEPTH_END; ++k) {\n            if (k < depthBegin){\n              continue;\n            }\n            else if (k >= depthBegin && k < depthEnd) {\n              norm += getInputImage(b, r, c, k) * getInputImage(b, r, c, k);\n            }\n            else {\n
        break;\n            }\n          }\n\n          norm = float(${alpha}) * norm + float(${bias});\n\n          for(int k = MIN_DEPTH_BEGIN;
 k < MAX_DEPTH_END; ++k){\n            if (k < depthBegin){\n              continue;\n            }\n            else if (k >= depthBegin && k < depthEnd){\n              float dyi = -2.0 * float(${alpha})\n                * float(${beta})\n                * getInputImage(b ,r ,c, k) * getOutputImage(b, r, c, d)\n                / norm;\n              if (k == d) {\n                dyi += pow(norm, -1.0 * ${beta});\n              }\n              if (k == coords[3]) {\n                dyi *= getDy(b, r, c, d);\n
 result += dyi;\n              }\n            }\n            else {\n              break;\n            }\n          }\n        }\n
setOutput(result);\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
```

*/\n\nimport {KernelConfig, KernelFunc, LRNGrad, LRNGradAttrs, LRNGradInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {LRNGradProgram} from '../lrn_grad_gpu';\n\nexport const lrnGrad = (args: {\n inputs: LRNGradInputs,\n backend: MathBackendWebGL,\n attrs: LRNGradAttrs\n}): TensorInfo => {\n const {inputs, backend, attrs} = args;\n const {x, y, dy} = inputs;\n const {depthRadius, bias, alpha, beta} = attrs;\n\n const program = new LRNGradProgram(x.shape, depthRadius, bias, alpha, beta);\n return backend.runWebGLProgram(program, [x, y, dy], x.dtype);\n};\n\n// tslint:disable-next-line: variable-name\nexport const LRNGradConfig: KernelConfig = {\n kernelName: LRNGrad,\n backendName: 'webgl',\n kernelFunc: lrnGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {KernelFunc,
  Max, MaxAttrs, MaxInputs, TensorInfo} from '@tensorflow/tfjs-core';\nimport {backend_util, KernelConfig, TypedArray, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {maxImplCPU} from '../kernel_utils/shared';\n\nimport {maxImpl} from './Max_impl';\nimport {transposeImpl, transposeImplCPU} from './Transpose_impl';\n\nexport function max(\n args: {inputs: MaxInputs, backend: MathBackendWebGL, attrs: MaxAttrs}):\n   TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {reductionIndices, keepDims} = attrs;\n\n const xRank = x.shape.length;\n\n const origAxes = util.parseAxisParam(reductionIndices, x.shape);\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n const maxInputIsTransposed = permutedAxes != null;\n const shouldExecuteOnCPU = backend.shouldExecuteOnCPU([x]);\n\n let maxInput = x;\n if (maxInputIsTransposed) {\n   if (shouldExecuteOnCPU)
  {\n   const xTexData = backend.texData.get(maxInput.dataId);\n   const values = xTexData.values as TypedArray;\n\n   const newShape: number[] = new Array(xRank);\n   for (let i = 0; i < newShape.length; i++)
  {\n   newShape[i] = x.shape[permutedAxes[i]];\n   }\n   const maxInputValues =\n   transposeImplCPU(values, x.shape, x.dtype, permutedAxes, newShape);\n\n   maxInput = backend.makeTensorInfo(newShape, x.dtype);\n   const maxInputData = backend.texData.get(maxInput.dataId);\n   maxInputData.values = maxInputValues;\n   } else {\n   maxInput = transposeImpl(x, permutedAxes, backend);\n   }\n\n   axes = backend_util.getInnerMostAxes(axes.length, xRank);\n }\n\n backend_util.assertAxesAreInnerMostDims('max', axes, xRank);\n const [maxOutShape, reduceShape] =\n   backend_util.computeOutAndReduceShapes(maxInput.shape, axes);\n\n let outShape = maxOutShape;\n if (keepDims) {\n   // rather than reshape at the end, set the target
  shape here.\n   outShape = backend_util.expandShapeToKeepDim(maxOutShape, origAxes);\n }\n\n let out;\n if (shouldExecuteOnCPU) {\n   const xTexData = backend.texData.get(maxInput.dataId);\n   const values = xTexData.values as TypedArray;\n\n   const outValues =\n   maxImplCPU(values, util.sizeFromShape(reduceShape), outShape, x.dtype);\n\n   out = backend.makeTensorInfo(outShape, x.dtype);\n   const outData = backend.texData.get(out.dataId);\n   outData.values = outValues;\n } else {\n   out = maxImpl(maxInput, reduceShape, outShape, backend);\n }\n\n if (maxInputIsTransposed) {\n   backend.disposeIntermediateTensorInfo(maxInput);\n }\n\n return out;\n}\n\nexport const maxConfig: KernelConfig = {\n kernelName: Max,\n backendName: 'webgl',\n kernelFunc: max as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in

compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport {backend_util, KernelConfig, KernelFunc, MaxPool, MaxPoolAttrs, MaxPoolInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Pool2DProgram} from '../pool_gpu';\nimport {assertNotComplex} from '../webgl_util';\nimport {identity} from './Identity';\n\nexport function maxPool(args: {\n inputs: MaxPoolInputs,\n backend: MathBackendWebGL,\n attrs: MaxPoolAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n assertNotComplex(x, 'maxPool');\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const dilations = 1;\n\n util.assert(\n   backend_util.eitherStridesOrDilationsAreOne(strides, dilations),\n   () => 'Error in maxPool: Either strides or dilations must be 1. ' +\n   `Got strides ${strides} and dilations '${dilations}'`);\n\n const convInfo = backend_util.computePool2DInfo(\n   x.shape as [number, number, number, number], filterSize, strides,\n   dilations, pad, dimRoundingMode);\n if (convInfo.filterWidth === 1 && convInfo.filterHeight === 1 &&\n   util.arraysEqual(convInfo.inShape, convInfo.outShape)) {\n   return identity({inputs: {x}, backend});\n }\n const maxPoolProgram = new Pool2DProgram(convInfo, 'max', false);\n return backend.runWebGLProgram(maxPoolProgram, [x], x.dtype);\n}\n\nexport const maxPoolConfig: KernelConfig = {\n kernelName: MaxPool,\n backendName: 'webgl',\n kernelFunc: maxPool as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n */\nimport {backend_util, KernelConfig, KernelFunc, MaxPool3D, MaxPool3DAttrs, MaxPool3DInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Pool3DProgram} from '../pool_gpu';\n\nexport function maxPool3d(args: {\n inputs: MaxPool3DInputs,\n backend: MathBackendWebGL,\n attrs: MaxPool3DAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {filterSize, strides, pad, dataFormat, dimRoundingMode} = attrs;\n const dilations: [number, number, number] = [1, 1, 1];\n\n const convInfo = backend_util.computePool3DInfo(\n   x.shape as [number, number, number, number, number], filterSize, strides,\n   dilations, pad, dimRoundingMode, dataFormat);\n const maxPoolProgram = new Pool3DProgram(convInfo, 'max', false);\n return backend.runWebGLProgram(maxPoolProgram, [x], x.dtype);\n}\n\nexport const maxPool3DConfig: KernelConfig = {\n kernelName: MaxPool3D,\n backendName: 'webgl',\n kernelFunc: maxPool3d as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance
 with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ===\n

```
*/\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from
'./gpgpu_math';\n\nexport class MaxPool2DBackpropProgram implements GPGPUProgram {\n  variableNames =
['dy', 'maxPos'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(convInfo:
backend_util.Conv2DInfo) {\n    this.outputShape = convInfo.inShape;\n    const strideHeight =
convInfo.strideHeight;\n    const strideWidth = convInfo.strideWidth;\n    const dilationHeight
 = convInfo.dilationHeight;\n    const effectiveFilterHeight = convInfo.effectiveFilterHeight;\n    const
effectiveFilterWidth = convInfo.effectiveFilterWidth;\n\n    const padTop = effectiveFilterHeight - 1 -
convInfo.padInfo.top;\n    const padLeft = effectiveFilterWidth - 1 - convInfo.padInfo.left;\n\n    const lastIndex =
effectiveFilterHeight * effectiveFilterWidth - 1;\n    this.userCode = `\n      const ivec2 pads = ivec2(${padTop},
${padLeft});\n\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int b = coords[0];\n        int d =
coords[3];\n\n        ivec2 dyRCCorner = coords.yz - pads;\n        int dyRCorner = dyRCCorner.x;\n        int
dyCCorner = dyRCCorner.y;\n\n        // Convolve dy(?, ?, d) with pos mask(:, :, d) to get dx(xR, xC, d).\n        // ? =
to be determined. : = across all values in that axis.\n        float dotProd = 0.0;\n        for (int wR = 0; wR <
${effectiveFilterHeight};\n          wR += ${dilationHeight}) {\n          float
 dyR = float(dyRCorner + wR) / ${strideHeight}.0;\n\n          if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 ||
fract(dyR) > 0.0) {\n            continue;\n          }\n          int idyR = int(dyR);\n\n          for (int wC = 0; wC <
${effectiveFilterWidth}; wC++) {\n            float dyC = float(dyCCorner + wC) / ${strideWidth}.0;\n\n            if
(dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n                fract(dyC) > 0.0) {\n              continue;\n            }\n
 int idyC = int(dyC);\n\n            float dyValue = getDy(b, idyR, idyC, d);\n            int maxPosValue = ${lastIndex} -
int(getMaxPos(b, idyR, idyC, d));\n\n            // Get the current value, check it against the value from the\n            //
position matrix.\n            int curPosValue = wR * ${effectiveFilterWidth} + wC;\n            float mask =
float(maxPosValue == curPosValue ? 1.0 : 0.0);\n\n            dotProd += dyValue * mask;\n          }\n        }\n
setOutput(dotProd);\n
    }\n    `;\n  }\n}\n\nexport class MaxPool3DBackpropProgram implements GPGPUProgram {\n  variableNames =
['dy', 'maxPos'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(convInfo:
backend_util.Conv3DInfo) {\n    this.outputShape = convInfo.inShape;\n    const strideDepth =
convInfo.strideDepth;\n    const strideHeight = convInfo.strideHeight;\n    const strideWidth =
convInfo.strideWidth;\n    const dilationDepth = convInfo.dilationDepth;\n    const dilationHeight =
convInfo.dilationHeight;\n    const dilationWidth = convInfo.dilationWidth;\n    const effectiveFilterDepth =
convInfo.effectiveFilterDepth;\n    const effectiveFilterHeight = convInfo.effectiveFilterHeight;\n    const
effectiveFilterWidth = convInfo.effectiveFilterWidth;\n\n    const padFront = effectiveFilterDepth - 1 -
convInfo.padInfo.front;\n    const padTop = effectiveFilterHeight - 1 - convInfo.padInfo.top;\n    const padLeft =
effectiveFilterWidth - 1 - convInfo.padInfo.left;\n\n    const lastIndex
 =\n        effectiveFilterDepth * effectiveFilterHeight * effectiveFilterWidth - 1;\n    this.userCode = `\n      const
ivec3 pads = ivec3(${padFront}, ${padTop}, ${padLeft});\n\n      void main() {\n        ivec5 coords =
getOutputCoords();\n        int batch = coords.x;\n        int ch = coords.u;\n\n        ivec3 dyCorner = ivec3(coords.y,
coords.z, coords.w) - pads;\n        int dyDCorner = dyCorner.x;\n        int dyRCorner = dyCorner.y;\n        int
dyCCorner = dyCorner.z;\n\n        // Convolve dy(?, ?, ?, ch) with pos mask(:, :, :, d) to get\n        // dx(xD, xR, xC,
ch).\n        // ? = to be determined. : = across all values in that axis.\n        float dotProd = 0.0;\n\n        for (int wD =
0; wD < ${effectiveFilterDepth};\n          wD += ${dilationDepth}) {\n          float dyD = float(dyDCorner + wD) /
${strideDepth}.0;\n\n          if (dyD < 0.0 || dyD >= ${convInfo.outDepth}.0 || fract(dyD) > 0.0) {\n
continue;\n          }\n          int idyD = int(dyD);\n\n
          for (int wR = 0; wR < ${effectiveFilterHeight};\n            wR += ${dilationHeight}) {\n            float dyR =
float(dyRCorner + wR) / ${strideHeight}.0;\n\n            if (dyR < 0.0 || dyR >= ${convInfo.outHeight}.0 ||\n
fract(dyR) > 0.0) {\n              continue;\n            }\n            int idyR = int(dyR);\n\n            for (int wC = 0; wC <
${effectiveFilterWidth};\n              wC += ${dilationWidth}) {\n              float dyC = float(dyCCorner + wC) /
${strideWidth}.0;\n\n              if (dyC < 0.0 || dyC >= ${convInfo.outWidth}.0 ||\n                  fract(dyC) > 0.0) {\n
          continue;\n              }\n              int idyC = int(dyC);\n\n              float dyValue = getDy(batch, idyD, idyR,
```

idyC, ch);\n int maxPosValue = ${lastIndex} -\n int(getMaxPos(batch, idyD, idyR, idyC, ch));\n\n // Get the current value, check it against the value from the\n // position matrix.\n int curPosValue =\n wD * ${effectiveFilterHeight} * ${effectiveFilterWidth} +\n wR * ${effectiveFilterWidth} + wC;\n float mask = float(maxPosValue == curPosValue ? 1.0 : 0.0);\n\n dotProd += dyValue * mask;\n }\n }\n }\n setOutput(dotProd);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations
under the License.\n *
==========\n */\nimport {backend_util, KernelConfig, KernelFunc, MaxPool3DGrad, MaxPool3DGradAttrs, MaxPool3DGradInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {MaxPool3DBackpropProgram} from '../max_pool_backprop_gpu';\nimport {Pool3DProgram} from '../pool_gpu';\n\nexport function maxPool3DGrad(args: {\n inputs: MaxPool3DGradInputs,\n backend: MathBackendWebGL,\n attrs: MaxPool3DGradAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {dy, input} = inputs;\n const x = input;\n const {filterSize, strides, pad, dimRoundingMode} = attrs;\n const dilations: [number, number, number] = [1, 1, 1];\n\n const convInfo = backend_util.computePool3DInfo(\n x.shape as [number, number, number, number, number], filterSize, strides,\n dilations, pad, dimRoundingMode);\n\n const maxPool3dPositionsProgram =\n new Pool3DProgram(convInfo, 'max', true /* get positions */);\n const maxPool3dPositions =\n backend.runWebGLProgram(maxPool3dPositionsProgram, [x], x.dtype);\n const maxPoolBackpropProgram = new MaxPool3DBackpropProgram(convInfo);\n const result = backend.runWebGLProgram(\n maxPoolBackpropProgram, [dy, maxPool3dPositions], x.dtype);\n backend.disposeIntermediateTensorInfo(maxPool3dPositions);\n return result;\n}\n\nexport const maxPoolGrad3DConfig: KernelConfig = {\n kernelName: MaxPool3DGrad,\n backendName: 'webgl',\n kernelFunc: maxPool3DGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\nimport {backend_util, KernelConfig, KernelFunc, MaxPoolGrad, MaxPoolGradAttrs, MaxPoolGradInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {MaxPool2DBackpropProgram} from '../max_pool_backprop_gpu';\nimport {Pool2DProgram} from '../pool_gpu';\nimport {assertNotComplex} from '../webgl_util';\n\nexport function maxPoolGrad(args: {\n inputs: MaxPoolGradInputs,\n backend: MathBackendWebGL,\n attrs: MaxPoolGradAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {dy, input, output} = inputs;\n const x = input;\n assertNotComplex([input, output], 'maxPoolGrad');\n const {filterSize,
strides, pad, dimRoundingMode} = attrs;\n\n const convInfo = backend_util.computePool2DInfo(\n x.shape as [number, number, number, number], filterSize, strides,\n 1 /* dilations */, pad, dimRoundingMode);\n const getPositions = true;\n const maxPoolPositionsProgram =\n new Pool2DProgram(convInfo, 'max', getPositions);\n const maxPoolPositions: TensorInfo =\n

backend.runWebGLProgram(maxPoolPositionsProgram, [x], x.dtype);\n\n const maxPoolBackPropProgram = new MaxPool2DBackpropProgram(convInfo);\n const result = backend.runWebGLProgram(\n maxPoolBackPropProgram, [dy, maxPoolPositions], x.dtype);\n backend.disposeIntermediateTensorInfo(maxPoolPositions);\n return result;\n}\n\nexport const maxPoolGradConfig: KernelConfig = {\n kernelName: MaxPoolGrad,\n backendName: 'webgl',\n kernelFunc: maxPoolGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {Pool2DProgram} from '../pool_gpu';\n\nexport function maxPoolWithArgmaxImpl(\n x: TensorInfo, includeBatchInIndex: boolean,\n   convInfo: backend_util.Conv2DInfo,\n   backend: MathBackendWebGL): TensorInfo[] {\n let program = new Pool2DProgram(convInfo, 'max', false);\n const poolOutput = backend.runWebGLProgram(program, [x], 'float32');\n\n program = new Pool2DProgram(convInfo, 'max', true, true, includeBatchInIndex);\n const indexOutput = backend.runWebGLProgram(program, [x], 'float32');\n return [poolOutput, indexOutput];\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {MaxPoolWithArgmax, MaxPoolWithArgmaxAttrs, MaxPoolWithArgmaxInputs} from '@tensorflow/tfjs-core';\nimport {backend_util, KernelConfig, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {maxPoolWithArgmaxImpl} from './MaxPoolWithArgmax_impl';\n\nexport const maxPoolWithArgmaxConfig: KernelConfig = {\n kernelName: MaxPoolWithArgmax,\n backendName: 'webgl',\n kernelFunc: ({inputs, attrs, backend}) => {\n   const {x} = inputs as MaxPoolWithArgmaxInputs;\n   const {filterSize, strides, pad, includeBatchInIndex} =\n   attrs as {} as MaxPoolWithArgmaxAttrs;\n   const webglBackend = backend as MathBackendWebGL;\n\n   util.assert(\n   x.shape.length === 4,\n   () => `Error in maxPool: input must be rank 4 but got rank ${\n            x.shape.length}.`);\n   const dilations: [number, number] = [1, 1];\n   util.assert(\n   backend_util.eitherStridesOrDilationsAreOne(strides, dilations),\n   () => 'Error in maxPool: Either strides or dilations must be 1. ' +\n   `Got strides ${strides} and dilations '${dilations}'`);\n\n   const convInfo = backend_util.computePool2DInfo(\n   x.shape as [number, number, number, number], filterSize, strides,\n   dilations, pad);\n\n   const [result, indexes] =\n   maxPoolWithArgmaxImpl(x, includeBatchInIndex, convInfo, webglBackend);\n   return [result, indexes];\n }\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific

language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from
'../backend_webgl';\nimport {reduce} from '../kernel_utils/reduce';\nimport {reshape} from
'../kernels/Reshape';\n\nexport function meanImpl(\n x: TensorInfo, reduceShape: number[], outShape:
number[],\n backend: MathBackendWebGL): TensorInfo {\n const inSize = util.sizeFromShape(reduceShape);\n
const xSize = util.sizeFromShape(x.shape);\n const batchSize = xSize / inSize;\n const reshapedInput =\n
reshape({inputs: {x}, attrs: {shape: [batchSize, inSize]}, backend});\n\n const reduced = reduce(reshapedInput,
'float32', 'mean', backend);\n const reshapedOutput =\n reshape({inputs: {x: reduced}, attrs: {shape: outShape},
backend});\n\n backend.disposeIntermediateTensorInfo(reshapedInput);\n
backend.disposeIntermediateTensorInfo(reduced);\n\n
return reshapedOutput;\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {backend_util, KernelConfig, Mean, MeanAttrs, MeanInputs, TensorInfo, TypedArray, util} from
'@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {meanImpl} from
'./Mean_impl';\nimport
{transposeImpl, transposeImplCPU} from './Transpose_impl';\n\nexport const meanConfig: KernelConfig = {\n
kernelName: Mean,\n backendName: 'webgl',\n kernelFunc: ({inputs, attrs, backend}) => {\n const {x} = inputs
as MeanInputs;\n const {keepDims, axis} = attrs as {} as MeanAttrs;\n const webglBackend = backend as
MathBackendWebGL;\n\n const xRank = x.shape.length;\n const origAxes = util.parseAxisParam(axis,
x.shape);\n\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n
const meanInputIsTransposed = permutedAxes != null;\n const shouldExecuteOnCPU =
webglBackend.shouldExecuteOnCPU([x]);\n\n const intermediates: TensorInfo[] = [];\n\n let meanInput = x;\n
if (meanInputIsTransposed) {\n if (shouldExecuteOnCPU) {\n const xTexData =
webglBackend.texData.get(meanInput.dataId);\n const values = xTexData.values as TypedArray;\n\n const
newShape: number[] = new Array(xRank);\n
for (let i = 0; i < newShape.length; i++) {\n newShape[i] = x.shape[permutedAxes[i]];\n }\n
const meanInputValues =\n transposeImplCPU(values, x.shape, x.dtype, permutedAxes, newShape);\n\n
meanInput = webglBackend.makeTensorInfo(newShape, x.dtype);\n const meanInputData =
webglBackend.texData.get(meanInput.dataId);\n meanInputData.values = meanInputValues;\n } else {\n
meanInput = transposeImpl(x, permutedAxes, webglBackend);\n }\n\n intermediates.push(meanInput);\n
axes = backend_util.getInnerMostAxes(axes.length, xRank);\n }\n\n
backend_util.assertAxesAreInnerMostDims('sum', axes, xRank);\n const [meanOutShape, reduceShape] =\n
backend_util.computeOutAndReduceShapes(meanInput.shape, axes);\n\n let outShape = meanOutShape;\n if
(keepDims) {\n // rather than reshape at the end, set the target shape here.\n outShape =
backend_util.expandShapeToKeepDim(meanOutShape,
origAxes);\n }\n\n const out = meanImpl(meanInput, reduceShape, outShape, webglBackend);\n for (const i
of intermediates) {\n webglBackend.disposeIntermediateTensorInfo(i);\n }\n\n return out;\n }\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, Min, MinAttrs, MinInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {reduce} from '../kernel_utils/reduce';\n\nimport {reshape} from './Reshape';\nimport {transpose} from './Transpose';\n\nexport function min(\n args: {inputs: MinInputs, backend: MathBackendWebGL, attrs: MinAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {axis, keepDims} = attrs;\n\n const xRank = x.shape.length;\n\n const origAxes = util.parseAxisParam(axis, x.shape);\n let axes = origAxes;\n const permutedAxes = backend_util.getAxesPermutation(axes, xRank);\n let permutedX = x;\n if (permutedAxes != null) {\n permutedX = transpose({inputs: {x}, backend, attrs: {perm: permutedAxes}});\n axes = backend_util.getInnerMostAxes(axes.length, x.shape.length);\n }\n\n backend_util.assertAxesAreInnerMostDims('min', axes, xRank);\n const [outShape, reduceShape] =\n backend_util.computeOutAndReduceShapes(permutedX.shape, axes);\n const inSize = util.sizeFromShape(reduceShape);\n const a2D =\n reshape({inputs: {x: permutedX}, backend, attrs: {shape: [-1, inSize]}});\n const reduced = reduce(a2D, a2D.dtype, 'min', backend);\n\n let res;\n if (keepDims) {\n const newShape = backend_util.expandShapeToKeepDim(outShape, origAxes);\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: newShape}});\n } else {\n res = reshape({inputs: {x: reduced}, backend, attrs: {shape: outShape}});\n }\n\n backend.disposeIntermediateTensorInfo(a2D);\n backend.disposeIntermediateTensorInfo(reduced);\n\n if (permutedAxes != null) {\n backend.disposeIntermediateTensorInfo(permutedX);\n }\n\n return res;\n}\n\nexport const minConfig: KernelConfig = {\n kernelName: Min,\n backendName: 'webgl',\n kernelFunc: min as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class MirrorPadProgram implements GPGPUProgram {\n variableNames = ['x'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n xShape: number[], paddings: Array<[number, number]>,\n mode: 'reflect'|'symmetric') {\n this.outputShape = paddings.map(\n (p, i) => p[0] /* beforePad */ + xShape[i] + p[1] /* afterPad */);\n const rank = xShape.length;\n const dtype = getCoordsDataType(rank);\n\n const start = paddings.map(p => p[0]).join(',');\n const end = paddings.map((p, i) => p[0] + xShape[i]).join(',');\n const unpackedCoords =\n ['coords[0]', 'coords[1]', 'coords[2]', 'coords[3]'].slice(0, rank);\n const offset = mode === 'reflect' ? 0 : 1;\n\n if (rank === 1) {\n this.userCode = `\n int start = ${start};\n int end = ${end};\n\n void main() {\n int outC = getOutputCoords();\n if (outC < start) {\n outC = start * 2 - outC - ${offset};\n } else if(outC >= end) {\n outC = (end - 1) * 2 - outC + ${offset};\n }\n setOutput(getX(outC - start));\n }\n `;\n return;\n }\n this.userCode = `\n ${dtype} start = ${dtype}(${start});\n ${dtype} end = ${dtype}(${end});\n\n void main() {\n ${dtype} outC = getOutputCoords();\n for (int i = 0; i < ${rank}; i++) {\n if (outC[i] < start[i]) {\n outC[i] = start[i] * 2 - outC[i] - ${offset};\n } else if(outC[i] >= end[i]) {\n outC[i] = (end[i] - 1) * 2 - outC[i] + ${offset};\n }\n }\n ${dtype} coords = outC - start;\n setOutput(getX(${unpackedCoords}));\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC.

```
All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
 permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\n/**\n * Example shader code for\n * `mirrorPad(tf.tensor1d([1, 2, 3], 'int32'), [[2, 2]], 'reflect')`\n * ```\n *  const int start = int(2);\n *  const int end = int(5);\n *\n *  void main() {\n *    int outputLoc = getOutputCoords();\n *    vec4 result = vec4(0.);\n *\n *    int rc = outputLoc;\n *\n *
 int source = rc;\n *    if (source < start) {\n *      source = start * 2 - source - 0;\n *    } else if (source >= end) {\n *      source = (end - 1) * 2 - source + 0;\n *    }\n *    source -= start;\n *\n *    result[0] = getChannel(getX(source), source);\n *    rc += 1;\n *    if(rc < 6) {\n *      int source = rc;\n *      if (source < start)
 {\n *        source = start * 2 - source - 0;\n *      } else if (source >= end) {\n *        source = (end - 1) * 2 - source + 0;\n *      }\n *      source -= start;\n *\n *      result[1] = getChannel(getX(source), source);\n *    }\n *\n *    setOutput(result);\n *  }\n * ```\n */\nexport class MirrorPadPackedProgram implements GPGPUProgram {\n  variableNames = ['x'];\n  packedInputs = true;\n  packedOutput = true;\n  outputShape: number[];\n  userCode: string;\n\n  constructor(\n      xShape: number[], paddings: Array<[number, number]>,\n      mode: 'reflect'|'symmetric') {\n    this.outputShape = paddings.map(\n        (p, i) => p[0] /* beforePad */ + xShape[i] + p[1] /* afterPad */);\n    const rank = xShape.length;\n    const dtype = getCoordsDataType(rank);\n\n    const start = paddings.map(p => p[0]).join(',');\n    const end = paddings.map((p, i) => p[0] + xShape[i]).join(',');\n    const coords = getChannels('rc', rank);\n    const source
 = getChannels('source', rank);\n    const cLimit = `${coords[rank - 1]} < ${this.outputShape[rank - 1]}`;\n    const innerDims =\n        rank === 1 ? 'source' : `vec2(${source.slice(-2).join()})`;\n    const offset = mode === 'reflect' ? 0 : 1;\n\n    let mainLoop = '';\n    if (rank === 1) {\n      const padSetup = `\n        ${dtype} source = rc;\n        if (source < start) {\n          source = start * 2 - source - ${offset};\n        } else if (source >= end) {\n          source = (end - 1) * 2 - source + ${offset};\n        }\n        source -= start;\n      `;\n      mainLoop = `\n        ${dtype} rc = outputLoc;\n        ${padSetup}\n        result[0] = getChannel(getX(${source.join()}), ${innerDims});\n        ${coords[rank - 1]} += 1;\n        if(${cLimit}) {\n          ${padSetup}\n          result[1] = getChannel(getX(${source.join()}), ${innerDims});\n        }\n      `;\n    } else {\n      const padSetup = `\n        ${dtype} source = rc;\n        ${dtype} lt = ${dtype}(lessThan(source,
 start));\n        ${dtype} gte = ${dtype}(greaterThanEqual(source, end));\n        ${dtype} orig = 1 - (lt + gte);\n        source = orig * source +\n                 lt * (start * 2 - source - ${offset}) +\n                 gte * ((end - 1) * 2 - source + ${offset});\n        source -= start;\n      `;\n\n      mainLoop = `\n        ${dtype} rc = outputLoc;\n        ${padSetup}\n        result[0] = getChannel(getX(${source.join()}), ${innerDims});\n        ${coords[rank - 1]} += 1;\n        if(${cLimit}) {\n          ${padSetup}\n          result[1] = getChannel(getX(${source.join()}), ${innerDims});\n        }\n        rc = outputLoc;\n        ${coords[rank - 2]} += 1;\n        if(${coords[rank - 2]} < ${this.outputShape[rank - 2]}) {\n          ${padSetup}\n          result[2] = getChannel(getX(${source.join()}), ${innerDims});\n          ${coords[rank - 1]} += 1;\n          if(${cLimit}) {\n            ${padSetup}\n            result[3] = getChannel(getX(${source.join()}),
 ${innerDims});\n          }\n        }\n      `;\n    }\n\n    this.userCode = `\n      const ${dtype} start = ${dtype}(${start});\n      const ${dtype} end = ${dtype}(${end});\n\n      void main() {\n        ${dtype} outputLoc = getOutputCoords();\n        vec4 result = vec4(0.);\n        ${mainLoop}\n        setOutput(result);\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
```

may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n
 * ==\n
*/\n\nimport {env, KernelConfig, KernelFunc, MirrorPad, MirrorPadAttrs, MirrorPadInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {MirrorPadProgram} from '../mirror_pad_gpu';\nimport {MirrorPadPackedProgram} from '../mirror_pad_packed_gpu';\n\nexport const mirrorPadKernelFunc: (params: {\n inputs: MirrorPadInputs,\n backend: MathBackendWebGL,\n attrs: MirrorPadAttrs\n}) => TensorInfo = ({inputs, backend, attrs}) => {\n const {x} = inputs;\n const {paddings, mode} = attrs;\n\n const program = env().getBool('WEBGL_PACK_ARRAY_OPERATIONS') ?\n   new MirrorPadPackedProgram(x.shape, paddings, mode) :\n   new MirrorPadProgram(x.shape, paddings, mode);\n\n const output = backend.runWebGLProgram(program, [x], x.dtype);\n\n return output;\n};\n\nexport const mirrorPadConfig: KernelConfig = {\n kernelName: MirrorPad,\n backendName: 'webgl',\n kernelFunc: mirrorPadKernelFunc as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, KernelFunc, Mod} from '@tensorflow/tfjs-core';\n\nimport {CHECK_NAN_SNIPPET} from '../binaryop_packed_gpu';\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst
 MOD = `if (b == 0.0) return NAN;\n  return mod(a, b);`;\n\nconst MOD_PACKED = `\n  vec4 result = mod(a, b);\n  vec4 isNaN = vec4(equal(b, vec4(0.0)));\n  ` +\n   CHECK_NAN_SNIPPET + `\n  return result;\n`;\n\nexport const mod = binaryKernelFunc({\n opSnippet: MOD,\n packedOpSnippet: MOD_PACKED,\n});\n\nexport const modConfig: KernelConfig = {\n kernelName: Mod,\n backendName: 'webgl',\n kernelFunc: mod as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the
 specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {GPGPUContext} from './gpgpu_context';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class MultinomialProgram implements GPGPUProgram {\n variableNames = ['probs'];\n outputShape: number[];\n userCode: string;\n\n // Caching uniform location for speed.\n seedLoc: WebGLUniformLocation;\n\n constructor(batchSize: number, numOutcomes: number, numSamples: number) {\n   this.outputShape = [batchSize, numSamples];\n\n   this.userCode = `\n   uniform float seed;\n\n   void main() {\n   ivec2 coords = getOutputCoords();\n   int batch = coords[0];\n\n   float r = random(seed);\n   float cdf = 0.0;\n\n   for (int i = 0; i < ${numOutcomes - 1}; i++) {\n   cdf += getProbs(batch, i);\n\n   if (r < cdf) {\n   setOutput(float(i));\n   return;\n
          }\n   }\n\n   // If no other event happened, last event happened.\n   setOutput(float(${numOutcomes - 1}));\n   }\n   `;\n }\n\n getCustomSetupFunc(seed: number) {\n   return (gpgpu: GPGPUContext, webGLProgram: WebGLProgram) => {\n   if (this.seedLoc == null) {\n   this.seedLoc =

gpgpu.getUniformLocation(webGLProgram, 'seed');\n }\n gpgpu.gl.uniform1f(this.seedLoc, seed);\n };\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {RealDiv} from '@tensorflow/tfjs-core';\nimport {KernelConfig} from '@tensorflow/tfjs-core';\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\n// Without the equality check div produces 0.9999 for a = b, which when\n// floored can cause errors.\nconst DIV = `\nif (a == b) {\n return 1.0;\n};\nreturn a / b;`;\n\n// We do the same as in ./binaryop_gpu, with vec4 and ivec4.\n// On Linux, the vectorized implementation produces NaNs when a and b are 0.\nconst DIV_PACKED = `\n // vec4 one = vec4(equal(a, b));\n // return one + (vec4(1.0) - one) * a / b;\n vec4 result = a / b;\n if(a.x == b.x) {\n result.x = 1.;\n }\n if(a.y == b.y) {\n result.y = 1.;\n }\n if(a.z == b.z) {\n result.z = 1.;\n }\n if(a.w == b.w) {\n result.w = 1.;\n }\n\n return result;\n`;\n\nexport const realDiv
= binaryKernelFunc(\n {opSnippet: DIV, packedOpSnippet: DIV_PACKED, checkOutOfBounds: true});\n\nexport const realDivConfig: KernelConfig = {\n kernelName: RealDiv,\n backendName: 'webgl',\n kernelFunc: realDiv,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc,
Softmax, SoftmaxAttrs, SoftmaxInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {exp} from './Exp';\nimport {max} from './Max';\nimport {realDiv} from './RealDiv';\nimport {reshape} from './Reshape';\nimport {sub} from './Sub';\nimport {sum} from './Sum';\n\nexport function softmax(args: {\n inputs: SoftmaxInputs,\n backend: MathBackendWebGL,\n attrs: SoftmaxAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {logits} = inputs;\n const {dim} = attrs;\n\n const axes = util.parseAxisParam([dim], logits.shape);\n\n const maxLogit = max({\n inputs: {x: logits},\n backend,\n attrs: {reductionIndices: axes, keepDims: false}\n });\n\n const expandedShape = backend_util.expandShapeToKeepDim(maxLogit.shape, axes);\n\n const maxLogitsReshaped =\n reshape({inputs: {x: maxLogit}, backend, attrs: {shape: expandedShape}});\n const a =\n sub({inputs: {a: logits, b: maxLogitsReshaped},
backend}) as TensorInfo;\n const b = exp({inputs: {x: a}, backend}) as TensorInfo;\n const sumExp =\n sum({inputs: {x: b}, backend, attrs: {axis: axes, keepDims: false}});\n const sumExpReshaped =\n reshape({inputs: {x: sumExp}, backend, attrs: {shape: expandedShape}});\n\n const res =\n realDiv({inputs: {a: b, b: sumExpReshaped}, backend}) as TensorInfo;\n\n backend.disposeIntermediateTensorInfo(maxLogit);\n backend.disposeIntermediateTensorInfo(maxLogitsReshaped);\n backend.disposeIntermediateTensorInfo(a);\n backend.disposeIntermediateTensorInfo(b);\n backend.disposeIntermediateTensorInfo(sumExp);\n backend.disposeIntermediateTensorInfo(sumExpReshaped);\n\n return res;\n}\n\nexport const softmaxConfig: KernelConfig = {\n kernelName: Softmax,\n backendName: 'webgl',\n kernelFunc: softmax as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n

* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {KernelConfig, KernelFunc, Multinomial, MultinomialAttrs, MultinomialInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {MultinomialProgram} from '../multinomial_gpu';\n\nimport {softmax} from './Softmax';\n\nexport function multinomial(args: {\n inputs: MultinomialInputs,\n backend: MathBackendWebGL,\n attrs: MultinomialAttrs\n}): TensorInfo
{\n const {inputs, backend, attrs} = args;\n const {logits} = inputs;\n const {numSamples, seed, normalized} = attrs;\n\n const probs = normalized ?\n logits :\n softmax(\n {inputs: {logits}, backend, attrs: {dim: logits.shape.length - 1}});\n const batchSize = probs.shape[0];\n const numOutcomes = probs.shape[1];\n const program = new MultinomialProgram(batchSize, numOutcomes, numSamples);\n const customSetup = program.getCustomSetupFunc(seed);\n\n const res = backend.runWebGLProgram(program, [probs], 'int32', customSetup);\n if (!normalized) {\n backend.disposeIntermediateTensorInfo(probs);\n }\n return res;\n}\n\nexport const multinomialConfig: KernelConfig = {\n kernelName: Multinomial,\n backendName: 'webgl',\n kernelFunc: multinomial as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n*/\n\nimport {backend_util, kernel_impls, KernelConfig, KernelFunc, NonMaxSuppressionV3, NonMaxSuppressionV3Attrs, NonMaxSuppressionV3Inputs, TypedArray} from '@tensorflow/tfjs-core';\n\nconst nonMaxSuppressionV3Impl = kernel_impls.nonMaxSuppressionV3Impl;\nimport {MathBackendWebGL} from '../backend_webgl';\n\nexport function nonMaxSuppressionV3(args: {\n inputs: NonMaxSuppressionV3Inputs,\n backend: MathBackendWebGL,\n attrs: NonMaxSuppressionV3Attrs\n})
{\n backend_util.warn(\n 'tf.nonMaxSuppression() in webgl locks the UI thread. ' +\n 'Call tf.nonMaxSuppressionAsync() instead');\n\n const {inputs, backend, attrs} = args;\n const {boxes, scores} = inputs;\n const {maxOutputSize, iouThreshold, scoreThreshold} = attrs;\n\n const boxesVals = backend.readSync(boxes.dataId) as TypedArray;\n const scoresVals = backend.readSync(scores.dataId) as TypedArray;\n\n const {selectedIndices} = nonMaxSuppressionV3Impl(\n boxesVals, scoresVals, maxOutputSize, iouThreshold, scoreThreshold);\n\n return backend.makeTensorInfo(\n [selectedIndices.length], 'int32', new Int32Array(selectedIndices));\n}\n\nexport const nonMaxSuppressionV3Config: KernelConfig = {\n kernelName: NonMaxSuppressionV3,\n backendName: 'webgl',\n kernelFunc: nonMaxSuppressionV3 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n===\n

*/\n\nimport {backend_util, kernel_impls, KernelConfig, KernelFunc, NonMaxSuppressionV4, NonMaxSuppressionV4Attrs, NonMaxSuppressionV4Inputs, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\nconst nonMaxSuppressionV4Impl = kernel_impls.nonMaxSuppressionV4Impl;\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nexport function nonMaxSuppressionV4(args: {\n inputs: NonMaxSuppressionV4Inputs,\n backend: MathBackendWebGL,\n attrs: NonMaxSuppressionV4Attrs\n}): [TensorInfo, TensorInfo] {\n backend_util.warn(\n 'tf.nonMaxSuppression() in webgl locks the UI thread. ' +\n   'Call tf.nonMaxSuppressionAsync() instead');\n\n const {inputs, backend, attrs} = args;\n const {boxes, scores} = inputs;\n const {maxOutputSize, iouThreshold, scoreThreshold, padToMaxOutputSize} =\n   attrs;\n\n const boxesVals = backend.readSync(boxes.dataId) as TypedArray;\n const scoresVals = backend.readSync(scores.dataId) as TypedArray;\n\n const {selectedIndices, validOutputs} = nonMaxSuppressionV4Impl(\n   boxesVals, scoresVals, maxOutputSize, iouThreshold, scoreThreshold,\n   padToMaxOutputSize);\n\n return [\n   backend.makeTensorInfo(\n [selectedIndices.length], 'int32', new Int32Array(selectedIndices)),\n   backend.makeTensorInfo([], 'int32', new Int32Array([validOutputs]))\n];\n}\n\nexport const nonMaxSuppressionV4Config: KernelConfig = {\n kernelName: NonMaxSuppressionV4,\n backendName: 'webgl',\n kernelFunc: nonMaxSuppressionV4 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, kernel_impls, KernelConfig, KernelFunc, NonMaxSuppressionV5, NonMaxSuppressionV5Attrs, NonMaxSuppressionV5Inputs, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\n\nconst
 nonMaxSuppressionV5Impl = kernel_impls.nonMaxSuppressionV5Impl;\nimport {MathBackendWebGL} from '../backend_webgl';\n\nexport function nonMaxSuppressionV5(args: {\n inputs: NonMaxSuppressionV5Inputs,\n backend: MathBackendWebGL,\n attrs: NonMaxSuppressionV5Attrs\n}): [TensorInfo, TensorInfo] {\n backend_util.warn(\n   'tf.nonMaxSuppression() in webgl locks the UI thread. ' +\n   'Call tf.nonMaxSuppressionAsync() instead');\n\n const {inputs, backend, attrs} = args;\n const {boxes, scores} = inputs;\n const {maxOutputSize, iouThreshold, scoreThreshold, softNmsSigma} = attrs;\n\n const boxesVals = backend.readSync(boxes.dataId) as TypedArray;\n const scoresVals = backend.readSync(scores.dataId) as TypedArray;\n\n const maxOutputSizeVal = maxOutputSize;\n const iouThresholdVal = iouThreshold;\n const scoreThresholdVal = scoreThreshold;\n const softNmsSigmaVal = softNmsSigma;\n\n const {selectedIndices, selectedScores} = nonMaxSuppressionV5Impl(\n   boxesVals,
 scoresVals, maxOutputSizeVal, iouThresholdVal,\n   scoreThresholdVal, softNmsSigmaVal);\n\n return [\n   backend.makeTensorInfo(\n   [selectedIndices.length], 'int32', new Int32Array(selectedIndices)),\n   backend.makeTensorInfo(\n   [selectedScores.length], 'float32', new Float32Array(selectedScores))\n];\n}\n\nexport const nonMaxSuppressionV5Config: KernelConfig = {\n kernelName: NonMaxSuppressionV5,\n backendName: 'webgl',\n kernelFunc: nonMaxSuppressionV5 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========\n*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class OneHotProgram implements GPGPUProgram {\n  variableNames = ['indices'];\n  outputShape: number[];\n  userCode: string;\n\n  // Caching uniform location for speed.\n  seedLoc: WebGLUniformLocation;\n\n  constructor(\n      numIndices: number, depth: number, onValue: number, offValue: number) {\n    this.outputShape = [numIndices, depth];\n\n    this.userCode = `\n      void main() {\n        ivec2 coords = getOutputCoords();\n        int index = round(getIndices(coords.x));\n        setOutput(mix(float(${offValue}), float(${onValue}),\n                      float(index == coords.y)));\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, OneHot, OneHotAttrs, OneHotInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {OneHotProgram} from '../onehot_gpu';\nimport {reshape} from './Reshape';\n\nexport const oneHot = (args: {\n  inputs: OneHotInputs,\n  backend: MathBackendWebGL,\n  attrs: OneHotAttrs\n}): TensorInfo => {\n  const {inputs, backend, attrs} = args;\n  const {indices} = inputs;\n  const {depth, onValue, offValue} = attrs;\n\n  const indicesSize = util.sizeFromShape(indices.shape);\n  const program = new OneHotProgram(indicesSize, depth, onValue, offValue);\n  const reshaped =\n      reshape({inputs: {x: indices}, backend, attrs: {shape: [indicesSize]}});\n  const result = backend.runWebGLProgram(program, [reshaped], indices.dtype);\n  backend.disposeIntermediateTensorInfo(reshaped);\n\n  const outShape = [...indices.shape, depth];\n  const out = reshape({inputs: {x: result}, backend, attrs: {shape: outShape}});\n  backend.disposeIntermediateTensorInfo(result);\n  return out;\n};\n\nexport const oneHotConfig: KernelConfig = {\n  kernelName: OneHot,\n  backendName: 'webgl',\n  kernelFunc: oneHot as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {KernelConfig, KernelFunc, TensorInfo, ZerosLike, ZerosLikeInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {complex} from './Complex';\nimport {fill} from './Fill';\nimport {imag} from './Imag';\nimport {real} from './Real';\n\nexport function zerosLike(\n    args: {inputs: ZerosLikeInputs, backend: MathBackendWebGL}): TensorInfo {\n  const {inputs, backend} = args;\n  const {x} = inputs;\n\n  if (x.dtype === 'complex64') {\n    const realPart = real({inputs: {input: x}, backend});\n    const r = zerosLike({inputs: {x: realPart}, backend});\n    const imagPart = imag({inputs: {input: x}, backend});\n    const i = zerosLike({inputs: {x: imagPart}, backend});\n\n    const result = complex({inputs: {real: r, imag: i}, backend});\n\n    backend.disposeIntermediateTensorInfo(realPart);\n    backend.disposeIntermediateTensorInfo(r);\n    backend.disposeIntermediateTensorInfo(imagPart);\n    backend.disposeIntermediateTensorInfo(i);\n\n    return result;\n  } else {\n    return fill({\n      attrs: {\n        shape: x.shape,\n        dtype: x.dtype,\n        value: x.dtype === 'string' ? '' : 0\n      },\n      backend\n    });\n  }\n}\n\nexport const zerosLikeConfig: KernelConfig = {\n  kernelName: ZerosLike,\n  backendName: 'webgl',\n  kernelFunc: zerosLike as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All
```

Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, OnesLike, OnesLikeInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {complex} from './Complex';\nimport {fill} from './Fill';\nimport {imag} from './Imag';\nimport {real} from './Real';\nimport {zerosLike} from './ZerosLike';\n\nexport function onesLike(\n args: {inputs: OnesLikeInputs, backend: MathBackendWebGL}): TensorInfo {\n const {inputs, backend} = args;\n const {x} = inputs;\n\n if (x.dtype === 'string') {\n throw new Error('onesLike is not supported under string dtype');\n } else if (x.dtype === 'complex64') {\n const realPart = real({inputs: {input: x}, backend});\n const r = onesLike({inputs: {x: realPart}, backend});\n const imagPart = imag({inputs: {input: x}, backend});\n const i = zerosLike({inputs: {x: imagPart}, backend});\n\n const result = complex({inputs: {real: r, imag: i}, backend});\n\n backend.disposeIntermediateTensorInfo(realPart);\n backend.disposeIntermediateTensorInfo(r);\n backend.disposeIntermediateTensorInfo(imagPart);\n backend.disposeIntermediateTensorInfo(i);\n\n return result;\n } else {\n // TODO(cais, smilkov): Add WebGL shader for onesLike:\n // https://github.com/tensorflow/tfjs/issues/1293\n return fill({attrs: {shape: x.shape, dtype: x.dtype, value: 1}, backend});\n }\n}\n\nexport const onesLikeConfig: KernelConfig = {\n kernelName: OnesLike,\n backendName: 'webgl',\n kernelFunc: onesLike as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Pack, PackAttrs, PackInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {concat} from './Concat';\nimport {expandDims} from './ExpandDims';\n\nexport function pack(\n args: {inputs: PackInputs, backend: MathBackendWebGL, attrs: PackAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = args;\n const {axis} = attrs;\n\n if (inputs.length === 1) {\n return expandDims(\n {inputs: {input: inputs[0]}, backend, attrs: {dim: axis}});\n }\n\n const shape = inputs[0].shape;\n const dtype = inputs[0].dtype;\n\n inputs.forEach(t => {\n util.assertShapesMatch(\n shape, t.shape,\n 'All tensors passed to stack must have matching shapes');\n util.assert(\n dtype === t.dtype,\n () => 'All tensors passed to stack must have matching dtypes');\n });\n\n const intermediateTensorInfos: TensorInfo[] = [];\n const expandedTensors = inputs.map(t => {\n const expandedT =\n expandDims({inputs: {input: t}, backend, attrs: {dim: axis}});\n intermediateTensorInfos.push(expandedT);\n return expandedT;\n });\n\n const result = concat({inputs: expandedTensors, backend, attrs: {axis}});\n\n intermediateTensorInfos.forEach(\n t => backend.disposeIntermediateTensorInfo(t));\n\n return result;\n}\n\nexport const packConfig: KernelConfig = {\n kernelName: Pack,\n backendName: 'webgl',\n kernelFunc: pack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for

the specific
 language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from
'./shader_compiler';\n\nexport class PadProgram implements GPGPUProgram {\n variableNames = ['x'];\n
outputShape: number[];\n userCode: string;\n\n constructor(\n   xShape: number[], paddings: Array<[number,
number]>,\n   constantValue: number) {\n   this.outputShape = paddings.map(\n   (p, i) => p[0] /* beforePad */
+ xShape[i] + p[1] /* afterPad */);\n   const rank = xShape.length;\n   const type = getCoordsDataType(rank);\n\n
const start = paddings.map(p => p[0]).join(',');\n   const end = paddings.map((p, i) => p[0] + xShape[i]).join(',');\n
const unpackedCoords =\n   ['coords[0]', 'coords[1]', 'coords[2]', 'coords[3]'].slice(0, rank);\n\n   if (rank === 1)
{\n   this.userCode = `\n   int start = ${start};\n
        int end = ${end};\n\n   void main() {\n   int outC = getOutputCoords();\n   if (outC < start || outC
>= end) {\n   setOutput(float(${constantValue}));\n   } else {\n   setOutput(getX(outC - start));\n
        }\n   }\n   `;\n      return;\n    }\n    this.userCode = `\n ${type} start = ${type}(${start});\n ${type} end =
${type}(${end});\n\n   void main() {\n ${type} outC = getOutputCoords();\n   if (any(lessThan(outC,
start)) || any(greaterThanEqual(outC, end))) {\n   setOutput(float(${constantValue}));\n   } else {\n
${type} coords = outC - start;\n   setOutput(getX(${unpackedCoords}));\n   }\n   }\n   `;\n }\n}\n","/**\n
* @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport
{getCoordsDataType} from './shader_compiler';\n\nexport class PadPackedProgram implements GPGPUProgram
{\n variableNames = ['x'];\n packedInputs = true;\n packedOutput = true;\n outputShape: number[];\n userCode:
string;\n\n constructor(\n   xShape: number[], paddings: Array<[number, number]>,\n   constantValue: number)
{\n   this.outputShape = paddings.map(\n   (p, i) => p[0] /* beforePad */ + xShape[i] +
 p[1] /* afterPad */);\n   const rank = xShape.length;\n   const dtype = getCoordsDataType(rank);\n\n   const start =
paddings.map(p => p[0]).join(',');\n   const end = paddings.map((p, i) => p[0] + xShape[i]).join(',');\n   const coords
= getChannels('rc', rank);\n   const source = getChannels('source', rank);\n   const cLimit = `${coords[rank - 1]} <
${this.outputShape[rank - 1]}`;\n    const innerDims =\n        rank === 1 ? 'source' : `vec2(${source.slice(-
2).join()})`;\n\n    const componentSetup = [\n      `${dtype} rc = outputLoc;`, `${coords[rank - 1]} += 1;\n
if(${cLimit}) {\n   `,\n      rank === 1 ? '' : `}\n   rc = outputLoc;\n ${coords[rank - 2]} += 1;\n
if(${coords[rank - 2]} < ${this.outputShape[rank - 2]}) {`,\n      rank === 1 ? '' : ` ${coords[rank - 1]} += 1;\n
if(${cLimit}) {`\n   ];\n\n   const paddingArea = rank === 1 ?\n   'rc < start || rc >= end' :\n   'any(lessThan(rc,
start)) || any(greaterThanEqual(rc, end))';\n
   let mainLoop = '';\n   for (let i = 0, j = rank === 1 ? 2 : 4; i < j; i++) {\n   mainLoop += `\n
${componentSetup[i]}\n   if (${paddingArea}) {\n   result[${i}] = float(${constantValue});\n   } else {\n
    ${dtype} source = rc - start;\n   result[${i}] = getChannel(getX(${source.join()}), ${innerDims});\n   }\n
   `;\n    }\n    mainLoop += (rank === 1 ? `} ` : `}}`);\n\n    this.userCode = `\n   const ${dtype} start =
${dtype}(${start});\n   const ${dtype} end = ${dtype}(${end});\n\n   void main() {\n ${dtype} outputLoc =
getOutputCoords();\n   vec4 result = vec4(0.);\n ${mainLoop}\n   setOutput(result);\n   }\n   `;\n
}\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n

*\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {env, KernelConfig, KernelFunc, PadV2, PadV2Attrs, PadV2Inputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {PadProgram} from '../pad_gpu';\nimport {PadPackedProgram} from '../pad_packed_gpu';\n\nexport const padV2 =\n (args: {inputs: PadV2Inputs, backend: MathBackendWebGL, attrs: PadV2Attrs}):\n TensorInfo => {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {paddings, constantValue} = attrs;\n\n const program = env().getBool('WEBGL_PACK_ARRAY_OPERATIONS') ?\n new PadPackedProgram(x.shape, paddings, constantValue) :\n new PadProgram(x.shape, paddings, constantValue);\n return backend.runWebGLProgram(program, [x], x.dtype);\n };\n\nexport const padV2Config: KernelConfig = {\n kernelName: PadV2,\n backendName: 'webgl',\n kernelFunc: padV2 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Pow} from '@tensorflow/tfjs-core';\n\nimport {CHECK_NAN_SNIPPET} from '../binaryop_packed_gpu';\nimport {binaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst POW = `\n if(a < 0.0 && floor(b) < b){\n return NAN;\n }\n if (b == 0.0) {\n return 1.0;\n }\n return (round(mod(b, 2.0)) != 1) ?\n pow(abs(a), b) : sign(a) * pow(abs(a), b);\n`;\n\nconst POW_PACKED = `\n // isModRound1 has 1 for components with round(mod(b, 2.0)) == 1, 0 otherwise.\n vec4 isModRound1 = vec4(equal(round(mod(b, 2.0)), ivec4(1)));\n vec4 multiplier = sign(a) * isModRound1 + (vec4(1.0) - isModRound1);\n vec4 result = multiplier * pow(abs(a), b);\n\n // Ensure that a^0 = 1, including 0^0 = 1 as this correspond to TF and JS\n bvec4 isExpZero = equal(b, vec4(0.0));\n result.r = isExpZero.r ? 1.0 : result.r;\n
result.g = isExpZero.g ? 1.0 : result.g;\n result.b = isExpZero.b ? 1.0 : result.b;\n result.a = isExpZero.a ? 1.0 : result.a;\n\n vec4 isNaN = vec4(lessThan(a, vec4(0.0))) * vec4(lessThan(floor(b), b));\n ` +\n CHECK_NAN_SNIPPET + `\n return result;\n`;\n\nexport const pow =\n binaryKernelFunc({opSnippet: POW, packedOpSnippet: POW_PACKED});\n\nexport const powConfig: KernelConfig = {\n kernelName: Pow,\n backendName: 'webgl',\n kernelFunc: pow as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, KernelFunc, Range, RangeAttrs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {rangeImplCPU} from '../kernel_utils/shared';\n\nexport const range =\n (args: {backend: MathBackendWebGL, attrs: RangeAttrs}): TensorInfo => {\n const {backend, attrs} = args;\n const {start, stop, step, dtype} = attrs;\n const values = rangeImplCPU(start, stop, step,

dtype);\n return backend.makeTensorInfo([values.length], dtype, values);\n };\n\nexport const rangeConfig: KernelConfig = {\n kernelName: Range,\n backendName: 'webgl',\n kernelFunc: range as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, Reciprocal} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst RECIPROCAL = `return 1.0 / x;`;\n\nexport const reciprocal = unaryKernelFunc({opSnippet: RECIPROCAL});\n\nexport const reciprocalConfig: KernelConfig = {\n kernelName: Reciprocal,\n backendName: 'webgl',\n kernelFunc: reciprocal,\n};\n","/**\n
* @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Relu} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst RELU = CHECK_NAN_SNIPPET + `\n  return (x < 0.0) ? 0.0 : x;\n`;\n\nconst RELU_PACKED
= `\n  vec4 result = x * vec4(greaterThanEqual(x, vec4(0.0)));\n  bvec4 isNaN = isnan(x);\n\n  result.r = isNaN.r ? x.r : result.r;\n  result.g = isNaN.g ? x.g : result.g;\n  result.b = isNaN.b ? x.b : result.b;\n  result.a = isNaN.a ? x.a : result.a;\n\n  return result;\n`;\n\nexport const relu =\n   unaryKernelFunc({opSnippet: RELU, packedOpSnippet: RELU_PACKED});\n\nexport const reluConfig: KernelConfig = {\n kernelName: Relu,\n backendName: 'webgl',\n kernelFunc: relu as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
*/\n\nimport {KernelConfig, KernelFunc, Relu6} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\nimport {CHECK_NAN_SNIPPET} from '../unaryop_gpu';\n\nconst RELU6 = CHECK_NAN_SNIPPET + `\n  return (x < 0.0) ? 0.0 : min(6.0, x);\n`;\n\nconst RELU6_PACKED = `\n  vec4 result = min(x, vec4(6.)) * vec4(greaterThanEqual(x, vec4(0.0)));\n  bvec4 isNaN = isnan(x);\n\n  result.r = isNaN.r ? x.r : result.r;\n  result.g = isNaN.g ? x.g : result.g;\n  result.b = isNaN.b ? x.b : result.b;\n  result.a = isNaN.a ? x.a : result.a;\n\n  return result;\n`;\n\nexport const relu6 =\n   unaryKernelFunc({opSnippet: RELU6, packedOpSnippet: RELU6_PACKED});\n\nexport const relu6Config: KernelConfig = {\n kernelName: Relu6,\n backendName:
'webgl',\n kernelFunc: relu6 as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,

software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ResizeBilinearProgram implements GPGPUProgram {\n variableNames = ['A'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n   inputShape: [number, number, number, number], newHeight: number,\n   newWidth: number, alignCorners: boolean, halfPixelCenters: boolean) {\n   const [batch, oldHeight, oldWidth, depth] = inputShape;\n   this.outputShape = [batch, newHeight, newWidth, depth];\n\n   const effectiveInSize: [number, number] = [\n   (alignCorners && newHeight > 1) ? oldHeight - 1 : oldHeight,\n   (alignCorners && newWidth > 1) ? oldWidth - 1 : oldWidth\n   ];\n\n   const effectiveOutSize: [number, number] = [\n   (alignCorners && newHeight > 1) ? newHeight - 1 : newHeight,\n   (alignCorners && newWidth > 1) ? newWidth - 1 : newWidth\n   ];\n\n   let sourceFracIndexRC: string;\n   if (halfPixelCenters) {\n   sourceFracIndexRC =\n   `(vec2(yRC) + vec2(0.5)) * effectiveInputOverOutputRatioRC` +\n   ` - vec2(0.5)`;\n   } else {\n   sourceFracIndexRC = `vec2(yRC) * effectiveInputOverOutputRatioRC`;\n   }\n\n   this.userCode = `\n   const vec2 effectiveInputOverOutputRatioRC
 = vec2(\n ${effectiveInSize[0] / effectiveOutSize[0]},\n ${effectiveInSize[1] / effectiveOutSize[1]});\n
  const vec2 inputShapeRC = vec2(${oldHeight}.0, ${oldWidth}.0);\n\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int b = coords[0];\n   int d = coords[3];\n   ivec2 yRC = coords.yz;\n\n   // Fractional source index.\n   vec2 sourceFracIndexRC = ${sourceFracIndexRC};\n\n   // Compute the four integer indices.\n   ivec2 sourceFloorRC = ivec2(max(sourceFracIndexRC, vec2(0.0)));\n   ivec2 sourceCeilRC = ivec2(\n   min(inputShapeRC - 1.0, ceil(sourceFracIndexRC)));\n\n   float topLeft = getA(b, sourceFloorRC.x, sourceFloorRC.y, d);\n   float bottomLeft = getA(b, sourceCeilRC.x, sourceFloorRC.y, d);\n
  float topRight = getA(b, sourceFloorRC.x, sourceCeilRC.y, d);\n   float bottomRight = getA(b, sourceCeilRC.x, sourceCeilRC.y, d);\n\n   vec2 fracRC = sourceFracIndexRC
 - vec2(sourceFloorRC);\n\n   float top = topLeft + (topRight - topLeft) * fracRC.y;\n   float bottom = bottomLeft + (bottomRight - bottomLeft) * fracRC.y;\n   float newValue = top + (bottom - top) * fracRC.x;\n\n
  setOutput(newValue);\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n
 */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ResizeBilinearPackedProgram implements GPGPUProgram {\n variableNames = ['A'];\n packedInputs = true;\n packedOutput = true;\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n   inputShape: [number, number, number, number], newHeight: number,\n   newWidth: number, alignCorners: boolean, halfPixelCenters: boolean) {\n   const [batch, oldHeight, oldWidth, depth] = inputShape;\n   this.outputShape = [batch, newHeight, newWidth, depth];\n\n   const effectiveInSize: [number, number] = [\n   (alignCorners && newHeight > 1) ? oldHeight - 1 : oldHeight,\n   (alignCorners && newWidth > 1) ? oldWidth - 1 : oldWidth\n   ];\n\n   const effectiveOutSize: [number, number] = [\n   (alignCorners && newHeight > 1) ? newHeight - 1 : newHeight,\n   (alignCorners && newWidth > 1) ? newWidth - 1 : newWidth\n   ];\n\n   let sourceFracIndexRC: string;\n   if (halfPixelCenters) {\n
  sourceFracIndexRC = `(vec3(yRC) + vec3(0.5)) * ` +\n   `effectiveInputOverOutputRatioRC - vec3(0.5)`;\n
} else {\n   sourceFracIndexRC = `vec3(yRC) * effectiveInputOverOutputRatioRC`;\n   }\n\n   this.userCode =
`\n   const vec3 effectiveInputOverOutputRatioRC = vec3(\n ${effectiveInSize[0] / effectiveOutSize[0]},\n
    ${effectiveInSize[1] / effectiveOutSize[1]},\n ${effectiveInSize[1] / effectiveOutSize[1]});\n   const vec3

inputShapeRC = vec3(${oldHeight}.0, ${oldWidth}.0,\n ${oldWidth}.0);\n\n float getAValue(int b, int r, int c, int d) {\n return getChannel(getA(b, r, c, d), vec2(c, d));\n }\n\n void main() {\n ivec4 coords = getOutputCoords();\n int b = coords[0];\n int d = coords[3];\n // Calculate values for next column in yRC.z.\n ivec3 yRC = coords.yzz + ivec3(0, 0, 1);\n\n // Fractional source index.\n vec3 sourceFracIndexRC
= ${sourceFracIndexRC};\n\n // Compute the four integer indices.\n ivec3 sourceFloorRC = ivec3(max(sourceFracIndexRC, vec3(0.0)));\n ivec3 sourceCeilRC = ivec3(\n min(inputShapeRC - 1.0, ceil(sourceFracIndexRC)));\n\n // Should we calculate next column and row elements in 2x2 packed cell.\n bool hasNextCol = d < ${depth - 1};\n bool hasNextRow = coords.z < ${newWidth - 1};\n\n // In parallel, construct four corners for all four components in\n // packed 2x2 cell.\n vec4 topLeft = vec4(\n getAValue(b, sourceFloorRC.x, sourceFloorRC.y, d),\n hasNextCol ? getAValue(b, sourceFloorRC.x, sourceFloorRC.y, d + 1)\n : 0.0,\n hasNextRow ? getAValue(b, sourceFloorRC.x, sourceFloorRC.z, d)\n : 0.0,\n (hasNextRow && hasNextCol) ?\n getAValue(b, sourceFloorRC.x, sourceFloorRC.z, d + 1) : 0.0);\n\n vec4 bottomLeft = vec4(\n getAValue(b, sourceCeilRC.x, sourceFloorRC.y, d),\n hasNextCol ? getAValue(b, sourceCeilRC.x, sourceFloorRC.y, d + 1)\n : 0.0,\n hasNextRow ? getAValue(b, sourceCeilRC.x, sourceFloorRC.z, d)\n : 0.0,\n (hasNextRow && hasNextCol) ?\n getAValue(b, sourceCeilRC.x, sourceFloorRC.z, d + 1) : 0.0);\n\n vec4 topRight = vec4(\n getAValue(b, sourceFloorRC.x, sourceCeilRC.y, d),\n hasNextCol ? getAValue(b, sourceFloorRC.x, sourceCeilRC.y, d + 1)\n : 0.0,\n hasNextRow ? getAValue(b, sourceFloorRC.x, sourceCeilRC.z, d)\n : 0.0,\n (hasNextRow && hasNextCol) ?\n getAValue(b, sourceFloorRC.x, sourceCeilRC.z, d + 1) : 0.0);\n\n vec4 bottomRight = vec4(\n getAValue(b, sourceCeilRC.x, sourceCeilRC.y, d),\n hasNextCol ? getAValue(b, sourceCeilRC.x, sourceCeilRC.y, d + 1)\n : 0.0,\n hasNextRow
? getAValue(b, sourceCeilRC.x, sourceCeilRC.z, d)\n : 0.0,\n (hasNextRow && hasNextCol) ?\n getAValue(b, sourceCeilRC.x, sourceCeilRC.z, d + 1) : 0.0);\n\n vec3 fracRC = sourceFracIndexRC - vec3(sourceFloorRC);\n\n vec4 top = mix(topLeft, topRight, fracRC.yyzz);\n vec4 bottom = mix(bottomLeft, bottomRight, fracRC.yyzz);\n vec4 newValue = mix(top, bottom, fracRC.x);\n\n setOutput(newValue);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY
KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {env, KernelConfig, KernelFunc, ResizeBilinear, ResizeBilinearAttrs, ResizeBilinearInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ResizeBilinearProgram} from '../resize_bilinear_gpu';\nimport {ResizeBilinearPackedProgram} from '../resize_bilinear_packed_gpu';\n\nexport function resizeBilinear(args: {\n inputs: ResizeBilinearInputs,\n backend: MathBackendWebGL,\n attrs: ResizeBilinearAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n\n const [newHeight, newWidth] = size;\n\n const program = env().getBool('WEBGL_PACK_IMAGE_OPERATIONS') ?\n new ResizeBilinearPackedProgram(\n images.shape as [number, number, number, number], newHeight, newWidth,\n alignCorners, halfPixelCenters) :\n new ResizeBilinearProgram(\n images.shape as [number, number, number, number], newHeight, newWidth,\n alignCorners, halfPixelCenters);\n return backend.runWebGLProgram(program, [images], 'float32');\n}\n\nexport const resizeBilinearConfig: KernelConfig = {\n kernelName: ResizeBilinear,\n

```
backendName: 'webgl',\n  kernelFunc: resizeBilinear as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ResizeBilinearBackpropProgram implements GPGPUProgram {\n  variableNames = ['dy'];\n  outputShape: number[] = [];\n  userCode: string;\n\n  constructor(\n    dyShape: [number, number, number, number],\n      inputShape: [number, number, number, number],
alignCorners: boolean) {\n    this.outputShape = inputShape;\n    const [, xHeight, xWidth, ] = inputShape;\n    const [, yHeight, yWidth] = dyShape;\n\n    // In the backwards pass, we want to find the pixels that were generated for\n    // each pixel in the input image the forward pass and add the corresponding\n    // coefficient from dy to the gradient (with some interpolation).\n\n    const effectiveXSize: [number, number] = [\n      (alignCorners
 && yHeight > 1) ? xHeight - 1 : xHeight,\n      (alignCorners && yWidth > 1) ? xWidth - 1 : xWidth\n    ];\n\n
const effectiveYSize: [number, number] = [\n      (alignCorners && yHeight > 1) ? yHeight - 1 : yHeight,\n
(alignCorners && yWidth > 1) ? yWidth - 1 : yWidth\n    ];\n\n    const heightScale = effectiveXSize[0] /
effectiveYSize[0];\n    const widthScale = effectiveXSize[1] / effectiveYSize[1];\n\n    const invHeightScale = 1 /
heightScale;\n    const invWidthScale = 1 / widthScale;\n\n    // This defines the size of the window of values around a particular\n    // index in dy that we want to search for contributions to dx.\n    const winHeight =
(Math.ceil(invHeightScale) * 2) + 2;\n    const winWidth = (Math.ceil(invWidthScale) * 2) + 2;\n\n    this.userCode
= `\n      void main() {\n        ivec4 coords = getOutputCoords();\n        int b = coords[0];\n        int d = coords[3];\n
    int r = coords[1];\n        int c = coords[2];\n\n        float accumulator
 = 0.0;\n\n        const float heightScale = float(${heightScale});\n        const float widthScale =
float(${widthScale});\n\n        const float invHeightScale = float(${invHeightScale});\n        const float
invWidthScale = float(${invWidthScale});\n\n        const int winHeight = int(${winHeight});\n        const int
winWidth = int(${winWidth});\n\n        // Compute bounds for where in dy we will look\n        float startRLerp =
floor(float(r) * invHeightScale);\n        int startDyR = int(startRLerp - float(winHeight / 2));\n\n        float startCLerp
= floor(float(c) * invWidthScale);\n        int startDyC = int(startCLerp - float(winWidth / 2));\n\n        // Loop over
dy\n        for (int dyROffset = 0; dyROffset < winHeight; dyROffset++) {\n          int dyR = dyROffset +
startDyR;\n\n          // Guard against the window exceeding the bounds of dy\n          if (dyR < 0 || dyR >=
${yHeight}) {\n            continue;\n          }\n\n          for (int dyCOffset = 0; dyCOffset
 < winWidth; dyCOffset++) {\n            int dyC = dyCOffset + startDyC;\n\n            // Guard against the window
exceeding the bounds of dy\n            if (dyC < 0 || dyC >= ${yWidth}) {\n              continue;\n            }\n\n
float dxR = float(dyR) * heightScale;\n            int topDxRIndex = int(floor(dxR));\n            int bottomDxRIndex =
int(min(ceil(dxR), ${xHeight - 1}.0));\n            float dxRLerp = dxR - float(topDxRIndex);\n            float
inverseDxRLerp = 1.0 - dxRLerp;\n\n            float dxC = float(dyC) * widthScale;\n            int leftDxCIndex =
int(floor(dxC));\n            int rightDxCIndex = int(min(ceil(dxC), ${xWidth - 1}.0));\n            float dxCLerp = dxC -
float(leftDxCIndex);\n            float inverseDxCLerp = 1.0 - dxCLerp;\n\n            if (r == topDxRIndex && c ==
leftDxCIndex) {\n              // topLeft\n              accumulator +=\n                getDy(b, dyR, dyC, d) * inverseDxRLerp
* inverseDxCLerp;\n
  }\n\n            if (r == topDxRIndex && c == rightDxCIndex) {\n              // topRight\n              accumulator +=
getDy(b, dyR, dyC, d) * inverseDxRLerp * dxCLerp;\n            }\n\n            if (r == bottomDxRIndex && c ==
leftDxCIndex) {\n              // bottomLeft\n              accumulator += getDy(b, dyR, dyC, d) * dxRLerp *
inverseDxCLerp;\n            }\n\n            if (r == bottomDxRIndex && c == rightDxCIndex) {\n              //
bottomRight\n              accumulator += getDy(b, dyR, dyC, d) * dxRLerp * dxCLerp;\n            }\n          }\n        }\n
```

// End loop over dy\n\n setOutput(accumulator);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, ResizeBilinearGrad, ResizeBilinearGradAttrs, ResizeBilinearGradInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ResizeBilinearBackpropProgram} from '../resize_bilinear_backprop_gpu';\n\nexport function resizeBilinearGrad(args: {\n inputs: ResizeBilinearGradInputs,\n backend: MathBackendWebGL,\n attrs: ResizeBilinearGradAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {images, dy} = inputs;\n const {alignCorners} = attrs;\n\n const program = new ResizeBilinearBackpropProgram(\n dy.shape as [number, number, number, number],\n images.shape as [number, number, number, number], alignCorners);\n\n return backend.runWebGLProgram(program, [dy], dy.dtype);\n}\n\nexport const resizeBilinearGradConfig: KernelConfig = {\n kernelName: ResizeBilinearGrad,\n backendName: 'webgl',\n kernelFunc: resizeBilinearGrad as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ResizeNearestNeighborProgram implements GPGPUProgram {\n variableNames = ['A'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n inputShape: [number, number, number, number], newHeight: number,\n newWidth: number, alignCorners: boolean, halfPixelCenters: boolean) {\n const [batch, oldHeight, oldWidth, depth] = inputShape;\n this.outputShape = [batch, newHeight, newWidth, depth];\n\n const effectiveInSize: [number, number] = [\n (alignCorners && newHeight > 1) ? oldHeight - 1 : oldHeight,\n (alignCorners && newWidth > 1) ? oldWidth - 1 : oldWidth\n];\n\n const effectiveOutSize: [number, number] = [\n (alignCorners && newHeight > 1) ? newHeight - 1 : newHeight,\n (alignCorners && newWidth > 1) ? newWidth - 1 : newWidth\n];\n\n // When align corners is false,\n we rounds the value with floor.\n const roundBase = alignCorners ? '0.5' : '0.0';\n\n let sourceFracIndexRC: string;\n if (halfPixelCenters) {\n sourceFracIndexRC =\n `max((vec2(yRC) + vec2(0.5)) * effectiveInputOverOutputRatioRC` +\n `, vec2(0.0))`;\n } else {\n sourceFracIndexRC = `vec2(yRC) * effectiveInputOverOutputRatioRC`;\n }\n this.userCode = `\n const vec2 effectiveInputOverOutputRatioRC = vec2(\n ${effectiveInSize[0] / effectiveOutSize[0]},\n ${effectiveInSize[1] / effectiveOutSize[1]});\n const vec2 inputShapeRC = vec2(${oldHeight}.0, ${oldWidth}.0);\n\n void main() {\n ivec4 coords = getOutputCoords();\n int b = coords[0];\n int d = coords[3];\n ivec2 yRC = coords.yz;\n\n // Fractional source index.\n vec2 sourceFracIndexRC = ${sourceFracIndexRC};\n\n // Compute the coordinators of nearest neighbor point.\n ivec2 sourceNearestRC = ivec2(\n min(inputShapeRC - 1.0, floor(sourceFracIndexRC + ${roundBase})));\n float newValue = getA(b, sourceNearestRC.x, sourceNearestRC.y, d);\n\n setOutput(newValue);\n }\n `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a

copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, KernelFunc, ResizeNearestNeighbor, ResizeNearestNeighborAttrs, ResizeNearestNeighborInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ResizeNearestNeighborProgram} from '../resize_nearest_neighbor_gpu';\n\nexport function resizeNearestNeighbor(args: {\n inputs: ResizeNearestNeighborInputs,\n backend: MathBackendWebGL,\n attrs: ResizeNearestNeighborAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {images} = inputs;\n const {alignCorners, halfPixelCenters, size} = attrs;\n\n const [newHeight, newWidth] = size;\n\n const program = new ResizeNearestNeighborProgram(\n   images.shape as [number, number, number, number], newHeight, newWidth,\n   alignCorners, halfPixelCenters);\n return backend.runWebGLProgram(program, [images], images.dtype);\n}\n\nexport const resizeNearestNeighborConfig: KernelConfig = {\n kernelName: ResizeNearestNeighbor,\n backendName: 'webgl',\n kernelFunc: resizeNearestNeighbor as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class ResizeNearestNeigborBackpropProgram implements GPGPUProgram {\n variableNames = ['dy'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n   dyShape: [number, number, number, number],\n   inputShape: [number, number, number, number], alignCorners: boolean) {\n   this.outputShape = inputShape;\n   const [, xHeight, xWidth,] = inputShape;\n   const [, yHeight, yWidth] = dyShape;\n\n   // In the backwards pass, we want to find the pixels that were generated for\n   // each pixel in the input image the forward pass and add the corresponding\n   // coefficient from dy to the gradient (with some interpolation).\n\n   const effectiveXSize: [number, number] = [\n   (alignCorners && yHeight > 1) ? xHeight - 1 : xHeight,\n   (alignCorners && yWidth > 1) ? xWidth - 1 : xWidth\n   ];\n\n   const effectiveYSize: [number, number] = [\n   (alignCorners && yHeight > 1) ? yHeight - 1 : yHeight,\n   (alignCorners && yWidth > 1) ? yWidth - 1 : yWidth\n   ];\n\n   const heightScale = effectiveXSize[0] / effectiveYSize[0];\n   const widthScale = effectiveXSize[1] / effectiveYSize[1];\n\n   const invHeightScale = 1 / heightScale;\n   const invWidthScale = 1 / widthScale;\n\n   // This defines the size of the window of values around a particular\n   // index in dy that we want to search for contributions to dx.\n   const winHeight = (Math.ceil(invHeightScale) * 2) + 2;\n   const winWidth = (Math.ceil(invWidthScale) * 2) + 2;\n\n   this.userCode = `\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int b = coords[0];\n   int d = coords[3];\n   int r = coords[1];\n   int c = coords[2];\n\n   float accumulator = 0.0;\n\n   const float heightScale = float(${heightScale});\n   const float widthScale = float(${widthScale});\n\n   const float invHeightScale = float(${invHeightScale});\n   const float invWidthScale = float(${invWidthScale});\n\n   const int winHeight = int(${winHeight});\n   const int winWidth = int(${winWidth});\n\n   // Compute bounds for where in dy we will look\n   float startRLerp = floor(float(r) * invHeightScale);\n   int startDyR = int(floor(startRLerp - float(winHeight / 2)));\n\n   float startCLerp = floor(float(c) * invWidthScale);\n   int startDyC = int(floor(startCLerp - float(winWidth / 2)));\n\n   // Loop over dy\n   for (int dyROffset = 0; dyROffset < winHeight; dyROffset++) {\n   int dyR = dyROffset + startDyR;\n\n   // Guard against the window exceeding the bounds of dy\n   if (dyR < 0 || dyR >= ${yHeight}) {\n   continue;\n   }\n\n

```
 for (int dyCOffset = 0; dyCOffset < winWidth; dyCOffset++) {\n          int dyC = dyCOffset + startDyC;\n\n
// Guard against the window exceeding the bounds of dy\n          if (dyC < 0 || dyC >= ${yWidth}) {\n
continue;\n          }\n\n          float sourceFracRow =\n              float(${effectiveXSize[0]}) *\n
(float(dyR) / float(${effectiveYSize[0]}));\n\n          float sourceFracCol =\n              float(${effectiveXSize[1]})
*\n              (float(dyC)
 / float(${effectiveYSize[1]}));\n\n          int sourceNearestRow = int(min(\n              float(int(${xHeight}) - 1),\n
          ${alignCorners} ? float(round(sourceFracRow)) :\n                                float(floor(sourceFracRow))));\n\n
      int sourceNearestCol = int(min(\n              float(int(${xWidth}) - 1),\n              ${alignCorners} ?
float(round(sourceFracCol)) :\n                                float(floor(sourceFracCol))));\n\n          if (r ==
sourceNearestRow && c == sourceNearestCol) {\n              accumulator += getDy(b, dyR, dyC, d);\n          }\n
      }\n      }\n      // End loop over dy\n\n      setOutput(accumulator);\n    }\n    `;\n  }\n}\n","/**\n * @license\n *
Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the
\"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
 *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is
distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express or implied.\n * See the License for the specific language governing permissions and\n * limitations under
the License.\n *
==========================================================================\n
*/\n\nimport {KernelConfig, KernelFunc, ResizeNearestNeighborGrad, ResizeNearestNeighborGradAttrs,
ResizeNearestNeighborGradInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL}
from '../backend_webgl';\nimport {ResizeNearestNeigborBackpropProgram} from
'../resize_nearest_neighbor_backprop_gpu';\n\nexport function resizeNearestNeighborGrad(args: {\n  inputs:
ResizeNearestNeighborGradInputs,\n  backend: MathBackendWebGL,\n  attrs:
ResizeNearestNeighborGradAttrs\n}): TensorInfo {\n  const {inputs, backend, attrs} =
 args;\n  const {images, dy} = inputs;\n  const {alignCorners} = attrs;\n\n  const program = new
ResizeNearestNeigborBackpropProgram(\n      dy.shape as [number, number, number, number],\n      images.shape
as [number, number, number, number], alignCorners);\n  return backend.runWebGLProgram(program, [dy],
dy.dtype);\n}\n\nexport const resizeNearestNeighborGradConfig: KernelConfig = {\n  kernelName:
ResizeNearestNeighborGrad,\n  backendName: 'webgl',\n  kernelFunc: resizeNearestNeighborGrad as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR
 CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing
permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from
'./shader_compiler';\n\nexport class ReverseProgram implements GPGPUProgram {\n  variableNames = ['x'];\n
outputShape: number[];\n  userCode: string;\n\n  constructor(xShape: number[], axis: number[]) {\n    const rank =
xShape.length;\n    if (rank > 4) {\n      throw new Error(\n          `WebGL backend: Reverse of rank-${rank} tensor
is not yet supported`);\n    }\n    this.outputShape = xShape;\n\n    if (rank === 1) {\n      this.userCode = `\n
void main() {\n          int coord = getOutputCoords();\n          setOutput(getX(${xShape[0]} - coord - 1));\n        }\n
      `;\n      return;\n    }\n    const getInCoord = (i: number) => {\n      if (axis.indexOf(i)
 !== -1 && xShape[i] !== 1) {\n        return `${xShape[i]} - coords[${i}] - 1`;\n      }\n      return `coords[${i}]`;\n
};\n    const inCoords = xShape.map((_, i) => getInCoord(i)).join(',');\n    const type =
getCoordsDataType(rank);\n\n    this.userCode = `\n      void main() {\n        ${type} coords = getOutputCoords();\n
```

```
    setOutput(getX(${inCoords}));\n      }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions
 and\n * limitations under the License.\n *
 ==========================================================================\n
 */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getChannels} from './packing_util';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class ReversePackedProgram implements GPGPUProgram {\n  variableNames = ['x'];\n  outputShape: number[];\n  userCode: string;\n  packedInputs = true;\n  packedOutput = true;\n\n  constructor(xShape: number[], axis: number[]) {\n    const rank = xShape.length;\n    if (rank > 4) {\n      throw new Error(\n          `WebGL backend: Reverse of rank-${rank} tensor is not yet supported`);\n    }\n    this.outputShape = xShape;\n    const channels = getChannels('rc', rank);\n    const nextColumn =\n        `${channels[rank - 1]} + 1 < ${this.outputShape[rank - 1]}`;\n    const nextRow =
 `${channels[rank - 2]} + 1 < ${this.outputShape[rank - 2]}`;\n    const type = getCoordsDataType(rank);\n    if (rank
 === 1) {\n
      this.userCode = `\n        void main(){\n          int rc = getOutputCoords();\n          vec4 result = vec4(0.);\n result.r = getChannel(getX(${xShape[0]} - rc - 1),\n            ${xShape[0]} - rc - 1);\n          if(${nextColumn}){\n
      result.g = getChannel(getX(${xShape[0]} - (rc  + 1) - 1),\n              ${xShape[0]} - (rc  + 1) - 1);\n          }\n
   setOutput(result);\n        }\n      `;\n    } else {\n      this.userCode = `\n        void main() {\n          ${type} rc =
 getOutputCoords();\n          vec4 result = vec4(0.);\n          result.r = ${getR(channels.slice())};\n
 if(${nextColumn}){\n            result.g = ${getG(channels.slice())};\n          }\n          if(${nextRow}) {\n
 result.b = ${getB(channels.slice())};\n            if(${nextColumn}) {\n              result.a = ${getA(channels.slice())};\n
        }\n          }\n          setOutput(result);\n        }\n      `;\n    }\n\n    function getR(channels: string[]):
  string {\n      return getChannel(channels);\n    }\n\n    function getG(channels: string[]): string {\n      channels[rank
 - 1] = '(' + channels[rank - 1] + ` + 1)`;\n      return getChannel(channels);\n    }\n\n    function getB(channels:
 string[]): string {\n      channels[rank - 2] = '(' + channels[rank - 2] + ` + 1)`;\n      return getChannel(channels);\n
 }\n\n    function getA(channels: string[]): string {\n      channels[rank - 1] = '(' + channels[rank - 1] + ` + 1)`;\n
 channels[rank - 2] = '(' + channels[rank - 2] + ` + 1)`;\n      return getChannel(channels);\n    }\n\n    function
 getChannel(channels: string[]): string {\n      const inCoordsArray = xShape.map((_, i) => getInCoord(i,
 channels));\n      const inCoords = inCoordsArray.join(',');\n      const innerDims = inCoordsArray.slice(-
 2).join(',');\n      return `getChannel(getX(${inCoords}), vec2(${innerDims}))`;\n    }\n\n    function getInCoord(i:
 number, channels1: string[]): string {\n      if (axis.indexOf(i)
  !== -1 && xShape[i] !== 1) {\n        return `${xShape[i]} - ${channels1[i]} - 1`;\n      } else {\n        return
 `${channels1[i]}`;\n      }\n    }\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights
 Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file
 except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
 http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
 software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
 governing permissions and\n * limitations under the License.\n *
 ==========================================================================\n
 */\n\nimport {env, KernelConfig, KernelFunc, Reverse, ReverseAttrs, ReverseInputs, TensorInfo, util} from
 '@tensorflow/tfjs-core';\n\nimport
  {MathBackendWebGL} from '../backend_webgl';\nimport {ReverseProgram} from '../reverse_gpu';\nimport
 {ReversePackedProgram} from '../reverse_packed_gpu';\n\nimport {identity} from './Identity';\n\nexport function
```

reverse(args: {\n inputs: ReverseInputs,\n backend: MathBackendWebGL,\n attrs: ReverseAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {dims} = attrs;\n\n const xRank = x.shape.length;\n\n const $dims = util.parseAxisParam(dims, x.shape);\n if (xRank === 0) {\n   return identity({inputs: {x}, backend});\n }\n\n const program = env().getBool('WEBGL_PACK_ARRAY_OPERATIONS') ?\n   new ReversePackedProgram(x.shape, $dims) :\n   new ReverseProgram(x.shape, $dims);\n\n return backend.runWebGLProgram(program, [x], x.dtype);\n}\n\nexport const reverseConfig: KernelConfig = {\n kernelName: Reverse,\n backendName: 'webgl',\n kernelFunc: reverse as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\n\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class RotateProgram implements GPGPUProgram {\n variableNames = ['Image'];\n outputShape: number[] = [];\n userCode: string;\n\n constructor(\n   imageShape: [number, number, number, number], radians: number,\n   fillValue: number|[number, number, number],\n   center: number|[number, number]) {\n   const imageHeight = imageShape[1];\n   const imageWidth = imageShape[2];\n   const sinFactor = Math.sin(radians).toFixed(3);\n   const cosFactor = Math.cos(radians).toFixed(3);\n   this.outputShape = imageShape;\n\n   const [centerX, centerY] =\n   backend_util.getImageCenter(center, imageHeight, imageWidth);\n   const centerXString = centerX.toFixed(3);\n   const centerYString = centerY.toFixed(3);\n\n   let fillSnippet = '';\n   if (typeof fillValue === 'number') {\n   fillSnippet = `float outputValue = ${fillValue.toFixed(2)};`;\n   } else {\n   fillSnippet = `\n        vec3 fill = vec3(${fillValue.join(',')});\n        float outputValue = fill[coords[3]];`;\n   }\n\n   this.userCode = `\n   void main() {\n   ivec4 coords = getOutputCoords();\n   int x = coords[2];\n   int y = coords[1];\n   float coordXFloat = (float(x) - ${centerXString}) * ${\n   cosFactor} - (float(y) - ${centerYString}) * ${sinFactor};\n   float coordYFloat = (float(x) - ${centerXString}) * ${\n   sinFactor} + (float(y) - ${centerYString}) * ${cosFactor};\n   int coordX = int(round(coordXFloat + ${centerXString}));\n   int coordY = int(round(coordYFloat + ${centerYString}));\n ${fillSnippet}\n   if(coordX >= 0 && coordX < ${imageWidth} && coordY >= 0 && coordY < ${\n   imageHeight}) {\n   outputValue = getImage(coords[0], coordY, coordX, coords[3]);\n   }\n   setOutput(outputValue);\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==\n */\n\nimport {KernelConfig, Tensor4D} from '@tensorflow/tfjs-core';\nimport {RotateWithOffset, RotateWithOffsetAttrs, RotateWithOffsetInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {RotateProgram} from '../rotate_gpu';\n\nexport const rotateWithOffsetConfig: KernelConfig = {\n kernelName: RotateWithOffset,\n backendName: 'webgl',\n kernelFunc: ({inputs, attrs, backend}) => {\n   const {image} = inputs as RotateWithOffsetInputs;\n   const {radians, fillValue, center} = attrs as {} as RotateWithOffsetAttrs;\n   const webglBackend = backend as MathBackendWebGL;\n\n   const program = new RotateProgram(\n   (image as Tensor4D).shape, radians, fillValue, center);\n   const output = webglBackend.runWebGLProgram(program, [image], image.dtype);\n   return output;\n }\n};\n","/**\n *

@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {KernelConfig, Round} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst ROUND = `\n // OpenGL ES does not support round function.\n // The algorithm is based on banker's rounding.\n float base = floor(x);\n if ((x - base) < 0.5) {\n   return floor(x);\n } else if ((x - base) > 0.5) {\n   return ceil(x);\n } else {\n   if (mod(base, 2.0) == 0.0) {\n   return base;\n   } else {\n   return base + 1.0;\n   }\n }\n`;\n\nexport const round = unaryKernelFunc({opSnippet: ROUND});\n\nexport const roundConfig: KernelConfig = {\n kernelName: Round,\n backendName: 'webgl',\n kernelFunc: round,\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class ScatterProgram implements GPGPUProgram {\n variableNames = ['updates', 'indices', 'defaultValue'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n   updateSize: number, sliceDim: number, indicesRank: number,\n   updatesRank: number, strides: number[], shape: number[],\n   summingDupeIndex = true) {\n   this.outputShape = shape;\n   const stridesType = getCoordsDataType(strides.length);\n   const dtype = getCoordsDataType(shape.length);\n   let indicesString = '';\n   if (indicesRank === 1) {\n   indicesString = 'i';\n   } else if (indicesRank === 2) {\n   indicesString = 'i, j';\n   }\n   const indicesSnippet = `getIndices(${indicesString})`;\n\n   let updatesString = '';\n   if (updatesRank === 1) {\n   updatesString = 'i';\n   } else if (updatesRank === 2) {\n   updatesString = 'i, coords[1]';\n   }\n   const updatesSnippet = `getUpdates(${updatesString})`;\n\n   const strideString = sliceDim > 1 ? 'strides[j]' : 'strides';\n   this.userCode = `\n ${stridesType} strides = ${stridesType}(${strides});\n\n   void main() {\n ${dtype} coords = getOutputCoords();\n   float sum = 0.0;\n   bool found = false;\n   for (int i = 0; i < ${updateSize}; i++) {\n   int flattenedIndex = 0;\n   for (int j = 0; j < ${sliceDim}; j++) {\n   int index = round(${indicesSnippet});\n   flattenedIndex += index * ${strideString};\n   }\n   if (flattenedIndex == coords[0]) {\n   sum += ${updatesSnippet};\n   found = true;\n   }\n   }\n   setOutput(mix(getDefaultValue(), sum, float(found)));\n   }\n   `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {backend_util, KernelConfig, KernelFunc, ScatterNd, ScatterNdAttrs,

ScatterNdInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ScatterProgram} from '../scatter_gpu';\nimport {reshape} from './Reshape';\n\nexport function scatterNd(args: {\n inputs: ScatterNdInputs,\n backend: MathBackendWebGL,\n attrs: ScatterNdAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {indices, updates} = inputs;\n const {shape} = attrs;\n\n const {sliceRank, numUpdates, sliceSize, strides, outputSize} =\n backend_util.calculateShapes(updates, indices, shape);\n\n const flattenShape = [outputSize / sliceSize, sliceSize];\n\n if (outputSize === 0) {\n   return backend.makeTensorInfo(shape, indices.dtype);\n }\n\n const flattenIndices = reshape(\n   {inputs: {x: indices}, backend, attrs: {shape: [numUpdates, sliceRank]}});\n const flattenX = reshape(\n   {inputs: {x: updates}, backend, attrs: {shape: [numUpdates, sliceSize]}});\n\n const defaultValue = backend.makeTensorInfo(\n   [], 'float32', new Float32Array([0])); // scalar(0)\n const program = new ScatterProgram(\n   numUpdates, sliceRank, flattenIndices.shape.length, flattenX.shape.length,\n   strides, flattenShape);\n const res =\n backend.runWebGLProgram(\n   program, [flattenX, flattenIndices, defaultValue], flattenX.dtype);\n\n const reshaped = reshape({inputs: {x: res}, backend, attrs: {shape}});\n\n backend.disposeIntermediateTensorInfo(flattenIndices);\n backend.disposeIntermediateTensorInfo(flattenX);\n backend.disposeIntermediateTensorInfo(res);\n backend.disposeIntermediateTensorInfo(defaultValue);\n\n return reshaped;\n}\n\nexport const scatterNdConfig: KernelConfig = {\n kernelName: ScatterNd,\n backendName: 'webgl',\n kernelFunc: scatterNd as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with
the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class SelectProgram implements GPGPUProgram {\n variableNames = ['c', 'a', 'b'];\n outputShape: number[];\n userCode: string;\n\n constructor(cRank: number, shape: number[], rank: number) {\n   this.outputShape = shape;\n\n   let cCoords;\n   let abCoords;\n   if (rank > 4) {\n   throw Error(`Where for rank ${rank} is not yet supported`);\n   }\n\n   if (rank === 1) {\n   abCoords = `resRC`;\n   cCoords = `resRC`;\n   } else {\n   const currentCoords = ['resRC.x', 'resRC.y', 'resRC.z', 'resRC.w'];\n   const cCoordVars = [];\n   const abCoordVars = [];\n   for (let i = 0; i < shape.length; i++) {\n   abCoordVars.push(`${currentCoords[i]}`);\n   if (i < cRank) {\n   cCoordVars.push(`${currentCoords[i]}`);\n   }\n   }\n   cCoords = cCoordVars.join();\n   abCoords = abCoordVars.join();\n   }\n\n   const dtype = getCoordsDataType(rank);\n\n   this.userCode = `\n      void main() {\n        ${dtype} resRC = getOutputCoords();\n        float cVal = getC(${cCoords});\n        if (cVal >= 1.0) {\n          setOutput(getA(${abCoords}));\n        } else {\n          setOutput(getB(${abCoords}));\n        }\n      }\n    `;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, Select, SelectInputs, TensorInfo, upcastType} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {SelectProgram} from

'../select_gpu';\n\nexport function select(args: {inputs: SelectInputs, backend: MathBackendWebGL}):\n TensorInfo {\n const {inputs, backend} = args;\n const {condition, t, e} = inputs;\n\n const program =\n   new SelectProgram(condition.shape.length,
 t.shape, t.shape.length);\n return backend.runWebGLProgram(\n   program, [condition, t, e], upcastType(t.dtype, e.dtype));\n}\n\nexport const selectConfig: KernelConfig = {\n kernelName: Select,\n backendName: 'webgl',\n kernelFunc: select as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
 */\n\nimport {backend_util, KernelConfig, Selu} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst SELU = `\n  // Stable and Attracting Fixed Point (0, 1) for Normalized Weights.\n  // see: https://arxiv.org/abs/1706.02515\n  float scaleAlpha = ${backend_util.SELU_SCALEALPHA};\n  float scale = ${backend_util.SELU_SCALE};\n  return (x >= 0.0) ? scale * x : scaleAlpha * (exp(x) - 1.0);\n`;\n\nexport const selu = unaryKernelFunc({opSnippet: SELU});\n\nexport const seluConfig: KernelConfig = {\n kernelName: Selu,\n backendName: 'webgl',\n kernelFunc: selu,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed
 to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, Sigmoid} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst SIGMOID = `return 1.0 / (1.0 + exp(-1.0 * x));`;\n\nexport const sigmoid = unaryKernelFunc({opSnippet: SIGMOID});\n\nexport const sigmoidConfig: KernelConfig = {\n kernelName: Sigmoid,\n backendName: 'webgl',\n kernelFunc: sigmoid,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License
 at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {KernelConfig, Sign} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\n// Sign does not propagate NANs.\nconst SIGN = `\n  if (isnan(x)) { return 0.0; }\n  return sign(x);\n`;\n\nexport const sign = unaryKernelFunc({opSnippet: SIGN});\n\nexport const signConfig: KernelConfig = {\n kernelName: Sign,\n backendName: 'webgl',\n kernelFunc: sign,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License,
 Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
=============================================================================\n
*/\n\nimport {KernelConfig, Sin} from '@tensorflow/tfjs-core';\n\nimport {CHECK_NAN_SNIPPET_UNARY,
unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst SIN = CHECK_NAN_SNIPPET_UNARY +
`\n  return sin(x);\n`;\n\nexport const sin = unaryKernelFunc({opSnippet: SIN});\n\nexport const sinConfig:
KernelConfig = {\n  kernelName: Sin,\n  backendName: 'webgl',\n  kernelFunc:
 sin,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache
License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You
may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required
by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {KernelConfig, Sinh} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from
'../kernel_utils/kernel_funcs_utils';\n\nconst SINH = `\n  float e2x = exp(x);\n  return (e2x - 1.0 / e2x) /
2.0;\n`;\n\nexport const sinh = unaryKernelFunc({opSnippet: SINH});\n\nexport
 const sinhConfig: KernelConfig = {\n  kernelName: Sinh,\n  backendName: 'webgl',\n  kernelFunc:
sinh,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
=============================================================================\n
*/\n\nimport {KernelConfig, Softplus} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from
'../kernel_utils/kernel_funcs_utils';\n\nconst SOFTPLUS
 = `\n  float epsilon = 1.1920928955078125e-7;\n  float threshold = log(epsilon) + 2.0;\n\n  bool too_large = x > -
threshold;\n  bool too_small = x < threshold;\n\n  float result;\n  float exp_x = exp(x);\n\n  if (too_large){\n    result
= x;\n  }\n  else if (too_small){\n    result = exp_x;\n  }\n  else{\n    result = log(exp_x + 1.0);\n  }\n  return
result;\n`;\n\nexport const softplus = unaryKernelFunc({opSnippet: SOFTPLUS});\n\nexport const softplusConfig:
KernelConfig = {\n  kernelName: Softplus,\n  backendName: 'webgl',\n  kernelFunc: softplus,\n};\n","/**\n *
@license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a
copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable
law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS
 IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n *
See the License for the specific language governing permissions and\n * limitations under the License.\n *
=============================================================================\n
*/\n\nimport {backend_util, KernelConfig, KernelFunc, SpaceToBatchND, SpaceToBatchNDAttrs,
SpaceToBatchNDInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from
'../backend_webgl';\n\nimport {padV2} from './PadV2';\nimport {reshape} from './Reshape';\nimport {transpose}
from './Transpose';\n\nexport const spaceToBatchND = (args: {\n  inputs: SpaceToBatchNDInputs,\n  backend:
MathBackendWebGL,\n  attrs: SpaceToBatchNDAttrs\n}): TensorInfo => {\n  const {inputs, backend, attrs} =
args;\n  const {x} = inputs;\n  const {blockShape, paddings} = attrs;\n\n  util.assert(\n      x.shape.length <= 4,\n
() => 'spaceToBatchND for rank > 4 with a WebGL backend not ' +\n          'implemented
 yet');\n\n  const prod = blockShape.reduce((a, b) => a * b);\n\n  const completePaddings: Array<[number, number]>
= [[0, 0]];\n  completePaddings.push(...paddings as Array<[number, number]>);\n  for (let i = 1 +
blockShape.length; i < x.shape.length; ++i) {\n    completePaddings.push([0, 0]);\n  }\n\n  const toDispose = [];\n\n
```

const paddedX = padV2({\n inputs: {x},\n backend,\n attrs: {paddings: completePaddings, constantValue: 0}\n });\n\n const reshapedPaddedShape =\n backend_util.getReshaped(paddedX.shape, blockShape, prod, false);\n\n const permutedReshapedPaddedPermutation = backend_util.getPermuted(\n reshapedPaddedShape.length, blockShape.length, false);\n\n const flattenShape =\n backend_util.getReshapedPermuted(paddedX.shape, blockShape, prod, false);\n\n const reshapedPaddedX = reshape(\n {inputs: {x: paddedX}, backend, attrs: {shape: reshapedPaddedShape}});\n\n const paddedXT = transpose({\n inputs: {x: reshapedPaddedX},\n backend,\n attrs: {perm: permutedReshapedPaddedPermutation}\n });\n\n const result =\n reshape({inputs: {x: paddedXT}, backend, attrs: {shape: flattenShape}});\n\n toDispose.push(paddedX);\n toDispose.push(reshapedPaddedX);\n toDispose.push(paddedXT);\n\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n\n return result;\n};\n\nexport const spaceToBatchNDConfig: KernelConfig = {\n kernelName: SpaceToBatchND,\n backendName: 'webgl',\n kernelFunc: spaceToBatchND as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, SparseToDense, SparseToDenseAttrs, SparseToDenseInputs, TensorInfo} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {ScatterProgram} from '../scatter_gpu';\nimport {reshape} from './Reshape';\n\nexport function sparseToDense(args: {\n inputs: SparseToDenseInputs,\n backend: MathBackendWebGL,\n attrs: SparseToDenseAttrs\n}): TensorInfo {\n const {inputs, backend, attrs} = args;\n const {sparseIndices, sparseValues, defaultValue} = inputs;\n const {outputShape} = attrs;\n\n const {sliceRank, numUpdates, strides, outputSize} =\n backend_util.calculateShapes(sparseValues, sparseIndices, outputShape);\n\n const sumDupeIndices = false;\n
const program = new ScatterProgram(\n numUpdates, sliceRank, sparseIndices.shape.length,\n sparseValues.shape.length, strides, [outputSize, 1], sumDupeIndices);\n\n const res = backend.runWebGLProgram(\n program, [sparseValues, sparseIndices, defaultValue], sparseValues.dtype);\n\n const reshaped =\n reshape({inputs: {x: res}, backend, attrs: {shape: outputShape}});\n\n backend.disposeIntermediateTensorInfo(res);\n return reshaped;\n}\n\nexport const sparseToDenseConfig: KernelConfig = {\n kernelName: SparseToDense,\n backendName: 'webgl',\n kernelFunc: sparseToDense as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {backend_util, KernelConfig, KernelFunc, SplitV, SplitVAttrs, SplitVInputs, TensorInfo, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {slice} from './Slice';\n\nexport function splitV(\n args:\n {inputs: SplitVInputs, backend: MathBackendWebGL, attrs: SplitVAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {numOrSizeSplits, axis} = attrs;\n\n const $axis = util.parseAxisParam(axis, x.shape)[0];\n const splitSizes = backend_util.prepareSplitSize(x, numOrSizeSplits, $axis);\n\n const xRank = x.shape.length;\n const

begin = new Array(xRank).fill(0);\n const size = x.shape.slice();\n\n return splitSizes.map(s => {\n   const sliceSize = [...size];\n   sliceSize[$axis] = s;\n   const sliceT =\n   slice({inputs: {x}, backend, attrs: {begin, size: sliceSize}});\n   begin[$axis] += s;\n   return sliceT;\n });\n}\n\nexport const splitVConfig: KernelConfig = {\n kernelName: SplitV,\n backendName: 'webgl',\n kernelFunc: splitV as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Sqrt} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst SQRT = `return sqrt(x);`;\n\nexport const sqrt = unaryKernelFunc({opSnippet: SQRT});\n\nexport const sqrtConfig: KernelConfig = {\n kernelName: Sqrt,\n backendName: 'webgl',\n kernelFunc: sqrt as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, Square} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst SQUARE = `return x * x;`;\n\nexport const square = unaryKernelFunc({opSnippet: SQUARE});\n\nexport const squareConfig: KernelConfig = {\n kernelName: Square,\n backendName: 'webgl',\n kernelFunc: square,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {KernelConfig, KernelFunc, Step, StepAttrs, TensorInfo, UnaryInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {CHECK_NAN_SNIPPET, UnaryOpProgram} from '../unaryop_gpu';\n\nexport function step(\n   {inputs, attrs, backend}:\n   {inputs: UnaryInputs, attrs: StepAttrs, backend: MathBackendWebGL}):\n   TensorInfo {\n const {x} = inputs;\n const opSnippet = CHECK_NAN_SNIPPET + `\n    return x > 0.0 ? 1.0 : float(${attrs.alpha});\n  `;\n\n const program = new UnaryOpProgram(x.shape, opSnippet);\n\n return backend.runWebGLProgram(program, [x], x.dtype);\n}\n\nexport const\n stepConfig: KernelConfig = {\n kernelName: Step,\n backendName: 'webgl',\n kernelFunc: step as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *

```
==========================================================================\n
*/\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from
'./shader_compiler';\n\nexport class StridedSliceProgram implements GPGPUProgram
 {\n  variableNames = ['x'];\n  outputShape: number[];\n  userCode: string;\n\n  constructor(begin: number[], strides:
number[], size: number[]) {\n    this.outputShape = size;\n    const rank = size.length;\n    const inputDtype =
getCoordsDataType(size.length);\n    const dtype = getCoordsDataType(size.length);\n\n    let newCoords = '';\n    if
(rank === 1) {\n      newCoords = 'coords * strides + begin';\n    } else {\n      let outputAxis = 0;\n      newCoords
=\n          size.map((_, i) => {\n            outputAxis++;\n            return size.length === 1 ?\n                `coords
* strides[${i}] + begin[${i}]` :\n                `coords[${outputAxis - 1}] * strides[${i}] + begin[${i}]`;\n
})\n            .join(',');\n    }\n\n    this.userCode = `\n      ${inputDtype} begin = ${inputDtype}(${begin});\n
${inputDtype} strides = ${inputDtype}(${strides});\n\n      void main() {\n        ${dtype} coords =
getOutputCoords();\n        setOutput(getX(${newCoords}));\n
    }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under
the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions and\n * limitations under the
License.\n *
==========================================================================\n
*/\n\nimport {buffer, KernelConfig, KernelFunc, Rank, slice_util, StridedSlice, StridedSliceAttrs,
StridedSliceInputs, TensorBuffer, TensorInfo, TypedArray} from '@tensorflow/tfjs-core';\n\nimport
{MathBackendWebGL} from '../backend_webgl';\nimport
 {stridedSliceImplCPU} from '../kernel_utils/shared';\nimport {StridedSliceProgram} from
'../strided_slice_gpu';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nexport function
stridedSlice(args: {\n  inputs: StridedSliceInputs,\n  backend: MathBackendWebGL,\n  attrs: StridedSliceAttrs\n}):
TensorInfo {\n  const {inputs, backend, attrs} = args;\n  const {x} = inputs;\n  const {\n    begin,\n    end,\n
strides,\n    beginMask,\n    endMask,\n    ellipsisMask,\n    newAxisMask,\n    shrinkAxisMask\n  } = attrs;\n\n
const {nonStrided, $begin, $strides, size, newShape, outShape} =\n      slice_util.sliceInfo(\n          x.shape, begin,
end, strides, beginMask, endMask, ellipsisMask,\n          newAxisMask, shrinkAxisMask);\n\n  const $x =
reshape({inputs: {x}, backend, attrs: {shape: newShape}});\n\n  let result;\n  if (nonStrided) {\n    const sliced =\n
  slice({inputs: {x: $x}, backend, attrs: {begin: $begin, size}});\n    result = reshape({inputs:
 {x: sliced}, backend, attrs: {shape: outShape}});\n\n    backend.disposeIntermediateTensorInfo(sliced);\n  } else if
(outShape.some(axis => axis === 0)) {\n    result = backend.makeTensorInfo(outShape, x.dtype, []);\n  } else {\n
const shouldExecuteOnCPU = backend.shouldExecuteOnCPU([$x]);\n    if (shouldExecuteOnCPU) {\n      const
xTexData = backend.texData.get($x.dataId);\n      const values = xTexData.values as TypedArray;\n      const xBuf
= buffer($x.shape, $x.dtype, values) as TensorBuffer<Rank>;\n      const resultValues =\n
stridedSliceImplCPU(outShape, xBuf, $strides, $begin);\n      result = backend.makeTensorInfo(outShape, $x.dtype,
resultValues.values);\n    } else {\n      const program = new StridedSliceProgram($begin, $strides, outShape);\n
result = backend.runWebGLProgram(program, [$x], $x.dtype);\n    }\n  }\n\n  const resultReshaped =\n
reshape({inputs: {x: result}, backend, attrs: {shape: outShape}});\n\n
backend.disposeIntermediateTensorInfo($x);\n
  backend.disposeIntermediateTensorInfo(result);\n\n  return resultReshaped;\n}\n\nexport const stridedSliceConfig:
KernelConfig = {\n  kernelName: StridedSlice,\n  backendName: 'webgl',\n  kernelFunc: stridedSlice as {} as
KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
```

on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig,
Tan} from '@tensorflow/tfjs-core';\n\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst TAN = `return tan(x);`;\n\nexport const tan = unaryKernelFunc({opSnippet: TAN});\n\nexport const tanConfig: KernelConfig = {\n kernelName: Tan,\n backendName: 'webgl',\n kernelFunc: tan,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {KernelConfig, Tanh} from '@tensorflow/tfjs-core';\nimport {unaryKernelFunc} from '../kernel_utils/kernel_funcs_utils';\n\nconst TANH = `\n float e2x = exp(-2.0 * abs(x));\n return sign(x) * (1.0 - e2x) / (1.0 + e2x);\n`;\n\nexport const tanh = unaryKernelFunc({opSnippet: TANH});\n\nexport const tanhConfig: KernelConfig = {\n kernelName: Tanh,\n backendName: 'webgl',\n kernelFunc: tanh,\n};\n","/**\n * @license\n * Copyright 2017 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {GPGPUProgram} from './gpgpu_math';\nimport {getCoordsDataType} from './shader_compiler';\n\nexport class TileProgram implements GPGPUProgram {\n variableNames = ['A'];\n outputShape: number[];\n userCode: string;\n rank: number;\n\n constructor(aShape: number[], reps: number[]) {\n const outputShape: number[] = new Array(aShape.length);\n for (let i = 0; i < outputShape.length; i++) {\n outputShape[i] = aShape[i] * reps[i];\n }\n this.outputShape = outputShape;\n this.rank = outputShape.length;\n const dtype = getCoordsDataType(this.rank);\n const sourceCoords = getSourceCoords(aShape);\n\n this.userCode = `\n void main() {\n ${dtype} resRC = getOutputCoords();\n setOutput(getA(${sourceCoords}));\n }\n `;\n }\n}\n\nfunction getSourceCoords(aShape:
number[]): string {\n const rank = aShape.length;\n if (rank > 5) {\n throw Error(`Tile for rank ${rank} is not yet supported`);\n }\n if (rank === 1) {\n return `imod(resRC, ${aShape[0]})`;\n }\n\n const currentCoords = ['resRC.x', 'resRC.y', 'resRC.z', 'resRC.w', 'resRC.u'];\n\n const sourceCoords = [];\n for (let i = 0; i < aShape.length; i++) {\n sourceCoords.push(`imod(${currentCoords[i]}, ${aShape[i]})`);\n }\n return sourceCoords.join();\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {buffer, KernelConfig, KernelFunc, TensorInfo, Tile, TileAttrs, TileInputs, util} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {tileImplCPU} from

'../kernel_utils/shared';\nimport {TileProgram} from '../tile_gpu';\n\nexport function tile(\n params: {inputs: TileInputs, backend: MathBackendWebGL, attrs: TileAttrs}):\n TensorInfo {\n const {inputs, backend, attrs} = params;\n const {x} = inputs;\n const {reps} = attrs;\n\n if (x.dtype === 'string') {\n // Even thought string tensor is always on CPU, just to be consistent on how\n // to access tensor data.\n const data = backend.readSync(x.dataId) as Uint8Array[];\n const decodedData = data.map(d => util.decodeString(d));\n const buf = buffer(x.shape,
x.dtype, decodedData);\n const outBuf = tileImplCPU(buf, reps);\n return backend.makeTensorInfo(outBuf.shape, outBuf.dtype, outBuf.values);\n }\n\n const program = new TileProgram(x.shape, reps);\n const output = backend.runWebGLProgram(program, [x], x.dtype);\n\n return output;\n}\n\nexport const tileConfig: KernelConfig = {\n kernelName: Tile,\n backendName: 'webgl',\n kernelFunc: tile as {} as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, NumericDataType, TensorInfo, TopK, TopKAttrs, TopKInputs, TypedArray} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {topKImplCPU} from '../kernel_utils/shared';\n\nexport function topK(\n args: {inputs: TopKInputs, backend: MathBackendWebGL, attrs: TopKAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {x} = inputs;\n const {k, sorted} = attrs;\n\n const xVals = backend.readSync(x.dataId) as TypedArray;\n const [allTopKVals, allTopKIndices] =\n topKImplCPU(xVals, x.shape, x.dtype as NumericDataType, k, sorted);\n\n return [\n backend.makeTensorInfo(\n allTopKVals.shape, allTopKVals.dtype, allTopKVals.values),\n backend.makeTensorInfo(\n allTopKIndices.shape, allTopKIndices.dtype, allTopKIndices.values)\n];\n}\n\nexport const topKConfig: KernelConfig = {\n kernelName: TopK,\n backendName: 'webgl',\n kernelFunc: topK as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the License);\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an AS IS BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unique, UniqueAttrs, UniqueInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL}
from '../backend_webgl';\nimport {uniqueImplCPU} from '../kernel_utils/shared';\nimport {assertNotComplex} from '../webgl_util';\n\nexport function unique(\n args:\n {inputs: UniqueInputs, attrs: UniqueAttrs, backend: MathBackendWebGL}):\n TensorInfo[] {\n const {inputs, attrs, backend} = args;\n const {axis} = attrs;\n const {x} = inputs;\n assertNotComplex(x, 'unique');\n\n // For now, always forward calculation to the CPU backend.\n console.warn(\n 'WARNING: ',\n 'UI might be locked temporarily as data is being downloaded');\n const values = backend.readSync(x.dataId);\n const {outputValues, outputShape, indices} =\n uniqueImplCPU(values, axis, x.shape, x.dtype);\n return [\n backend.makeTensorInfo(outputShape, x.dtype, outputValues),\n backend.makeTensorInfo([indices.length], 'int32', indices),\n];\n}\n\nexport const uniqueConfig: KernelConfig = {\n kernelName: Unique,\n backendName: 'webgl',\n kernelFunc: unique as {}
as KernelFunc,\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the

License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {KernelConfig, KernelFunc, TensorInfo, Unpack, UnpackAttrs, UnpackInputs} from '@tensorflow/tfjs-core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\n\nimport {reshape} from './Reshape';\nimport {slice} from './Slice';\n\nexport function unpack(\n args:\n {inputs: UnpackInputs, backend: MathBackendWebGL, attrs: UnpackAttrs}):\n TensorInfo[] {\n const {inputs, backend, attrs} = args;\n const {value} = inputs;\n let {axis} = attrs;\n\n if (axis < 0) {\n axis += value.shape.length;\n }\n\n const x = value;\n const xRank = x.shape.length;\n\n const num = value.shape[axis];\n const outShape: number[] = new Array(xRank - 1);\n let outIndex = 0;\n for (let i = 0; i < xRank; i++) {\n if (i !== axis) {\n outShape[outIndex++] = x.shape[i];\n }\n }\n\n const toDispose = [];\n\n const begin = new Array(xRank).fill(0);\n const size = x.shape.slice();\n size[axis] = 1;\n const res: TensorInfo[] = new Array(num);\n for (let i = 0; i < res.length; i++) {\n begin[axis] = i;\n const sliced = slice({inputs: {x}, backend, attrs: {begin, size}});\n const reshaped =\n reshape({inputs: {x: sliced}, backend, attrs: {shape: outShape}});\n res[i] = reshaped;\n\n toDispose.push(sliced);\n }\n\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n return res;\n}\n\nexport const unpackConfig: KernelConfig = {\n kernelName: Unpack,\n backendName: 'webgl',\n kernelFunc: unpack as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==========\n */\n\nimport {backend_util} from '@tensorflow/tfjs-core';\nimport {GPGPUProgram} from './gpgpu_math';\n\nexport class SegmentOpProgram implements GPGPUProgram {\n variableNames = ['x', 'segmentIds'];\n outputShape: number[];\n userCode: string;\n\n constructor(\n segOpInfo: backend_util.segment_util.SegOpInfo,\n segOpType: 'unsortedSegmentSum') {\n const windowSize = segOpInfo.windowSize;\n const batchSize = segOpInfo.batchSize;\n const inSize = segOpInfo.inSize;\n const numSegments = segOpInfo.numSegments;\n const outSize = numSegments * Math.ceil(inSize / windowSize);\n this.outputShape = [batchSize, outSize];\n\n const initializationValue = '0.0';\n const returnValue = `sumValue`;\n\n const windowSizeNearestVec4 = Math.floor(windowSize / 4) * 4;\n const windowSizeVec4Remainder = windowSize % 4;\n\n const updateSnippet = `\n sumValue += dot(values, segFilter);\n `;\n\n let checkValueOutOfBounds = '';\n if (inSize % windowSize > 0) {\n checkValueOutOfBounds\n = `\n if (inIdx < 0 || inIdx >= ${inSize}) {\n return initializationValue;\n }\n `;\n }\n\n let checkSegmentIdOutOfBounds = '';\n if (inSize % windowSize > 0) {\n checkSegmentIdOutOfBounds = `\n if (inIdx < 0 || inIdx >= ${inSize}) {\n return -1.0;\n }\n `;\n }\n\n this.userCode = `\n const float initializationValue = ${initializationValue};\n\n float getValue(int batch, int inIdx) {\n ${checkValueOutOfBounds}\n return getX(batch, inIdx);\n }\n\n float getSegmentIdAtIndex(int inIdx) {\n ${checkSegmentIdOutOfBounds}\n return getSegmentIds(inIdx);\n }\n\n void main() {\n ivec2 coords = getOutputCoords();\n int batch = coords[0];\n int outIdx = coords[1];\n int inOffset = int(floor(float(outIdx) / float(\n ${numSegments})) * float(${windowSize}));\n int currentSeg = int(mod(float(outIdx), float(${numSegments})));\n\n

```
      float sumValue = 0.0;\n\n      for (int i = 0; i < ${windowSizeNearestVec4}; i += 4) {\n        int inIdx =
inOffset + i;\n        vec4 values = vec4(\n          getValue(batch, inIdx),\n          getValue(batch, inIdx + 1),\n
  getValue(batch, inIdx + 2),\n          getValue(batch, inIdx + 3)\n        );\n\n        vec4 segFilter = vec4(\n
int(getSegmentIdAtIndex(inIdx)) == currentSeg ? 1 : 0,\n          int(getSegmentIdAtIndex(inIdx + 1)) ==
currentSeg ? 1 : 0,\n          int(getSegmentIdAtIndex(inIdx + 2)) == currentSeg ? 1 : 0,\n
int(getSegmentIdAtIndex(inIdx + 3)) == currentSeg ? 1 : 0\n        );\n\n        ${updateSnippet}\n      }\n\n      int
inIdx = inOffset + ${windowSizeNearestVec4};\n      if (${windowSizeVec4Remainder === 1}) {\n        vec4
values = vec4(\n          getValue(batch, inIdx),\n          initializationValue,\n          initializationValue,\n
initializationValue\n
      );\n\n        int inIdxSeg = int(getSegmentIdAtIndex(inIdx));\n\n        vec4 segFilter = vec4(\n
int(getSegmentIdAtIndex(inIdx)) == currentSeg ? 1 : 0,\n          0,\n          0,\n          0\n        );\n\n
${updateSnippet}\n      } else if (${windowSizeVec4Remainder === 2}) {\n        vec4 values = vec4(\n
getValue(batch, inIdx),\n          getValue(batch, inIdx + 1),\n          initializationValue,\n
initializationValue\n        );\n\n        vec4 segFilter = vec4(\n          int(getSegmentIdAtIndex(inIdx)) ==
currentSeg ? 1 : 0,\n          int(getSegmentIdAtIndex(inIdx + 1)) == currentSeg ? 1 : 0,\n          0,\n          0\n
  );\n\n        ${updateSnippet}\n      } else if (${windowSizeVec4Remainder === 3}) {\n        vec4 values =
vec4(\n          getValue(batch, inIdx),\n          getValue(batch, inIdx + 1),\n          getValue(batch, inIdx + 2),\n
    initializationValue\n
      );\n\n        vec4 segFilter = vec4(\n          int(getSegmentIdAtIndex(inIdx)) == currentSeg ? 1 : 0,\n
int(getSegmentIdAtIndex(inIdx + 1)) == currentSeg ? 1 : 0,\n          int(getSegmentIdAtIndex(inIdx + 2)) ==
currentSeg ? 1 : 0,\n          0\n        );\n\n        ${updateSnippet}\n      }\n      setOutput(${returnValue});\n
    }\n    `;\n  }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the
Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n *
Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed
on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied.\n * See the License for the specific language governing permissions
 and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {backend_util, DataType, KernelConfig, KernelFunc, sumOutType, TensorInfo,
UnsortedSegmentSum, UnsortedSegmentSumAttrs, UnsortedSegmentSumInputs, util} from '@tensorflow/tfjs-
core';\n\nimport {MathBackendWebGL} from '../backend_webgl';\nimport {SegmentOpProgram} from
'../segment_gpu';\n\nimport {range} from './Range';\nimport {reshape} from './Reshape';\nimport {tile} from
'./Tile';\nimport {transpose} from './Transpose';\n\nexport function unsortedSegmentSum(args: {\n  inputs:
UnsortedSegmentSumInputs,\n  backend: MathBackendWebGL,\n  attrs: UnsortedSegmentSumAttrs\n}):
TensorInfo {\n  const {inputs, backend, attrs} = args;\n  const {x, segmentIds} = inputs;\n  const {numSegments} =
attrs;\n\n  const xRank = x.shape.length;\n\n  const toDispose = [];\n\n  let axis = 0;\n  const permutation =
backend_util.getAxesPermutation([axis], xRank);\n  let
 permutedX = x;\n  if (permutation != null) {\n    permutedX = transpose({inputs: {x}, backend, attrs: {perm:
permutation}});\n    toDispose.push(permutedX);\n    axis = backend_util.getInnerMostAxes(1, xRank)[0];\n  }\n\n
const outShape = backend_util.segment_util.computeOutShape(\n      permutedX.shape, axis, numSegments);\n
const inSize = util.sizeFromShape([permutedX.shape[axis]]);\n  const a2D =\n      reshape({inputs: {x: permutedX},
backend, attrs: {shape: [-1, inSize]}});\n  toDispose.push(a2D);\n\n  const outputDType =
sumOutType(x.dtype);\n\n  const segOpCompute =\n      (x: TensorInfo, segOpType: 'unsortedSegmentSum',
segmentIds: TensorInfo,\n       dtype: DataType, numSegments: number): TensorInfo => {\n        const batchSize =
x.shape[0];\n        const inSize = x.shape[1];\n        const windowSize =\n
backend_util.segment_util.segOpComputeOptimalWindowSize(\n              inSize, numSegments);\n        const
segOpInfo = {windowSize, inSize, batchSize, numSegments};\n
```

const program = new SegmentOpProgram(segOpInfo, segOpType);\n const output = backend.compileAndRun(program, [x, segmentIds], dtype);\n toDispose.push(output);\n // No need to run another GPGPU program.\n if (output.shape[1] === numSegments) {\n return output;\n }\n const rangeInfo = range({\n backend,\n attrs: {start: 0, stop: numSegments, step: 1, dtype: 'float32'}\n });\n const tileInfo = tile({\n inputs: {x: rangeInfo},\n backend,\n attrs: {reps: [inSize / windowSize]}\n });\n\n toDispose.push(rangeInfo);\n toDispose.push(tileInfo);\n\n const result =\n segOpCompute(output, segOpType, tileInfo, dtype, numSegments);\n return result;\n };\n\n const segOpResult = segOpCompute(\n a2D, 'unsortedSegmentSum', segmentIds, outputDType, numSegments);\n\n const reshaped =\n reshape({inputs: {x: segOpResult},
backend, attrs: {shape: outShape}});\n\n let result = reshaped;\n if (permutation != null) {\n toDispose.push(reshaped);\n const perm = backend_util.getUndoAxesPermutation(permutation);\n result = transpose({inputs: {x: result}, backend, attrs: {perm}});\n }\n\n toDispose.forEach(t => backend.disposeIntermediateTensorInfo(t));\n return result;\n}\n\nexport const unsortedSegmentSumConfig: KernelConfig = {\n kernelName: UnsortedSegmentSum,\n backendName: 'webgl',\n kernelFunc: unsortedSegmentSum as {} as KernelFunc\n};\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {KernelConfig, registerKernel} from '@tensorflow/tfjs-core';\n\nimport {_fusedMatMulConfig} from './kernels/_FusedMatMul';\nimport {absConfig} from './kernels/Abs';\nimport {acosConfig} from './kernels/Acos';\nimport {acoshConfig} from './kernels/Acosh';\nimport {addConfig} from './kernels/Add';\nimport {addNConfig} from './kernels/AddN';\nimport {allConfig} from './kernels/All';\nimport {anyConfig} from './kernels/Any';\nimport {argMaxConfig} from './kernels/ArgMax';\nimport {argMinConfig} from './kernels/ArgMin';\nimport {asinConfig} from './kernels/Asin';\nimport {asinhConfig} from './kernels/Asinh';\nimport {atanConfig} from './kernels/Atan';\nimport {atan2Config} from './kernels/Atan2';\nimport {atanhConfig}
from './kernels/Atanh';\nimport {avgPoolConfig} from './kernels/AvgPool';\nimport {avgPool3DConfig} from './kernels/AvgPool3D';\nimport {avgPoolGrad3DConfig} from './kernels/AvgPool3DGrad';\nimport {avgPoolGradConfig} from './kernels/AvgPoolGrad';\nimport {batchMatMulConfig} from './kernels/BatchMatMul';\nimport {batchNormConfig} from './kernels/BatchNorm';\nimport {batchToSpaceNDConfig} from './kernels/BatchToSpaceND';\nimport {bincountConfig} from './kernels/Bincount';\nimport {castConfig} from './kernels/Cast';\nimport {ceilConfig} from './kernels/Ceil';\nimport {clipByValueConfig} from './kernels/ClipByValue';\nimport {complexConfig} from './kernels/Complex';\nimport {complexAbsConfig} from './kernels/ComplexAbs';\nimport {concatConfig} from './kernels/Concat';\nimport {conv2DConfig} from './kernels/Conv2D';\nimport {conv2DBackpropFilterConfig} from './kernels/Conv2DBackpropFilter';\nimport {conv2DBackpropInputConfig} from './kernels/Conv2DBackpropInput';\nimport {conv3DConfig} from
'./kernels/Conv3D';\nimport {conv3DBackpropFilterV2Config} from './kernels/Conv3DBackpropFilterV2';\nimport {conv3DBackpropInputConfig} from './kernels/Conv3DBackpropInputV2';\nimport {cosConfig} from './kernels/Cos';\nimport {coshConfig} from './kernels/Cosh';\nimport {cropAndResizeConfig} from './kernels/CropAndResize';\nimport {cumsumConfig} from './kernels/Cumsum';\nimport {denseBincountConfig} from './kernels/DenseBincount';\nimport {depthToSpaceConfig} from './kernels/DepthToSpace';\nimport {depthwiseConv2dNativeConfig} from './kernels/DepthwiseConv2dNative';\nimport {depthwiseConv2dNativeBackpropFilterConfig} from './kernels/DepthwiseConv2dNativeBackpropFilter';\nimport

{depthwiseConv2dNativeBackpropInputConfig} from './kernels/DepthwiseConv2dNativeBackpropInput';\nimport {diagConfig} from './kernels/Diag';\nimport {dilation2DConfig} from './kernels/Dilation2D';\nimport {eluConfig} from './kernels/Elu';\nimport {eluGradConfig} from './kernels/EluGrad';\nimport {equalConfig} from './kernels/Equal';\nimport {erfConfig} from './kernels/Erf';\nimport {expConfig} from './kernels/Exp';\nimport {expandDimsConfig} from './kernels/ExpandDims';\nimport {expm1Config} from './kernels/Expm1';\nimport {fftConfig} from './kernels/FFT';\nimport {fillConfig} from './kernels/Fill';\nimport {flipLeftRightConfig} from './kernels/FlipLeftRight';\nimport {floorConfig} from './kernels/Floor';\nimport {floorDivConfig} from './kernels/FloorDiv';\nimport {fromPixelsConfig} from './kernels/FromPixels';\nimport {fusedConv2DConfig} from './kernels/FusedConv2D';\nimport {fusedDepthwiseConv2DConfig} from './kernels/FusedDepthwiseConv2D';\nimport {gatherNdConfig} from './kernels/GatherNd';\nimport {gatherV2Config} from './kernels/GatherV2';\nimport {greaterConfig} from './kernels/Greater';\nimport {greaterEqualConfig} from './kernels/GreaterEqual';\nimport {identityConfig} from './kernels/Identity';\nimport {ifftConfig} from './kernels/IFFT';\nimport {imagConfig} from './kernels/Imag';\nimport {isFiniteConfig} from './kernels/IsFinite';\nimport {isInfConfig} from './kernels/IsInf';\nimport {isNaNConfig} from './kernels/IsNaN';\nimport {leakyReluConfig} from './kernels/LeakyRelu';\nimport {lessConfig} from './kernels/Less';\nimport {lessEqualConfig} from './kernels/LessEqual';\nimport {linSpaceConfig} from './kernels/LinSpace';\nimport {logConfig} from './kernels/Log';\nimport {log1pConfig} from './kernels/Log1p';\nimport {logicalAndConfig} from './kernels/LogicalAnd';\nimport {logicalNotConfig} from './kernels/LogicalNot';\nimport {logicalOrConfig} from './kernels/LogicalOr';\nimport {LRNConfig} from './kernels/LRN';\nimport {LRNGradConfig} from './kernels/LRNGrad';\nimport {maxConfig} from './kernels/Max';\nimport {maximumConfig} from './kernels/Maximum';\nimport {maxPoolConfig} from './kernels/MaxPool';\nimport {maxPool3DConfig} from './kernels/MaxPool3D';\nimport {maxPoolGrad3DConfig} from './kernels/MaxPool3DGrad';\nimport {maxPoolGradConfig} from './kernels/MaxPoolGrad';\nimport {maxPoolWithArgmaxConfig} from './kernels/MaxPoolWithArgmax';\nimport {meanConfig} from './kernels/Mean';\nimport {minConfig} from './kernels/Min';\nimport {minimumConfig} from './kernels/Minimum';\nimport {mirrorPadConfig} from './kernels/MirrorPad';\nimport {modConfig} from './kernels/Mod';\nimport {multinomialConfig} from './kernels/Multinomial';\nimport {multiplyConfig} from './kernels/Multiply';\nimport {negConfig} from './kernels/Neg';\nimport {nonMaxSuppressionV3Config} from './kernels/NonMaxSuppressionV3';\nimport {nonMaxSuppressionV4Config} from './kernels/NonMaxSuppressionV4';\nimport {nonMaxSuppressionV5Config} from './kernels/NonMaxSuppressionV5';\nimport {notEqualConfig} from './kernels/NotEqual';\nimport {oneHotConfig} from './kernels/OneHot';\nimport {onesLikeConfig} from './kernels/OnesLike';\nimport {packConfig} from './kernels/Pack';\nimport {padV2Config} from './kernels/PadV2';\nimport {powConfig} from './kernels/Pow';\nimport {preluConfig} from './kernels/Prelu';\nimport {prodConfig} from './kernels/Prod';\nimport {rangeConfig} from './kernels/Range';\nimport {realConfig} from './kernels/Real';\nimport {realDivConfig} from './kernels/RealDiv';\nimport {reciprocalConfig} from './kernels/Reciprocal';\nimport {reluConfig} from './kernels/Relu';\nimport {relu6Config} from './kernels/Relu6';\nimport {reshapeConfig} from './kernels/Reshape';\nimport {resizeBilinearConfig} from './kernels/ResizeBilinear';\nimport {resizeBilinearGradConfig} from './kernels/ResizeBilinearGrad';\nimport {resizeNearestNeighborConfig} from './kernels/ResizeNearestNeighbor';\nimport {resizeNearestNeighborGradConfig} from './kernels/ResizeNearestNeighborGrad';\nimport {reverseConfig} from './kernels/Reverse';\nimport {rotateWithOffsetConfig} from './kernels/RotateWithOffset';\nimport {roundConfig} from './kernels/Round';\nimport {rsqrtConfig} from './kernels/Rsqrt';\nimport {scatterNdConfig} from './kernels/ScatterNd';\nimport {selectConfig} from './kernels/Select';\nimport {seluConfig} from './kernels/Selu';\nimport {sigmoidConfig} from './kernels/Sigmoid';\nimport {signConfig} from './kernels/Sign';\nimport {sinConfig} from './kernels/Sin';\nimport {sinhConfig} from './kernels/Sinh';\nimport {sliceConfig} from './kernels/Slice';\nimport {softmaxConfig} from './kernels/Softmax';\nimport {softplusConfig} from './kernels/Softplus';\nimport {spaceToBatchNDConfig} from './kernels/SpaceToBatchND';\nimport

{sparseToDenseConfig} from './kernels/SparseToDense';\nimport {splitVConfig} from './kernels/SplitV';\nimport {sqrtConfig} from './kernels/Sqrt';\nimport {squareConfig} from './kernels/Square';\nimport {squaredDifferenceConfig} from './kernels/SquaredDifference';\nimport {stepConfig} from './kernels/Step';\nimport {stridedSliceConfig} from './kernels/StridedSlice';\nimport {subConfig} from './kernels/Sub';\nimport {sumConfig} from './kernels/Sum';\nimport {tanConfig} from './kernels/Tan';\nimport {tanhConfig} from './kernels/Tanh';\nimport {tileConfig}
from './kernels/Tile';\nimport {topKConfig} from './kernels/TopK';\nimport {transposeConfig} from './kernels/Transpose';\nimport {uniqueConfig} from './kernels/Unique';\nimport {unpackConfig} from './kernels/Unpack';\nimport {unsortedSegmentSumConfig} from './kernels/UnsortedSegmentSum';\nimport {zerosLikeConfig} from './kernels/ZerosLike';\n\n// List all kernel configs here\nconst kernelConfigs: KernelConfig[] = [\n LRNConfig,\n LRNGradConfig,\n _fusedMatMulConfig,\n absConfig,\n acosConfig,\n acoshConfig,\n addConfig,\n addNConfig,\n allConfig,\n anyConfig,\n argMaxConfig,\n argMinConfig,\n asinConfig,\n asinhConfig,\n atan2Config,\n atanConfig,\n atanhConfig,\n avgPool3DConfig,\n avgPoolConfig,\n avgPoolGrad3DConfig,\n avgPoolGradConfig,\n batchMatMulConfig,\n batchNormConfig,\n batchToSpaceNDConfig,\n bincountConfig,\n castConfig,\n ceilConfig,\n clipByValueConfig,\n complexAbsConfig,\n complexConfig,\n concatConfig,\n conv2DBackpropFilterConfig,\n conv2DBackpropInputConfig,\n conv2DConfig,\n conv3DBackpropFilterV2Config,\n conv3DBackpropInputConfig,\n conv3DConfig,\n cosConfig,\n coshConfig,\n cropAndResizeConfig,\n cumsumConfig,\n denseBincountConfig,\n depthToSpaceConfig,\n depthwiseConv2dNativeBackpropFilterConfig,\n depthwiseConv2dNativeBackpropInputConfig,\n depthwiseConv2dNativeConfig,\n diagConfig,\n dilation2DConfig,\n eluConfig,\n eluGradConfig,\n equalConfig,\n erfConfig,\n expConfig,\n expandDimsConfig,\n expm1Config,\n fftConfig,\n fillConfig,\n flipLeftRightConfig,\n floorConfig,\n floorDivConfig,\n fromPixelsConfig,\n fusedConv2DConfig,\n fusedDepthwiseConv2DConfig,\n gatherNdConfig,\n gatherV2Config,\n greaterConfig,\n greaterEqualConfig,\n identityConfig,\n ifftConfig,\n imagConfig,\n isFiniteConfig,\n isInfConfig,\n isNaNConfig,\n leakyReluConfig,\n lessConfig,\n lessEqualConfig,\n linSpaceConfig,\n log1pConfig,\n logConfig,\n logicalAndConfig,\n logicalNotConfig,\n logicalOrConfig,\n maxConfig,\n maxPool3DConfig,\n maxPoolConfig,\n maxPoolGrad3DConfig,\n maxPoolGradConfig,\n maxPoolWithArgmaxConfig,\n maximumConfig,\n meanConfig,\n minConfig,\n minimumConfig,\n mirrorPadConfig,\n modConfig,\n multinomialConfig,\n multiplyConfig,\n negConfig,\n nonMaxSuppressionV3Config,\n nonMaxSuppressionV4Config,\n nonMaxSuppressionV5Config,\n notEqualConfig,\n oneHotConfig,\n onesLikeConfig,\n packConfig,\n padV2Config,\n powConfig,\n preluConfig,\n prodConfig,\n rangeConfig,\n realConfig,\n realDivConfig,\n reciprocalConfig,\n relu6Config,\n reluConfig,\n reshapeConfig,\n resizeBilinearConfig,\n resizeBilinearGradConfig,\n resizeNearestNeighborConfig,\n resizeNearestNeighborGradConfig,\n reverseConfig,\n rotateWithOffsetConfig,\n roundConfig,\n rsqrtConfig,\n scatterNdConfig,\n selectConfig,\n seluConfig,\n sigmoidConfig,\n signConfig,\n sinConfig,\n sinhConfig,\n sliceConfig,\n softmaxConfig,\n softplusConfig,\n spaceToBatchNDConfig,\n sparseToDenseConfig,\n splitVConfig,\n sqrtConfig,\n squareConfig,\n squaredDifferenceConfig,\n stepConfig,\n stridedSliceConfig,\n subConfig,\n sumConfig,\n tanConfig,\n tanhConfig,\n tileConfig,\n topKConfig,\n transposeConfig,\n uniqueConfig,\n unpackConfig,\n unsortedSegmentSumConfig,\n zerosLikeConfig\n];\n\nfor (const kernelConfig of kernelConfigs) {\n registerKernel(kernelConfig);\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the

License for the specific language governing permissions and\n * limitations under the License.\n *\n * ==========\n */\n\n/* tslint:disable */\n\n/** Properties of an Any. */\nexport declare interface IAny {\n /** Any typeUrl */\n typeUrl?: (string|null);\n\n /** Any value */\n value?: (Uint8Array|null);\n}\n\n/** DataType enum. */\nexport enum DataType {\n 'DT_INVALID' = 0,\n 'DT_FLOAT' = 1,\n 'DT_DOUBLE' = 2,\n 'DT_INT32' = 3,\n 'DT_UINT8' = 4,\n 'DT_INT16' = 5,\n 'DT_INT8' = 6,\n 'DT_STRING' = 7,\n 'DT_COMPLEX64' = 8,\n 'DT_INT64' = 9,\n 'DT_BOOL' = 10,\n 'DT_QINT8' = 11,\n 'DT_QUINT8' = 12,\n 'DT_QINT32' = 13,\n 'DT_BFLOAT16' = 14,\n 'DT_FLOAT_REF' = 101,\n 'DT_DOUBLE_REF' = 102,\n 'DT_INT32_REF' = 103,\n 'DT_UINT8_REF' = 104,\n 'DT_INT16_REF' = 105,\n 'DT_INT8_REF' = 106,\n 'DT_STRING_REF' = 107,\n 'DT_COMPLEX64_REF' = 108,\n 'DT_INT64_REF' = 109,\n 'DT_BOOL_REF' = 110,\n 'DT_QINT8_REF' = 111,\n 'DT_QUINT8_REF' = 112,\n 'DT_QINT32_REF' = 113,\n 'DT_BFLOAT16_REF' = 114\n}\n\n/** Properties of a TensorShape. */\nexport declare interface ITensorShape {\n /** TensorShape dim */\n dim?: (TensorShape.IDim[]|null);\n\n /** TensorShape unknownRank */\n unknownRank?: (boolean|null);\n}\n\nexport namespace TensorShape {\n /** Properties of a Dim. */\n export declare interface IDim {\n /** Dim size */\n size?: (number|string|null);\n\n /** Dim name */\n name?: (string|null);\n }\n}\n\n/** Properties of a Tensor. */\nexport declare interface ITensor {\n /** Tensor dtype */\n dtype?: (DataType|null);\n\n /** Tensor tensorShape */\n tensorShape?: (ITensorShape|null);\n\n /** Tensor versionNumber */\n versionNumber?: (number|null);\n\n /** Tensor tensorContent */\n tensorContent?: (Uint8Array|null);\n\n /** Tensor floatVal */\n floatVal?: (number[]|null);\n\n /** Tensor doubleVal */\n doubleVal?: (number[]|null);\n\n /** Tensor intVal */\n intVal?: (number[]|null);\n\n /** Tensor stringVal */\n stringVal?: (Uint8Array[]|null);\n\n /** Tensor scomplexVal */\n scomplexVal?: (number[]|null);\n\n /** Tensor int64Val */\n int64Val?: ((number | string)[]|null);\n\n /** Tensor boolVal */\n boolVal?: (boolean[]|null);\n\n /** Tensor uint32Val */\n uint32Val?: (number[]|null);\n\n /** Tensor uint64Val */\n uint64Val?: ((number | string)[]|null);\n}\n\n/** Properties of an AttrValue. */\nexport declare interface IAttrValue {\n /** AttrValue list */\n list?: (AttrValue.IListValue|null);\n\n /** AttrValue s */\n s?: (string|null);\n\n /** AttrValue i */\n i?: (number|string|null);\n\n /** AttrValue f */\n f?: (number|null);\n\n /** AttrValue b */\n b?: (boolean|null);\n\n /** AttrValue type */\n type?: (DataType|null);\n\n /** AttrValue shape */\n shape?: (ITensorShape|null);\n\n /** AttrValue tensor */\n tensor?: (ITensor|null);\n\n /** AttrValue placeholder */\n placeholder?: (string|null);\n\n /** AttrValue func */\n func?: (INameAttrList|null);\n}\n\nexport namespace AttrValue {\n /** Properties of a ListValue. */\n export declare interface IListValue {\n /** ListValue s */\n s?: (string[]|null);\n\n /** ListValue i */\n i?: ((number | string)[]|null);\n\n /** ListValue f */\n f?: (number[]|null);\n\n /** ListValue b */\n b?: (boolean[]|null);\n\n /** ListValue type */\n type?: (DataType[]|null);\n\n /** ListValue shape */\n shape?: (ITensorShape[]|null);\n\n /** ListValue tensor */\n tensor?: (ITensor[]|null);\n\n /** ListValue func */\n func?: (INameAttrList[]|null);\n }\n}\n\n/** Properties of a NameAttrList. */\nexport declare interface INameAttrList {\n /** NameAttrList name */\n name?: (string|null);\n\n /** NameAttrList attr */\n attr?: ({[k: string]: IAttrValue}|null);\n}\n\n/** Properties of a NodeDef. */\nexport declare interface INodeDef {\n /** NodeDef name */\n name?: (string|null);\n\n /** NodeDef op */\n op?: (string|null);\n\n /** NodeDef input */\n input?: (string[]|null);\n\n /** NodeDef device */\n device?: (string|null);\n\n /** NodeDef attr */\n attr?: ({[k: string]: IAttrValue}|null);\n}\n\n/** Properties of a VersionDef. */\nexport declare interface IVersionDef {\n /** VersionDef producer */\n producer?: (number|null);\n\n /** VersionDef minConsumer */\n minConsumer?: (number|null);\n\n /** VersionDef badConsumers */\n badConsumers?: (number[]|null);\n}\n\n/** Properties of a GraphDef. */\nexport declare interface IGraphDef {\n /** GraphDef node */\n node?: (INodeDef[]|null);\n\n /** GraphDef versions */\n versions?: (IVersionDef|null);\n\n /** GraphDef library */\n library?: (IFunctionDefLibrary|null);\n}\n\n/** Properties of a CollectionDef. */\nexport declare interface ICollectionDef {\n /** CollectionDef nodeList */\n nodeList?: (CollectionDef.INodeList|null);\n\n /** CollectionDef bytesList */\n bytesList?: (CollectionDef.IBytesList|null);\n\n /** CollectionDef

int64List */\n int64List?: (CollectionDef.IInt64List|null);\n\n /** CollectionDef floatList */\n floatList?: (CollectionDef.IFloatList|null);\n\n /** CollectionDef anyList */\n anyList?: (CollectionDef.IAnyList|null);\n}\n\nexport namespace CollectionDef {\n /** Properties of a NodeList. */\n export declare interface INodeList {\n   /** NodeList value */\n   value?: (string[]|null);\n }\n\n /** Properties of a BytesList. */\n export declare interface IBytesList {\n   /** BytesList value */\n   value?: (Uint8Array[]|null);\n }\n\n /** Properties of an Int64List. */\n export declare interface IInt64List {\n   /** Int64List value */\n   value?: ((number | string)[]|null);\n }\n\n /** Properties of a FloatList. */\n export declare interface IFloatList {\n   /** FloatList value */\n   value?: (number[]|null);\n }\n\n /** Properties of an AnyList. */\n export declare interface IAnyList {\n   /** AnyList value */\n   value?: (IAny[]|null);\n }\n}\n\n/** Properties of a SaverDef. */\nexport declare interface ISaverDef {\n /** SaverDef filenameTensorName */\n filenameTensorName?: (string|null);\n\n /** SaverDef saveTensorName */\n saveTensorName?: (string|null);\n\n /** SaverDef restoreOpName */\n restoreOpName?: (string|null);\n\n /** SaverDef maxToKeep */\n maxToKeep?: (number|null);\n\n /** SaverDef sharded */\n sharded?: (boolean|null);\n\n /** SaverDef keepCheckpointEveryNHours */\n keepCheckpointEveryNHours?: (number|null);\n\n /** SaverDef version */\n version?: (SaverDef.CheckpointFormatVersion|null);\n}\n\nexport namespace SaverDef {\n /** CheckpointFormatVersion enum. */\n export enum CheckpointFormatVersion {'LEGACY' = 0, 'V1' = 1, 'V2' = 2}\n}\n\n/** Properties of a TensorInfo. */\nexport declare interface ITensorInfo {\n /** TensorInfo name */\n name?: (string|null);\n\n /** TensorInfo cooSparse */\n cooSparse?: (TensorInfo.ICooSparse|null);\n\n /** TensorInfo dtype */\n dtype?: (DataType|null);\n\n /** TensorInfo tensorShape */\n tensorShape?: (ITensorShape|null);\n}\n\nexport namespace TensorInfo {\n /** Properties of a CooSparse. */\n export declare interface ICooSparse {\n   /** CooSparse valuesTensorName */\n   valuesTensorName?: (string|null);\n\n   /** CooSparse indicesTensorName */\n   indicesTensorName?: (string|null);\n\n   /** CooSparse denseShapeTensorName */\n   denseShapeTensorName?: (string|null);\n }\n}\n\n/** Properties of a SignatureDef. */\nexport declare interface ISignatureDef {\n /** SignatureDef inputs */\n inputs?: ({[k: string]: ITensorInfo}|null);\n\n /** SignatureDef outputs */\n outputs?: ({[k: string]: ITensorInfo}|null);\n\n /** SignatureDef methodName */\n methodName?: (string|null);\n}\n\n/** Properties of an AssetFileDef. */\nexport declare interface IAssetFileDef {\n /** AssetFileDef tensorInfo */\n tensorInfo?: (ITensorInfo|null);\n\n /** AssetFileDef filename */\n filename?: (string|null);\n}\n\n/** Properties of an OpDef. */\nexport
 declare interface IOpDef {\n /** OpDef name */\n name?: (string|null);\n\n /** OpDef inputArg */\n inputArg?: (OpDef.IArgDef[]|null);\n\n /** OpDef outputArg */\n outputArg?: (OpDef.IArgDef[]|null);\n\n /** OpDef attr */\n attr?: (OpDef.IAttrDef[]|null);\n\n /** OpDef deprecation */\n deprecation?: (OpDef.IOpDeprecation|null);\n\n /** OpDef summary */\n summary?: (string|null);\n\n /** OpDef description */\n description?: (string|null);\n\n /** OpDef isCommutative */\n isCommutative?: (boolean|null);\n\n /** OpDef isAggregate */\n isAggregate?: (boolean|null);\n\n /** OpDef isStateful */\n isStateful?: (boolean|null);\n\n /** OpDef allowsUninitializedInput */\n allowsUninitializedInput?: (boolean|null);\n}\n\nexport namespace OpDef {\n /** Properties of an ArgDef. */\n export declare interface IArgDef {\n   /** ArgDef name */\n   name?: (string|null);\n\n   /** ArgDef description */\n   description?: (string|null);\n\n   /** ArgDef type */\n   type?: (DataType|null);\n\n   /** ArgDef typeAttr */\n   typeAttr?: (string|null);\n\n   /** ArgDef numberAttr */\n   numberAttr?: (string|null);\n\n   /** ArgDef typeListAttr */\n   typeListAttr?: (string|null);\n\n   /** ArgDef isRef */\n   isRef?: (boolean|null);\n }\n\n /** Properties of an AttrDef. */\n export declare interface IAttrDef {\n   /** AttrDef name */\n   name?: (string|null);\n\n   /** AttrDef type */\n   type?: (string|null);\n\n   /** AttrDef defaultValue */\n   defaultValue?: (IAttrValue|null);\n\n   /** AttrDef description */\n   description?: (string|null);\n\n   /** AttrDef hasMinimum */\n   hasMinimum?: (boolean|null);\n\n   /** AttrDef minimum */\n   minimum?: (number|string|null);\n\n   /** AttrDef allowedValues */\n   allowedValues?: (IAttrValue|null);\n }\n\n /** Properties of an OpDeprecation. */\n export declare interface IOpDeprecation {\n   /** OpDeprecation version */\n   version?: (number|null);\n\n   /** OpDeprecation explanation

```
 */\n    explanation?: (string|null);\n  }\n}\n\n/** Properties of an OpList. */\nexport declare interface IOpList {\n /** OpList op */\n  op?: (IOpDef[]|null);\n}\n\n/** Properties of a MetaGraphDef. */\nexport declare interface IMetaGraphDef {\n  /** MetaGraphDef metaInfoDef */\n  metaInfoDef?: (MetaGraphDef.IMetaInfoDef|null);\n\n /** MetaGraphDef graphDef */\n  graphDef?: (IGraphDef|null);\n\n  /** MetaGraphDef saverDef */\n  saverDef?: (ISaverDef|null);\n\n  /** MetaGraphDef collectionDef */\n  collectionDef?: ({[k: string]: ICollectionDef}|null);\n\n /** MetaGraphDef signatureDef */\n  signatureDef?: ({[k: string]: ISignatureDef}|null);\n\n  /** MetaGraphDef assetFileDef */\n  assetFileDef?: (IAssetFileDef[]|null);\n}\n\nexport namespace MetaGraphDef {\n  /** Properties of a MetaInfoDef. */\n  export declare interface IMetaInfoDef {\n    /** MetaInfoDef metaGraphVersion */\n metaGraphVersion?: (string|null);\n\n    /** MetaInfoDef strippedOpList */\n    strippedOpList?: (IOpList|null);\n\n    /** MetaInfoDef anyInfo */\n    anyInfo?: (IAny|null);\n\n    /** MetaInfoDef tags */\n    tags?: (string[]|null);\n\n    /** MetaInfoDef tensorflowVersion */\n    tensorflowVersion?: (string|null);\n\n    /** MetaInfoDef tensorflowGitVersion */\n    tensorflowGitVersion?: (string|null);\n  }\n}\n\n/** Properties of a SavedModel. */\nexport declare interface ISavedModel {\n  /** SavedModel savedModelSchemaVersion */\n savedModelSchemaVersion?: (number|string|null);\n\n  /** SavedModel metaGraphs */\n  metaGraphs?: (IMetaGraphDef[]|null);\n}\n\n/** Properties of a FunctionDefLibrary. */\nexport declare interface IFunctionDefLibrary {\n  /** FunctionDefLibrary function */\n  'function'?: (IFunctionDef[]|null);\n\n  /** FunctionDefLibrary gradient */\n  gradient?: (IGradientDef[]|null);\n}\n\n/** Properties of a FunctionDef. */\nexport declare interface IFunctionDef {\n  /** FunctionDef signature */\n  signature?: (IOpDef|null);\n\n  /** FunctionDef attr */\n  attr?:
 ({[k: string]: IAttrValue}|null);\n\n  /** FunctionDef nodeDef */\n  nodeDef?: (INodeDef[]|null);\n\n  /** FunctionDef ret */\n  ret?: ({[k: string]: string}|null);\n}\n\n/** Properties of a GradientDef. */\nexport declare interface IGradientDef {\n  /** GradientDef functionName */\n  functionName?: (string|null);\n\n  /** GradientDef gradientFunc */\n  gradientFunc?: (string|null);\n}\n","\n/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
 http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n
 * limitations under the License.\n *
 ==========================================================================\n
 */\n\nimport {OpExecutor, OpMapper} from '../types';\n\nconst CUSTOM_OPS: {[key: string]: OpMapper} = {};\n\n/**\n * Register an Op for graph model executor. This allow you to register\n * TensorFlow custom op or override existing op.\n *\n * Here is an example of registering a new MatMul Op.\n * ```js\n * const customMatmul = (node) =>\n *    tf.matMul(\n *        node.inputs[0], node.inputs[1],\n *        node.attrs['transpose_a'], node.attrs['transpose_b']);\n *\n * tf.registerOp('MatMul', customMatmul);\n * ```\n * The inputs and attrs of the node object is based on the TensorFlow op\n * registry.\n *\n * @param name The Tensorflow Op name.\n * @param opFunc An op function which is called with the current graph node\n * during execution and needs to return a tensor or a list of tensors. The node\n * has the following attributes:\n *    - attr: A map from attribute name to its value\n *    - inputs: A list of input tensors\n *\n * @doc {heading: 'Models', subheading: 'Op Registry'}\n */\nexport function registerOp(name: string, opFunc: OpExecutor) {\n  const opMapper: OpMapper = {\n tfOpName: name,\n    category: 'custom',\n    inputs: [],\n    attrs: [],\n    customExecutor: opFunc\n  };\n\n CUSTOM_OPS[name] = opMapper;\n}\n\n/**\n * Retrieve the OpMapper object for the registered op.\n *\n * @param name The Tensorflow Op name.\n *\n * @doc {heading: 'Models', subheading: 'Op Registry'}\n */\nexport function getRegisteredOp(name: string): OpMapper {\n  return CUSTOM_OPS[name];\n}\n\n/**\n * Deregister the Op for graph model executor.\n *\n * @param name The Tensorflow Op name.\n *\n * @doc {heading: 'Models', subheading: 'Op Registry'}\n */\nexport function deregisterOp(name: string) {\n  delete CUSTOM_OPS[name];\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n *
```

```
Licensed under the Apache License, Version 2.0 (the
 \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or
agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for
the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {clone, Tensor, util} from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from
'../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {ResourceManager}
from '../../executor/resource_manager';\nimport {Node, ValueType} from '../types';\n\nexport function
getParamValue(\n    paramName: string, node: Node, tensorMap: NamedTensorsMap,\n    context:
 ExecutionContext, resourceManager?: ResourceManager): ValueType {\n  const inputParam =
node.inputParams[paramName];\n  if (inputParam && inputParam.inputIndexStart !== undefined) {\n    const start
= inputParam.inputIndexStart;\n    const end = inputParam.inputIndexEnd === 0 ?\n        undefined :\n
(inputParam.inputIndexEnd === undefined ? start + 1 :\n
inputParam.inputIndexEnd);\n    if (inputParam.type === 'tensor') {\n      return getTensor(\n
node.inputNames[inputParam.inputIndexStart], tensorMap, context,\n          resourceManager);\n    }\n    if
(inputParam.type === 'tensors') {\n      const inputs = node.inputNames.slice(start, end);\n\n      return inputs.map(\n
      name => getTensor(name, tensorMap, context, resourceManager));\n    }\n    const tensor = getTensor(\n
node.inputNames.slice(start)[0], tensorMap, context, resourceManager);\n    const data = tensor.dataSync();\n
return inputParam.type
 === 'number' ?\n        data[0] :\n        util.toNestedArray(tensor.shape, data);\n  }\n  const attrParam =
node.attrParams[paramName];\n  return attrParam && attrParam.value;\n}\n\n/**\n * Retrieve the tensor from
tensorsMap based on input name.\n * @param name Node input name\n * @param tensorsMap Tensors map keyed
by the node\n * @param context contains tensors and information for running the current node.\n * @param
resourceManager Optional. Contains global resources of the model.\n */\nexport function getTensor(\n    name:
string, tensorsMap: NamedTensorsMap, context: ExecutionContext,\n    resourceManager?: ResourceManager):
Tensor {\n  const [nodeName, index] = parseNodeName(name);\n\n  if (resourceManager != null) {\n    const tensor
= resourceManager.getHashTableHandleByName(nodeName);\n    if (tensor != null) {\n      return tensor;\n    }\n
}\n\n  const contextId = context.currentContextIds.find(contextId => {\n    return
!!tensorsMap[getNodeNameWithContextId(nodeName,
 contextId)];\n  });\n\n  return contextId !== undefined ?\n      tensorsMap[getNodeNameWithContextId(nodeName,
contextId)][index] :\n      undefined;\n}\n\n/**\n * Retrieve the tensors based on input name for current context.\n *
@param name Node input name\n * @param tensorsMap Tensors map keyed by the node\n */\nexport function
getTensorsForCurrentContenxt(\n    name: string, tensorsMap: NamedTensorsMap,\n    context: ExecutionContext):
Tensor[] {\n  return tensorsMap[getNodeNameWithContextId(name, context.currentContextId)];\n}\n\n/**\n *
Returns the node name and index from the Node input name.\n * @param inputName The input name of the node,
in format of\n * node_name:output_index, i.e. MatMul:0, if the output_index is not set, it is\n * default to 0.\n
*/\nexport function getNodeNameAndIndex(\n    inputName: string, context?: ExecutionContext): [string, number]
{\n  const [nodeName, index] = parseNodeName(inputName);\n\n  return [\n
getNodeNameWithContextId(nodeName, context
 && context.currentContextId),\n    index\n  ];\n}\n\nfunction getNodeNameWithContextId(name: string,
contextId?: string): string {\n  return !!contextId ? `${name}-${contextId}` : name;\n}\n\nexport function
parseNodeName(name: string): [string, number] {\n  const parts = name.split(':');\n  if (parts.length === 1) {\n
return [name, 0];\n  }\n\n  const nodeName = parts[0];\n  return [nodeName, Number(parts[parts.length -
1])];\n}\n\nexport function split(arr: number[], size: number) {\n  const res = [];\n  for (let i = 0; i < arr.length; i +=
size) {\n    res.push(arr.slice(i, i + size));\n  }\n  return res;\n}\nexport function getPadding(\n    node: Node,
tensorMap: NamedTensorsMap,\n    context: ExecutionContext): ValueType {\n  let pad = getParamValue('pad',
```

node, tensorMap, context);\n if (pad === 'explicit') {\n   // This is 1d array, we need to convert it to 2d array\n pad = getParamValue('explicitPaddings', node, tensorMap, context);\n   const explicitPadding: [\n [number, number], [number, number], [number, number], [number, number]\n   ] = [[0, 0], [0, 0], [0, 0], [0, 0]];\n for (let i = 0; i < 4; i++) {\n   explicitPadding[i][0] = (pad as number[])[i * 2];\n   explicitPadding[i][1] = (pad as number[])[i * 2 + 1];\n   }\n   return explicitPadding;\n }\n return pad;\n}\n\n/**\n * Reuse the tensor if it is marked as keep, otherwise clone the tensor to\n * avoid disposal. This is important for TensorArray and TensorList ops, since\n * internally they use a tensor as the id for TensorArray and TensorList, and\n * to simplify lookup, they also use Tensor.id as the key to the internal map.\n * These id tensors have been marked as kept in the backend, we need avoid clone\n * them in order to create new Tensor.id.\n * @param tensor\n */\nexport function cloneTensor(tensor: Tensor): Tensor {\n return tensor.kept ? tensor : clone(tensor);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the
 Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {OpMapper} from '../types';\n\nexport const json: OpMapper[] = [\n {\n   'tfOpName': 'Add',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'AddV2',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'AddN',\n   'category': 'arithmetic',\n   'inputs': [{'start': 0, 'end': 0, 'name': 'tensors', 'type': 'tensors'}]\n },\n {\n   'tfOpName': 'BiasAdd',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}, {\n   'tfName': 'data_format',\n   'name': 'dataFormat',\n   'type': 'string',\n   'notSupported': true\n   }\n   ]\n },\n {\n   'tfOpName': 'Sub',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type':
 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'RealDiv',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'Div',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'DivNoNan',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName':
 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'FloorDiv',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'Mul',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'},\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'Maximum',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'}\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype',
 'notSupported': true}\n   ]\n },\n {\n   'tfOpName':
 'Minimum',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type': 'tensor'},\n   {'start': 1, 'name': 'b', 'type': 'tensor'}\n   ],\n   'attrs': [\n   {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n   ]\n },\n {\n   'tfOpName': 'Pow',\n   'category': 'arithmetic',\n   'inputs': [\n   {'start': 0, 'name': 'a', 'type':

'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'SquaredDifference',\n 'category': 'arithmetic',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Mod',\n 'category': 'arithmetic',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'FloorMod',\n 'category': 'arithmetic',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'T',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'Abs',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Acos',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Asin',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Atan',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Atan2',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'y', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Ceil',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'ClipByValue',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'clipValueMin', 'type': 'number'},\n {'start': 2, 'name': 'clipValueMax', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Complex',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'real', 'type': 'tensor'},\n {'start': 1, 'name': 'imag', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'ComplexAbs',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Cos',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Cosh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Elu',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Exp',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Floor',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n

```
},\n {\n 'tfOpName': 'Log',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Imag',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'outputType',\n 'type': 'dtype',\n 'notSupported': true\n }\n ]\n },\n {\n 'tfOpName': 'Neg',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Real',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n
],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'outputType',\n 'type': 'dtype',\n 'notSupported': true\n }\n ]\n },\n {\n 'tfOpName': 'Prelu',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'alpha', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Relu',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Relu6',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype',
'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Selu',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Sigmoid',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Sin',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Sinh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported':
true}\n ]\n },\n {\n 'tfOpName': 'Sqrt',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Rsqrt',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Square',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Tan',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n
},\n {\n 'tfOpName': 'Tanh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Sign',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Round',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Expm1',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n
'tfOpName': 'Log1p',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Reciprocal',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Softplus',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName': 'Asinh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n ],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n ]\n },\n {\n 'tfOpName':
```

'Acosh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Atanh',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Erf',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Prod',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axes', 'type': 'number[]'},\n],\n 'attrs': [\n {\n 'tfName': 'keep_dims',\n 'name': 'keepDims',\n
'type': 'bool',\n 'notSupported': true\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'LeakyRelu',\n 'category': 'basic_math',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'alpha',\n 'name': 'alpha',\n 'type': 'number',\n 'defaultValue': 0.2\n },\n {\n 'tfName': 'T',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }\n]\n }\n];\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the
License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\nimport {OpMapper} from '../types';\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'EmptyTensorList',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'elementShape', 'type': 'shape'},\n {'start': 1, 'name': 'maxNumElements', 'type': 'number'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'LoopCond',\n 'category': 'control',\n 'inputs': [{'start': 0, 'name': 'pred', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'Switch',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'data', 'type': 'tensor'},\n {'start': 1, 'name':
'pred', 'type': 'tensor'}\n]\n },\n {\n 'tfOpName': 'Merge',\n 'category': 'control',\n 'inputs': [{'start': 0, 'end': 0, 'name': 'tensors', 'type': 'tensors'}]\n },\n {\n 'tfOpName': 'Enter',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true},\n {'tfName': 'frame_name', 'name': 'frameName', 'type': 'string'},\n {'tfName': 'is_constant', 'name': 'isConstant', 'type': 'bool'}\n]\n },\n {\n 'tfOpName': 'Exit',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'NextIteration',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName':
'TensorArrayV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'size', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'},\n {'tfName': 'element_shape', 'name': 'elementShape', 'type': 'shape'},\n {'tfName': 'dynamic_size', 'name': 'dynamicSize', 'type': 'bool'},\n {'tfName': 'clear_after_read', 'name': 'clearAfterRead', 'type': 'bool'},\n {\n 'tfName': 'identical_element_shapes',\n 'name': 'identicalElementShapes',\n 'type': 'bool'\n },\n {'tfName': 'tensor_array_name', 'name': 'name', 'type': 'string'}\n]\n },\n {\n 'tfOpName': 'TensorArrayWriteV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'index', 'type': 'number'},\n {'start': 2, 'name': 'tensor',
'type': 'tensor'},\n {'start': 3, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'TensorArrayReadV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'index', 'type': 'number'},\n {'start': 2, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [{\n 'tfName': 'dtype',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }]\n },\n {\n 'tfOpName': 'TensorArrayGatherV3',\n

'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'number[]'},\n {'start': 2, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'},\n {'tfName': 'element_shape', 'name': 'elementShape', 'type': 'shape'}\n]\n },\n {\n 'tfOpName': 'TensorArrayScatterV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'number[]'},\n {'start': 2, 'name': 'tensor', 'type': 'tensor'},\n {'start': 3, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorArrayConcatV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'}, {\n 'tfName': 'element_shape_except0',\n 'name': 'elementShapeExcept0',\n 'type': 'shape',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'TensorArraySplitV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'tensor', 'type': 'tensor'},\n {'start': 2, 'name': 'lengths', 'type': 'number[]'},\n {'start': 3, 'name': 'flowIn', 'type': 'number'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorArraySizeV3',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'},\n {'start': 1, 'name': 'flowIn', 'type': 'number'}\n]\n },\n {\n 'tfOpName': 'TensorArrayCloseV3',\n 'category': 'control',\n 'inputs': [{'start': 0, 'name': 'tensorArrayId', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'StatelessIf',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'cond', 'type': 'tensor'},\n {'start': 1, 'end': 0, 'name': 'args', 'type': 'tensors'}\n],\n 'attrs': [\n {'tfName': 'then_branch', 'name': 'thenBranch', 'type': 'func'},\n {'tfName': 'else_branch', 'name': 'elseBranch', 'type': 'func'}\n]\n },\n {\n 'tfOpName': 'If',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'cond', 'type': 'tensor'},\n {'start': 1, 'end': 0, 'name': 'args', 'type': 'tensors'}\n],\n 'attrs': [\n {'tfName': 'then_branch', 'name': 'thenBranch', 'type': 'func'},\n {'tfName': 'else_branch', 'name': 'elseBranch', 'type': 'func'}\n]\n },\n {\n 'tfOpName': 'StatelessWhile',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'end': 0, 'name': 'args', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'cond', 'name': 'cond', 'type': 'func'},\n {'tfName': 'body', 'name': 'body', 'type': 'func'}\n]\n },\n {\n 'tfOpName': 'While',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'end': 0, 'name': 'args', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'cond', 'name': 'cond', 'type': 'func'},\n {'tfName': 'body', 'name': 'body', 'type': 'func'}\n]\n },\n {\n 'tfOpName': 'TensorListScatter',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'number[]'},\n {'start': 2, 'name': 'elementShape', 'type': 'shape'}\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListScatterV2',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'number[]'},\n {'start': 2, 'name': 'elementShape', 'type': 'shape'},\n {'start': 3, 'name': 'numElements', 'type': 'number'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListGather',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'number[]'},\n {'start': 2, 'name': 'elementShape', 'type': 'shape'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListGetItem',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'index', 'type': 'number'},\n {'start': 2, 'name': 'elementShape', 'type': 'shape'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListSetItem',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'index', 'type': 'number'},\n {'start': 2, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListReserve',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'elementShape', 'type': 'shape'},\n {'start': 1, 'name': 'numElements', 'type': 'number'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListFromTensor',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n {'start': 1, 'name': 'elementShape', 'type': 'shape'}\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type':

'dtype'}]\n },\n {\n 'tfOpName': 'TensorListStack',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'elementShape', 'type': 'shape'},\n],\n 'attrs': [\n {'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'},\n {'tfName': 'num_elements', 'name': 'numElements',
'type': 'dtype'}\n]\n },\n {\n 'tfOpName': 'TensorListSplit',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n {'start': 1, 'name': 'elementShape', 'type': 'shape'},\n {'start': 2, 'name': 'lengths', 'type': 'number[]'},\n],\n 'attrs':\n [{'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListConcat',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'element_shape', 'name': 'elementShape', 'type': 'shape'},\n {'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}\n]\n },\n {\n 'tfOpName': 'TensorListPopBack',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'elementShape', 'type': 'shape'},\n],\n 'attrs':\n [{'tfName':
'element_dtype', 'name': 'elementDType', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TensorListPushBack',\n 'category': 'control',\n 'inputs': [\n {'start': 0, 'name': 'tensorListId', 'type': 'tensor'},\n {'start': 1, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'element_dtype', 'name': 'elementDType', 'type': 'dtype'}\n]\n }\n];\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n
* limitations under the License.\n *
==========\n
*/\n\nimport {OpMapper} from '../types';\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'AvgPool',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n },\n {'tfName': 'ksize', 'name': 'kernelSize', 'type': 'number[]'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'MaxPool',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n
{'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n },\n {'tfName': 'ksize', 'name': 'kernelSize', 'type': 'number[]'}, {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': [],\n 'notSupported': true\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'MaxPoolWithArgmax',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'},\n {'tfName': 'ksize', 'name': 'kernelSize', 'type': 'number[]'}, {\n 'tfName': 'include_batch_in_index',\n 'name': 'includeBatchInIndex',\n
'type': 'bool'\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'AvgPool3D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n },\n {'tfName': 'ksize', 'name': 'kernelSize', 'type': 'number[]'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'MaxPool3D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'},
{\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n },\n {'tfName': 'ksize', 'name': 'kernelSize', 'type': 'number[]'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype',

'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Conv1D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'stride', 'name': 'stride', 'type': 'number'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NWC'\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'dilation',\n 'name': 'dilation',\n 'type': 'number',\n 'defaultValue': 1\n }\n]\n },\n
{\n 'tfOpName': 'Conv2D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true},\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'},\n {'tfName': 'useCudnnOnGpu', 'name': 'useCudnnOnGpu', 'type': 'bool'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n },\n {'tfName': 'dilations', 'name': 'dilations', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': '_FusedConv2D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type':
'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n {'start': 2, end: 0, 'name': 'args', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'num_args', 'name': 'numArgs', 'type': 'number'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true},\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n },\n {\n 'tfName': 'use_cudnn_on_gpu',\n 'name': 'useCudnnOnGpu',\n 'type': 'bool',\n 'defaultValue': true\n },\n {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {\n 'tfName': 'dilations',\n 'name': 'dilations',\n 'type': 'number[]',\n 'defaultValue':
[1, 1, 1, 1]\n },\n {\n 'tfName': 'fused_ops',\n 'name': 'fusedOps',\n 'type': 'string[]',\n 'defaultValue': []\n },\n {\n 'tfName': 'epsilon',\n 'name': 'epsilon',\n 'type': 'number',\n 'defaultValue': 0.0001\n },\n {\n 'tfName': 'leakyrelu_alpha',\n 'name': 'leakyreluAlpha',\n 'type': 'number'\n }\n]\n },\n {\n 'tfOpName': 'Conv2DBackpropInput',\n 'category': 'convolution',\n 'inputs': [\n {'start': 2, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n {'start': 0, 'name': 'outputShape', 'type': 'number[]'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n },\n {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n },\n {\n 'tfName': 'dilations',\n 'name': 'dilations',\n 'type': 'number[]',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'DepthwiseConv2d',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'input', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n },\n {'tfName': 'dilations', 'name': 'dilations', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'DepthwiseConv2dNative',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'input', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n },\n {'tfName': 'dilations', 'name': 'dilations', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName':
'FusedDepthwiseConv2dNative',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type':
'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n {'start': 2, end: 0, 'name':
'args', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'num_args', 'name': 'numArgs', 'type': 'number'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true},\n {'tfName': 'strides', 'name': 'strides', 'type':

'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {\n 'tfName': 'dilations',\n 'name': 'dilations',\n 'type': 'number[]',\n 'defaultValue': [1, 1, 1, 1]\n },\n {\n 'tfName': 'fused_ops',\n 'name': 'fusedOps',\n 'type': 'string[]',\n 'defaultValue': []\n },\n {\n 'tfName': 'explicit_paddings',\n 'name': 'explicitPaddings',\n 'type': 'number[]',\n 'defaultValue': []\n }\n]\n },\n {\n 'tfOpName': 'Conv3D',\n 'category': 'convolution',\n 'inputs':\n [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}, {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'defaultValue': 'NHWC'\n },\n {'tfName': 'dilations', 'name': 'dilations', 'type': 'number[]'}\n],\n },\n {\n 'tfOpName': 'Dilation2D',\n 'category': 'convolution',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'filter', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'strides', 'name': 'strides', 'type': 'number[]'},\n {'tfName': 'rates', 'name': 'dilations', 'type': 'number[]'},\n {'tfName': 'padding', 'name': 'pad', 'type': 'string'}\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright
2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'Fill',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'shape', 'type': 'number[]'},\n {'start': 1, 'name': 'value', 'type': 'number'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n
{\n 'tfOpName': 'LinSpace',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'start', 'type': 'number'},\n {'start': 1, 'name': 'stop', 'type': 'number'},\n {'start': 2, 'name': 'num', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'OneHot',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'indices', 'type': 'tensor'},\n {'start': 1, 'name': 'depth', 'type': 'number'},\n {'start': 2, 'name': 'onValue', 'type': 'number', 'defaultValue': 1},\n {'start': 3, 'name': 'offValue', 'type': 'number', 'defaultValue': 0},\n],\n 'attrs': [\n {\n 'tfName': 'axis',\n 'name': 'axis',\n 'type': 'number',\n 'notSupported': true\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Ones',\n 'category': 'creation',\n
'inputs': [\n {'start': 0, 'name': 'shape', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'OnesLike',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [{'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'RandomUniform',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'shape', 'type': 'number[]'},\n],\n 'attrs': [\n {\n 'tfName': 'minval',\n 'name': 'minval',\n 'type': 'number',\n 'defaultValue': 0\n },\n {\n 'tfName': 'maxval',\n 'name': 'maxval',\n 'type': 'number',\n 'defaultValue': 1\n },\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'},\n {'tfName': 'seed', 'name': 'seed', 'type': 'number', 'defaultValue': 0}, {\n 'tfName': 'seed2',\n 'name': 'seed2',\n
'type': 'number',\n 'defaultValue': 0,\n 'notSupported': true\n },\n {'tfName': 'T', 'name': 'T', 'type': 'number', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Range',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'start', 'type': 'number'},\n {'start': 1, 'name': 'stop', 'type': 'number'},\n {'start': 2, 'name': 'step', 'type': 'number', 'defaultValue': 0},\n],\n 'attrs': [{'tfName': 'Tidx', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'TruncatedNormal',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'shape', 'type': 'number[]'},\n],\n 'attrs': [\n {\n 'tfName': 'means',\n 'name': 'mean',\n 'type': 'number',\n 'defaultValue': 0.0\n },\n {\n 'tfName': 'stddev',\n 'name': 'stdDev',\n 'type': 'number',\n 'defaultValue': 1.0\n },\n {'tfName': 'seed', 'name': 'seed',

'type': 'number'}, {\n 'tfName': 'seed2',\n 'name': 'seed2',\n 'type': 'number',\n 'defaultValue': 0,\n 'notSupported': true\n },\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'},\n {'tfName': 'T', 'name': 'T', 'type': 'number', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Zeros',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'shape', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'ZerosLike',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [{'tfName': 'T', 'name': 'dtype', 'type': 'dtype'}]\n },\n {\n 'tfOpName': 'Multinomial',\n 'category': 'creation',\n 'inputs': [\n {'start': 0, 'name': 'logits', 'type': 'tensor'},\n {'start': 1, 'name': 'numSamples', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'seed',
'name': 'seed', 'type': 'number'},\n {'tfName': 'seed2', 'name': 'seed2', 'type': 'number'},\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype'},\n {'tfName': 'output_dtype', 'name': 'output_dtype', 'type': 'dtype'}\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'NonMaxSuppressionV2',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'boxes', 'type': 'tensor'},\n {'start': 1, 'name': 'scores', 'type': 'tensor'},\n {'start': 2, 'name': 'maxOutputSize', 'type': 'number'},\n {'start': 3, 'name': 'iouThreshold', 'type': 'number'}\n]\n },\n {\n 'tfOpName': 'NonMaxSuppressionV3',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'boxes', 'type': 'tensor'},\n {'start': 1, 'name': 'scores', 'type': 'tensor'},\n {'start': 2, 'name': 'maxOutputSize', 'type': 'number'},\n {'start': 3, 'name': 'iouThreshold', 'type': 'number'},\n {'start': 4, 'name': 'scoreThreshold', 'type': 'number'}\n]\n },\n {\n 'tfOpName': 'NonMaxSuppressionV4',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'boxes', 'type': 'tensor'},\n {'start': 1, 'name': 'scores', 'type': 'tensor'},\n
{'start': 2, 'name': 'maxOutputSize', 'type': 'number'},\n {'start': 3, 'name': 'iouThreshold', 'type': 'number'},\n {'start': 4, 'name': 'scoreThreshold', 'type': 'number'}\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'T_threshold',\n 'name': 'threshold',\n 'type': 'dtype',\n 'notSupported': true\n },\n {\n 'tfName': 'pad_to_max_output_size',\n 'name': 'padToMaxOutputSize',\n 'type': 'bool'\n }\n]\n },\n {\n 'tfOpName': 'NonMaxSuppressionV5',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'boxes', 'type': 'tensor'},\n {'start': 1, 'name': 'scores', 'type': 'tensor'},\n {'start': 2, 'name': 'maxOutputSize', 'type': 'number'},\n {'start': 3, 'name': 'iouThreshold', 'type': 'number'},\n {'start': 4, 'name': 'scoreThreshold', 'type': 'number'},\n {'start': 5, 'name': 'softNmsSigma', 'type': 'number'}\n]\n },\n {\n 'tfOpName': 'Where',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'condition', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'ListDiff',\n 'category': 'dynamic',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'y', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'T',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'TopKV2',\n 'category': 'evaluation',\n 'inputs': [\n

{'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'k', 'type': 'number'},\n],\n 'attrs': [{'tfName': 'sorted', 'name': 'sorted', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Unique',\n 'category': 'evaluation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n },\n {\n 'tfOpName': 'UniqueV2',\n 'category': 'evaluation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number'},\n],\n },\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'PlaceholderWithDefault',\n 'category': 'graph',\n 'inputs': [\n {'start': 0, 'name': 'default', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'shape', 'name': 'shape', 'type': 'shape'},\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'}\n]\n },\n {\n 'tfOpName': 'Placeholder',\n 'category': 'graph',\n 'attrs': [\n {'tfName': 'shape', 'name': 'shape', 'type': 'shape'},\n {'tfName': 'dtype', 'name': 'dtype', 'type': 'dtype'}\n]\n },\n {'tfOpName': 'Const', 'category': 'graph'}, {\n 'tfOpName': 'Identity',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'IdentityN',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'end': 0, 'name': 'x', 'type': 'tensors'}]\n },\n {\n 'tfOpName': 'Snapshot',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'Rank',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'Size',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'Shape',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'ShapeN',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'end': 0, 'name': 'x', 'type': 'tensors'}]\n },\n {\n 'tfOpName': 'Print',\n 'category': 'graph',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'data', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'message', 'name': 'message', 'type': 'string'}, {\n 'tfName': 'first_n',\n 'name': 'firstN',\n 'type': 'number',\n 'notSupported': true\n },\n {\n 'tfName': 'summarize',\n 'name': 'summarize',\n 'type': 'number',\n 'defaultValue': 3\n }\n]\n },\n {'tfOpName': 'NoOp', 'category': 'graph', 'inputs': []}, {\n 'tfOpName': 'StopGradient',\n 'category': 'graph',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'FakeQuantWithMinMaxVars',\n 'category': 'graph',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'min', 'name': 'min', 'type': 'number'},\n {'tfName': 'max', 'name': 'max', 'type': 'number'}\n]\n }\n];\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {OpMapper} from '../types';\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'HashTable',\n 'category': 'hash_table',\n 'inputs': [],\n 'attrs': [\n {'tfName': 'shared_name', 'name': 'sharedName', 'type': 'string'},\n {\n 'tfName': 'use_node_name_sharing',\n 'name': 'useNodeNameSharing',\n 'type': 'bool'\n },\n {'tfName': 'key_dtype', 'name': 'keyDType', 'type': 'dtype'},\n {'tfName': 'value_dtype', 'name': 'valueDType', 'type': 'dtype'},\n]\n },\n {\n 'tfOpName': 'HashTableV2',\n 'category': 'hash_table',\n 'inputs': [],\n 'attrs': [\n {'tfName': 'shared_name', 'name': 'sharedName', 'type': 'string'},\n {\n 'tfName': 'use_node_name_sharing',\n 'name': 'useNodeNameSharing',\n 'type': 'bool'\n },\n {'tfName': 'key_dtype', 'name': 'keyDType', 'type': 'dtype'},\n {'tfName': 'value_dtype', 'name':

'valueDType', 'type': 'dtype'},\n]\n },\n {\n 'tfOpName': 'LookupTableImport',\n 'category': 'hash_table',\n 'inputs': [\n {'start': 0, 'name': 'tableHandle', 'type': 'tensor'},\n {'start': 1, 'name': 'keys', 'type': 'tensor'},\n {'start': 2, 'name': 'values', 'type': 'tensor'}\n],\n 'attrs': [\n {'tfName': 'Tin', 'name': 'tIn', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'tOut',\n 'type': 'dtype',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'LookupTableImportV2',\n 'category': 'hash_table',\n 'inputs': [\n {'start': 0, 'name': 'tableHandle', 'type': 'tensor'},\n {'start': 1, 'name': 'keys', 'type': 'tensor'},\n {'start': 2, 'name': 'values', 'type': 'tensor'}\n],\n 'attrs': [\n {'tfName': 'Tin', 'name': 'tIn', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'tOut',\n 'type': 'dtype',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'LookupTableFind',\n 'category': 'hash_table',\n 'inputs': [\n {'start': 0, 'name': 'tableHandle', 'type': 'tensor'},\n {'start': 1, 'name': 'keys', 'type': 'tensor'},\n {'start': 2, 'name': 'defaultValue', 'type': 'tensor'}\n],\n 'attrs': [\n {'tfName': 'Tin', 'name': 'tIn', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'tOut',\n 'type': 'dtype',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'LookupTableFindV2',\n 'category': 'hash_table',\n 'inputs': [\n {'start': 0, 'name': 'tableHandle', 'type': 'tensor'},\n {'start': 1, 'name': 'keys', 'type': 'tensor'},\n {'start': 2, 'name': 'defaultValue', 'type': 'tensor'}\n],\n 'attrs': [\n {'tfName': 'Tin', 'name': 'tIn', 'type': 'dtype', 'notSupported': true}, {\n 'tfName': 'Tout',\n 'name': 'tOut',\n 'type': 'dtype',\n 'notSupported': true\n }\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'ResizeBilinear',\n 'category': 'image',\n 'inputs': [\n {'start': 0, 'name': 'images', 'type': 'tensor'},\n {'start': 1, 'name': 'size', 'type': 'number[]'},\n],\n 'attrs': [\n {'tfName': 'align_corners', 'name': 'alignCorners', 'type': 'bool'}, {\n 'tfName': 'half_pixel_centers',\n 'name': 'halfPixelCenters',\n 'type': 'bool'\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'ResizeNearestNeighbor',\n 'category': 'image',\n 'inputs': [\n {'start': 0, 'name': 'images', 'type': 'tensor'},\n {'start': 1, 'name': 'size', 'type': 'number[]'},\n],\n 'attrs': [\n {'tfName': 'align_corners', 'name': 'alignCorners', 'type': 'bool'}, {\n 'tfName': 'half_pixel_centers',\n 'name': 'halfPixelCenters',\n 'type': 'bool'\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'CropAndResize',\n 'category': 'image',\n 'inputs': [\n {'start': 0, 'name': 'image',\n 'type': 'tensor'},\n {'start': 1, 'name': 'boxes', 'type': 'tensor'},\n {'start': 2, 'name': 'boxInd', 'type': 'tensor'},\n {'start': 3, 'name': 'cropSize', 'type': 'number[]'},\n],\n 'attrs': [\n {'tfName': 'method', 'name': 'method', 'type': 'string'}, {\n 'tfName': 'extrapolation_value',\n 'name': 'extrapolationValue',\n 'type': 'number'\n }\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License\n for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'Equal',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'NotEqual',\n 'category':

'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Greater',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'GreaterEqual',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Less',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'LessEqual',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'LogicalAnd',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'LogicalNot',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'LogicalOr',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Select',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'condition', 'type': 'tensor'},\n {'start': 1, 'name': 'a', 'type': 'tensor'},\n {'start': 2, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'SelectV2',\n 'category': 'logical',\n 'inputs': [\n {'start': 0, 'name': 'condition', 'type': 'tensor'},\n {'start': 1, 'name': 'a', 'type': 'tensor'},\n {'start': 2, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'T',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }]\n }\n];\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {OpMapper} from '../types';\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': '_FusedMatMul',\n 'category': 'matrices',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n {'start': 2, end: 0, 'name': 'args', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'num_args', 'name': 'numArgs', 'type': 'number'}, {\n 'tfName': 'fused_ops',\n 'name': 'fusedOps',\n 'type': 'string[]',\n 'defaultValue': []\n },\n {\n 'tfName': 'epsilon',\n 'name': 'epsilon',\n 'type': 'number',\n 'defaultValue': 0.0001\n
},\n {\n 'tfName': 'transpose_a',\n 'name': 'transposeA',\n 'type': 'bool',\n 'defaultValue': false\n },\n {\n 'tfName': 'transpose_b',\n 'name': 'transposeB',\n 'type': 'bool',\n 'defaultValue': false\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'MatMul',\n 'category': 'matrices',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'transpose_a',\n 'name': 'transposeA',\n 'type': 'bool',\n 'defaultValue': false\n },\n {\n 'tfName': 'transpose_b',\n 'name': 'transposeB',\n 'type': 'bool',\n 'defaultValue': false\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'BatchMatMul',\n

'category': 'matrices',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'adj_x',\n 'name': 'transposeA',\n 'type': 'bool',\n 'defaultValue': false\n },\n {\n 'tfName': 'adj_y',\n 'name': 'transposeB',\n 'type': 'bool',\n 'defaultValue': false\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'BatchMatMulV2',\n 'category': 'matrices',\n 'inputs': [\n {'start': 0, 'name': 'a', 'type': 'tensor'},\n {'start': 1, 'name': 'b', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'adj_x',\n 'name': 'transposeA',\n 'type': 'bool',\n 'defaultValue': false\n },\n {\n 'tfName': 'adj_y',\n 'name': 'transposeB',\n 'type': 'bool',\n 'defaultValue': false\n },\n {'tfName': 'T', 'name': 'dtype', 'type': 'dtype', 'notSupported': true}\n]\n },\n {\n 'tfOpName': 'Transpose',\n 'category': 'matrices',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'perm', 'type': 'number[]'},\n],\n 'attrs': [{\n 'tfName': 'T',\n 'name': 'dtype',\n 'type': 'dtype',\n 'notSupported': true\n }]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n
* See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'FusedBatchNorm',\n 'category': 'normalization',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'scale', 'type': 'tensor'},\n {'start': 2, 'name': 'offset', 'type': 'tensor'},\n {'start': 3, 'name': 'mean', 'type': 'tensor'},\n {'start': 4, 'name': 'variance', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'epsilon',\n 'name': 'epsilon',\n 'type': 'number',\n 'defaultValue': 0.001\n },\n {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'FusedBatchNormV2',\n 'category': 'normalization',\n 'inputs':
[\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'scale', 'type': 'tensor'},\n {'start': 2, 'name': 'offset', 'type': 'tensor'},\n {'start': 3, 'name': 'mean', 'type': 'tensor'},\n {'start': 4, 'name': 'variance', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'epsilon',\n 'name': 'epsilon',\n 'type': 'number',\n 'defaultValue': 0.001\n },\n {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'FusedBatchNormV3',\n 'category': 'normalization',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'scale', 'type': 'tensor'},\n {'start': 2, 'name': 'offset', 'type': 'tensor'},\n {'start': 3, 'name': 'mean', 'type': 'tensor'},\n {'start': 4, 'name': 'variance', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'epsilon',\n 'name': 'epsilon',\n 'type': 'number',\n 'defaultValue': 0.001\n },\n {\n 'tfName': 'data_format',\n 'name': 'dataFormat',\n 'type': 'string',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'LRN',\n 'category': 'normalization',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'depth_radius',\n 'name': 'radius',\n 'type': 'number',\n 'defaultValue': 5\n },\n {'tfName': 'bias', 'name': 'bias', 'type': 'number', 'defaultValue': 1.0},\n {\n 'tfName': 'alpha',\n 'name': 'alpha',\n 'type': 'number',\n 'defaultValue': 1.0\n },\n {\n 'tfName': 'beta',\n 'name': 'beta',\n 'type': 'number',\n 'defaultValue': 0.5\n }\n]\n },\n {\n 'tfOpName': 'Softmax',\n 'category': 'normalization',\n 'inputs':
[{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'LogSoftmax',\n 'category': 'normalization',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'SparseToDense',\n 'category': 'normalization',\n 'inputs': [\n {'start': 0, 'name': 'sparseIndices', 'type': 'tensor'},\n {'start': 1, 'name': 'outputShape', 'type': 'number[]'},\n {'start': 2, 'name': 'sparseValues', 'type': 'tensor'},\n {'start': 3, 'name': 'defaultValue', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'validate_indices',\n 'name': 'validateIndices',\n 'type': 'bool',\n 'defaultValue': true,\n 'notSupported': true\n }]\n }\n];\n","import {OpMapper} from

'../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain
a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'Bincount',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'size', 'type': 'number'},\n {'start': 2, 'name': 'weights', 'type': 'tensor'}\n]\n },\n {\n 'tfOpName': 'DenseBincount',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'size', 'type': 'number'},\n {'start': 2, 'name': 'weights', 'type': 'tensor'}\n],\n 'attrs':\n [{'tfName': 'binary_output', 'name': 'binaryOutput', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Max',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Mean',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Min',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Sum',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'All',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Any',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'ArgMax',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number'}\n]\n },\n
{\n 'tfOpName': 'ArgMin',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number'}\n]\n },\n {\n 'tfOpName': 'Prod',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'},\n],\n 'attrs': [{'tfName': 'keep_dims', 'name': 'keepDims', 'type': 'bool'}]\n },\n {\n 'tfOpName': 'Cumsum',\n 'category': 'reduction',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number'},\n],\n 'attrs': [\n {'tfName': 'exclusive', 'name': 'exclusive', 'type': 'bool'},\n {'tfName': 'reverse', 'name': 'reverse', 'type': 'bool'}\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n
* you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'ConcatV2',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'end': -1, 'name': 'tensors', 'type': 'tensors'},\n {'start': -1, 'name': 'axis', 'type': 'number'}\n],\n 'attrs':\n [{'tfName': 'N', 'name': 'n', 'type': 'number', 'defaultValue': 2}]\n },\n {\n 'tfOpName': 'Concat',\n 'category': 'slice_join',\n
'inputs': [\n {'start': 1, 'end': 0, 'name': 'tensors', 'type': 'tensors'},\n {'start': 0, 'name': 'axis', 'type': 'number'}\n],\n 'attrs': [{'tfName': 'N', 'name': 'n', 'type': 'number', 'defaultValue': 2}]\n\n },\n {\n 'tfOpName':

'GatherV2',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'tensor'},\n {'start': 2, 'name': 'axis', 'type': 'number', 'defaultValue': 0}\n],\n 'attrs': [{\n 'tfName': 'batch_dims',\n 'name': 'batchDims',\n 'type': 'number',\n 'defaultValue': 0\n }]\n },\n {\n 'tfOpName': 'Gather',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'validate_indices',\n 'name': 'validateIndices',\n 'type': 'bool',\n 'notSupported': true\n }]\n },\n {\n 'tfOpName': 'Reverse',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'dims', 'type': 'bool[]'}\n]\n },\n {\n 'tfOpName': 'ReverseV2',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'Slice',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'begin', 'type': 'number[]'},\n {'start': 2, 'name': 'size', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'StridedSlice',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'begin', 'type': 'number[]'},\n {'start': 2, 'name': 'end', 'type': 'number[]'},\n {'start': 3, 'name': 'strides', 'type': 'number[]'},\n],\n 'attrs': [\n {\n 'tfName': 'begin_mask',\n 'name': 'beginMask',\n 'type': 'number',\n 'defaultValue': 0\n },\n {\n 'tfName': 'end_mask',\n 'name': 'endMask',\n 'type': 'number',\n 'defaultValue': 0\n },\n {\n 'tfName': 'new_axis_mask',\n 'name': 'newAxisMask',\n 'type': 'number',\n 'defaultValue': 0\n },\n {\n 'tfName': 'ellipsis_mask',\n 'name': 'ellipsisMask',\n 'type': 'number',\n 'defaultValue': 0\n },\n {\n 'tfName': 'shrink_axis_mask',\n 'name': 'shrinkAxisMask',\n 'type': 'number',\n 'defaultValue': 0\n }\n]\n },\n {\n 'tfOpName': 'Pack',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'end': 0, 'name': 'tensors', 'type': 'tensors'},\n],\n 'attrs': [\n {'tfName': 'axis', 'name': 'axis', 'type': 'number', 'defaultValue': 0}\n]\n },\n {\n 'tfOpName': 'Unpack',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'tensor', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'axis', 'name': 'axis', 'type': 'number', 'defaultValue': 0}, {\n 'tfName': 'num',\n 'name': 'num',\n 'type': 'number',\n 'defaultValue': 0,\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'Tile',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'reps', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'Split',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'axis', 'type': 'number', 'defaultValue': 0},\n {'start': 1, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'num_split',\n 'name': 'numOrSizeSplits',\n 'type': 'number',\n 'defaultValue': 1\n }]\n },\n {\n 'tfOpName': 'SplitV',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'numOrSizeSplits', 'type': 'number[]'},\n {'start': 2, 'name': 'axis', 'type': 'number', 'defaultValue': 0}\n]\n },\n {\n 'tfOpName': 'ScatterNd',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'indices', 'type': 'tensor'},\n {'start': 1, 'name': 'values', 'type': 'tensor'},\n {'start': 2, 'name': 'shape', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'GatherNd',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'indices', 'type': 'tensor'}\n]\n },\n {\n 'tfOpName': 'SparseToDense',\n 'category': 'slice_join',\n 'inputs': [\n {'start': 0, 'name': 'sparseIndices', 'type': 'tensor'},\n {'start': 1, 'name': 'outputShape', 'type': 'number[]'},\n {'start': 2, 'name': 'sparseValues', 'type': 'tensor'},\n {'start': 3, 'name': 'defaultValue', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'validate_indices',\n 'name': 'validateIndices',\n 'type': 'bool',\n 'defaultValue': false,\n 'notSupported': true\n }]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n

*/\n\nexport
const json: OpMapper[] = [\n {\n 'tfOpName': 'FFT',\n 'category': 'spectral',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'IFFT',\n 'category': 'spectral',\n 'inputs': [{'start': 0, 'name': 'x', 'type': 'tensor'}]\n },\n {\n 'tfOpName': 'RFFT',\n 'category': 'spectral',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'}, {\n 'start': 1,\n 'name': 'fft_length',\n 'type': 'number',\n 'notSupported': true\n }\n]\n },\n {\n 'tfOpName': 'IRFFT',\n 'category': 'spectral',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'}, {\n 'start': 1,\n 'name': 'fft_length',\n 'type': 'number',\n 'notSupported': true\n }\n]\n }\n];\n","import {OpMapper} from '../types';\n\n/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may
not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language
governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nexport const json: OpMapper[] = [\n {\n 'tfOpName': 'Cast',\n 'category': 'transformation',\n 'inputs': [\n
{'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {\n 'tfName': 'SrcT',\n 'name': 'sdtype',\n
'type': 'dtype',\n 'notSupported': true\n },\n {'tfName': 'DstT', 'name': 'dtype', 'type': 'dtype'}\n]\n },\n
{\n 'tfOpName': 'ExpandDims',\n
'category': 'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'axis',
'type': 'number'}\n]\n },\n {\n 'tfOpName': 'MirrorPad',\n 'category': 'transformation',\n 'inputs': [\n
{'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'padding', 'type': 'number[]'},\n],\n 'attrs': [{'tfName':
'mode', 'name': 'mode', 'type': 'string'}]\n },\n {\n 'tfOpName': 'Pad',\n 'category': 'transformation',\n 'inputs':
[\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'padding', 'type': 'number[]'},\n],\n 'attrs': [{\n
'tfName': 'constant_value',\n 'name': 'constantValue',\n 'type': 'number',\n 'defaultValue': 0\n }]\n },\n
{\n 'tfOpName': 'PadV2',\n 'category': 'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n
{'start': 1, 'name': 'padding', 'type': 'number[]'},
{\n 'start': 2,\n 'name': 'constantValue',\n 'type': 'number',\n 'defaultValue': 0\n }\n]\n },\n
{\n 'tfOpName': 'Reshape',\n 'category': 'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type':
'tensor'},\n {'start': 1, 'name': 'shape', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'Squeeze',\n 'category':
'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [{\n 'tfName': 'axis',\n
'tfDeprecatedName': 'squeeze_dims',\n 'name': 'axis',\n 'type': 'number[]'\n }]\n },\n {\n 'tfOpName':
'SpaceToBatchND',\n 'category': 'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n
{'start': 1, 'name': 'blockShape', 'type': 'number[]'},\n {'start': 2, 'name': 'paddings', 'type': 'number[]'}\n]\n },\n
{\n 'tfOpName': 'BatchToSpaceND',\n 'category': 'transformation',\n 'inputs':
[\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n {'start': 1, 'name': 'blockShape', 'type': 'number[]'},\n {'start': 2,
'name': 'crops', 'type': 'number[]'}\n]\n },\n {\n 'tfOpName': 'DepthToSpace',\n 'category': 'transformation',\n
'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n],\n 'attrs': [\n {'tfName': 'block_size', 'name':
'blockSize', 'type': 'number'},\n {'tfName': 'data_format', 'name': 'dataFormat', 'type': 'string'}\n]\n },\n {\n
'tfOpName': 'BroadcastTo',\n 'category': 'transformation',\n 'inputs': [\n {'start': 0, 'name': 'x', 'type': 'tensor'},\n
{'start': 1, 'name': 'shape', 'type': 'number[]'},\n],\n 'attrs': []\n }\n];\n","/**\n * @license\n * Copyright 2018
Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you
may not use this file except in compliance with the License.\n * You may obtain a copy of the License
at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in
writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific
language governing permissions and\n * limitations under the License.\n *
==\n

```
*/\n\nimport {DataType, env} from '@tensorflow/tfjs-core';\n\nimport * as tensorflow from
'../data/compiled_api';\n\nimport {getRegisteredOp} from './custom_op/register';\nimport {getNodeNameAndIndex}
from './executors/utils';\nimport * as arithmetic from './op_list/arithmetic';\nimport * as basicMath from
'./op_list/basic_math';\nimport * as control from './op_list/control';\nimport * as convolution from
'./op_list/convolution';\nimport * as creation from './op_list/creation';\nimport * as dynamic from
'./op_list/dynamic';\nimport
 * as evaluation from './op_list/evaluation';\nimport * as graph from './op_list/graph';\nimport * as hashTable from
'./op_list/hash_table';\nimport * as image from './op_list/image';\nimport * as logical from './op_list/logical';\nimport
* as matrices from './op_list/matrices';\nimport * as normalization from './op_list/normalization';\nimport * as
reduction from './op_list/reduction';\nimport * as sliceJoin from './op_list/slice_join';\nimport * as spectral from
'./op_list/spectral';\nimport * as transformation from './op_list/transformation';\nimport {Graph, InputParamValue,
Node, OpMapper, ParamValue} from './types';\n\nexport class OperationMapper {\n  private static _instance:
OperationMapper;\n\n  private opMappers: {[key: string]: OpMapper};\n\n  // Singleton instance for the mapper\n
public static get Instance() {\n    return this._instance || (this._instance = new this());\n  }\n\n  // Loads the op
mapping from the JSON file.\n  private constructor() {\n    const ops
 = [\n      arithmetic, basicMath, control, convolution, creation, dynamic,\n      evaluation, logical, image, graph,
matrices, normalization, reduction,\n      sliceJoin, spectral, transformation, hashTable\n    ];\n    const mappersJson:
OpMapper[] = [].concat(...ops.map(op => op.json));\n\n    this.opMappers = mappersJson.reduce<{[key: string]:
OpMapper}>(\n        (map, mapper: OpMapper) => {\n          map[mapper.tfOpName] = mapper;\n          return
map;\n        },\n        {});\n  }\n\n  // Converts the model inference graph from Tensorflow GraphDef to local\n  //
representation for TensorFlow.js API\n  transformGraph(\n      graph: tensorflow.IGraphDef,\n      signature:
tensorflow.ISignatureDef = {}): Graph {\n    const tfNodes = graph.node;\n    const placeholders: Node[] = [];\n
const weights: Node[] = [];\n    const initNodes: Node[] = [];\n    const nodes = tfNodes.reduce<{[key: string]:
Node}>((map, node) => {\n      map[node.name] = this.mapNode(node);\n      if (node.op.startsWith('Placeholder'))
 {\n        placeholders.push(map[node.name]);\n      } else if (node.op === 'Const') {\n
weights.push(map[node.name]);\n      } else if (node.input == null || node.input.length === 0) {\n
initNodes.push(map[node.name]);\n      }\n      return map;\n    }, {});\n\n    let inputs: Node[] = [];\n    const outputs:
Node[] = [];\n    let inputNodeNameToKey: {[key: string]: string} = {};\n    let outputNodeNameToKey: {[key:
string]: string} = {};\n    if (signature != null) {\n      inputNodeNameToKey =
this.mapSignatureEntries(signature.inputs);\n      outputNodeNameToKey =
this.mapSignatureEntries(signature.outputs);\n    }\n    const allNodes = Object.keys(nodes);\n
allNodes.forEach(key => {\n      const node = nodes[key];\n      node.inputNames.forEach(name => {\n        const
[nodeName, ] = getNodeNameAndIndex(name);\n        node.inputs.push(nodes[nodeName]);\n
nodes[nodeName].children.push(node);\n      });\n    });\n\n    // if
 signature has not outputs set, add any node that does not have\n    // outputs.\n    if
(Object.keys(outputNodeNameToKey).length === 0) {\n      allNodes.forEach(key => {\n        const node =
nodes[key];\n        if (node.children.length === 0) {\n          outputs.push(node);\n        }\n      });\n    } else {\n
Object.keys(outputNodeNameToKey).forEach(name => {\n        const [nodeName, ] =
getNodeNameAndIndex(name);\n        const node = nodes[nodeName];\n        if (node != null) {\n
node.signatureKey = outputNodeNameToKey[name];\n          outputs.push(node);\n        }\n      });\n    }\n\n    if
(Object.keys(inputNodeNameToKey).length > 0) {\n      Object.keys(inputNodeNameToKey).forEach(name => {\n
    const [nodeName, ] = getNodeNameAndIndex(name);\n        const node = nodes[nodeName];\n        if (node) {\n
        node.signatureKey = inputNodeNameToKey[name];\n          inputs.push(node);\n        }\n      });\n    } else {\n
 inputs = placeholders;\n
    }\n\n    let functions = {};\n    if (graph.library != null && graph.library.function != null) {\n      functions =
graph.library.function.reduce((functions, func) => {\n        functions[func.signature.name] =
this.mapFunction(func);\n        return functions;\n      }, {} as {[key: string]: Graph});\n    }\n\n    const result: Graph
=\n        {nodes, inputs, outputs, weights, placeholders, signature, functions};\n\n    if (initNodes.length > 0) {\n
```

result.initNodes = initNodes;\n }\n\n return result;\n }\n\n private mapSignatureEntries(entries: {[k: string]: tensorflow.ITensorInfo}) {\n return Object.keys(entries || {})\n .reduce<{[key: string]: string}>((prev, curr) => {\n prev[entries[curr].name] = curr;\n return prev;\n }, {});\n }\n\n private mapNode(node: tensorflow.INodeDef): Node {\n // Unsupported ops will cause an error at run-time (not parse time), since\n // they may not be used by the actual execution subgraph.\n
  const mapper =\n getRegisteredOp(node.op) || this.opMappers[node.op] || {} as OpMapper;\n if (node.attr == null) {\n node.attr = {};\n }\n\n const newNode: Node = {\n name: node.name,\n op: node.op,\n category: mapper.category,\n inputNames:\n (node.input ||\n []).map(input => input.startsWith('^') ? input.substr(1) : input),\n inputs: [],\n children: [],\n inputParams: {},\n attrParams: {},\n rawAttrs: node.attr\n };\n\n if (mapper.inputs != null) {\n newNode.inputParams =\n mapper.inputs.reduce<{[key: string]: InputParamValue}>(\n (map, param) => {\n map[param.name] = {\n type: param.type,\n inputIndexStart: param.start,\n inputIndexEnd: param.end\n };\n return map;\n },\n {});\n }\n if (mapper.attrs != null) {\n newNode.attrParams =\n mapper.attrs.reduce<{[key: string]: ParamValue}>((map, param) => {\n const type = param.type;\n let value = undefined;\n switch (param.type) {\n case 'string':\n value = getStringParam(\n node.attr, param.tfName, param.defaultValue as string);\n\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getStringParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as string);\n }\n break;\n case 'string[]':\n value = getStringArrayParam(\n node.attr, param.tfName, param.defaultValue as string[]);\n\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getStringArrayParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as string[]);\n }\n break;\n case 'number':\n value = getNumberParam(\n node.attr, param.tfName,\n (param.defaultValue || 0) as number);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getNumberParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as number);\n }\n break;\n case 'number[]':\n value = getNumericArrayParam(\n node.attr, param.tfName, param.defaultValue as number[]);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getNumericArrayParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as number[]);\n }\n break;\n case 'bool':\n value = getBoolParam(\n node.attr, param.tfName, param.defaultValue as boolean);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getBoolParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as boolean);\n }\n break;\n case 'bool[]':\n value = getBoolArrayParam(\n node.attr, param.tfName, param.defaultValue as boolean[]);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getBoolArrayParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as boolean[]);\n }\n break;\n case 'shape':\n value = getTensorShapeParam(\n node.attr, param.tfName, param.defaultValue as number[]);\n if (value === undefined && !!param.tfDeprecatedName) {\n
  value = getTensorShapeParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as number[]);\n }\n break;\n case 'shape[]':\n value = getTensorShapeArrayParam(\n node.attr, param.tfName, param.defaultValue as number[][]);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getTensorShapeArrayParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue as number[][]);\n }\n break;\n case 'dtype':\n value = getDtypeParam(\n node.attr, param.tfName, param.defaultValue as DataType);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getDtypeParam(\n node.attr, param.tfDeprecatedName,\n param.defaultValue

```
as DataType);\n }\n break;\n case 'dtype[]':\n value = getDtypeArrayParam(\n node.attr, param.tfName, param.defaultValue as DataType[]);\n if (value === undefined &&
!!param.tfDeprecatedName) {\n value = getDtypeArrayParam(\n node.attr,
param.tfDeprecatedName,\n param.defaultValue as DataType[]);\n }\n break;\n
case 'func':\n value = getFuncParam(\n node.attr, param.tfName, param.defaultValue as
string);\n if (value === undefined && !!param.tfDeprecatedName) {\n value = getFuncParam(\n
node.attr, param.tfDeprecatedName,\n param.defaultValue as string);\n }\n
break;\n case 'tensor':\n case 'tensors':\n break;\n
default:\n throw new Error(\n `Unsupported param type: ${param.type} for op:
${node.op}`);\n }\n map[param.name] = {value, type};\n return map;\n }, {});\n }\n
return newNode;\n }\n\n // map the TFunctionDef to TFJS graph object\n private mapFunction(functionDef:
tensorflow.IFunctionDef): Graph {\n const tfNodes = functionDef.nodeDef;\n const placeholders: Node[] = [];\n
const weights: Node[] = [];\n let nodes: {[key: string]: Node} = {};\n if (tfNodes != null) {\n nodes =
tfNodes.reduce<{[key: string]: Node}>((map, node) => {\n map[node.name] = this.mapNode(node);\n if
(node.op === 'Const') {\n weights.push(map[node.name]);\n }\n return map;\n }, {});\n }\n
const inputs: Node[] = [];\n const outputs: Node[] = [];\n\n functionDef.signature.inputArg.forEach(arg => {\n
const [nodeName, ] = getNodeNameAndIndex(arg.name);\n
const node: Node = {\n name: nodeName,\n op: 'Placeholder',\n inputs: [],\n inputNames: [],\n
category: 'graph',\n inputParams: {},\n attrParams: {dtype: {value: parseDtypeParam(arg.type), type:
'dtype'}},\n children: []\n };\n node.signatureKey = arg.name;\n inputs.push(node);\n
nodes[nodeName] = node;\n });\n\n const allNodes = Object.keys(nodes);\n allNodes.forEach(key => {\n
const node = nodes[key];\n node.inputNames.forEach(name => {\n const [nodeName, ] =
getNodeNameAndIndex(name);\n node.inputs.push(nodes[nodeName]);\n
nodes[nodeName].children.push(node);\n });\n });\n\n const returnNodeMap = functionDef.ret;\n\n
functionDef.signature.outputArg.forEach(output => {\n const [nodeName, index] =
getNodeNameAndIndex(returnNodeMap[output.name]);\n const node = nodes[nodeName];\n if (node != null)
{\n node.defaultOutput
= index;\n outputs.push(node);\n }\n });\n\n const signature = this.mapArgsToSignature(functionDef);\n
return {nodes, inputs, outputs, weights, placeholders, signature};\n }\n\n private
mapArgsToSignature(functionDef: tensorflow.IFunctionDef):\n tensorflow.ISignatureDef {\n return {\n
methodName: functionDef.signature.name,\n inputs: functionDef.signature.inputArg.reduce(\n (map, arg)
=> {\n map[arg.name] = this.mapArgToTensorInfo(arg);\n return map;\n },\n {} as {[key:
string]: tensorflow.ITensorInfo}),\n outputs: functionDef.signature.outputArg.reduce(\n (map, arg) => {\n
map[arg.name] = this.mapArgToTensorInfo(arg, functionDef.ret);\n return map;\n },\n {} as
{[key: string]: tensorflow.ITensorInfo}),\n };\n }\n\n private mapArgToTensorInfo(\n arg:
tensorflow.OpDef.IArgDef,\n nameMap?: {[key: string]: string}): tensorflow.ITensorInfo
{\n let name = arg.name;\n if (nameMap != null) {\n name = nameMap[name];\n }\n return {name,
dtype: arg.type};\n }\n}\n\nexport function decodeBase64(text: string): string {\n const global = env().global;\n if
(typeof global.atob !== 'undefined') {\n return global.atob(text);\n } else if (typeof Buffer !== 'undefined') {\n
return new Buffer(text, 'base64').toString();\n } else {\n throw new Error(\n 'Unable to decode base64 in this
environment. ' +\n 'Missing built-in atob() or Buffer()');\n }\n}\n\nexport function parseStringParam(s: []|string,
keepCase: boolean): string {\n const value =\n Array.isArray(s) ? String.fromCharCode.apply(null, s) :
decodeBase64(s);\n return keepCase ? value : value.toLowerCase();\n}\n\nexport function getStringParam(\n
attrs: {[key: string]: tensorflow.IAttrValue}, name: string, def: string,\n keepCase = false): string {\n const param
= attrs[name];\n if (param != null) {\n return
parseStringParam(param.s, keepCase);\n }\n return def;\n}\n\nexport function getBoolParam(\n attrs: {[key:
string]: tensorflow.IAttrValue}, name: string,\n def: boolean): boolean {\n const param = attrs[name];\n return
param ? param.b : def;\n}\n\nexport function getNumberParam(\n attrs: {[key: string]: tensorflow.IAttrValue},
```

name: string,\n def: number): number {\n const param = attrs[name] || {};\n const value =\n param['i'] != null ? param['i'] : (param['f'] != null ? param['f'] : def);\n return (typeof value === 'number') ? value : parseInt(value, 10);\n}\n\nexport function parseDtypeParam(value: string|tensorflow.DataType): DataType {\n if (typeof (value) === 'string') {\n // tslint:disable-next-line:no-any\n value = tensorflow.DataType[value as any];\n }\n switch (value) {\n case tensorflow.DataType.DT_FLOAT:\n return 'float32';\n case tensorflow.DataType.DT_INT32:\n case tensorflow.DataType.DT_INT64:\n case tensorflow.DataType.DT_INT8:\n
  case tensorflow.DataType.DT_UINT8:\n return 'int32';\n case tensorflow.DataType.DT_BOOL:\n return 'bool';\n case tensorflow.DataType.DT_DOUBLE:\n return 'float32';\n case tensorflow.DataType.DT_STRING:\n return 'string';\n default:\n // Unknown dtype error will happen at runtime (instead of parse time),\n // since these nodes might not be used by the actual subgraph execution.\n return null;\n }\n}\n\nexport function getFuncParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: string): string {\n const param = attrs[name];\n if (param && param.func) {\n return param.func.name;\n }\n return def;\n}\n\nexport function getDtypeParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: DataType): DataType {\n const param = attrs[name];\n if (param && param.type) {\n return parseDtypeParam(param.type);\n }\n return def;\n}\n\nexport function getDtypeArrayParam(\n
  attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: DataType[]): DataType[] {\n const param = attrs[name];\n if (param && param.list && param.list.type) {\n return param.list.type.map(v => parseDtypeParam(v));\n }\n return def;\n}\n\nexport function parseTensorShapeParam(shape: tensorflow.ITensorShape): number[]|\n undefined {\n if (shape.unknownRank) {\n return undefined;\n }\n if (shape.dim != null) {\n return shape.dim.map(\n dim =>\n (typeof dim.size === 'number') ? dim.size : parseInt(dim.size, 10));\n }\n return [];\n}\n\nexport function getTensorShapeParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def?: number[]): number[]|undefined {\n const param = attrs[name];\n if (param && param.shape) {\n return parseTensorShapeParam(param.shape);\n }\n return def;\n}\n\nexport function getNumericArrayParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: number[]): number[] {\n const param = attrs[name];\n if (param) {\n return ((param.list.f && param.list.f.length ? param.list.f :\n param.list.i) ||\n [])\n .map(v => (typeof v === 'number') ? v : parseInt(v, 10));\n }\n return def;\n}\n\nexport function getStringArrayParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string, def: string[],\n keepCase = false): string[] {\n const param = attrs[name];\n if (param && param.list && param.list.s) {\n return param.list.s.map((v) => {\n return parseStringParam(v, keepCase);\n });\n }\n return def;\n}\n\nexport function getTensorShapeArrayParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: number[][]): number[][] {\n const param = attrs[name];\n if (param && param.list && param.list.shape) {\n return param.list.shape.map((v) => {\n return parseTensorShapeParam(v);\n });\n }\n return def;\n}\n\nexport function
  getBoolArrayParam(\n attrs: {[key: string]: tensorflow.IAttrValue}, name: string,\n def: boolean[]): boolean[] {\n const param = attrs[name];\n if (param && param.list && param.list.b) {\n return param.list.b;\n }\n return def;\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {DataType, Tensor}
  from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {getTensor} from '../executors/utils';\nimport {getBoolArrayParam, getBoolParam, getDtypeArrayParam, getDtypeParam, getNumberParam, getNumericArrayParam,

getStringArrayParam, getStringParam, getTensorShapeArrayParam, getTensorShapeParam} from '../operation_mapper';\nimport {GraphNode, Node, ValueType} from '../types';\n\n/**\n * Helper class for lookup inputs and params for nodes in the model graph.\n */\nexport class NodeValueImpl implements GraphNode {\n public readonly inputs: Tensor[] = [];\n public readonly attrs: {[key: string]: ValueType} = {};\n constructor(\n private node: Node, private tensorMap: NamedTensorsMap,\n private context: ExecutionContext) {\n this.inputs = node.inputNames.map(name => this.getInput(name));\n if (node.rawAttrs != null) {\n this.attrs = Object.keys(node.rawAttrs)\n .reduce((attrs: {[key: string]: ValueType}, key) => {\n attrs[key] = this.getAttr(key);\n return attrs;\n }, {});\n }\n }\n\n /**\n * Return the value of the attribute or input param.\n * @param name String: name of attribute or input param.\n */\n private getInput(name: string): Tensor {\n return getTensor(name, this.tensorMap, this.context);\n }\n\n /**\n * Return the value of the attribute or input param.\n * @param name String: name of attribute or input param.\n */\n private getAttr(name: string, defaultValue?: ValueType): ValueType {\n const value = this.node.rawAttrs[name];\n if (value.tensor != null) {\n return getTensor(name, this.tensorMap, this.context);\n }\n if (value.i != null || value.f != null) {\n return getNumberParam(this.node.rawAttrs, name, defaultValue as number);\n }\n if (value.s != null) {\n return getStringParam(this.node.rawAttrs,\n name, defaultValue as string);\n }\n if (value.b != null) {\n return getBoolParam(this.node.rawAttrs, name, defaultValue as boolean);\n }\n if (value.shape != null) {\n return getTensorShapeParam(\n this.node.rawAttrs, name, defaultValue as number[]);\n }\n if (value.type != null) {\n return getDtypeParam(this.node.rawAttrs, name, defaultValue as DataType);\n }\n if (value.list != null) {\n if (value.list.i != null || value.list.f != null) {\n return getNumericArrayParam(\n this.node.rawAttrs, name, defaultValue as number[]);\n }\n if (value.list.s != null) {\n return getStringArrayParam(\n this.node.rawAttrs, name, defaultValue as string[]);\n }\n if (value.list.shape != null) {\n return getTensorShapeArrayParam(\n this.node.rawAttrs, name, defaultValue as number[][]);\n }\n if (value.list.b != null) {\n return getBoolArrayParam(\n this.node.rawAttrs, name, defaultValue as boolean[]);\n }\n if (value.list.type != null) {\n return getDtypeArrayParam(\n this.node.rawAttrs, name, defaultValue as DataType[]);\n }\n }\n\n return defaultValue;\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\n/**\n * This file exports ops used by the converters executors. By default it\n * re-exports all ops. In a custom build this is aliased to a file that will\n * only exports ops for a given model.json.\n */\nexport * from './ops';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport

{ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'BiasAdd':\n case 'AddV2':\n case 'Add': {\n return [tfOps.add(\n (getParamValue('a', node, tensorMap, context) as Tensor),\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'AddN': {\n return [tfOps.addN((\n getParamValue('tensors', node, tensorMap, context) as Tensor[]))];\n }\n case 'FloorMod':\n case 'Mod':\n return [tfOps.mod(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n case 'Mul':\n return [tfOps.mul(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n case 'RealDiv':\n case 'Div': {\n return [tfOps.div(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'DivNoNan': {\n return [tfOps.divNoNan(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'FloorDiv': {\n return [tfOps.floorDiv(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Sub': {\n return [tfOps.sub(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Minimum': {\n return [tfOps.minimum(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Maximum': {\n return [tfOps.maximum(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Pow': {\n return [tfOps.pow(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'SquaredDifference': {\n return [tfOps.squaredDifference(\n getParamValue('a', node, tensorMap, context)\n as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'arithmetic';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue, getTensor} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'Abs':\n case 'ComplexAbs':\n return [tfOps.abs(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Acos':\n return [tfOps.acos(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Acosh':\n return [tfOps.acosh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Asin':\n return [tfOps.asin(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Asinh':\n return [tfOps.asinh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Atan':\n return [tfOps.atan(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Atan2':\n return [tfOps.atan2(\n

getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('y', node, tensorMap, context) as Tensor)];\n case 'Atanh':\n return [tfOps.atanh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Ceil':\n return [tfOps.ceil(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Complex':\n return [tfOps.complex(\n getParamValue('real', node, tensorMap, context) as Tensor,\n getParamValue('imag', node, tensorMap, context) as Tensor)];\n case 'Cos':\n return [tfOps.cos(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Cosh':\n return [tfOps.cosh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Elu':\n return [tfOps.elu(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Erf':\n return [tfOps.erf(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Exp':\n return [tfOps.exp(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Expm1': {\n return [tfOps.expm1(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Floor':\n return [tfOps.floor(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Log':\n return [tfOps.log(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n
case 'Log1p': {\n return [tfOps.log1p(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Imag':\n return [tfOps.imag(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n\n case 'Neg':\n return [tfOps.neg(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Reciprocal': {\n return [tfOps.reciprocal(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Real':\n return [tfOps.real(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Relu':\n return [tfOps.relu(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Round': {\n return [tfOps.round(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Selu':\n return [tfOps.selu(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Sigmoid':\n return [tfOps.sigmoid(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Sin':\n return [tfOps.sin(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Sign': {\n return [tfOps.sign(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Sinh': {\n return [tfOps.sinh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Softplus': {\n return [tfOps.softplus(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Sqrt': {\n return [tfOps.sqrt(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Square': {\n return [tfOps.square(\n getParamValue('x', node, tensorMap, context)
as Tensor)];\n }\n case 'Tanh': {\n return [tfOps.tanh(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'Tan':\n return [tfOps.tan(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'ClipByValue':\n return [tfOps.clipByValue(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('clipValueMin', node, tensorMap, context) as number,\n getParamValue('clipValueMax', node, tensorMap, context) as\n number)];\n case 'Relu6':\n return [tfOps.relu6(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n case 'Rsqrt':\n return [tfOps.rsqrt(\n getTensor(node.inputNames[0], tensorMap, context))];\n case 'Prod':\n return [tfOps.prod(\n getParamValue('x', node, tensorMap, context) as Tensor,\n
getParamValue('axes', node, tensorMap, context) as number[])];\n case 'LeakyRelu':\n return [tfOps.leakyRelu(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('alpha', node, tensorMap, context) as number)];\n case 'Prelu':\n return [tfOps.prelu(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('alpha', node, tensorMap, context) as Tensor)];\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'basic_math';\n","\n/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *

```
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\n/**\n * This differs from util.assertShapesMatch in that it allows values of\n * negative one, an undefined size of a dimensinon, in a shape to match\n * anything.\n */\n\nimport {Tensor, util} from '@tensorflow/tfjs-core';\n\n/**\n * Used by TensorList and TensorArray to verify if elementShape matches, support\n * negative value as the dim shape.\n * @param shapeA\n * @param shapeB\n * @param errorMessagePrefix\n */\nexport function assertShapesMatchAllowUndefinedSize(\n    shapeA: number|number[], shapeB: number|number[],\n errorMessagePrefix = ''): void {\n  // constant shape means unknown rank\n  if (typeof shapeA === 'number' || typeof shapeB === 'number') {\n    return;\n  }\n  util.assert(\n      shapeA.length === shapeB.length,\n      () => errorMessagePrefix + ` Shapes ${shapeA} and ${shapeB} must match`);\n  for (let i = 0; i < shapeA.length; i++) {\n    const dim0 = shapeA[i];\n    const dim1 = shapeB[i];\n    util.assert(\n        dim0 < 0 || dim1 < 0 || dim0 === dim1,\n        () =>\n            errorMessagePrefix + ` Shapes ${shapeA} and ${shapeB} must match`);\n  }\n}\n\nexport function fullDefinedShape(elementShape: number|number[]): boolean {\n  if (typeof elementShape === 'number' || elementShape.some(dim => dim < 0)) {\n    return false;\n  }\n  return true;\n}\n/**\n * Generate the output element shape from the list elementShape, list tensors\n * and input param.\n * @param listElementShape\n * @param tensors\n * @param elementShape\n */\nexport function inferElementShape(\n    listElementShape: number|number[], tensors: Tensor[],\n    elementShape: number|number[]): number[] {\n  let partialShape = mergeElementShape(listElementShape, elementShape);\n  const notfullDefinedShape = !fullDefinedShape(partialShape);\n  if (notfullDefinedShape && tensors.length === 0) {\n    throw new Error(\n        `Tried to calculate elements of an empty list` +\n        ` with non-fully-defined elementShape: ${partialShape}`);\n  }\n  if (notfullDefinedShape) {\n    tensors.forEach(tensor => {\n      partialShape = mergeElementShape(tensor.shape, partialShape);\n    });\n  }\n  if (!fullDefinedShape(partialShape)) {\n    throw new Error(`Non-fully-defined elementShape: ${partialShape}`);\n  }\n  return partialShape as number[];\n}\n\nexport function mergeElementShape(\n    elementShapeA: number|number[], elementShapeB: number|number[]): number|\n    number[] {\n  if (typeof elementShapeA === 'number') {\n    return elementShapeB;\n  }\n  if (typeof elementShapeB === 'number') {\n    return elementShapeA;\n  }\n\n  if (elementShapeA.length !== elementShapeB.length) {\n    throw new Error(`Incompatible ranks during merge: ${elementShapeA} vs. ${\n        elementShapeB}`);\n  }\n\n  const result: number[] = [];\n  for (let i = 0; i < elementShapeA.length; ++i) {\n    const dim0 = elementShapeA[i];\n    const dim1 = elementShapeB[i];\n    if (dim0 >= 0 && dim1 >= 0 && dim0 !== dim1) {\n      throw new Error(`Incompatible shape during merge: ${elementShapeA} vs. ${\n          elementShapeB}`);\n    }\n    result[i] = dim0 >= 0 ? dim0 : dim1;\n  }\n  return result;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express
 or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\n\nimport {concat, DataType, keep, reshape, scalar, slice, stack, Tensor, tensor, tidy, unstack} from '@tensorflow/tfjs-core';\n\nimport {assertShapesMatchAllowUndefinedSize} from './tensor_utils';\n\nexport interface TensorWithState {\n  tensor?: Tensor;\n  written?: boolean;\n  read?: boolean;\n  cleared?: boolean;\n}\n\n/**\n * The TensorArray object keeps an array of Tensors.  It\n * allows reading from the array and writing to the array.\n */\nexport class TensorArray {\n  private tensors: TensorWithState[] = [];\n  private closed_ =
```

```
false;\n  readonly idTensor: Tensor;\n  constructor(\n      readonly name: string, readonly dtype: DataType, private
maxSize: number,\n      private elementShape: number[], readonly identicalElementShapes: boolean,\n      readonly
dynamicSize: boolean,
 readonly clearAfterRead: boolean) {\n    this.idTensor = scalar(0);\n    keep(this.idTensor);\n  }\n\n  get id() {\n
return this.idTensor.id;\n  }\n\n  get closed() {\n    return this.closed_;\n  }\n\n  /**\n   * Dispose the tensors and
idTensor and mark the TensoryArray as closed.\n   */\n  clearAndClose(keepIds?: Set<number>) {\n
this.tensors.forEach(tensor => {\n      if (keepIds == null || !keepIds.has(tensor.tensor.id)) {\n
tensor.tensor.dispose();\n      }\n    });\n    this.tensors = [];\n    this.closed_ = true;\n    this.idTensor.dispose();\n
}\n\n  size(): number {\n    return this.tensors.length;\n  }\n\n  /**\n   * Read the value at location index in the
TensorArray.\n   * @param index Number the index to read from.\n   */\n  read(index: number): Tensor {\n    if
(this.closed_) {\n      throw new Error(`TensorArray ${this.name} has already been closed.`);\n    }\n\n    if (index <
0 || index >= this.size()) {\n      throw new Error(`Tried to read from index
 ${index}, but array size is: ${\n          this.size()}`);\n    }\n\n    const tensorWithState = this.tensors[index];\n    if
(tensorWithState.cleared) {\n      throw new Error(\n          `TensorArray ${this.name}: Could not read index ${\n
      index} twice because it was cleared after a previous read ` +\n          `(perhaps try setting clear_after_read =
false?).`);\n    }\n\n    if (this.clearAfterRead) {\n      tensorWithState.cleared = true;\n    }\n\n    tensorWithState.read
= true;\n    return tensorWithState.tensor;\n  }\n\n  /**\n   * Helper method to read multiple tensors from the
specified indices.\n   */\n  readMany(indices: number[]): Tensor[] {\n    return indices.map(index =>
this.read(index));\n  }\n\n  /**\n   * Write value into the index of the TensorArray.\n   * @param index number the
index to write to.\n   * @param tensor\n   */\n  write(index: number, tensor: Tensor) {\n    if (this.closed_) {\n
throw new Error(`TensorArray ${this.name} has already
 been closed.`);\n    }\n\n    if (index < 0 || !this.dynamicSize && index >= this.maxSize) {\n      throw new
Error(`Tried to write to index ${\n          index}, but array is not resizeable and size is: ${this.maxSize}`);\n    }\n\n
const t = this.tensors[index] || {};\n\n    if (tensor.dtype !== this.dtype) {\n      throw new Error(`TensorArray ${\n
  this.name}: Could not write to TensorArray index ${index},\n          because the value dtype is ${\n
tensor.dtype}, but TensorArray dtype is ${this.dtype}.`);\n    }\n\n    // Set the shape for the first time write to
unknow shape tensor array\n    if (this.size() === 0 &&\n        (this.elementShape == null || this.elementShape.length
=== 0)) {\n      this.elementShape = tensor.shape;\n    }\n\n    assertShapesMatchAllowUndefinedSize(\n
this.elementShape, tensor.shape,\n        `TensorArray ${this.name}: Could not write to TensorArray index ${\n
 index}.`);\n\n    if (t.read) {\n      throw new Error(\n
        `TensorArray ${this.name}: Could not write to TensorArray index ${\n          index}, because it has already
been read.`);\n    }\n\n    if (t.written) {\n      throw new Error(\n          `TensorArray ${this.name}: Could not write
to TensorArray index ${\n          index}, because it has already been written.`);\n    }\n\n    t.tensor = tensor;\n
keep(tensor);\n    t.written = true;\n\n    this.tensors[index] = t;\n  }\n\n  /**\n   * Helper method to write multiple
tensors to the specified indices.\n   */\n  writeMany(indices: number[], tensors: Tensor[]) {\n    if (indices.length !==
tensors.length) {\n      throw new Error(\n          `TensorArray ${this.name}: could not write multiple tensors,` +\n
    `because the index size: ${\n          indices.length} is not the same as tensors size: ${\n
tensors.length}.`);\n    }\n\n    indices.forEach((i, index) => this.write(i, tensors[index]));\n  }\n\n  /**\n   * Return
selected values in the
 TensorArray as a packed Tensor. All of\n   * selected values must have been written and their shapes must all
match.\n   * @param [indices] number[] Optional. Taking values in [0, max_value). If the\n   *    TensorArray is not
dynamic, max_value=size(). If not specified returns\n   *    all tensors in the original order.\n   * @param [dtype]\n
*/\n  gather(indices?: number[], dtype?: DataType): Tensor {\n    if (!!dtype && dtype !== this.dtype) {\n      throw
new Error(`TensorArray dtype is ${\n          this.dtype} but gather requested dtype ${dtype}`);\n    }\n\n    if
(!indices) {\n      indices = [];\n      for (let i = 0; i < this.size(); i++) {\n        indices.push(i);\n      }\n    } else {\n
indices = indices.slice(0, this.size());\n    }\n\n    if (indices.length === 0) {\n      return tensor([],
[0].concat(this.elementShape));\n    }\n\n    // Read all the PersistentTensors into a vector to keep track of\n    // their
memory.\n    const tensors = this.readMany(indices);\n\n
```

```
assertShapesMatchAllowUndefinedSize(\n this.elementShape, tensors[0].shape, 'TensorArray shape mismatch: ');\n\n return stack(tensors, 0);\n }\n\n /**\n * Return the values in the TensorArray as a concatenated Tensor.\n */\n concat(dtype?: DataType): Tensor {\n if (!!dtype && dtype !== this.dtype) {\n throw new Error(`TensorArray dtype is ${\n this.dtype} but concat requested dtype ${dtype}`);\n }\n\n if (this.size() === 0) {\n return tensor([], [0].concat(this.elementShape));\n }\n\n const indices = [];\n for (let i = 0; i < this.size(); i++) {\n indices.push(i);\n }\n // Collect all the tensors from the tensors array.\n const tensors = this.readMany(indices);\n\n assertShapesMatchAllowUndefinedSize(\n this.elementShape, tensors[0].shape,\n `TensorArray shape mismatch: tensor array shape (${\n this.elementShape}) vs first tensor shape (${tensors[0].shape})`);\n\n return concat(tensors,
0);\n }\n\n /**\n * Scatter the values of a Tensor in specific indices of a TensorArray.\n * @param indices nummber[] values in [0, max_value). If the\n * TensorArray is not dynamic, max_value=size().\n * @param tensor Tensor input tensor.\n */\n scatter(indices: number[], tensor: Tensor) {\n if (tensor.dtype !== this.dtype) {\n throw new Error(`TensorArray dtype is ${\n this.dtype} but tensor has dtype ${tensor.dtype}`);\n }\n\n if (indices.length !== tensor.shape[0]) {\n throw new Error(`Expected len(indices) == tensor.shape[0], but saw: ${\n indices.length} vs. ${tensor.shape[0]}`);\n }\n\n const maxIndex = Math.max(...indices);\n\n if (!this.dynamicSize && maxIndex >= this.maxSize) {\n throw new Error(\n `Max index must be < array size (${maxIndex} vs. ${this.maxSize})`);\n }\n\n this.writeMany(indices, unstack(tensor, 0));\n }\n\n /**\n * Split the values of a Tensor into the TensorArray.\n
* @param length number[] with the lengths to use when splitting value along\n * its first dimension.\n * @param tensor Tensor, the tensor to split.\n */\n split(length: number[], tensor: Tensor) {\n if (tensor.dtype !== this.dtype) {\n throw new Error(`TensorArray dtype is ${\n this.dtype} but tensor has dtype ${tensor.dtype}`);\n }\n let totalLength = 0;\n const cumulativeLengths = length.map(len => {\n totalLength += len;\n return totalLength;\n });\n\n if (totalLength !== tensor.shape[0]) {\n throw new Error(`Expected sum of lengths to be equal to\n tensor.shape[0], but sum of lengths is\n ${totalLength}, and tensor's shape is: ${tensor.shape}`);\n }\n\n if (!this.dynamicSize && length.length !== this.maxSize) {\n throw new Error(\n `TensorArray's size is not equal to the size of lengths (${\n this.maxSize} vs. ${length.length}), ` +\n 'and the TensorArray is
not marked as dynamically resizeable');\n }\n\n const elementPerRow = totalLength === 0 ? 0 : tensor.size / totalLength;\n const tensors: Tensor[] = [];\n tidy(() => {\n tensor = reshape(tensor, [1, totalLength, elementPerRow]);\n for (let i = 0; i < length.length; ++i) {\n const previousLength = (i === 0) ? 0 : cumulativeLengths[i - 1];\n const indices = [0, previousLength, 0];\n const sizes = [1, length[i], elementPerRow];\n tensors[i] = reshape(slice(tensor, indices, sizes), this.elementShape);\n }\n return tensors;\n });\n const indices = [];\n for (let i = 0; i < length.length; i++) {\n indices[i] = i;\n }\n this.writeMany(indices, tensors);\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n
*\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {concat, DataType, keep, reshape, scalar, slice, stack, Tensor, tensor, tidy, unstack} from '@tensorflow/tfjs-core';\n\nimport {assertShapesMatchAllowUndefinedSize, inferElementShape, mergeElementShape} from './tensor_utils';\n\n/**\n * TensorList stores a container of `tf.Tensor` objects, which are accessible\n * via tensors field.\n *\n * In order to get a copy of the underlying list, use the copy method:\n * ```\n * TensorList b = a.copy();\n * b.tensors().pushBack(t);  // This does not modify a.tensors().\n
* ```\n *\n * Note that this is not a deep copy: the memory locations of the underlying\n * tensors will still point to the same locations of the corresponding tensors\n * in the original.\n */\n\nexport class TensorList {\n readonly
```

```
idTensor: Tensor;\n  maxNumElements: number;\n\n  get id() {\n    return this.idTensor.id;\n  }\n  /**\n   *\n   * @param tensors list of tensors\n   * @param elementShape shape of each tensor, this can be a single number (any\n * shape is allowed) or partial shape (dim = -1).\n   * @param elementDtype data type of each tensor\n   * @param maxNumElements The maximum allowed size of `tensors`. Defaults to -1\n   *   meaning that the size of `tensors` is unbounded.\n   */\n  constructor(\n      readonly tensors: Tensor[], readonly elementShape: number|number[],\n readonly elementDtype: DataType, maxNumElements = -1) {\n    if (tensors != null) {\n      tensors.forEach(tensor => {\n        if (elementDtype !== tensor.dtype) {\n          throw new Error(`Invalid
 data types; op elements ${\n              elementDtype}, but list elements ${tensor.dtype}`);\n        }\n
assertShapesMatchAllowUndefinedSize(\n            elementShape, tensor.shape, 'TensorList shape mismatch: ');\n\n
    keep(tensor);\n      });\n    }\n    this.idTensor = scalar(0);\n    this.maxNumElements = maxNumElements;\n
keep(this.idTensor);\n  }\n\n  /**\n   * Get a new TensorList containing a copy of the underlying tensor container.\n
*/\n  copy(): TensorList {\n    return new TensorList(\n        [...this.tensors], this.elementShape,
this.elementDtype);\n  }\n\n  /**\n   * Dispose the tensors and idTensor and clear the tensor list.\n   */\n
clearAndClose(keepIds?: Set<number>) {\n    this.tensors.forEach(tensor => {\n      if (keepIds == null ||
!keepIds.has(tensor.id)) {\n        tensor.dispose();\n      }\n    });\n    this.tensors.length = 0;\n
this.idTensor.dispose();\n  }\n  /**\n   * The size of the tensors in the tensor list.\n   */\n
  size() {\n    return this.tensors.length;\n  }\n\n  /**\n   * Return a tensor that stacks a list of rank-R tf.Tensors into
one rank-(R+1)\n   * tf.Tensor.\n   * @param elementShape shape of each tensor\n   * @param elementDtype data
type of each tensor\n   * @param numElements the number of elements to stack\n   */\n  stack(elementShape:
number[], elementDtype: DataType, numElements = -1):\n      Tensor {\n    if (elementDtype !== this.elementDtype)
{\n      throw new Error(`Invalid data types; op elements ${\n          elementDtype}, but list elements
${this.elementDtype}`);\n    }\n    if (numElements !== -1 && this.tensors.length !== numElements) {\n      throw
new Error(`Operation expected a list with ${\n          numElements} elements but got a list with ${\n
this.tensors.length} elements.`);\n    }\n    assertShapesMatchAllowUndefinedSize(\n        elementShape,
this.elementShape, 'TensorList shape mismatch: ');\n    const outputElementShape =\n
inferElementShape(this.elementShape,
 this.tensors, elementShape);\n    return tidy(() => {\n      const reshapedTensors =\n          this.tensors.map(tensor =>
reshape(tensor, outputElementShape));\n      return stack(reshapedTensors, 0);\n    });\n  }\n\n  /**\n   * Pop a tensor
from the end of the list.\n   * @param elementShape shape of the tensor\n   * @param elementDtype data type of the
tensor\n   */\n  popBack(elementShape: number[], elementDtype: DataType): Tensor {\n    if (elementDtype !==
this.elementDtype) {\n      throw new Error(`Invalid data types; op elements ${\n          elementDtype}, but list
elements ${this.elementDtype}`);\n    }\n\n    if (this.size() === 0) {\n      throw new Error('Trying to pop from an
empty list.');\n    }\n    const outputElementShape =\n        inferElementShape(this.elementShape, this.tensors,
elementShape);\n    const tensor = this.tensors.pop();\n\n    assertShapesMatchAllowUndefinedSize(\n
tensor.shape, elementShape, 'TensorList shape mismatch:
 ');\n\n    return reshape(tensor, outputElementShape);\n  }\n\n  /**\n   * Push a tensor to the end of the list.\n   *
@param tensor Tensor to be pushed.\n   */\n  pushBack(tensor: Tensor) {\n    if (tensor.dtype !==
this.elementDtype) {\n      throw new Error(`Invalid data types; op elements ${\n          tensor.dtype}, but list
elements ${this.elementDtype}`);\n    }\n\n    assertShapesMatchAllowUndefinedSize(\n        tensor.shape,
this.elementShape, 'TensorList shape mismatch: ');\n\n    if (this.maxNumElements === this.size()) {\n      throw
new Error(`Trying to push element into a full list.`);\n    }\n    keep(tensor);\n    this.tensors.push(tensor);\n  }\n\n
/**\n   * Update the size of the list.\n   * @param size the new size of the list.\n   */\n  resize(size: number) {\n    if
(size < 0) {\n      throw new Error(\n          `TensorListResize expects size to be non-negative. Got: ${size}`);\n
}\n\n    if (this.maxNumElements !== -1 && size > this.maxNumElements) {\n
  throw new Error(`TensorListResize input size ${\n          size} is greater maxNumElement
${this.maxNumElements}.`);\n    }\n    this.tensors.length = size;\n  }\n\n  /**\n   * Retrieve the element at the
provided index\n   * @param elementShape shape of the tensor\n   * @param elementDtype dtype of the tensor\n   *
@param elementIndex index of the tensor\n   */\n  getItem(elementIndex: number, elementShape: number[],
```

```
elementDtype: DataType):\n      Tensor {\n    if (elementDtype !== this.elementDtype) {\n      throw new
Error(`Invalid data types; op elements ${\n          elementDtype}, but list elements ${this.elementDtype}`);\n    }\n
if (elementIndex < 0 || elementIndex > this.tensors.length) {\n      throw new Error(`Trying to access element ${\n
  elementIndex} in a list with ${this.tensors.length} elements.`);\n    }\n\n    if (this.tensors[elementIndex] == null)
{\n      throw new Error(`element at index ${elementIndex} is null.`);\n    }\n\n
assertShapesMatchAllowUndefinedSize(\n
      this.tensors[elementIndex].shape, elementShape,\n        'TensorList shape mismatch: ');\n    const
outputElementShape =\n        inferElementShape(this.elementShape, this.tensors, elementShape);\n    return
reshape(this.tensors[elementIndex], outputElementShape);\n  }\n\n  /**\n   * Set the tensor at the index\n   *
@param elementIndex index of the tensor\n   * @param tensor the tensor to be inserted into the list\n   */\n
setItem(elementIndex: number, tensor: Tensor) {\n    if (tensor.dtype !== this.elementDtype) {\n      throw new
Error(`Invalid data types; op elements ${\n          tensor.dtype}, but list elements ${this.elementDtype}`);\n    }\n\n
if (elementIndex < 0 ||\n        this.maxNumElements !== -1 && elementIndex >= this.maxNumElements) {\n
throw new Error(`Trying to set element ${\n          elementIndex} in a list with max ${this.maxNumElements}
elements.`);\n    }\n\n    assertShapesMatchAllowUndefinedSize(\n        this.elementShape,
 tensor.shape, 'TensorList shape mismatch: ');\n    keep(tensor);\n    this.tensors[elementIndex] = tensor;\n  }\n\n
/**\n   * Return selected values in the TensorList as a stacked Tensor. All of\n   * selected values must have been
written and their shapes must all match.\n   * @param indices indices of tensors to gather\n   * @param
elementDtype output tensor dtype\n   * @param elementShape output tensor element shape\n   */\n  gather(indices:
number[], elementDtype: DataType, elementShape: number[]):\n      Tensor {\n    if (elementDtype !==
this.elementDtype) {\n      throw new Error(`Invalid data types; op elements ${\n          elementDtype}, but list
elements ${this.elementDtype}`);\n    }\n\n    assertShapesMatchAllowUndefinedSize(\n        this.elementShape,
elementShape, 'TensorList shape mismatch: ');\n\n    // When indices is greater than the size of the list, indices
beyond the\n    // size of the list are ignored.\n    indices = indices.slice(0, this.size());\n    const
 outputElementShape =\n        inferElementShape(this.elementShape, this.tensors, elementShape);\n    if
(indices.length === 0) {\n      return tensor([], [0].concat(outputElementShape));\n    }\n\n    return tidy(() => {\n
const tensors =\n          indices.map(i => reshape(this.tensors[i], outputElementShape));\n      return stack(tensors,
0);\n    });\n  }\n\n  /**\n   * Return the values in the TensorList as a concatenated Tensor.\n   * @param
elementDtype output tensor dtype\n   * @param elementShape output tensor element shape\n   */\n
concat(elementDtype: DataType, elementShape: number[]): Tensor {\n    if (!!elementDtype && elementDtype !==
this.elementDtype) {\n      throw new Error(`TensorList dtype is ${\n          this.elementDtype} but concat requested
dtype ${elementDtype}`);\n    }\n\n    assertShapesMatchAllowUndefinedSize(\n        this.elementShape,
elementShape, 'TensorList shape mismatch: ');\n    const outputElementShape =\n
inferElementShape(this.elementShape,
 this.tensors, elementShape);\n\n    if (this.size() === 0) {\n      return tensor([], [0].concat(outputElementShape));\n
}\n    return tidy(() => {\n      const tensors = this.tensors.map(t => reshape(t, outputElementShape));\n      return
concat(tensors, 0);\n    });\n  }\n}\n\n/**\n * Creates a TensorList which, when stacked, has the value of tensor.\n *
@param tensor from tensor\n * @param elementShape output tensor element shape\n */\nexport function
fromTensor(\n    tensor: Tensor, elementShape: number[], elementDtype: DataType) {\n  const dtype =
tensor.dtype;\n  if (tensor.shape.length < 1) {\n    throw new Error(\n        `Tensor must be at least a vector, but saw
shape: ${tensor.shape}`);\n  }\n  if (tensor.dtype !== elementDtype) {\n    throw new Error(`Invalid data types; op
elements ${\n        tensor.dtype}, but list elements ${elementDtype}`);\n  }\n  const tensorElementShape =
tensor.shape.slice(1);\n  assertShapesMatchAllowUndefinedSize(\n      tensorElementShape,
 elementShape, 'TensorList shape mismatch: ');\n  const tensorList: Tensor[] = unstack(tensor);\n  return new
TensorList(tensorList, elementShape, dtype);\n}\n\n/**\n * Return a TensorList of the given size with empty
elements.\n * @param elementShape the shape of the future elements of the list\n * @param elementDtype the
desired type of elements in the list\n * @param numElements the number of elements to reserve\n */\nexport
function reserve(\n    elementShape: number[], elementDtype: DataType, numElements: number) {\n  return new
```

```
TensorList([], elementShape, elementDtype, numElements);\n}\n\n/**\n * Put tensors at specific indices of a stacked tensor into a TensorList.\n * @param indices list of indices on how to scatter the tensor.\n * @param tensor input tensor.\n * @param elementShape the shape of the future elements of the list\n * @param numElements the number of elements to scatter\n */\nexport function scatter(\n    tensor: Tensor, indices: number[], elementShape: number[],\n    numElements?: number): TensorList {\n  if (indices.length !== tensor.shape[0]) {\n    throw new Error(`Expected len(indices) == tensor.shape[0], but saw: ${\n        indices.length} vs. ${tensor.shape[0]}`);\n  }\n\n  const maxIndex = Math.max(...indices);\n\n  if (numElements != null && numElements !== -1 && maxIndex >= numElements) {\n    throw new Error(\n        `Max index must be < array size (${maxIndex}  vs. ${numElements})`);\n  }\n\n  const list = new TensorList([], elementShape, tensor.dtype, numElements);\n  const tensors = unstack(tensor, 0);\n  indices.forEach((value, index) => {\n    list.setItem(value, tensors[index]);\n  });\n  return list;\n}\n\n/**\n * Split the values of a Tensor into a TensorList.\n * @param length the lengths to use when splitting value along\n *     its first dimension.\n * @param tensor the tensor to split.\n * @param elementShape the shape of the future elements of the list\n */\nexport function split(\n    tensor: Tensor, length: number[],\n    elementShape: number[]) {\n  let totalLength = 0;\n  const cumulativeLengths = length.map(len => {\n    totalLength += len;\n    return totalLength;\n  });\n\n  if (totalLength !== tensor.shape[0]) {\n    throw new Error(`Expected sum of lengths to be equal to\n        tensor.shape[0], but sum of lengths is\n        ${totalLength}, and tensor's shape is: ${tensor.shape}`);\n  }\n\n  const shapeWithoutFirstDim = tensor.shape.slice(1);\n  const outputElementShape =\n      mergeElementShape(shapeWithoutFirstDim, elementShape);\n  const elementPerRow = totalLength === 0 ? 0 : tensor.size / totalLength;\n  const tensors: Tensor[] = tidy(() => {\n    const tensors = [];\n    tensor = reshape(tensor, [1, totalLength, elementPerRow]);\n    for (let i = 0; i < length.length; ++i) {\n      const previousLength = (i === 0) ? 0 : cumulativeLengths[i - 1];\n      const indices = [0, previousLength, 0];\n      const sizes = [1, length[i], elementPerRow];\n      tensors[i] = reshape(\n          slice(tensor, indices, sizes), outputElementShape as number[]);\n    }\n    tensor.dispose();\n    return tensors;\n  });\n\n  const list = new TensorList([], elementShape, tensor.dtype, length.length);\n\n  for (let i = 0; i < tensors.length; i++) {\n    list.setItem(i, tensors[i]);\n  }\n  return list;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n =============================================================================\n */\n\nimport {DataType, scalar, Tensor} from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {TensorArray} from '../../executor/tensor_array';\nimport {fromTensor, reserve, scatter, split} from '../../executor/tensor_list';\nimport {InternalOpAsyncExecutor, Node} from '../types';\n\nimport {cloneTensor, getParamValue, getTensor} from './utils';\n\nexport const executeOp: InternalOpAsyncExecutor = async(\n    node: Node, tensorMap: NamedTensorsMap,\n    context: ExecutionContext): Promise<Tensor[]> => {\n  switch (node.op) {\n    case 'If':\n    case 'StatelessIf': {\n      const thenFunc =\n          getParamValue('thenBranch', node, tensorMap, context) as string;\n      const elseFunc =\n          getParamValue('elseBranch', node, tensorMap, context) as string;\n      const cond = getParamValue('cond', node, tensorMap, context) as Tensor;\n      const args = getParamValue('args', node, tensorMap, context) as Tensor[];\n      const condValue = await cond.data();\n      if (condValue[0]) {\n        return context.functionMap[thenFunc].executeFunctionAsync(\n            args, context.tensorArrayMap, context.tensorListMap);\n      } else {\n        return context.functionMap[elseFunc].executeFunctionAsync(\n            args, context.tensorArrayMap, context.tensorListMap);\n      }\n    }\n    case 'While':\n    case 'StatelessWhile': {\n      const bodyFunc =\n          getParamValue('body', node, tensorMap, context) as string;\n      const condFunc =\n          getParamValue('cond',
```

```
node, tensorMap, context) as string;\n      const args = getParamValue('args', node, tensorMap, context) as
Tensor[];\n\n      // Calculate the condition of the loop\n      const condResult =\n          (await
context.functionMap[condFunc].executeFunctionAsync(\n              args, context.tensorArrayMap,
context.tensorListMap));\n      const argIds =
 args.map(tensor => tensor.id);\n      let condValue = await condResult[0].data();\n      // Dispose the intermediate
tensors for condition function\n      condResult.forEach(tensor => {\n        if (!tensor.kept &&
argIds.indexOf(tensor.id) === -1) {\n          tensor.dispose();\n        }\n      });\n\n      let result: Tensor[] = args;\n\n
 while (condValue[0]) {\n        // Record the previous result for intermediate tensor tracking\n        const origResult =
result;\n        // Execution the body of the loop\n        result = await
context.functionMap[bodyFunc].executeFunctionAsync(\n            result, context.tensorArrayMap,
context.tensorListMap);\n        const resultIds = result.map(tensor => tensor.id);\n\n        // Dispose the intermediate
tensor for body function that is not global\n        // kept, not input/output of the body function\n
origResult.forEach(tensor => {\n          if (!tensor.kept && argIds.indexOf(tensor.id) === -1 &&\n
resultIds.indexOf(tensor.id)
 === -1) {\n            tensor.dispose();\n          }\n        });\n\n        // Recalcuate the condition of the loop using the
latest results.\n        const condResult =\n            (await context.functionMap[condFunc].executeFunctionAsync(\n
          result, context.tensorArrayMap, context.tensorListMap));\n        condValue = await condResult[0].data();\n
 // Dispose the intermediate tensors for condition function\n        condResult.forEach(tensor => {\n          if
(!tensor.kept && argIds.indexOf(tensor.id) === -1 &&\n              resultIds.indexOf(tensor.id) === -1) {\n
tensor.dispose();\n          }\n        });\n      }\n      return result;\n    }\n    case 'LoopCond': {\n      const pred =
getParamValue('pred', node, tensorMap, context) as Tensor;\n      return [cloneTensor(pred)];\n    }\n    case 'Switch':
{\n      const pred = getParamValue('pred', node, tensorMap, context) as Tensor;\n      let data =
getParamValue('data', node,
 tensorMap, context) as Tensor;\n      if (!data.kept) {\n        data = cloneTensor(data);\n      }\n      // Outputs nodes
:0 => false, :1 => true\n      return (await pred.data())[0] ? [undefined, data] : [data, undefined];\n    }\n    case
'Merge': {\n      const inputName = node.inputNames.find(\n          name => getTensor(name, tensorMap, context)
!== undefined);\n      if (inputName) {\n        const data = getTensor(inputName, tensorMap, context);\n        return
[cloneTensor(data)];\n      }\n      return undefined;\n    }\n    case 'Enter': {\n      const frameId =\n
getParamValue('frameName', node, tensorMap, context) as string;\n      const data = getParamValue('tensor', node,
tensorMap, context) as Tensor;\n      context.enterFrame(frameId);\n      return [cloneTensor(data)];\n    }\n    case
'Exit': {\n      const data = getParamValue('tensor', node, tensorMap, context) as Tensor;\n      context.exitFrame();\n
    return [cloneTensor(data)];\n    }\n    case 'NextIteration':
 {\n      const data = getParamValue('tensor', node, tensorMap, context) as Tensor;\n      context.nextIteration();\n
return [cloneTensor(data)];\n    }\n    case 'TensorArrayV3': {\n      const size = getParamValue('size', node,
tensorMap, context) as number;\n      const dtype =\n          getParamValue('dtype', node, tensorMap, context) as
DataType;\n      const elementShape =\n          getParamValue('elementShape', node, tensorMap, context) as
number[];\n      const dynamicSize =\n          getParamValue('dynamicSize', node, tensorMap, context) as boolean;\n
    const clearAfterRead =\n          getParamValue('clearAfterRead', node, tensorMap, context) as boolean;\n      const
identicalElementShapes =\n          getParamValue('identicalElementShapes', node, tensorMap, context) as\n
boolean;\n      const name = getParamValue('name', node, tensorMap, context) as string;\n      const tensorArray =
new TensorArray(\n          name, dtype, size, elementShape,
 identicalElementShapes, dynamicSize,\n          clearAfterRead);\n      context.addTensorArray(tensorArray);\n
return [tensorArray.idTensor, scalar(1.0)];\n    }\n    case 'TensorArrayWriteV3': {\n      const id =\n
getParamValue('tensorArrayId', node, tensorMap, context) as Tensor;\n      const index = getParamValue('index',
node, tensorMap, context) as number;\n      const writeTensor =\n          getParamValue('tensor', node, tensorMap,
context) as Tensor;\n      const writeTensorArray = context.getTensorArray(id.id);\n
writeTensorArray.write(index, writeTensor);\n      return [writeTensorArray.idTensor];\n    }\n    case
'TensorArrayReadV3': {\n      const readId =\n          getParamValue('tensorArrayId', node, tensorMap, context) as
```

```
Tensor;\n      const readIndex =\n          getParamValue('index', node, tensorMap, context) as number;\n      const
readTensorArray = context.getTensorArray(readId.id);\n      return [readTensorArray.read(readIndex)];\n    }\n
  case 'TensorArrayGatherV3': {\n      const gatherId =\n          getParamValue('tensorArrayId', node, tensorMap,
context) as Tensor;\n      const gatherIndices =\n          getParamValue('indices', node, tensorMap, context) as
number[];\n      const gatherDtype =\n          getParamValue('dtype', node, tensorMap, context) as DataType;\n
const gatherTensorArray = context.getTensorArray(gatherId.id);\n      return
[gatherTensorArray.gather(gatherIndices, gatherDtype)];\n    }\n    case 'TensorArrayScatterV3': {\n      const
scatterId =\n          getParamValue('tensorArrayId', node, tensorMap, context) as Tensor;\n      const scatterIndices
=\n          getParamValue('indices', node, tensorMap, context) as number[];\n      const scatterTensor =\n
getParamValue('tensor', node, tensorMap, context) as Tensor;\n      const scatterTensorArray =
context.getTensorArray(scatterId.id);\n      scatterTensorArray.scatter(scatterIndices, scatterTensor);\n      return
[scatterTensorArray.idTensor];\n
  }\n    case 'TensorArrayConcatV3': {\n      const concatId =\n          getParamValue('tensorArrayId', node,
tensorMap, context) as Tensor;\n      const concatTensorArray = context.getTensorArray(concatId.id);\n      const
concatDtype =\n          getParamValue('dtype', node, tensorMap, context) as DataType;\n      return
[concatTensorArray.concat(concatDtype)];\n    }\n    case 'TensorArraySplitV3': {\n      const splitId =\n
getParamValue('tensorArrayId', node, tensorMap, context) as Tensor;\n      const splitTensor =\n
getParamValue('tensor', node, tensorMap, context) as Tensor;\n      const lengths =\n          getParamValue('lengths',
node, tensorMap, context) as number[];\n      const splitTensorArray = context.getTensorArray(splitId.id);\n
splitTensorArray.split(lengths, splitTensor);\n      return [splitTensorArray.idTensor];\n    }\n    case
'TensorArraySizeV3': {\n      const sizeId =\n          getParamValue('tensorArrayId', node,
 tensorMap, context) as Tensor;\n      const sizeTensorArray = context.getTensorArray(sizeId.id);\n      return
[scalar(sizeTensorArray.size(), 'int32')];\n    }\n    case 'TensorArrayCloseV3': {\n      const closeId =\n
getParamValue('tensorArrayId', node, tensorMap, context) as Tensor;\n      const closeTensorArray =
context.getTensorArray(closeId.id);\n      closeTensorArray.clearAndClose();\n      return
[closeTensorArray.idTensor];\n    }\n    case 'TensorListSetItem': {\n      const idTensor =\n
getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n      const index = getParamValue('index', node,
tensorMap, context) as number;\n      const writeTensor =\n          getParamValue('tensor', node, tensorMap, context)
as Tensor;\n      const tensorList = context.getTensorList(idTensor.id);\n      tensorList.setItem(index,
writeTensor);\n      return [tensorList.idTensor];\n    }\n    case 'TensorListGetItem': {\n      const idTensor =\n
getParamValue('tensorListId',
 node, tensorMap, context) as Tensor;\n      const readIndex =\n          getParamValue('index', node, tensorMap,
context) as number;\n      const elementShape =\n          getParamValue('elementShape', node, tensorMap, context)
as number[];\n\n      const elementDType =\n          getParamValue('elementDType', node, tensorMap, context) as
DataType;\n      const tensorList = context.getTensorList(idTensor.id);\n      return [tensorList.getItem(readIndex,
elementShape, elementDType)];\n    }\n    case 'TensorListScatterV2':\n    case 'TensorListScatter': {\n      const
scatterIndices =\n          getParamValue('indices', node, tensorMap, context) as number[];\n      const scatterTensor
=\n          getParamValue('tensor', node, tensorMap, context) as Tensor;\n      const elementShape =\n
getParamValue('elementShape', node, tensorMap, context) as number[];\n      const numElements =\n
getParamValue('numElements', node, tensorMap, context) as number;\n
      const tensorList =\n          scatter(scatterTensor, scatterIndices, elementShape, numElements);\n
context.addTensorList(tensorList);\n      return [tensorList.idTensor];\n    }\n    case 'TensorListReserve':\n    case
'EmptyTensorList': {\n      const elementShape =\n          getParamValue('elementShape', node, tensorMap, context)
as number[];\n      const elementDtype =\n          getParamValue('elementDType', node, tensorMap, context) as
DataType;\n      let numElementsParam;\n\n      if (node.op === 'TensorListReserve') {\n        numElementsParam =
'numElements';\n      } else {\n        numElementsParam = 'maxNumElements';\n      }\n\n      const numElements =\n
        getParamValue(numElementsParam, node, tensorMap, context) as number;\n\n      const tensorList =
reserve(elementShape, elementDtype, numElements);\n      context.addTensorList(tensorList);\n      return
```

[tensorList.idTensor];\n }\n case 'TensorListGather': {\n const gatherId =\n getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n const gatherIndices =\n getParamValue('indices', node, tensorMap, context) as number[];\n const elementShape =\n getParamValue('elementShape', node, tensorMap, context) as number[];\n const elementDtype =\n getParamValue('elementDType', node, tensorMap, context) as DataType;\n const tensorList =\n context.getTensorList(gatherId.id);\n return [tensorList.gather(gatherIndices, elementDtype, elementShape)];\n }\n case 'TensorListStack': {\n const idTensor =\n getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n const elementShape =\n getParamValue('elementShape', node, tensorMap, context) as number[];\n const elementDtype =\n getParamValue('elementDType', node, tensorMap, context) as DataType;\n const numElements =\n getParamValue('numElements', node, tensorMap, context) as number;\n const
tensorList = context.getTensorList(idTensor.id);\n return [tensorList.stack(elementShape, elementDtype, numElements)];\n }\n case 'TensorListFromTensor': {\n const tensor =\n getParamValue('tensor', node, tensorMap, context) as Tensor;\n const elementShape =\n getParamValue('elementShape', node, tensorMap, context) as number[];\n const elementDtype =\n getParamValue('elementDType', node, tensorMap, context) as DataType;\n const tensorList = fromTensor(tensor, elementShape, elementDtype);\n context.addTensorList(tensorList);\n return [tensorList.idTensor];\n }\n case 'TensorListConcat': {\n const concatId =\n getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n const tensorList =\n context.getTensorList(concatId.id);\n const concatDtype =\n getParamValue('dtype', node, tensorMap, context) as DataType;\n const elementShape =\n getParamValue('elementShape',
node, tensorMap, context) as number[];\n return [tensorList.concat(concatDtype, elementShape)];\n }\n case 'TensorListPushBack': {\n const idTensor =\n getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n const writeTensor =\n getParamValue('tensor', node, tensorMap, context) as Tensor;\n const tensorList = context.getTensorList(idTensor.id);\n tensorList.pushBack(writeTensor);\n return [tensorList.idTensor];\n }\n case 'TensorListPopBack': {\n const idTensor =\n getParamValue('tensorListId', node, tensorMap, context) as Tensor;\n const elementShape =\n getParamValue('elementShape', node, tensorMap, context) as number[];\n const elementDType =\n getParamValue('elementDType', node, tensorMap, context) as DataType;\n const tensorList =\n context.getTensorList(idTensor.id);\n return [tensorList.popBack(elementShape, elementDType)];\n }\n case 'TensorListSplit':
{\n const splitTensor =\n getParamValue('tensor', node, tensorMap, context) as Tensor;\n const elementShape =\n getParamValue('elementShape', node, tensorMap, context) as number[];\n const lengths =\n getParamValue('lengths', node, tensorMap, context) as number[];\n\n const tensorList =\n split(splitTensor, lengths, elementShape);\n context.addTensorList(tensorList);\n return [tensorList.idTensor];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n};\n\nexport const CATEGORY = 'control';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under
the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Rank, Tensor, Tensor3D, Tensor4D, Tensor5D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getPadding,

```
getParamValue} from './utils';\n\nfunction fusedConvAndDepthWiseParams(\n    node: Node, tensorMap:
NamedTensorsMap, context: ExecutionContext) {\n  const [extraOp, activationFunc] =\n
(getParamValue('fusedOps', node, tensorMap, context) as string[]);\n\n  const isBiasAdd
 = extraOp === 'biasadd';\n  const isPrelu = activationFunc === 'prelu';\n  const isBatchNorm = extraOp ===
'fusedbatchnorm';\n\n  const numArgs =\n      (getParamValue('numArgs', node, tensorMap, context) as number);\n
if (isBiasAdd) {\n    if (isPrelu && numArgs !== 2) {\n      throw new Error(\n          'FusedConv2d and
DepthwiseConv2d with BiasAdd and Prelu ' +\n          'must have two extra arguments: bias and alpha.');\n    }\n    if
(!isPrelu && numArgs !== 1) {\n      throw new Error(\n          'FusedConv2d and DepthwiseConv2d with BiasAdd
must have ' +\n          'one extra argument: bias.');\n    }\n  }\n  if (isBatchNorm) {\n    throw new Error(\n
'FusedConv2d and DepthwiseConv2d with FusedBatchNorm is not supported.');\n  }\n  const stride =
getParamValue('strides', node, tensorMap, context) as number[];\n  const pad = getPadding(node, tensorMap,
context);\n  const dataFormat =\n      (getParamValue('dataFormat', node, tensorMap, context) as string)\n
      .toUpperCase();\n  const dilations =\n      getParamValue('dilations', node, tensorMap, context) as number[];\n
const [biasArg, preluArg] =\n      getParamValue('args', node, tensorMap, context) as Tensor[];\n  const
leakyreluAlpha =\n      getParamValue('leakyreluAlpha', node, tensorMap, context) as number;\n\n  return {\n
stride,\n    pad,\n    dataFormat,\n    dilations,\n    biasArg,\n    preluArg,\n    activationFunc,\n    leakyreluAlpha\n
};\n}\n\nexport const executeOp: InternalOpExecutor =\n    (node: Node, tensorMap: NamedTensorsMap,\n
context: ExecutionContext): Tensor[] => {\n      switch (node.op) {\n        case 'Conv1D': {\n          const stride =\n
        getParamValue('stride', node, tensorMap, context) as number;\n          const pad = getParamValue('pad', node,
tensorMap, context);\n          const dataFormat =\n              (getParamValue('dataFormat', node, tensorMap, context)
as string)\n                  .toUpperCase();\n          const dilation
 =\n              getParamValue('dilation', node, tensorMap, context) as number;\n          return [tfOps.conv1d(\n
getParamValue('x', node, tensorMap, context) as Tensor3D,\n              getParamValue('filter', node, tensorMap,
context) as Tensor3D,\n              stride, pad as 'valid' | 'same', dataFormat as 'NWC' | 'NCW',\n              dilation)];\n
  }\n        case 'Conv2D': {\n          const stride =\n              getParamValue('strides', node, tensorMap, context) as
number[];\n          const pad = getPadding(node, tensorMap, context);\n          const dataFormat =\n
(getParamValue('dataFormat', node, tensorMap, context) as string)\n                  .toUpperCase();\n          const
dilations =\n              getParamValue('dilations', node, tensorMap, context) as number[];\n          return
[tfOps.conv2d(\n              getParamValue('x', node, tensorMap, context) as Tensor3D |\n                  Tensor4D,\n
    getParamValue('filter',
 node, tensorMap, context) as Tensor4D,\n              [stride[1], stride[2]], pad as 'valid' | 'same',\n              dataFormat
as 'NHWC' | 'NCHW', [dilations[1], dilations[2]])];\n        }\n        case '_FusedConv2D': {\n          const {\n
stride,\n            pad,\n            dataFormat,\n            dilations,\n            biasArg,\n            preluArg,\n
activationFunc,\n            leakyreluAlpha\n          } = fusedConvAndDepthWiseParams(node, tensorMap,
context);\n\n          return [tfOps.fused.conv2d({\n            x: getParamValue('x', node, tensorMap, context) as
Tensor3D |\n                Tensor4D,\n            filter: getParamValue('filter', node, tensorMap, context) as\n
Tensor4D,\n            strides: [stride[1], stride[2]],\n            pad: pad as 'valid' | 'same',\n            dataFormat:
dataFormat as 'NHWC' | 'NCHW',\n            dilations: [dilations[1], dilations[2]],\n            bias: biasArg,\n
activation:
 activationFunc as tfOps.fused.Activation,\n            preluActivationWeights: preluArg,\n            leakyreluAlpha\n
  })];\n        }\n\n        case 'FusedDepthwiseConv2dNative': {\n          const {\n            stride,\n            pad,\n
dataFormat,\n            dilations,\n            biasArg,\n            preluArg,\n            activationFunc,\n
leakyreluAlpha,\n          } = fusedConvAndDepthWiseParams(node, tensorMap, context);\n\n          return
[tfOps.fused.depthwiseConv2d({\n            x: getParamValue('x', node, tensorMap, context) as Tensor3D |\n
Tensor4D,\n            filter: getParamValue('filter', node, tensorMap, context) as\n                Tensor4D,\n
strides: [stride[1], stride[2]],\n            pad: pad as 'valid' | 'same',\n            dataFormat: dataFormat as 'NHWC' |
'NCHW',\n            dilations: [dilations[1], dilations[2]],\n            bias: biasArg,\n            activation: activationFunc
```

```
as tfOps.fused.Activation,\n preluActivationWeights: preluArg,\n leakyreluAlpha\n })];\n }\n case 'Conv2DBackpropInput':\n case 'Conv2dTranspose': {\n const shape = getParamValue(\n 'outputShape', node, tensorMap,\n context) as [number, number, number] |\n [number, number, number, number];\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getPadding(node, tensorMap, context);\n return [tfOps.conv2dTranspose(\n getParamValue('x', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n getParamValue('filter', node, tensorMap, context) as Tensor4D,\n shape, [stride[1], stride[2]], pad as 'valid' | 'same')];\n }\n case 'DepthwiseConv2dNative':\n case 'DepthwiseConv2d': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getPadding(node, tensorMap, context);\n const dilations =\n getParamValue('dilations', node, tensorMap, context) as number[];\n const dataFormat =\n (getParamValue('dataFormat', node, tensorMap, context) as string)\n .toUpperCase();\n\n return [tfOps.depthwiseConv2d(\n getParamValue('input', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n getParamValue('filter', node, tensorMap, context) as Tensor4D,\n [stride[1], stride[2]], pad as 'valid' | 'same',\n dataFormat as 'NHWC' | 'NCHW', [dilations[1], dilations[2]])];\n }\n case 'Conv3D': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad', node, tensorMap, context);\n const dataFormat\n =\n (getParamValue('dataFormat', node, tensorMap, context) as string)\n .toUpperCase();\n const dilations =\n getParamValue('dilations', node, tensorMap, context) as number[];\n return [tfOps.conv3d(\n getParamValue('x', node, tensorMap, context) as Tensor4D |\n Tensor<Rank.R5>,\n getParamValue('filter', node, tensorMap, context) as\n Tensor<Rank.R5>,\n [stride[1], stride[2], stride[3]], pad as 'valid' | 'same',\n dataFormat as 'NDHWC' | 'NCDHW',\n [dilations[1], dilations[2], dilations[3]])];\n }\n case 'AvgPool': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad', node, tensorMap, context);\n const kernelSize =\n getParamValue('kernelSize', node, tensorMap, context) as number[];\n\n return\n [tfOps.avgPool(\n getParamValue('x', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n [kernelSize[1], kernelSize[2]], [stride[1], stride[2]],\n pad as 'valid' | 'same')];\n }\n case 'MaxPool': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad', node, tensorMap, context);\n const kernelSize =\n getParamValue('kernelSize', node, tensorMap, context) as number[];\n\n return [tfOps.maxPool(\n getParamValue('x', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n [kernelSize[1], kernelSize[2]], [stride[1], stride[2]],\n pad as 'valid' | 'same')];\n }\n case 'MaxPoolWithArgmax': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad',\n node, tensorMap, context);\n const kernelSize =\n getParamValue('kernelSize', node, tensorMap, context) as number[];\n const includeBatchInIndex =\n getParamValue('includeBatchInIndex', node, tensorMap, context) as\n boolean;\n const {result, indexes} = tfOps.maxPoolWithArgmax(\n getParamValue('x', node, tensorMap, context) as Tensor4D,\n [kernelSize[1], kernelSize[2]], [stride[1], stride[2]],\n pad as 'valid' | 'same', includeBatchInIndex);\n return [result, indexes];\n }\n case 'AvgPool3D': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad', node, tensorMap, context);\n const kernelSize =\n getParamValue('kernelSize', node, tensorMap, context) as number[];\n\n return [tfOps.avgPool3d(\n getParamValue('x',\n node, tensorMap, context) as Tensor5D,\n [kernelSize[1], kernelSize[2], kernelSize[3]],\n [stride[1], stride[2], stride[3]], pad as 'valid' | 'same')];\n }\n\n case 'MaxPool3D': {\n const stride =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad',
```

node, tensorMap, context);\n const kernelSize =\n getParamValue('kernelSize', node, tensorMap, context) as number[];\n\n return [tfOps.maxPool3d(\n getParamValue('x', node, tensorMap, context) as Tensor5D,\n [kernelSize[1], kernelSize[2], kernelSize[3]],\n [stride[1], stride[2], stride[3]], pad as 'valid' | 'same')];\n }\n\n case 'Dilation2D': {\n const strides =\n getParamValue('strides', node, tensorMap, context) as number[];\n const pad = getParamValue('pad', node, tensorMap, context);\n const dilations
=\n getParamValue('dilations', node, tensorMap, context) as number[];\n\n // strides: [1, stride_height, stride_width, 1].\n const strideHeight = strides[1];\n const strideWidth = strides[2];\n\n // dilations: [1, dilation_height, dilation_width, 1].\n const dilationHeight = dilations[1];\n const dilationWidth = dilations[2];\n\n return [tfOps.dilation2d(\n getParamValue('x', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n getParamValue('filter', node, tensorMap, context) as Tensor3D,\n [strideHeight, strideWidth], pad as 'valid' | 'same',\n [dilationHeight, dilationWidth], 'NHWC' /* dataFormat */)];\n }\n\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'convolution';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n
* Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {DataType, Tensor, Tensor1D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node}
from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'Fill': {\n const shape =\n getParamValue('shape', node, tensorMap, context) as number[];\n const dtype =\n getParamValue('dtype', node, tensorMap, context) as DataType;\n const value =\n getParamValue('value', node, tensorMap, context) as number;\n return [tfOps.fill(shape, value, dtype)];\n }\n case 'LinSpace': {\n const start =\n getParamValue('start', node, tensorMap, context) as number;\n const stop =\n getParamValue('stop', node, tensorMap, context) as number;\n const num = getParamValue('num', node, tensorMap, context) as number;\n return [tfOps.linspace(start, stop, num)];\n }\n
case 'Multinomial': {\n const logits =\n getParamValue('logits', node, tensorMap, context) as Tensor1D;\n const numSamples =\n getParamValue('numSamples', node, tensorMap, context) as number;\n const seed =\n getParamValue('seed', node, tensorMap, context) as number;\n return [tfOps.multinomial(logits, numSamples, seed)];\n }\n case 'OneHot': {\n const indices =\n getParamValue('indices', node, tensorMap, context) as Tensor1D;\n const depth =\n getParamValue('depth', node, tensorMap, context) as number;\n const onValue =\n getParamValue('onValue', node, tensorMap, context) as number;\n const offValue =\n getParamValue('offValue', node, tensorMap, context) as number;\n return [tfOps.oneHot(indices, depth, onValue, offValue)];\n }\n case 'Ones': {\n return [tfOps.ones(\n getParamValue('shape', node, tensorMap, context) as number[],\n getParamValue('dtype', node, tensorMap, context) as DataType)];\n }\n case 'OnesLike': {\n return [tfOps.onesLike(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'RandomUniform': {\n return [tfOps.randomUniform(\n // tslint:disable-next-line:no-any\n getParamValue('shape', node,

tensorMap, context) as any,\n getParamValue('minval', node, tensorMap, context) as number,\n getParamValue('maxval', node, tensorMap, context) as number,\n getParamValue('dtype', node, tensorMap, context) as DataType)];\n }\n case 'Range': {\n const start =\n getParamValue('start', node, tensorMap, context) as number;\n const stop =\n getParamValue('stop', node, tensorMap, context) as number;\n const step =\n getParamValue('step', node, tensorMap, context) as number;\n return [tfOps.range(\n start, stop, step,\n getParamValue('dtype', node, tensorMap, context) as 'float32' |\n 'int32')];\n }\n case 'TruncatedNormal': {\n const shape =\n getParamValue('shape', node, tensorMap, context) as number[];\n const mean =\n getParamValue('mean', node, tensorMap, context) as number;\n const stdDev =\n getParamValue('stdDev', node, tensorMap, context) as number;\n const seed =\n getParamValue('seed', node, tensorMap, context) as number;\n return [tfOps.truncatedNormal(\n shape, mean, stdDev,\n getParamValue('dtype', node, tensorMap, context) as 'float32' |\n 'int32',\n seed)];\n }\n case 'Zeros': {\n return [tfOps.zeros(\n getParamValue('shape', node, tensorMap, context) as number[],\n getParamValue('dtype', node, tensorMap, context) as DataType)];\n }\n case 'ZerosLike': {\n return [tfOps.zerosLike(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n};\n\nexport const CATEGORY = 'creation';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing\n permissions and\n * limitations under the License.\n *\n ==\n */\n\nimport {Tensor, Tensor1D, Tensor2D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpAsyncExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nfunction nmsParams(\n node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext) {\n const boxes = getParamValue('boxes', node, tensorMap, context) as Tensor;\n const scores = getParamValue('scores', node, tensorMap, context) as Tensor;\n const maxOutputSize =\n getParamValue('maxOutputSize', node, tensorMap, context) as number;\n const iouThreshold =\n getParamValue('iouThreshold', node, tensorMap, context)\n as number;\n const scoreThreshold =\n getParamValue('scoreThreshold', node, tensorMap, context) as number;\n const softNmsSigma =\n getParamValue('softNmsSigma', node, tensorMap, context) as number;\n\n return {\n boxes,\n scores,\n maxOutputSize,\n iouThreshold,\n scoreThreshold,\n softNmsSigma\n };\n}\n\nexport const executeOp: InternalOpAsyncExecutor = async(\n node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Promise<Tensor[]> => {\n switch (node.op) {\n case 'NonMaxSuppressionV5': {\n const {\n boxes,\n scores,\n maxOutputSize,\n iouThreshold,\n scoreThreshold,\n softNmsSigma\n } = nmsParams(node, tensorMap, context);\n\n const result = await tfOps.image.nonMaxSuppressionWithScoreAsync(\n boxes as Tensor2D, scores as Tensor1D, maxOutputSize, iouThreshold,\n scoreThreshold, softNmsSigma);\n\n return [result.selectedIndices, result.selectedScores];\n }\n case 'NonMaxSuppressionV4': {\n const {boxes, scores, maxOutputSize, iouThreshold, scoreThreshold} =\n nmsParams(node, tensorMap, context);\n\n const padToMaxOutputSize =\n getParamValue('padToMaxOutputSize', node, tensorMap, context) as\n boolean;\n\n const result = await tfOps.image.nonMaxSuppressionPaddedAsync(\n boxes as Tensor2D, scores as Tensor1D, maxOutputSize,

iouThreshold,\n scoreThreshold, padToMaxOutputSize);\n\n return [result.selectedIndices, result.validOutputs];\n }\n case 'NonMaxSuppressionV3':\n case 'NonMaxSuppressionV2': {\n const {boxes, scores, maxOutputSize, iouThreshold, scoreThreshold} =\n nmsParams(node, tensorMap, context);\n\n return [await tfOps.image.nonMaxSuppressionAsync(\n boxes as Tensor2D, scores as Tensor1D, maxOutputSize, iouThreshold,\n scoreThreshold)];\n }\n case 'Where': {\n const condition = tfOps.cast(\n (getParamValue('condition', node, tensorMap, context) as Tensor),\n 'bool');\n const result = [await tfOps.whereAsync(condition)];\n condition.dispose();\n return result;\n }\n case 'ListDiff': {\n return tfOps.setdiff1dAsync(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('y', node, tensorMap, context) as Tensor);\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n};\n\nexport const CATEGORY = 'dynamic';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext):\n Tensor[] => {\n switch (node.op) {\n case 'TopKV2': {\n const x = getParamValue('x', node, tensorMap, context) as Tensor;\n const k = getParamValue('k', node, tensorMap,\n context) as number;\n const sorted =\n getParamValue('sorted', node, tensorMap, context) as boolean;\n const result = tfOps.topk(x, k, sorted);\n return [result.values, result.indices];\n }\n case 'Unique': {\n const x = getParamValue('x', node, tensorMap, context) as Tensor;\n const result = tfOps.unique(x);\n return [result.values, result.indices];\n }\n case 'UniqueV2': {\n const x = getParamValue('x', node, tensorMap, context) as Tensor;\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n const result = tfOps.unique(x, axis);\n return [result.values, result.indices];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n};\n\nexport const CATEGORY = 'evaluation';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {cloneTensor, getParamValue, getTensor} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'Const': {\n return tensorMap[node.name];\n }\n case 'PlaceholderWithDefault':\n const def =\n getParamValue('default', node, tensorMap, context) as Tensor;\n return [getTensor(node.name, tensorMap,

context) || def];\n case 'Placeholder':\n return [getTensor(node.name, tensorMap, context)];\n case 'Identity':\n case 'StopGradient':\n case 'FakeQuantWithMinMaxVars': { // This op is currently ignored.\n const data = getParamValue('x', node, tensorMap, context) as Tensor;\n return [cloneTensor(data)];\n }\n case 'IdentityN':\n return (getParamValue('x',\n node, tensorMap, context) as Tensor[])\n .map((t: Tensor) => cloneTensor(t));\n case 'Snapshot':\n const snapshot =\n (getParamValue('x', node, tensorMap, context) as Tensor);\n return [cloneTensor(snapshot)];\n case 'Shape':\n return [tfOps.tensor1d(\n (getParamValue('x', node, tensorMap, context) as Tensor).shape,\n 'int32')];\n case 'ShapeN':\n return (getParamValue('x', node, tensorMap, context) as Tensor[])\n .map((t: Tensor) => tfOps.tensor1d(t.shape));\n case 'Size':\n return [tfOps.scalar(\n (getParamValue('x', node, tensorMap, context) as Tensor).size,\n 'int32')];\n case 'Rank':\n return [tfOps.scalar(\n (getParamValue('x', node, tensorMap, context) as Tensor).rank,\n 'int32')];\n case 'NoOp':\n return [tfOps.scalar(1)];\n case 'Print':\n const input = getParamValue('x', node, tensorMap, context) as Tensor;\n const data =\n getParamValue('data', node, tensorMap, context) as Tensor[];\n const message =\n getParamValue('message', node, tensorMap, context) as string;\n const summarize =\n getParamValue('summarize', node, tensorMap, context) as number;\n console.warn(\n 'The graph has a tf.print() operation,' +\n 'usually used for debugging, which slows down performance.');\n console.log(message);\n for (let i = 0; i < data.length; i++) {\n console.log(Array.prototype.slice.call(data[i].dataSync())\n .slice(0, summarize));\n }\n return [input];\n\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'graph';\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==\n */\nimport {DataType, keep, scalar, stack, Tensor, tidy, unstack, util} from '@tensorflow/tfjs-core';\n\n/**\n * Hashtable contains a set of tensors, which can be accessed by key.\n */\nexport class HashTable {\n readonly handle: Tensor;\n\n // tslint:disable-next-line: no-any\n private tensorMap: Map<any, Tensor>;\n\n get id() {\n return this.handle.id;\n }\n\n /**\n * Constructor of HashTable. Creates a hash table.\n *\n * @param keyDType `dtype` of the table keys.\n * @param valueDType `dtype` of the table values.\n */\n constructor(readonly keyDType: DataType, readonly valueDType: DataType) {\n this.handle = scalar(0);\n // tslint:disable-next-line: no-any\n this.tensorMap = new Map<any, Tensor>();\n\n keep(this.handle);\n }\n\n /**\n * Dispose the tensors and handle and clear the hashtable.\n */\n clearAndClose() {\n this.tensorMap.forEach(value => value.dispose());\n this.tensorMap.clear();\n this.handle.dispose();\n }\n\n /**\n * The number of items in the hash table.\n */\n size(): number {\n return this.tensorMap.size;\n }\n\n /**\n * Replaces the contents of the table with the specified keys and values.\n * @param keys Keys to store in the hashtable.\n * @param values Values to store in the hashtable.\n */\n async import(keys: Tensor, values: Tensor): Promise<Tensor> {\n this.checkKeyAndValueTensor(keys, values);\n\n // We only store the primitive values of the keys, this allows lookup\n // to be O(1).\n const $keys = await keys.data();\n\n // Clear the hashTable before inserting new values.\n this.tensorMap.forEach(value => value.dispose());\n this.tensorMap.clear();\n\n return tidy(() => {\n const $values = unstack(values);\n\n const keysLength = $keys.length;\n const valuesLength = $values.length;\n\n util.assert(\n keysLength === valuesLength,\n () => `The number of elements doesn't match, keys has ` +\n `${keysLength} elements, the values has ${valuesLength} ` +\n `elements.`);\n\n for (let i = 0; i < keysLength; i++) {\n const key = $keys[i];\n const value = $values[i];\n\n keep(value);\n this.tensorMap.set(key, value);\n }\n

return this.handle;\n   });\n }\n\n /**\n   * Looks up
 keys in a hash table, outputs the corresponding values.\n   *\n   * Performs batch lookups, for every element in the key tensor, `find`\n   * stacks the corresponding value into the return tensor.\n   *\n   * If an element is not present in the table, the given `defaultValue` is\n   * used.\n   *\n   * @param keys Keys to look up. Must have the same type as the keys of the\n   *   table.\n   * @param defaultValue The scalar `defaultValue` is the value output for keys\n   *   not present in the table. It must also be of the same type as the\n   *   table values.\n   */\n async find(keys: Tensor, defaultValue: Tensor): Promise<Tensor> {\n   this.checkKeyAndValueTensor(keys, defaultValue);\n\n   const $keys = await keys.data();\n\n   return tidy(() => {\n   const result: Tensor[] = [];\n\n   for (let i = 0; i < $keys.length; i++) {\n   const key = $keys[i];\n\n   const value = this.findWithDefault(key, defaultValue);\n
 result.push(value);\n   }\n\n
 return stack(result);\n   });\n }\n\n // tslint:disable-next-line: no-any\n private findWithDefault(key: any, defaultValue: Tensor): Tensor {\n   const result = this.tensorMap.get(key);\n\n   return result != null ? result : defaultValue;\n }\n\n private checkKeyAndValueTensor(key: Tensor, value: Tensor) {\n   if (key.dtype !== this.keyDType) {\n   throw new Error(\n   `Expect key dtype ${this.keyDType}, but got ` +\n   `${key.dtype}`);\n   }\n\n   if (value.dtype !== this.valueDType) {\n   throw new Error(\n   `Expect value dtype ${this.valueDType}, but got ` +\n   `${value.dtype}`);\n   }\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law
 or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
 ==\n
 */\n\nimport {DataType, Tensor} from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {HashTable} from '../../executor/hash_table';\nimport {ResourceManager} from '../../executor/resource_manager';\nimport {InternalOpAsyncExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpAsyncExecutor = async(\n   node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext,\n   resourceManager: ResourceManager): Promise<Tensor[]> => {\n switch (node.op) {\n
 case 'HashTable':\n   case 'HashTableV2': {\n   const keyDType =\n   getParamValue('keyDType', node, tensorMap, context) as DataType;\n   const valueDType =\n   getParamValue('valueDType', node, tensorMap, context) as DataType;\n\n   const hashTable = new HashTable(keyDType, valueDType);\n
resourceManager.addHashTable(node.name, hashTable);\n   return [hashTable.handle];\n   }\n   case 'LookupTableImport':\n   case 'LookupTableImportV2': {\n   const handle = getParamValue(\n   'tableHandle', node, tensorMap, context,\n   resourceManager) as Tensor;\n   const keys =
getParamValue('keys', node, tensorMap, context) as Tensor;\n   const values =\n   getParamValue('values', node, tensorMap, context) as Tensor;\n\n   const hashTable = resourceManager.getHashTableById(handle.id);\n\n
   return [await hashTable.import(keys, values)];\n   }\n   case 'LookupTableFind':\n   case 'LookupTableFindV2':
 {\n   const handle = getParamValue(\n   'tableHandle', node, tensorMap, context,\n
resourceManager) as Tensor;\n   const keys = getParamValue('keys', node, tensorMap, context) as Tensor;\n
const defaultValue =\n   getParamValue('defaultValue', node, tensorMap, context) as Tensor;\n\n   const
hashTable = resourceManager.getHashTableById(handle.id);\n   return [await hashTable.find(keys,
defaultValue)];\n   }\n   default:\n   throw TypeError(`Node type ${node.op} is not implemented`);\n
}\n};\n\nexport const CATEGORY = 'hash_table';\n","/**\n * @license\n * Copyright 2018 Google LLC. All
Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this
file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing,
software\n

* distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {Tensor, Tensor1D, Tensor2D, Tensor3D, Tensor4D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'ResizeBilinear': {\n const images =\n getParamValue('images', node, tensorMap, context) as Tensor;\n const size =\n getParamValue('size', node, tensorMap, context) as number[];\n const alignCorners =\n getParamValue('alignCorners', node, tensorMap, context) as\n boolean;\n const halfPixelCenters =\n getParamValue('halfPixelCenters', node, tensorMap, context) as\n boolean;\n return [tfOps.image.resizeBilinear(\n images as Tensor3D | Tensor4D, [size[0], size[1]], alignCorners,\n halfPixelCenters)];\n }\n case 'ResizeNearestNeighbor': {\n const images =\n getParamValue('images', node, tensorMap, context) as Tensor;\n const size =\n getParamValue('size', node, tensorMap, context) as number[];\n const alignCorners =\n getParamValue('alignCorners', node, tensorMap, context) as\n boolean;\n const halfPixelCenters =\n getParamValue('halfPixelCenters', node, tensorMap, context) as\n boolean;\n return [tfOps.image.resizeNearestNeighbor(\n images as Tensor3D | Tensor4D, [size[0], size[1]], alignCorners,\n halfPixelCenters)];\n }\n case 'CropAndResize': {\n const image =\n getParamValue('image', node, tensorMap, context) as Tensor;\n const boxes =\n getParamValue('boxes', node, tensorMap, context) as Tensor;\n const boxInd =\n getParamValue('boxInd', node, tensorMap, context) as Tensor;\n const cropSize =\n getParamValue('cropSize', node, tensorMap, context) as number[];\n const method =\n getParamValue('method', node, tensorMap, context) as string;\n const extrapolationValue =\n getParamValue('extrapolationValue', node, tensorMap, context) as\n number;\n return [tfOps.image.cropAndResize(\n image as Tensor4D, boxes as Tensor2D, boxInd as Tensor1D,\n cropSize as [number, number], method as 'bilinear' | 'nearest',\n extrapolationValue)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'image';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n==========\n*/\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'Equal': {\n return [tfOps.equal(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'NotEqual': {\n return [tfOps.notEqual(\n getParamValue('a', node, tensorMap, context)

as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Greater': {\n return [tfOps.greater(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'GreaterEqual': {\n return [tfOps.greaterEqual(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Less': {\n return [tfOps.less(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'LessEqual': {\n return [tfOps.lessEqual(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'LogicalAnd':
{\n return [tfOps.logicalAnd(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'LogicalNot': {\n return [tfOps.logicalNot(\n getParamValue('a', node, tensorMap, context) as Tensor)];\n }\n case 'LogicalOr': {\n return [tfOps.logicalOr(\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n case 'Select':\n case 'SelectV2': {\n return [tfOps.where(\n getParamValue('condition', node, tensorMap, context) as Tensor,\n getParamValue('a', node, tensorMap, context) as Tensor,\n getParamValue('b', node, tensorMap, context) as Tensor)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n};\n\nexport const
CATEGORY = 'logical';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {Tensor, Tensor2D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport
{ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'BatchMatMul':\n case 'BatchMatMulV2':\n case 'MatMul':\n return [tfOps.matMul(\n getParamValue('a', node, tensorMap, context) as Tensor2D,\n getParamValue('b', node, tensorMap, context) as Tensor2D,\n getParamValue('transposeA', node, tensorMap, context) as boolean,\n getParamValue('transposeB', node, tensorMap, context) as\n boolean)];\n\n case 'Transpose':\n return [tfOps.transpose(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('perm', node, tensorMap, context) as number[])];\n\n case '_FusedMatMul':\n const [extraOp, activationFunc] =\n (getParamValue('fusedOps', node, tensorMap, context) as string[]);\n\n const isBiasAdd = extraOp === 'biasadd';\n const isPrelu = activationFunc === 'prelu';\n\n const numArgs =\n (getParamValue('numArgs', node, tensorMap, context) as number);\n const leakyreluAlpha =\n getParamValue('leakyreluAlpha', node, tensorMap, context) as\n number;\n\n if (isBiasAdd) {\n if (isPrelu && numArgs !== 2) {\n throw new Error(\n 'Fused MatMul with BiasAdd and Prelu must have two ' +\n 'extra arguments: bias and alpha.');\n }\n if (!isPrelu && numArgs !== 1) {\n throw new Error(\n 'Fused MatMul with BiasAdd must have one extra argument: bias.');\n }\n }\n const [biasArg, preluArg] =\n getParamValue('args',

node, tensorMap, context) as Tensor[];\n return [tfOps.fused.matMul({\n a: getParamValue('a', node, tensorMap, context) as Tensor2D,\n b: getParamValue('b', node, tensorMap, context) as Tensor2D,\n transposeA: getParamValue('transposeA', node, tensorMap, context) as\n boolean,\n transposeB: getParamValue('transposeB', node, tensorMap, context) as\n boolean,\n bias: biasArg,\n activation: activationFunc as tfOps.fused.Activation,\n preluActivationWeights: preluArg,\n leakyreluAlpha\n })];\n\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'matrices';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n
* You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {Scalar, Tensor, Tensor3D, Tensor4D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'FusedBatchNorm':\n case 'FusedBatchNormV2': {\n return [tfOps.batchNorm(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('mean', node, tensorMap, context) as Tensor,\n getParamValue('variance', node, tensorMap, context) as Tensor,\n getParamValue('offset', node, tensorMap, context) as Tensor,\n getParamValue('scale', node, tensorMap, context) as Tensor,\n getParamValue('epsilon', node, tensorMap, context) as number)];\n }\n case 'FusedBatchNormV3': {\n return [tfOps.batchNorm(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('mean', node, tensorMap, context) as Tensor,\n getParamValue('variance', node, tensorMap, context) as Tensor,\n getParamValue('offset',
node, tensorMap, context) as Tensor,\n getParamValue('scale', node, tensorMap, context) as Tensor,\n getParamValue('epsilon', node, tensorMap, context) as number)];\n }\n case 'LRN': {\n return [tfOps.localResponseNormalization(\n getParamValue('x', node, tensorMap, context) as Tensor3D |\n Tensor4D,\n getParamValue('radius', node, tensorMap, context) as number,\n getParamValue('bias', node, tensorMap, context) as number,\n getParamValue('alpha', node, tensorMap, context) as number,\n getParamValue('beta', node, tensorMap, context) as number)];\n }\n case 'Softmax': {\n return [tfOps.softmax(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'LogSoftmax': {\n return [tfOps.logSoftmax(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case
'SparseToDense': {\n return [tfOps.sparseToDense(\n getParamValue('sparseIndices', node, tensorMap, context) as\n Tensor,\n getParamValue('outputShape', node, tensorMap, context) as Tensor,\n getParamValue('sparseValues', node, tensorMap, context) as\n number[],\n getParamValue('defaultValue', node, tensorMap, context) as\n Scalar)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'normalization';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n *
distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing

```
permissions and\n * limitations under the License.\n *
==========================================================================\n
*/\n\nimport {Tensor, Tensor1D, Tensor2D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-
from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport
{NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from
'../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue}
from './utils';\n\nexport const executeOp: InternalOpExecutor =\n    (node: Node, tensorMap: NamedTensorsMap,\n
  context: ExecutionContext): Tensor[] => {\n      switch (node.op) {\n        case 'Max': {\n          const axis =\n
  getParamValue('axis',
 node, tensorMap, context) as number[];\n          const keepDims =\n              getParamValue('keepDims', node,
tensorMap, context) as boolean;\n          return [tfOps.max(\n              getParamValue('x', node, tensorMap, context)
as Tensor, axis,\n              keepDims)];\n        }\n        case 'Mean': {\n          const axis =\n
getParamValue('axis', node, tensorMap, context) as number[];\n          const keepDims =\n
getParamValue('keepDims', node, tensorMap, context) as boolean;\n          return [tfOps.mean(\n
getParamValue('x', node, tensorMap, context) as Tensor, axis,\n              keepDims)];\n        }\n        case 'Min': {\n
    const axis =\n              getParamValue('axis', node, tensorMap, context) as number[];\n          const keepDims =\n
        getParamValue('keepDims', node, tensorMap, context) as boolean;\n          return [tfOps.min(\n
getParamValue('x', node, tensorMap, context) as Tensor,
 axis,\n              keepDims)];\n        }\n        case 'Sum': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number[];\n          const keepDims =\n              getParamValue('keepDims', node, tensorMap,
context) as boolean;\n          return [tfOps.sum(\n              getParamValue('x', node, tensorMap, context) as Tensor,
axis,\n              keepDims)];\n        }\n        case 'All': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number[];\n          const keepDims =\n              getParamValue('keepDims', node, tensorMap,
context) as boolean;\n          return [tfOps.all(\n              getParamValue('x', node, tensorMap, context) as Tensor,
axis,\n              keepDims)];\n        }\n        case 'Any': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number[];\n          const keepDims =\n              getParamValue('keepDims', node, tensorMap,
 context) as boolean;\n          return [tfOps.any(\n              getParamValue('x', node, tensorMap, context) as Tensor,
axis,\n              keepDims)];\n        }\n        case 'ArgMax': {\n          const axis =\n              getParamValue('axis',
node, tensorMap, context) as number;\n          return [tfOps.argMax(\n              getParamValue('x', node, tensorMap,
context) as Tensor, axis)];\n        }\n        case 'ArgMin': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number;\n          return [tfOps.argMin(\n              getParamValue('x', node, tensorMap,
context) as Tensor, axis)];\n        }\n        case 'Prod': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number[];\n          const keepDims =\n              getParamValue('keepDims', node, tensorMap,
context) as boolean;\n          return [tfOps.prod(\n              getParamValue('x', node, tensorMap, context) as Tensor,
axis,\n
              keepDims)];\n        }\n        case 'Cumsum': {\n          const axis =\n              getParamValue('axis', node,
tensorMap, context) as number;\n          const exclusive =\n              getParamValue('exclusive', node, tensorMap,
context) as boolean;\n          const reverse =\n              getParamValue('reverse', node, tensorMap, context) as
boolean;\n          return [tfOps.cumsum(\n              getParamValue('x', node, tensorMap, context) as Tensor, axis,\n
          exclusive, reverse)];\n        }\n        case 'Bincount':\n          const x = getParamValue('x', node, tensorMap,
context) as Tensor1D;\n          const weights =\n              getParamValue('weights', node, tensorMap, context) as
Tensor1D;\n          const size =\n              getParamValue('size', node, tensorMap, context) as number;\n\n
return [tfOps.bincount(x, weights, size)];\n        case 'DenseBincount': {\n          const x = getParamValue('x', node,
tensorMap, context)
 as Tensor1D |\n              Tensor2D;\n          const weights =\n              getParamValue('weights', node, tensorMap,
context) as Tensor1D |\n              Tensor2D;\n          const size =\n              getParamValue('size', node, tensorMap,
context) as number;\n\n          const binaryOutput =\n              getParamValue('binaryOutput', node, tensorMap,
context) as\n              boolean;\n\n          return [tfOps.denseBincount(x, weights, size, binaryOutput)];\n        }\n
```

default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'reduction';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {Scalar, Tensor, Tensor1D, tidy, util} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'ConcatV2':\n case 'Concat': {\n const n = getParamValue('n', node, tensorMap, context) as number;\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n let inputs =\n getParamValue('tensors', node, tensorMap, context) as Tensor[];\n inputs = inputs.slice(0, n);\n return [tfOps.concat(inputs, axis)];\n }\n case 'Gather': {\n const input = getParamValue('x', node, tensorMap, context) as Tensor;\n const indices =\n getParamValue('indices', node, tensorMap, context) as Tensor1D;\n return [tfOps.gather(input, tfOps.cast(indices, 'int32'), 0)];\n }\n case 'GatherV2': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n const batchDims =\n getParamValue('batchDims', node, tensorMap, context) as number;\n const input = getParamValue('x', node, tensorMap, context) as Tensor;\n const indices =\n getParamValue('indices', node, tensorMap, context) as Tensor1D;\n return [tfOps.gather(\n input, tfOps.cast(indices, 'int32'), axis, batchDims)];\n }\n case 'Reverse': {\n const dims =\n getParamValue('dims', node, tensorMap, context) as boolean[];\n const axis = [];\n for (let i = 0; i < dims.length; i++) {\n if (dims[i]) {\n axis.push(i);\n }\n }\n const input = getParamValue('x', node, tensorMap, context) as Tensor;\n return [tfOps.reverse(input, axis)];\n }\n case 'ReverseV2': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number[];\n const input = getParamValue('x', node, tensorMap, context) as Tensor;\n return [tfOps.reverse(input, axis)];\n }\n case 'Slice': {\n // tslint:disable-next-line:no-any\n const begin = getParamValue('begin', node, tensorMap, context) as any;\n // tslint:disable-next-line:no-any\n const size = getParamValue('size', node, tensorMap, context) as any;\n return [tfOps.slice(\n getParamValue('x', node, tensorMap, context) as Tensor, begin,\n size)];\n }\n case 'StridedSlice': {\n const begin =\n getParamValue('begin', node, tensorMap, context) as number[];\n const end =\n getParamValue('end', node, tensorMap, context) as number[];\n const strides =\n getParamValue('strides', node, tensorMap, context) as number[];\n const beginMask =\n getParamValue('beginMask', node, tensorMap, context) as number;\n const endMask =\n getParamValue('endMask', node, tensorMap, context) as number;\n const ellipsisMask =\n getParamValue('ellipsisMask', node, tensorMap, context) as number;\n const newAxisMask =\n getParamValue('newAxisMask', node, tensorMap, context) as number;\n const shrinkAxisMask =\n getParamValue('shrinkAxisMask', node, tensorMap, context) as\n number;\n const tensor = getParamValue('x', node, tensorMap, context) as Tensor;\n\n return [tfOps.stridedSlice(\n tensor, begin, end, strides, beginMask, endMask, ellipsisMask,\n newAxisMask, shrinkAxisMask)];\n }\n case 'Pack': {\n return tidy(() => {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n const tensors =\n getParamValue('tensors', node, tensorMap, context) as Tensor[];\n // Reshape the tensors to the first tensor's

shape if they don't\n // match.\n const shape = tensors[0].shape;\n const squeezedShape = tfOps.squeeze(tensors[0]).shape;\n const
mapped = tensors.map(tensor => {\n const sameShape = util.arraysEqual(tensor.shape, shape);\n if (!sameShape &&\n !util.arraysEqual(\n tfOps.squeeze(tensor).shape, squeezedShape)) {\n throw new Error('the input tensors shape does not match');\n }\n return sameShape ? tensor : tfOps.reshape(tensor, shape);\n });\n return [tfOps.stack(mapped, axis)];\n });\n }\n case 'Unpack': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n const tensor =\n getParamValue('tensor', node, tensorMap, context) as Tensor;\n return tfOps.unstack(tensor, axis);\n }\n case 'Tile': {\n const reps =\n getParamValue('reps', node, tensorMap, context) as number[];\n return [tfOps.tile(\n getParamValue('x', node, tensorMap, context)
as Tensor, reps)];\n }\n case 'Split':\n case 'SplitV': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n const numOrSizeSplits =\n getParamValue('numOrSizeSplits', node, tensorMap, context) as\n number |\n number[];\n const tensor = getParamValue('x', node, tensorMap, context) as Tensor;\n\n return tfOps.split(tensor, numOrSizeSplits, axis);\n }\n case 'ScatterNd': {\n const indices =\n getParamValue('indices', node, tensorMap, context) as Tensor;\n const values =\n getParamValue('values', node, tensorMap, context) as Tensor;\n const shape =\n getParamValue('shape', node, tensorMap, context) as number[];\n return [tfOps.scatterND(indices, values, shape)];\n }\n case 'GatherNd': {\n const x = getParamValue('x', node, tensorMap, context)
as Tensor;\n const indices =\n getParamValue('indices', node, tensorMap, context) as Tensor;\n return [tfOps.gatherND(x, indices)];\n }\n case 'SparseToDense': {\n const indices =\n getParamValue('sparseIndices', node, tensorMap, context) as\n Tensor;\n const shape =\n getParamValue('outputShape', node, tensorMap, context) as\n number[];\n const sparseValues =\n getParamValue('sparseValues', node, tensorMap, context) as Tensor;\n const defaultValue =\n getParamValue('defaultValue', node, tensorMap, context) as Scalar;\n return [tfOps.sparseToDense(\n indices, sparseValues, shape,\n sparseValues.dtype === defaultValue.dtype ?\n defaultValue :\n tfOps.cast(defaultValue, sparseValues.dtype))];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'slice_join';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n\nimport {Tensor} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport * as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport
{NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext):\n Tensor[] => {\n switch (node.op) {\n case 'FFT': {\n return [tfOps.fft(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'IFFT': {\n return [tfOps.ifft(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'RFFT': {\n return [tfOps.rfft(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n case 'IRFFT': {\n return [tfOps.irfft(\n getParamValue('x', node, tensorMap, context) as Tensor)];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'spectral';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights

Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========\n */\n\nimport {Tensor, Tensor4D} from '@tensorflow/tfjs-core';\n// tslint:disable-next-line: no-imports-from-dist\nimport
* as tfOps from '@tensorflow/tfjs-core/dist/ops/ops_for_converter';\n\nimport {NamedTensorsMap} from '../../data/types';\nimport {ExecutionContext} from '../../executor/execution_context';\nimport {InternalOpExecutor, Node} from '../types';\n\nimport {getParamValue} from './utils';\n\nexport const executeOp: InternalOpExecutor =\n (node: Node, tensorMap: NamedTensorsMap,\n context: ExecutionContext): Tensor[] => {\n switch (node.op) {\n case 'Cast': {\n return [tfOps.cast(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('dtype', node, tensorMap, context) as 'int32' |\n 'float32' | 'bool')];\n }\n case 'ExpandDims': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number;\n return [tfOps.expandDims(\n getParamValue('x', node, tensorMap, context) as Tensor, axis)];\n }\n case 'Squeeze': {\n const axis =\n getParamValue('axis', node, tensorMap, context) as number[];\n return [tfOps.squeeze(\n getParamValue('x', node, tensorMap, context) as Tensor, axis)];\n }\n\n case 'Reshape': {\n return [tfOps.reshape(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('shape', node, tensorMap, context) as number[])];\n }\n case 'MirrorPad': {\n return [tfOps.mirrorPad(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('padding', node, tensorMap, context) as\n Array<[number, number]>,\n getParamValue('mode', node, tensorMap, context) as 'reflect' |\n 'symmetric')];\n }\n case 'PadV2':\n case 'Pad': {\n return [tfOps.pad(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('padding',
node, tensorMap, context) as\n Array<[number, number]>,\n getParamValue('constantValue', node, tensorMap, context) as\n number)];\n }\n case 'SpaceToBatchND': {\n const blockShape =\n getParamValue('blockShape', node, tensorMap, context) as number[];\n const paddings =\n getParamValue('paddings', node, tensorMap, context) as number[][];\n return [tfOps.spaceToBatchND(\n getParamValue('x', node, tensorMap, context) as Tensor,\n blockShape, paddings)];\n }\n case 'BatchToSpaceND': {\n const blockShape =\n getParamValue('blockShape', node, tensorMap, context) as number[];\n const crops =\n getParamValue('crops', node, tensorMap, context) as number[][];\n return [tfOps.batchToSpaceND(\n getParamValue('x', node, tensorMap, context) as Tensor,\n blockShape,
crops)];\n }\n case 'DepthToSpace': {\n const blockSize =\n getParamValue('blockSize', node, tensorMap, context) as number;\n const dataFormat =\n (getParamValue('dataFormat', node, tensorMap, context) as\n string).toUpperCase() as 'NHWC' |\n 'NCHW';\n return [tfOps.depthToSpace(\n getParamValue('x', node, tensorMap, context) as Tensor4D,\n blockSize, dataFormat)];\n }\n case 'BroadcastTo': {\n return [tfOps.broadcastTo(\n getParamValue('x', node, tensorMap, context) as Tensor,\n getParamValue('shape', node, tensorMap, context) as number[])];\n }\n default:\n throw TypeError(`Node type ${node.op} is not implemented`);\n }\n };\n\nexport const CATEGORY = 'transformation';\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version
2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n *

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport * as tfc from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from '../data/types';\nimport {ExecutionContext} from '../executor/execution_context';\nimport {ResourceManager} from '../executor/resource_manager';\n\nimport {NodeValueImpl} from './custom_op/node_value_impl';\nimport {getRegisteredOp} from './custom_op/register';\nimport * as arithmetic from './executors/arithmetic_executor';\nimport * as basicMath from './executors/basic_math_executor';\nimport * as control from './executors/control_executor';\nimport * as convolution from './executors/convolution_executor';\nimport * as creation from './executors/creation_executor';\nimport * as dynamic from './executors/dynamic_executor';\nimport * as evaluation from './executors/evaluation_executor';\nimport * as graph from './executors/graph_executor';\nimport * as hashTable from './executors/hash_table_executor';\nimport * as image from './executors/image_executor';\nimport * as logical from './executors/logical_executor';\nimport * as matrices from './executors/matrices_executor';\nimport * as normalization from './executors/normalization_executor';\nimport * as reduction from './executors/reduction_executor';\nimport * as sliceJoin from './executors/slice_join_executor';\nimport * as spectral from './executors/spectral_executor';\nimport * as transformation from './executors/transformation_executor';\nimport {Node} from './types';\n\n/**\n * Executes the op defined by the node object.\n * @param node\n * @param tensorMap contains tensors for executed nodes and weights\n * @param context contains tensors and information for running the current node.\n * @param resourceManager Optional. Contains global resources of the model.\n */\nexport function executeOp(\n   node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext,\n   resourceManager?: ResourceManager): tfc.Tensor[]|Promise<tfc.Tensor[]> {\n const value =\n   ((node: Node, tensorMap: NamedTensorsMap, context: ExecutionContext) => {\n   switch (node.category) {\n   case 'arithmetic':\n   return tfc.tidy(\n   () => arithmetic.executeOp(node, tensorMap, context));\n   case 'basic_math':\n   return tfc.tidy(\n   () => basicMath.executeOp(node, tensorMap, context));\n   case 'control':\n   return control.executeOp(node, tensorMap, context);\n   case 'convolution':\n   return tfc.tidy(\n   () => convolution.executeOp(node, tensorMap, context));\n   case 'creation':\n   return tfc.tidy(() => creation.executeOp(node, tensorMap, context));\n   case 'dynamic':\n   return dynamic.executeOp(node, tensorMap, context);\n   case 'evaluation':\n   return tfc.tidy(\n   () => evaluation.executeOp(node, tensorMap, context));\n   case 'image':\n   return tfc.tidy(() => image.executeOp(node, tensorMap, context));\n   case 'graph':\n   return tfc.tidy(() => graph.executeOp(node, tensorMap, context));\n   case 'logical':\n   return tfc.tidy(() => logical.executeOp(node, tensorMap, context));\n   case 'matrices':\n   return tfc.tidy(() => matrices.executeOp(node, tensorMap, context));\n   case 'normalization':\n   return tfc.tidy(\n   () => normalization.executeOp(node,\n   tensorMap, context));\n   case 'reduction':\n   return tfc.tidy(\n   () => reduction.executeOp(node, tensorMap, context));\n   case 'slice_join':\n   return tfc.tidy(\n   () => sliceJoin.executeOp(node, tensorMap, context));\n   case 'spectral':\n   return tfc.tidy(() => spectral.executeOp(node, tensorMap, context));\n   case 'transformation':\n   return tfc.tidy(\n   () => transformation.executeOp(node, tensorMap, context));\n   case 'hash_table':\n   return hashTable.executeOp(\n   node, tensorMap, context, resourceManager);\n   case 'custom':\n   const opMapper = getRegisteredOp(node.op);\n   if (opMapper && opMapper.customExecutor) {\n   return opMapper.customExecutor(\n   new NodeValueImpl(node, tensorMap, context));\n   } else {\n   throw TypeError(`Custom op ${node.op} is not registered.`);\n   }\n   default:\n   throw TypeError(\n   `Unknown op '${node.op}'. File an issue at ` +\n   `https://github.com/tensorflow/tfjs/issues so we can add it` +\n   `, or register a custom execution with tf.registerOp()`);\n   }\n   })(node, tensorMap, context);\n if (tfc.util.isPromise(value)) {\n   return (value as Promise<tfc.Tensor>).then((data) => [].concat(data));\n }\n return

```
[].concat(value);\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==========================================================================\n */\nimport {Tensor} from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap, TensorArrayMap, TensorListMap} from '../data/types';\n\nimport {TensorArray} from './tensor_array';\nimport {TensorList} from './tensor_list';\nimport {FunctionExecutor} from './types';\n\nexport interface ExecutionContextInfo {\n  id: number;  // the unique id of the context info\n  frameName: string;  // The frame name of the loop, this comes from\n  // the TensorFlow NodeDef.\n  iterationId: number;  // The iteration id of the loop\n}\n\n/**\n * ExecutionContext captures the runtime environment of the node. It keeps\n * track of the current frame and iteration for the control flow ops.\n *\n * For example, typical Dynamic RNN model may contain loops, for which\n * TensorFlow will generate graphs with Enter/Exit nodes to control the\n * current execution frame, and NextIteration Nodes for iteration id increment.\n * For model with branch logic, TensorFLow will generate Switch/Merge ops.\n */\nexport class ExecutionContext {\n  private rootContext = {id: 0, frameName: '', iterationId: 0};\n  private contexts: ExecutionContextInfo[] = [this.rootContext];\n  private lastId = 0;\n  private _currentContextIds: string[];\n\n  constructor(\n      readonly weightMap: NamedTensorsMap = {},\n      readonly tensorArrayMap: TensorArrayMap = {},\n      readonly tensorListMap: TensorListMap = {},\n      readonly functionMap: {[key: string]: FunctionExecutor} = {}) {\n    this.generateCurrentContextIds();\n  }\n\n  private newFrame(id: number, frameName: string) {\n    return {id, frameName, iterationId: 0};\n  }\n\n  /**\n   * Set the current context\n   * @param contexts: ExecutionContextInfo[] the current path of execution\n   * frames\n   */\n  set currentContext(contexts: ExecutionContextInfo[]) {\n    if (this.contexts !== contexts) {\n      this.contexts = contexts;\n      this.generateCurrentContextIds();\n    }\n  }\n\n  get currentContext(): ExecutionContextInfo[] {\n    return this.contexts;\n  }\n\n  /**\n   * Returns the current context in string format.\n   */\n  get currentContextId(): string {\n    return this._currentContextIds[0];\n  }\n\n  /**\n   * Returns the current context and all parent contexts in string format.\n   * This allow access to the nodes in the current and parent frames.\n   */\n  get currentContextIds(): string[] {\n    return this._currentContextIds;\n  }\n\n  private generateCurrentContextIds() {\n    const names = [];\n    for (let i = 0; i < this.contexts.length - 1; i++) {\n      const contexts = this.contexts.slice(0, this.contexts.length - i);\n      names.push(this.contextIdforContexts(contexts));\n    }\n    names.push('');\n    this._currentContextIds = names;\n  }\n\n  private contextIdforContexts(contexts: ExecutionContextInfo[]) {\n    return contexts ?\n        contexts\n            .map(\n                context => (context.id === 0 && context.iterationId === 0) ?\n                    '' :\n                    `${context.frameName}-${context.iterationId}`)\n            .join('/') :\n        '';\n  }\n\n  /**\n   * Enter a new frame, a new context is pushed on the current context list.\n   * @param frameId new frame id\n   */\n  enterFrame(frameId: string) {\n    if (this.contexts) {\n      this.lastId++;\n      this.contexts = this.contexts.slice();\n      this.contexts.push(this.newFrame(this.lastId, frameId));\n      this._currentContextIds.unshift(this.contextIdforContexts(this.contexts));\n    }\n  }\n\n  /**\n   * Exit the current frame, the last context is removed from the current\n   * context list.\n   */\n  exitFrame() {\n    if (this.contexts && this.contexts.length > 1) {\n      this.contexts = this.contexts.slice();\n      this.contexts.splice(-1);\n      this.currentContextIds.shift();\n    } else {\n      throw new Error('Cannot exit frame, the context is empty');\n    }\n  }\n\n  /**\n   * Enter the next iteration of a loop, the iteration id of last context is\n   * increased.\n   */\n  nextIteration() {\n    if (this.contexts && this.contexts.length > 0) {\n      this.contexts = this.contexts.slice();\n      this.lastId++;\n      const context =\n          Object.assign({}, this.contexts[this.contexts.length - 1]);\n      context.iterationId += 1;\n      context.id = this.lastId;\n      this.contexts.splice(-1, 1, context);\n      this._currentContextIds.splice(\n          0, 1, this.contextIdforContexts(this.contexts));\n    } else {\n      throw new
```

Error('Cannot increase frame iteration, the context is empty');\n }\n }\n\n getWeight(name: string): Tensor[] {\n return this.weightMap[name];\n }\n\n addTensorArray(tensorArray: TensorArray) {\n this.tensorArrayMap[tensorArray.id] = tensorArray;\n }\n\n getTensorArray(id:
 number): TensorArray {\n return this.tensorArrayMap[id];\n }\n\n addTensorList(tensorList: TensorList) {\n this.tensorListMap[tensorList.id] = tensorList;\n }\n\n getTensorList(id: number): TensorList {\n return this.tensorListMap[id];\n }\n\n dispose(keepIds: Set<number>) {\n for (const key in this.tensorArrayMap) {\n this.tensorArrayMap[key].clearAndClose(keepIds);\n }\n\n for (const key in this.tensorListMap) {\n this.tensorListMap[key].clearAndClose(keepIds);\n }\n }\n}\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES
 OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n
*/\n\nimport {NamedTensorMap} from '@tensorflow/tfjs-core';\n\nimport {NamedTensorsMap} from '../data/types';\nimport {parseNodeName} from '../operations/executors/utils';\nimport {Graph, Node} from '../operations/types';\n\nexport interface ExecutionInfo {\n inputs: NamedTensorMap;\n outputs: Node[];\n usedNodes: Set<string>;\n missingInputs: string[];\n dynamicNode: Node;\n syncInputs: string[];\n}\n\n/**\n * Given graph inputs and desired outputs, find the minimal set of nodes\n * to execute in order to compute the outputs. In addition return other useful\n * info such:\n * - Missing inputs needed to compute the output.\n * - Whether the subgraph contains dynamic ops (control flow, dynamic shape).\n * - Alternative inputs in order
 to avoid async (dynamic op) execution.\n */\nexport function getExecutionSubgraph(\n inputs: NamedTensorMap, outputs: Node[], weightMap: NamedTensorsMap,\n initNodes?: Node[]): ExecutionInfo {\n const usedNodes = new Set<string>();\n const missingInputs: string[] = [];\n let dynamicNode: Node = null;\n let syncInputs: string[] = null;\n\n // Start with the outputs, going backwards and find all the nodes that are\n // needed to compute those outputs.\n const seen = new Set<string>();\n const inputNodeNames =\n Object.keys(inputs).map(name => parseNodeName(name)[0]);\n\n let initNodeNames: string[] = [];\n if (initNodes != null) {\n initNodeNames = initNodes.map(node => parseNodeName(node.name)[0]);\n }\n\n const frontier = [...outputs];\n while (frontier.length > 0) {\n const node = frontier.pop();\n if (isControlFlow(node) || isDynamicShape(node) || isHashTable(node)) {\n   if (dynamicNode == null) {\n   dynamicNode = node;\n syncInputs
 = dynamicNode.children.map(child => child.name)\n   .filter(name => usedNodes.has(name));\n   }\n }\n usedNodes.add(node.name);\n\n // Weights are dead end since we already have their values.\n if (weightMap[node.name] != null) {\n   continue;\n }\n // This node is a dead end since it's one of the user-provided inputs.\n if (inputNodeNames.indexOf(node.name) !== -1) {\n   continue;\n }\n // This node is a dead end since it doesn't have any inputs.\n if (initNodeNames.indexOf(node.name) !== -1) {\n   continue;\n }\n if (node.inputs.length === 0) {\n   missingInputs.push(node.name);\n   continue;\n }\n node.inputs.forEach(input => {\n   // Don't add to the frontier if it is already there.\n   if (seen.has(input.name)) {\n   return;\n   }\n   seen.add(input.name);\n   frontier.push(input);\n });\n }\n return {inputs, outputs, usedNodes, missingInputs, dynamicNode, syncInputs};\n}\n\n/**\n
 * Given the execution info, return a list of nodes in topological order that\n * need to be executed to compute the output.\n */\nexport function getNodesInTopologicalOrder(\n graph: Graph, weightMap: NamedTensorsMap,\n executionInfo: ExecutionInfo): Node[] {\n const {usedNodes, inputs} = executionInfo;\n const frontier: Node[] = [];\n const inputNodes = Object.keys(inputs)\n   .map(name => parseNodeName(name)[0])\n   .map(name => graph.nodes[name]);\n const initNodes = graph.initNodes;\n\n inputNodes.forEach(input => {\n if (usedNodes.has(input.name)) {\n   frontier.push(input);\n }\n });\n graph.weights.forEach(weight => {\n if (usedNodes.has(weight.name)) {\n   frontier.push(weight);\n }\n });\n if (initNodes != null) {\n

initNodes.forEach(node => {\n if (usedNodes.has(node.name)) {\n frontier.push(node);\n }\n });\n }\n const seen = new Set<string>();\n const orderedNodes:
Node[] = [];\n while (frontier.length > 0) {\n const node = frontier.pop();\n seen.add(node.name);\n if (!weightMap[node.name]) {\n orderedNodes.push(node);\n }\n node.children.forEach(child => {\n if (!seen.has(child.name) && usedNodes.has(child.name) &&\n child.inputs.every(input => seen.has(input.name))) {\n frontier.push(child);\n }\n });\n }\n return orderedNodes;\n}\n\nconst CONTROL_FLOW_OPS = [\n 'Switch', 'Merge', 'Enter', 'Exit', 'NextIteration', 'StatelessIf',\n 'StatelessWhile', 'if', 'While'\n];\nconst DYNAMIC_SHAPE_OPS = [\n 'NonMaxSuppressionV2', 'NonMaxSuppressionV3', 'NonMaxSuppressionV5', 'Where'\n];\nconst HASH_TABLE_OPS = [\n 'HashTable', 'HashTableV2', 'LookupTableImport', 'LookupTableImportV2',\n 'LookupTableFind', 'LookupTableFindV2'\n];\n\nexport function isControlFlow(node: Node) {\n return CONTROL_FLOW_OPS.indexOf(node.op) >= 0;\n}\n\nexport function isDynamicShape(node: Node) {\n return DYNAMIC_SHAPE_OPS.indexOf(node.op) >= 0;\n}\n\nexport function isHashTable(node: Node) {\n return HASH_TABLE_OPS.indexOf(node.op) >= 0;\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n*/\n\nimport {DataType, NamedTensorMap, Tensor, tidy, util} from '@tensorflow/tfjs-core';\n\nimport {ISignatureDef} from '../data/compiled_api';\nimport {NamedTensorsMap, TensorArrayMap, TensorInfo, TensorListMap} from '../data/types';\nimport {getNodeNameAndIndex, getParamValue, getTensor, getTensorsForCurrentContenxt, parseNodeName} from '../operations/executors/utils';\nimport {executeOp} from '../operations/operation_executor';\nimport {Graph, Node} from '../operations/types';\n\nimport {ExecutionContext, ExecutionContextInfo} from './execution_context';\nimport {getExecutionSubgraph, getNodesInTopologicalOrder, isControlFlow} from './model_analysis';\nimport {ResourceManager} from './resource_manager';\nimport {FunctionExecutor} from './types';\n\ninterface NodeWithContexts {\n contexts: ExecutionContextInfo[];\n node: Node;\n}\n\nexport class GraphExecutor implements FunctionExecutor {\n private compiledMap: Map<string, Node[]> = new Map();\n private _weightMap: NamedTensorsMap = {};\n private _weightIds: number[];\n private _signature: ISignatureDef;\n private _inputs: Node[];\n private _outputs: Node[];\n private _initNodes:
Node[]; // Internal init nodes to start initialization.\n private SEPERATOR = ',';\n private _functions: {[key: string]: Graph} = {};\n private _functionExecutorMap: {[key: string]: FunctionExecutor} = {};\n private _resourceManager: ResourceManager;\n\n get weightIds(): number[] {\n return this.parent ? this.parent.weightIds : this._weightIds;\n }\n\n get functionExecutorMap(): {[key: string]: FunctionExecutor} {\n return this.parent ? this.parent.functionExecutorMap :\n this._functionExecutorMap;\n }\n\n get weightMap(): NamedTensorsMap {\n return this.parent ? this.parent.weightMap : this._weightMap;\n }\n\n set weightMap(weightMap: NamedTensorsMap) {\n const weightIds = Object.keys(weightMap).map(\n key => weightMap[key].map(tensor => tensor.id));\n this._weightIds = [].concat(...weightIds);\n this._weightMap = weightMap;\n }\n\n /**\n * Set `ResourceManager` shared by executors of a model.\n * @param resourceManager:
`ResourceManager` of the `GraphModel`.\n */\n set resourceManager(resourceManager: ResourceManager) {\n this._resourceManager = resourceManager;\n }\n\n get inputs(): TensorInfo[] {\n return this._inputs.map(node => {\n return {\n name: node.name,\n shape: node.attrParams['shape'] ?\n node.attrParams['shape'].value as number[] :\n undefined,\n dtype: node.attrParams['dtype'] ?\n node.attrParams['dtype'].value as DataType :\n undefined\n };\n });\n }\n\n get outputs(): TensorInfo[] {\n return this._outputs.map(node => {\n return {\n name: node.name,\n shape:

```
node.attrParams['shape'] ?\n            node.attrParams['shape'].value as number[] :\n            undefined,\n        dtype:
node.attrParams['dtype'] ?\n            node.attrParams['dtype'].value as DataType :\n            undefined\n      };\n    });\n
}\n\n  get inputNodes(): string[] {\n    return this._inputs.map(node
 => node.signatureKey || node.name);\n  }\n\n  get outputNodes(): string[] {\n    return this._outputs.map((node) =>
{\n      const name = node.signatureKey || node.name;\n      return node.defaultOutput ?
(`${name}:${node.defaultOutput}`) : name;\n    });\n  }\n\n  get functions(): {[key: string]: ISignatureDef} {\n
return Object.keys(this._functions).reduce((map, key) => {\n      map[key] = this._functions[key].signature;\n
return map;\n    }, {} as {[key: string]: ISignatureDef});\n  }\n\n  /**\n   *\n   * @param graph Graph the model or
function graph to be executed.\n   * @param parent When building function exector you need to set the parent\n   *
executor. Since the weights and function executor maps are set at parant\n   * level, that function executor can
access the function maps and weight maps\n   * through the parent.\n   */\n  constructor(private graph: Graph,
private parent?: GraphExecutor) {\n    this._outputs = graph.outputs;\n    this._inputs = graph.inputs;\n
    this._initNodes = graph.initNodes;\n    this._signature = graph.signature;\n    this._functions = graph.functions;\n
// create sub-graph executors\n    if (graph.functions != null) {\n      Object.keys(graph.functions).forEach(name =>
{\n        this._functionExecutorMap[name] =\n            new GraphExecutor(graph.functions[name], this);\n      });\n
}\n  }\n\n  private getCompilationKey(inputs: Node[], outputs: Node[]): string {\n    const sortedInputs =
inputs.map(node => node.name).sort();\n    const sortedOutputs = outputs.map(node => node.name).sort();\n
return sortedInputs.join(this.SEPERATOR) + '--' +\n        sortedOutputs.join(this.SEPERATOR);\n  }\n\n  /**\n   *
Compiles the inference graph and returns the minimal set of nodes that are\n   * required for execution, in the correct
execution order.\n   */\n  private compile(inputs: NamedTensorMap, outputs: Node[]): Node[] {\n    const
executionInfo =\n        getExecutionSubgraph(inputs, outputs, this.weightMap,
 this._initNodes);\n    const {missingInputs, dynamicNode, syncInputs} = executionInfo;\n    if (dynamicNode !=
null) {\n      throw new Error(\n          `This execution contains the node '${dynamicNode.name}', which has ` +\n
    `the dynamic op '${dynamicNode.op}'. Please use ` +\n          `model.executeAsync() instead. Alternatively, to
avoid the ` +\n          `dynamic ops, specify the inputs [${syncInputs}]`);\n    }\n\n    if (missingInputs.length > 0) {\n
    const outNames = outputs.map(n => n.name);\n      const inNames = Object.keys(inputs);\n      throw new Error(\n
        `Cannot compute the outputs [${outNames}] from the provided inputs ` +\n          `[${inNames}]. Missing the
following inputs: [${missingInputs}]`);\n    }\n\n    return getNodesInTopologicalOrder(\n        this.graph,
this.weightMap, executionInfo);\n  }\n\n  /**\n   * Executes the inference for given input tensors.\n   * @param
inputs Tensor map for the model inputs, keyed by the input
 node\n   * names.\n   * @param outputs Optional. output node name from the Tensorflow model, if\n   * no outputs
are specified, the default outputs of the model would be used.\n   * You can inspect intermediate nodes of the model
by adding them to the\n   * outputs array.\n   */\n  execute(inputs: NamedTensorMap, outputs?: string[]): Tensor[]
{\n    inputs = this.mapInputs(inputs);\n    const names = Object.keys(inputs).sort();\n    this.checkInputs(inputs);\n
this.checkInputShapeAndType(inputs);\n    outputs = this.mapOutputs(outputs);\n    this.checkOutputs(outputs);\n
const inputNodes =\n        names.map(name => this.graph.nodes[parseNodeName(name)[0]]);\n    const
outputNodeNames = outputs.map(name => parseNodeName(name)[0]);\n    let outputNodes =
outputNodeNames.map(name => this.graph.nodes[name]);\n\n    // If no outputs are specified, then use the default
outputs of the model.\n    if (outputNodes.length === 0) {\n      outputNodes = this._outputs;\n    }\n\n    const
compilationKey
 = this.getCompilationKey(inputNodes, outputNodes);\n\n    // Do nothing if the compiled graph cache contains the
input.\n    let orderedNodes = this.compiledMap.get(compilationKey);\n    if (orderedNodes == null) {\n
orderedNodes = this.compile(inputs, outputNodes);\n      this.compiledMap.set(compilationKey, orderedNodes);\n
}\n\n    const tensorArrayMap: TensorArrayMap = {};\n    const tensorListMap: TensorListMap = {};\n\n    return
tidy(() => {\n      const context = new ExecutionContext(\n          this.weightMap, tensorArrayMap, tensorListMap,\n
        this.functionExecutorMap);\n      const tensorsMap: NamedTensorsMap = {...this.weightMap};\n\n
Object.keys(inputs).forEach(name => {\n        const [nodeName, index] = parseNodeName(name);\n        const
tensors: Tensor[] = [];\n        tensors[index] = inputs[name];\n        tensorsMap[nodeName] = tensors;\n      });\n\n
```

```
const tensorsToKeep = this.getFrozenTensorIds(tensorsMap);\n      const intermediateTensorConsumerCount:
 {[key: number]: number} = {};\n      for (let i = 0; i < orderedNodes.length; i++) {\n        const node =
orderedNodes[i];\n        if (!tensorsMap[node.name]) {\n          const tensors =\n              executeOp(node,
tensorsMap, context, this._resourceManager) as\n              Tensor[];\n          if (util.isPromise(tensors)) {\n
throw new Error(\n              `The execution of the op '${node.op}' returned a promise. ` +\n              `Please use
model.executeAsync() instead.`);\n          }\n          tensorsMap[node.name] = tensors;\n
this.checkTensorForDisposal(\n              node.name, node, tensorsMap, context, tensorsToKeep,\n
outputNodeNames, intermediateTensorConsumerCount);\n        }\n      }\n      // dispose the context for the root
executor\n      if (this.parent == null) {\n        context.dispose(tensorsToKeep);\n      }\n      return outputs.map(name
=> getTensor(name, tensorsMap, context));\n    });\n
  }\n\n  private getFrozenTensorIds(tensorMap: NamedTensorsMap): Set<number> {\n    const ids =
[].concat.apply(\n        [],\n        Object.keys(tensorMap)\n            .map(key => tensorMap[key])\n
.map(tensors => tensors.map(tensor => tensor.id)));\n    return new Set(ids);\n  }\n  private
checkTensorForDisposal(\n      nodeName: string, node: Node, tensorMap: NamedTensorsMap,\n      context:
ExecutionContext, tensorsToKeep: Set<number>,\n      outputNames: string[],\n
intermediateTensorConsumerCount: {[key: string]: number}) {\n    // Skip output nodes and any control flow nodes,
since its dependency is\n    // tricky to track correctly.\n    if (node.category === 'control' ||
outputNames.indexOf(nodeName) !== -1) {\n      return;\n    }\n\n    tensorMap[nodeName].forEach(tensor => {\n
 if (tensor != null) {\n        intermediateTensorConsumerCount[tensor.id] =\n
(intermediateTensorConsumerCount[tensor.id] || 0) +\n            node.children.length;\n
    }\n    });\n    node.inputs.forEach(input => {\n      // Skip any control flow nodes, since its dependency is tricky
to track\n      // correctly.\n      if (input.category !== 'control') {\n        const tensors =\n
getTensorsForCurrentContenxt(input.name, tensorMap, context);\n        if (tensors != null) {\n
tensors.forEach(tensor => {\n            if (tensor && !tensorsToKeep.has(tensor.id)) {\n              const count =
intermediateTensorConsumerCount[tensor.id];\n              if (count === 1) {\n                tensor.dispose();\n
delete intermediateTensorConsumerCount[tensor.id];\n              } else if (count != null) {\n                // only
intermediate nodes has count set, inputs and weights are\n                // not.\n
intermediateTensorConsumerCount[tensor.id]--;\n              }\n            }\n          });\n        }\n      }\n    });\n  }\n\n
/**\n   * Executes the inference for given input tensors in
 Async fashion.\n   * @param inputs Tensor map for the model inputs, keyed by the input node\n   * names.\n   *
@param outputs output node name from the Tensorflow model, if no outputs\n   * are specified, the default outputs
of the model would be used. You can\n   * inspect intermediate nodes of the model by adding them to the outputs\n
* array.\n   */\n  async executeAsync(inputs: NamedTensorMap, outputs?: string[]):\n      Promise<Tensor[]> {\n
return this._executeAsync(inputs, outputs);\n  }\n\n  /**\n   * Executes the inference for given input tensors in
Async fashion.\n   * @param inputs Tensor map for the model inputs, keyed by the input node\n   * names.\n   *
@param outputs Optional. output node name from the Tensorflow model,\n   * if no outputs are specified, the
default outputs of the model would be\n   * used. You can inspect intermediate nodes of the model by adding them
to the\n   * outputs array.\n   * @param isFunctionExecution Optional. Flag for executing a function.\n
   * @param tensorArrayMap Optional, global TensorArray map by id. Used for\n   * function execution.\n   *
@param tensorArrayMap Optinal global TensorList map by id. Used for\n   * function execution.\n   */\n  private
async _executeAsync(\n      inputs: NamedTensorMap, outputs?: string[], isFunctionExecution = false,\n
tensorArrayMap: TensorArrayMap = {},\n      tensorListMap: TensorListMap = {}): Promise<Tensor[]> {\n    if
(!isFunctionExecution) {\n      inputs = this.mapInputs(inputs);\n      this.checkInputs(inputs);\n
this.checkInputShapeAndType(inputs);\n      outputs = this.mapOutputs(outputs);\n      this.checkOutputs(outputs);\n
  }\n\n    const context = new ExecutionContext(\n        this.weightMap, tensorArrayMap, tensorListMap,\n
this.functionExecutorMap);\n\n    // Graph with control flow op requires runtime evaluation of the execution\n    //
order, while without control flow the execution order is pre-determined\n    // in the compile method.\n
```

```
    const tensorMap = await this.executeWithControlFlow(\n        inputs, context, outputs, isFunctionExecution);\n
const results = outputs.map(name => getTensor(name, tensorMap, context));\n\n    // dispose all the intermediate
tensors\n    const outputIds = results.map(t => t.id);\n    const inputIds = Object.keys(inputs).map(name =>
inputs[name].id);\n    const keepIds =\n        new Set<number>([...outputIds, ...inputIds, ...this.weightIds]);\n
Object.keys(tensorMap).forEach(key => {\n      const tensorArray = tensorMap[key];\n
tensorArray.forEach(tensor => {\n        if (tensor && !tensor.isDisposed && !keepIds.has(tensor.id)) {\n
tensor.dispose();\n        }\n      });\n    });\n    // dispose the context for the root executor\n    if (this.parent == null)
{\n      context.dispose(keepIds);\n    }\n\n    return results;\n  }\n\n  async executeFunctionAsync(\n      inputs:
Tensor[], tensorArrayMap: TensorArrayMap,\n      tensorListMap: TensorListMap): Promise<Tensor[]>
 {\n    const mappedInputs = inputs.reduce((map, tensor, index) => {\n      map[this.inputs[index].name] = tensor;\n
  return map;\n    }, {} as NamedTensorMap);\n\n    return this._executeAsync(\n        mappedInputs,
this.outputNodes, true, tensorArrayMap, tensorListMap);\n  }\n  /**\n   * When there are control flow nodes in the
graph, the graph execution use\n   * ExecutionContext to keep track of the frames and loop iterators.\n   * @param
inputs placeholder tensors for the graph.\n   * @param context the execution context object for current execution.\n
* @param outputNames Optional. output node name from the Tensorflow model,\n   * if no outputs are specified,
the default outputs of the model would be\n   * used. You can inspect intermediate nodes of the model by adding
them to the\n   * outputs array.\n   * @param isFunctionExecution Flag for executing a function.\n   */\n  private
async executeWithControlFlow(\n      inputs: NamedTensorMap, context: ExecutionContext,
 outputNames?: string[],\n      isFunctionExecution?: boolean): Promise<NamedTensorsMap> {\n    const names =
Object.keys(inputs);\n    const inputNodes =\n        names.map(name =>
this.graph.nodes[parseNodeName(name)[0]]);\n    const outputNodeNames = outputNames.map(name =>
parseNodeName(name)[0]);\n    let outputNodes = outputNodeNames.map(name => this.graph.nodes[name]);\n\n
// If no outputs are specified, then use the default outputs of the model.\n    if (outputNodes.length === 0) {\n
outputNodes = this._outputs;\n    }\n\n    const {usedNodes, missingInputs, dynamicNode, syncInputs} =\n
getExecutionSubgraph(\n            inputs, outputNodes, this.weightMap, this._initNodes);\n\n    // First nodes to
execute include inputNodes, weights, and initNodes.\n    const stack: NodeWithContexts[] = [\n      ...inputNodes,
...this.graph.weights, ...(this._initNodes || [])\n    ].map(node => {\n      return {node, contexts:
context.currentContext};\n    });\n    const tensorsMap:
 NamedTensorsMap = {...this.weightMap};\n    Object.keys(inputs).forEach(name => {\n      const [nodeName,
index] = parseNodeName(name);\n      const tensors: Tensor[] = [];\n      tensors[index] = inputs[name];\n
tensorsMap[nodeName] = tensors;\n    });\n    const intermediateTensorConsumerCount: {[key: number]: number} =
{};\n    const tensorsToKeep = this.getFrozenTensorIds(tensorsMap);\n    const added: {[key: string]: boolean} =
{};\n    while (stack.length > 0) {\n      const promises = this.processStack(\n          inputNodes, stack, context,
tensorsMap, added, tensorsToKeep,\n          outputNodeNames, intermediateTensorConsumerCount, usedNodes);\n
  await Promise.all(promises);\n    }\n    if (dynamicNode == null && !isFunctionExecution) {\n      console.warn(\n
      `This model execution did not contain any nodes with control flow ` +\n          `or dynamic output shapes. You
can use model.execute() instead.`);\n    }\n    const missingOutputs =\n        outputNodes\n
          .filter(\n              node => !isControlFlow(node) &&\n                  !getTensor(node.name, tensorsMap,
context))\n          .map(node => node.name);\n    if (missingOutputs.length > 0) {\n      let alternativeMsg = '';\n
if (dynamicNode != null) {\n        alternativeMsg =\n            `Alternatively, to avoid the dynamic ops, use
model.execute() ` +\n            `and specify the inputs [${syncInputs}]`;\n      }\n      throw new Error(\n
`Cannot compute the outputs [${missingOutputs}] from the provided ` +\n          `inputs [${names}]. Consider providing the
following inputs: ` +\n          `[${missingInputs}]. ${alternativeMsg}`);\n    }\n    return tensorsMap;\n  }\n\n  private
processStack(\n      inputNodes: Node[], stack: NodeWithContexts[], context: ExecutionContext,\n      tensorMap:
NamedTensorsMap, added: {[key: string]: boolean},\n      tensorsToKeep: Set<number>, outputNames: string[],\n
intermediateTensorConsumerCount:
 {[key: number]: number},\n      usedNodes: Set<string>) {\n    const promises: Array<Promise<Tensor[]>> = [];\n
while (stack.length > 0) {\n      const item = stack.pop();\n      context.currentContext = item.contexts;\n      let
```

```
nodeName = '';\n      // The tensor of the Enter op with isConstant set should be set\n      // in the parent scope, so it will be available as constant for the\n      // whole loop.\n      if (item.node.op === 'Enter' &&\n getParamValue('isConstant', item.node, tensorMap, context)) {\n        [nodeName] = getNodeNameAndIndex(item.node.name, context);\n      }\n\n      // only process nodes that are not in the tensorMap yet, this include\n      // inputNodes and internal initNodes.\n      if (tensorMap[item.node.name] == null) {\n const tensors =\n            executeOp(item.node, tensorMap, context, this._resourceManager);\n        if (!nodeName) {\n          [nodeName] = getNodeNameAndIndex(item.node.name, context);\n        }\n        const currentContext = context.currentContext;\n        if (util.isPromise(tensors)) {\n          promises.push((tensors as Promise<Tensor[]>).then(t => {\n            tensorMap[nodeName] = t;\n            context.currentContext = currentContext;\n            this.checkTensorForDisposal(\n                nodeName, item.node, tensorMap, context, tensorsToKeep,\n                outputNames, intermediateTensorConsumerCount);\n            this.processChildNodes(\n                item.node, stack, context, tensorMap, added, usedNodes);\n            return t;\n          }));\n        } else {\n tensorMap[nodeName] = tensors as Tensor[];\n          this.checkTensorForDisposal(\n              nodeName, item.node, tensorMap, context, tensorsToKeep,\n              outputNames, intermediateTensorConsumerCount);\n          this.processChildNodes(\n              item.node, stack, context, tensorMap, added, usedNodes);\n        }\n      } else {\n        this.processChildNodes(\n            item.node,\n stack, context, tensorMap, added, usedNodes);\n      }\n    }\n    return promises;\n  }\n\n  private processChildNodes(\n      node: Node, stack: NodeWithContexts[], context: ExecutionContext,\n      tensorMap: NamedTensorsMap, added: {[key: string]: boolean},\n      usedNodes: Set<string>) {\n node.children.forEach((childNode) => {\n      const [nodeName, ] = getNodeNameAndIndex(childNode.name, context);\n      if (added[nodeName] || !usedNodes.has(childNode.name)) {\n        return;\n      }\n      // Merge op can be pushed if any of its inputs has value.\n      if (childNode.op === 'Merge') {\n        if (childNode.inputNames.some(name => {\n              return !!getTensor(name, tensorMap, context);\n            })) {\n          added[nodeName] = true;\n          stack.push({contexts: context.currentContext, node: childNode});\n        }\n      } else  // Otherwise all inputs must to have value.\n          if (childNode.inputNames.every(name => {\n return\n !!getTensor(name, tensorMap, context);\n            })) {\n        added[nodeName] = true;\n stack.push({contexts: context.currentContext, node: childNode});\n      }\n    });\n  }\n\n  /**\n   * Releases the memory used by the weight tensors.\n   */\n  dispose() {\n    Object.keys(this.weightMap)\n        .forEach(\n key => this.weightMap[key].forEach(tensor => tensor.dispose()));\n  }\n\n  private checkInputShapeAndType(inputs: NamedTensorMap) {\n    Object.keys(inputs).forEach(name => {\n      const input = inputs[name];\n      const [nodeName, ] = parseNodeName(name);\n      const node = this.graph.nodes[nodeName];\n      if (node.attrParams['shape'] && node.attrParams['shape'].value) {\n        const shape = node.attrParams['shape'].value as number[];\n        const match = shape.length === input.shape.length &&\n            input.shape.every(\n                (dim, index) => shape[index] === -1 || shape[index] === dim);\n util.assert(\n            match,\n            () => `The shape of dict['${node.name}'] provided in ` +\n                `model.execute(dict) must be [${shape}], but was ` +\n                `[${input.shape}]`);\n      }\n      if (node.attrParams['dtype'] && node.attrParams['dtype'].value) {\n        util.assert(\n            input.dtype === node.attrParams['dtype'].value as string,\n            () => `The dtype of dict['${node.name}'] provided in ` +\n                `model.execute(dict) must be ` +\n                `${node.attrParams['dtype'].value}, but was ${input.dtype}`);\n      }\n    });\n  }\n\n  private mapInputs(inputs: NamedTensorMap) {\n    const result: NamedTensorMap = {};\n    for (const inputName in inputs) {\n      if (this._signature != null && this._signature.inputs != null &&\n this._signature.inputs[inputName] != null) {\n        const tensor = this._signature.inputs[inputName];\n result[tensor.name] = inputs[inputName];\n      } else {\n        result[inputName] = inputs[inputName];\n      }\n    }\n    return result;\n  }\n\n  private checkInputs(inputs: NamedTensorMap) {\n    const notInGraph = Object.keys(inputs).filter(name => {\n      const [nodeName] = parseNodeName(name);\n      return this.graph.nodes[nodeName] == null;\n    });\n    if (notInGraph.length > 0) {\n      throw new Error(\n          `The
```

dict provided in model.execute(dict) has ` +\n `keys: [${notInGraph}] that are not part of graph`);\n }\n }\n\n private mapOutputs(outputs: string[]) {\n return outputs.map(name => {\n if (this._signature != null && this._signature.outputs != null &&\n this._signature.outputs[name] != null) {\n const tensor = this._signature.outputs[name];\n return tensor.name;\n }\n return name;\n }, {});\n }\n\n private checkOutputs(outputs: string[]): void {\n outputs.forEach(name => {\n const [normalizedName] = parseNodeName(name);\n if (!this.graph.nodes[normalizedName]) {\n throw new Error(`The output '${name}' is not found in the graph`);\n }\n });\n }\n}\n","/**\n * @license\n * Copyright 2020 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport {HashTableMap, NamedTensorMap} from '../data/types';\nimport {HashTable} from './hash_table';\n\n/**\n * Contains global resources of a model.\n */\nexport class ResourceManager {\n constructor(\n readonly hashTableNameToHandle: NamedTensorMap = {},\n readonly hashTableMap: HashTableMap = {}) {}\n\n /**\n * Register a `HashTable` in the resource manager.\n *\n * The `HashTable` can be retrieved by `resourceManager.getHashTableById`,\n * where id is the table handle tensor's id.\n *\n * @param name Op node name that creates the `HashTable`.\n * @param hashTable The `HashTable` to be added to resource manager.\n */\n addHashTable(name: string, hashTable: HashTable) {\n this.hashTableNameToHandle[name] = hashTable.handle;\n this.hashTableMap[hashTable.id] = hashTable;\n }\n\n /**\n * Get the table handle by node name.\n * @param name Op node name that creates the `HashTable`. This name is also\n * used in the inputs list of lookup and import `HashTable` ops.\n */\n getHashTableHandleByName(name: string) {\n return this.hashTableNameToHandle[name];\n }\n\n /**\n * Get the actual `HashTable` by its handle tensor's id.\n * @param id The id of the handle tensor.\n */\n getHashTableById(id: number): HashTable {\n return this.hashTableMap[id];\n }\n\n /**\n * Dispose `ResourceManager`, including its hashTables and tensors in them.\n */\n dispose() {\n for (const key in this.hashTableMap) {\n this.hashTableMap[key].clearAndClose();\n delete this.hashTableMap[key];\n }\n\n for (const name in this.hashTableNameToHandle) {\n this.hashTableNameToHandle[name].dispose();\n delete this.hashTableNameToHandle[name];\n }\n}\n","/**\n * @license\n * Copyright 2018 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\n\nimport {InferenceModel, io, ModelPredictConfig, NamedTensorMap, Tensor} from '@tensorflow/tfjs-core';\n\nimport * as tensorflow from '../data/compiled_api';\nimport {NamedTensorsMap, TensorInfo} from '../data/types';\nimport {OperationMapper} from '../operations/operation_mapper';\n\nimport {GraphExecutor} from './graph_executor';\nimport {ResourceManager} from './resource_manager';\n\nexport const TFHUB_SEARCH_PARAM = '?tfjs-format=file';\nexport const DEFAULT_MODEL_NAME = 'model.json';\n/**\n * A `tf.GraphModel` is a directed, acyclic graph built from a\n * SavedModel GraphDef and allows inference execution.\n *\n * A `tf.GraphModel` can only be created by loading from a model converted from\n * a [TensorFlow

SavedModel](https://www.tensorflow.org/guide/saved_model) using\n * the command line converter tool and loaded via `tf.loadGraphModel`.\n *\n * @doc {heading: 'Models', subheading: 'Classes'}\n */\nexport class GraphModel implements InferenceModel {\n private executor: GraphExecutor;\n private version = 'n/a';\n private handler: io.IOHandler;\n private artifacts: io.ModelArtifacts;\n private initializer: GraphExecutor;\n private resourceManager: ResourceManager;\n private signature: tensorflow.ISignatureDef;\n\n // Returns the version information for the tensorflow model GraphDef.\n get modelVersion(): string {\n return this.version;\n }\n\n get inputNodes(): string[] {\n return this.executor.inputNodes;\n }\n\n get outputNodes(): string[] {\n return this.executor.outputNodes;\n }\n\n get inputs(): TensorInfo[] {\n return this.executor.inputs;\n }\n\n get outputs(): TensorInfo[] {\n return this.executor.outputs;\n }\n\n get weights(): NamedTensorsMap {\n return this.executor.weightMap;\n }\n\n get metadata(): {} {\n return this.artifacts.userDefinedMetadata;\n }\n\n get modelSignature(): {} {\n return this.signature;\n }\n\n /**\n * @param modelUrl url for the model, or an `io.IOHandler`.\n * @param weightManifestUrl url for the weight file generated by\n * scripts/convert.py script.\n * @param requestOption options for Request, which allows to send credentials\n * and custom headers.\n * @param onProgress Optional, progress callback function, fired periodically\n * before the load is completed.\n */\n constructor(\n private modelUrl: string|io.IOHandler,\n private loadOptions: io.LoadOptions = {}) {\n if (loadOptions == null) {\n this.loadOptions = {};\n }\n this.resourceManager = new ResourceManager();\n }\n\n private findIOHandler() {\n const path = this.modelUrl;\n if ((path as io.IOHandler).load != null) {\n // Path is an IO Handler.\n this.handler = path as io.IOHandler;\n } else if (this.loadOptions.requestInit != null) {\n this.handler = io.browserHTTPRequest(path as string, this.loadOptions);\n } else {\n const handlers = io.getLoadHandlers(path as string, this.loadOptions);\n if (handlers.length === 0) {\n // For backward compatibility: if no load handler can be found,\n // assume it is a relative http path.\n handlers.push(io.browserHTTPRequest(path as string, this.loadOptions));\n } else if (handlers.length > 1) {\n throw new Error(\n `Found more than one (${handlers.length}) load handlers for ` +\n `URL '${[path]}'`);\n }\n this.handler = handlers[0];\n }\n }\n\n /**\n * Loads the model and weight files, construct the in memory weight map and\n * compile the inference graph.\n */\n async load(): Promise<boolean> {\n this.findIOHandler();\n if (this.handler.load == null) {\n throw new Error(\n 'Cannot proceed with model loading because the IOHandler provided ' +\n 'does not have the `load` method implemented.');\n }\n const artifacts = await this.handler.load();\n\n return this.loadSync(artifacts);\n }\n\n /**\n * Synchronously construct the in memory weight map and\n * compile the inference graph. Also initialize hashtable if any.\n *\n * @doc {heading: 'Models', subheading: 'Classes', ignoreCI: true}\n */\n loadSync(artifacts: io.ModelArtifacts) {\n this.artifacts = artifacts;\n const graph = this.artifacts.modelTopology as tensorflow.IGraphDef;\n\n let signature;\n if (this.artifacts.userDefinedMetadata != null &&\n this.artifacts.userDefinedMetadata.signature != null) {\n signature = // tslint:disable-next-line:no-any\n (this.artifacts.userDefinedMetadata as any).signature as\n tensorflow.ISignatureDef;\n } else {\n signature = this.artifacts.signature;\n }\n this.signature = signature;\n\n this.version = `${graph.versions.producer}.${graph.versions.minConsumer}`;\n const weightMap = \n io.decodeWeights(this.artifacts.weightData, this.artifacts.weightSpecs);\n this.executor = new GraphExecutor(\n OperationMapper.Instance.transformGraph(graph, this.signature));\n this.executor.weightMap = this.convertTensorMapToTensorsMap(weightMap);\n // Attach a model-level resourceManager to each executor to share resources,\n // such as `HashTable`.\n this.executor.resourceManager = this.resourceManager;\n\n if (artifacts.modelInitializer != null &&\n (artifacts.modelInitializer as tensorflow.IGraphDef).node != null) {\n const initializer = \n OperationMapper.Instance.transformGraph(artifacts.modelInitializer);\n this.initializer = new GraphExecutor(initializer);\n this.initializer.weightMap = this.executor.weightMap;\n // Attach a model-level resourceManager to the initializer, the\n // hashTables created from when executing the initializer will be stored\n // in the resourceManager.\n this.initializer.resourceManager = this.resourceManager;\n this.initializer.executeAsync({}, []);\n }\n\n return true;\n }\n\n /**\n * Save the configuration and/or weights of the GraphModel.\n *\n * An `IOHandler` is an object that has a `save` method of

```
the proper\n   * signature defined. The `save` method manages the storing or\n   * transmission of serialized data (\"artifacts\") that represent the\n   * model's topology and weights onto or via a specific medium, such as\n   * file downloads, local storage, IndexedDB in the web browser and HTTP\n   * requests to a server. TensorFlow.js provides `IOHandler`\n   * implementations for a number of frequently used saving mediums, such as\n   * `tf.io.browserDownloads` and `tf.io.browserLocalStorage`. See `tf.io`\n   * for more details.\n   *\n   * This method also allows you to refer to certain types of `IOHandler`s\n   * as URL-like
 string shortcuts, such as 'localstorage://' and\n   * 'indexeddb://'.\n   *\n   * Example 1: Save `model`'s topology and weights to browser [local\n   * storage](https://developer.mozilla.org/en-US/docs/Web/API/Window/localStorage);\n   * then load it back.\n   *\n   * ```js\n   * const modelUrl =\n   * 'https://storage.googleapis.com/tfjs-models/savedmodel/mobilenet_v2_1.0_224/model.json';\n   * const model = await tf.loadGraphModel(modelUrl);\n   * const zeros = tf.zeros([1, 224, 224, 3]);\n   * model.predict(zeros).print();\n   *\n   * const saveResults = await model.save('localstorage://my-model-1');\n   *\n   * const loadedModel = await tf.loadGraphModel('localstorage://my-model-1');\n   * console.log('Prediction from loaded model:');\n   * model.predict(zeros).print();\n   * ```\n   *\n   * @param handlerOrURL An instance of `IOHandler` or a URL-like,\n   * scheme-based string shortcut for `IOHandler`.\n   * @param config Options for saving the model.\n   * @returns A `Promise`
 of `SaveResult`, which summarizes the result of\n   * the saving, such as byte sizes of the saved artifacts for the model's\n   *   topology and weight values.\n   *\n   * @doc {heading: 'Models', subheading: 'Classes', ignoreCI: true}\n   */\n  async save(handlerOrURL: io.IOHandler|string, config?: io.SaveConfig):\n Promise<io.SaveResult> {\n    if (typeof handlerOrURL === 'string') {\n      const handlers =
 io.getSaveHandlers(handlerOrURL);\n      if (handlers.length === 0) {\n        throw new Error(\n            `Cannot find any save handlers for URL '${handlerOrURL}'`);\n      } else if (handlers.length > 1) {\n        throw new Error(\n    `Found more than one (${handlers.length}) save handlers for ` +\n            `URL '${handlerOrURL}'`);\n      }\n      handlerOrURL = handlers[0];\n    }\n    if (handlerOrURL.save == null) {\n      throw new Error(\n 'GraphModel.save() cannot proceed because the IOHandler ' +\n          'provided does not have the `save`
 attribute defined.');\n    }\n\n    return handlerOrURL.save(this.artifacts);\n  }\n\n  /**\n   * Execute the inference for the input tensors.\n   *\n   * @param input The input tensors, when there is single input for the model,\n   * inputs param should be a `tf.Tensor`. For models with mutliple inputs,\n   * inputs params should be in either `tf.Tensor`[] if the input order is\n   * fixed, or otherwise NamedTensorMap format.\n   *\n   * For model with multiple inputs, we recommend you use NamedTensorMap as the\n   * input type, if you use `tf.Tensor`[], the order of the array needs to\n   * follow the\n   * order of inputNodes array. @see {@link GraphModel.inputNodes}\n   *\n   * You can also feed any intermediate nodes using the NamedTensorMap as the\n   * input type. For example, given the graph\n   *    InputNode => Intermediate => OutputNode,\n   * you can execute the subgraph Intermediate => OutputNode by calling\n   *    model.execute('IntermediateNode' : tf.tensor(...));\n
  *\n   * This is useful for models that uses tf.dynamic_rnn, where the intermediate\n   * state needs to be fed manually.\n   *\n   * For batch inference execution, the tensors for each input need to be\n   * concatenated together. For example with mobilenet, the required input shape\n   * is [1, 244, 244, 3], which represents the [batch, height, width, channel].\n   * If we are provide a batched data of 100 images, the input tensor should be\n   * in the shape of [100, 244, 244, 3].\n   *\n   * @param config Prediction configuration for specifying the batch size and\n   * output node names. Currently the batch size option is ignored for graph\n   * model.\n   *\n   * @returns Inference result tensors. The output would be single `tf.Tensor`\n   * if model has single output node, otherwise Tensor[] or NamedTensorMap[]\n   * will be returned for model with multiple outputs.\n   *\n   * @doc {heading: 'Models', subheading: 'Classes'}\n   */\n  predict(inputs: Tensor|Tensor[]|NamedTensorMap,
 config?: ModelPredictConfig):\n      Tensor|Tensor[]|NamedTensorMap {\n    return this.execute(inputs, this.outputNodes);\n  }\n\n  private normalizeInputs(inputs: Tensor|Tensor[]|\n                          NamedTensorMap): NamedTensorMap {\n    if (!(inputs instanceof Tensor) && !Array.isArray(inputs)) {\n      // The input is already a NamedTensorMap.\n      return inputs;\n    }\n    inputs = Array.isArray(inputs) ? inputs : [inputs];\n    if (inputs.length !== this.inputNodes.length) {\n      throw new Error(\n          'Input tensor count mismatch,' +\n
```

`the graph model has ${this.inputNodes.length} placeholders, ` +\n `while there are ${inputs.length} input tensors.`);\n }\n return this.inputNodes.reduce((map, inputName, i) => {\n map[inputName] = (inputs as Tensor[])[i];\n return map;\n }, {} as NamedTensorMap);\n }\n\n private normalizeOutputs(outputs: string|string[]): string[] {\n outputs = outputs || this.outputNodes;\n return !Array.isArray(outputs) ? [outputs] : outputs;\n }\n\n /**\n * Executes inference for the model for given input tensors.\n * @param inputs tensor, tensor array or tensor map of the inputs for the\n * model, keyed by the input node names.\n * @param outputs output node name from the Tensorflow model, if no\n * outputs are specified, the default outputs of the model would be used.\n * You can inspect intermediate nodes of the model by adding them to the\n * outputs array.\n *\n * @returns A single tensor if provided with a single output or no outputs\n * are provided and there is only one default output, otherwise return a\n * tensor array. The order of the tensor array is the same as the outputs\n * if provided, otherwise the order of outputNodes attribute of the model.\n *\n * @doc {heading: 'Models', subheading: 'Classes'}\n */\n execute(inputs: Tensor|Tensor[]|NamedTensorMap, outputs?: string|string[]):\n Tensor|Tensor[] {\n inputs = this.normalizeInputs(inputs);\n outputs = this.normalizeOutputs(outputs);\n const result = this.executor.execute(inputs, outputs);\n return result.length > 1 ? result : result[0];\n }\n /**\n * Executes inference for the model for given input tensors in async\n * fashion, use this method when your model contains control flow ops.\n * @param inputs tensor, tensor array or tensor map of the inputs for the\n * model, keyed by the input node names.\n * @param outputs output node name from the Tensorflow model, if no outputs\n * are specified, the default outputs of the model would be used. You can\n * inspect intermediate nodes of the model by adding them to the outputs\n * array.\n *\n * @returns A Promise of single tensor if provided with a single output or\n * no outputs are provided and there is only one default output, otherwise\n * return a tensor map.\n *\n * @doc {heading: 'Models', subheading: 'Classes'}\n */\n async executeAsync(\n inputs:\n Tensor|Tensor[]|NamedTensorMap,\n outputs?: string|string[]): Promise<Tensor|Tensor[]> {\n inputs = this.normalizeInputs(inputs);\n outputs = this.normalizeOutputs(outputs);\n const result = await this.executor.executeAsync(inputs, outputs);\n return result.length > 1 ? result : result[0];\n }\n\n private convertTensorMapToTensorsMap(map: NamedTensorMap): NamedTensorsMap {\n return Object.keys(map).reduce((newMap: NamedTensorsMap, key) => {\n newMap[key] = [map[key]];\n return newMap;\n }, {});\n }\n\n /**\n * Releases the memory used by the weight tensors and resourceManager.\n *\n * @doc {heading: 'Models', subheading: 'Classes'}\n */\n dispose() {\n this.executor.dispose();\n\n if (this.initializer) {\n this.initializer.dispose();\n }\n\n this.resourceManager.dispose();\n }\n}\n\n/**\n * Load a graph model given a URL to the model definition.\n *\n * Example of loading MobileNetV2 from a URL and making a prediction with a\n * zeros input:\n *\n * ```js\n * const modelUrl =\n * 'https://storage.googleapis.com/tfjs-models/savedmodel/mobilenet_v2_1.0_224/model.json';\n * const model = await tf.loadGraphModel(modelUrl);\n * const zeros = tf.zeros([1, 224, 224, 3]);\n * model.predict(zeros).print();\n * ```\n *\n * Example of loading MobileNetV2 from a TF Hub URL and making a prediction with\n * a zeros input:\n *\n * ```js\n * const modelUrl =\n * 'https://tfhub.dev/google/imagenet/mobilenet_v2_140_224/classification/2';\n * const model = await tf.loadGraphModel(modelUrl, {fromTFHub: true});\n * const zeros = tf.zeros([1, 224, 224, 3]);\n * model.predict(zeros).print();\n * ```\n * @param modelUrl The url or an `io.IOHandler` that loads the model.\n * @param options Options for the HTTP request, which allows to send credentials\n * and custom headers.\n *\n * @doc {heading: 'Models', subheading: 'Loading'}\n */\nexport async function loadGraphModel(\n modelUrl: string|io.IOHandler,\n options: io.LoadOptions = {}): Promise<GraphModel> {\n if (modelUrl == null) {\n throw new Error(\n 'modelUrl in loadGraphModel() cannot be null. Please provide a url ' +\n 'or an IOHandler that loads the model');\n }\n if (options == null) {\n options = {};\n }\n\n if (options.fromTFHub) {\n if ((modelUrl as io.IOHandler).load == null) {\n if (!(modelUrl as string).endsWith('/')) {\n modelUrl = (modelUrl as string) + '/';\n }\n modelUrl = `${modelUrl}${DEFAULT_MODEL_NAME}${TFHUB_SEARCH_PARAM}`;\n }\n }\n const model = new GraphModel(modelUrl, options);\n await model.load();\n return

model;\n}\n",null,null,null,null,null,null,null,null,null,null,null,null,null,null,null,null,null,null,"/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Color from './color/Color';\nimport math from './color/math';\nimport interpret from './color/interpret';\n\nimport Controller from './controllers/Controller';\nimport BooleanController from './controllers/BooleanController';\nimport OptionController from './controllers/OptionController';\nimport StringController from './controllers/StringController';\nimport NumberController from './controllers/NumberController';\nimport NumberControllerBox from './controllers/NumberControllerBox';\nimport NumberControllerSlider from './controllers/NumberControllerSlider';\nimport FunctionController from './controllers/FunctionController';\nimport ColorController from './controllers/ColorController';\n\nimport domImport from './dom/dom';\nimport GUIImport from './gui/GUI';\n\nexport const color = {\n Color: Color,\n math: math,\n interpret: interpret\n};\n\nexport const controllers = {\n Controller: Controller,\n BooleanController: BooleanController,\n OptionController: OptionController,\n StringController: StringController,\n NumberController: NumberController,\n NumberControllerBox: NumberControllerBox,\n NumberControllerSlider: NumberControllerSlider,\n FunctionController: FunctionController,\n ColorController: ColorController\n};\n\nexport const dom = { dom: domImport };\n\nexport const gui = { GUI: GUIImport };\n\nexport const GUI = GUIImport;\n\nexport default {\n color,\n controllers,\n dom,\n gui,\n GUI\n};\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nexport default function(color,
forceCSSHex) {\n const colorFormat = color.__state.conversionName.toString();\n\n const r = Math.round(color.r);\n const g = Math.round(color.g);\n const b = Math.round(color.b);\n const a = color.a;\n const h = Math.round(color.h);\n const s = color.s.toFixed(1);\n const v = color.v.toFixed(1);\n\n if (forceCSSHex || (colorFormat === 'THREE_CHAR_HEX') || (colorFormat === 'SIX_CHAR_HEX')) {\n let str = color.hex.toString(16);\n while (str.length < 6) {\n str = '0' + str;\n }\n return '#' + str;\n } else if (colorFormat === 'CSS_RGB') {\n return 'rgb(' + r + ',' + g + ',' + b + ')';\n } else if (colorFormat === 'CSS_RGBA') {\n return 'rgba(' + r + ',' + g + ',' + b + ',' + a + ')';\n } else if (colorFormat === 'HEX') {\n return '0x' + color.hex.toString(16);\n } else if (colorFormat === 'RGB_ARRAY') {\n return '[' + r + ',' + g + ',' + b + ']';\n } else if (colorFormat === 'RGBA_ARRAY') {\n return '[' + r + ',' + g + ',' + b + ',' + a + ']';\n } else if (colorFormat === 'RGB_OBJ') {\n return '{r:' + r + ',g:' + g + ',b:' + b + '}';\n } else if (colorFormat === 'RGBA_OBJ') {\n return '{r:' + r + ',g:' + g + ',b:' + b + ',a:' + a + '}';\n } else if (colorFormat === 'HSV_OBJ') {\n return '{h:' + h + ',s:' + s + ',v:' + v + '}';\n } else if (colorFormat === 'HSVA_OBJ') {\n return '{h:' + h + ',s:' + s + ',v:' + v + ',a:' + a + '}';\n }\n\n return 'unknown format';\n}\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n */\n\nconst ARR_EACH = Array.prototype.forEach;\nconst ARR_SLICE = Array.prototype.slice;\n\n/**\n * Band-aid methods for things that should be a lot easier in
JavaScript.\n * Implementation and structure inspired by underscore.js\n *
http://documentcloud.github.com/underscore/\n */\n\nconst Common = {\n BREAK: {},\n\n extend: function(target) {\n this.each(ARR_SLICE.call(arguments, 1), function(obj) {\n const keys = this.isObject(obj) ? Object.keys(obj) : [];\n keys.forEach(function(key) {\n if (!this.isUndefined(obj[key])) {\n target[key] = obj[key];\n }\n }.bind(this));\n }, this);\n\n return target;\n },\n\n defaults: function(target) {\n this.each(ARR_SLICE.call(arguments, 1), function(obj) {\n const keys = this.isObject(obj) ?

```
Object.keys(obj) : [];\n    keys.forEach(function(key) {\n      if (this.isUndefined(target[key])) {\n        target[key] = obj[key];\n      }\n    }.bind(this));\n  }, this);\n\n  return target;\n },\n\n compose: function() {\n  const toCall = ARR_SLICE.call(arguments);\n  return function() {\n    let args = ARR_SLICE.call(arguments);\n    for (let i = toCall.length - 1; i >= 0; i--) {\n      args = [toCall[i].apply(this, args)];\n    }\n    return args[0];\n  };\n },\n\n each: function(obj, itr, scope) {\n  if (!obj) {\n    return;\n  }\n\n  if (ARR_EACH && obj.forEach && obj.forEach === ARR_EACH) {\n    obj.forEach(itr, scope);\n  } else if (obj.length === obj.length + 0) { // Is number but not NaN\n    let key;\n    let l;\n    for (key = 0, l = obj.length; key < l; key++) {\n      if (key in obj && itr.call(scope, obj[key], key) === this.BREAK) {\n        return;\n      }\n    }\n  } else {\n    for (const key in obj) {\n      if (itr.call(scope, obj[key], key) === this.BREAK) {\n        return;\n      }\n    }\n  }\n },\n\n defer: function(fnc) {\n  setTimeout(fnc, 0);\n },\n\n // if the function is called repeatedly, wait until threshold passes until we execute the function\n debounce: function(func, threshold, callImmediately) {\n  let timeout;\n\n  return function() {\n    const obj = this;\n    const args = arguments;\n    function delayed() {\n      timeout = null;\n      if (!callImmediately) func.apply(obj, args);\n    }\n\n    const callNow = callImmediately || !timeout;\n\n    clearTimeout(timeout);\n    timeout = setTimeout(delayed, threshold);\n\n    if (callNow) {\n      func.apply(obj, args);\n    }\n  };\n },\n\n toArray: function(obj) {\n  if (obj.toArray) return obj.toArray();\n  return ARR_SLICE.call(obj);\n },\n\n isUndefined: function(obj) {\n  return obj === undefined;\n },\n\n isNull: function(obj) {\n  return obj === null;\n },\n\n isNaN: function(obj) {\n  return isNaN(obj);\n },\n\n isArray: Array.isArray || function(obj) {\n  return obj.constructor === Array;\n },\n\n isObject: function(obj) {\n  return obj === Object(obj);\n },\n\n isNumber: function(obj) {\n  return obj === obj + 0;\n },\n\n isString: function(obj) {\n  return obj === obj + '';\n\n },\n\n isBoolean: function(obj) {\n  return obj === false || obj === true;\n },\n\n isFunction: function(obj) {\n  return Object.prototype.toString.call(obj) === '[object Function]';\n }\n\n};\n\nexport default Common;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport toString from './toString';\nimport common from '../utils/common';\n\nconst INTERPRETATIONS = [\n // Strings\n {\n  litmus: common.isString,\n  conversions: {\n   THREE_CHAR_HEX: {\n    read: function(original) {\n     const test = original.match(/^#([A-F0-9])([A-F0-9])([A-F0-9])$/i);\n     if (test === null) {\n      return false;\n     }\n\n     return {\n      space: 'HEX',\n      hex: parseInt(\n       '0x' +\n       test[1].toString() + test[1].toString() +\n       test[2].toString() + test[2].toString() +\n       test[3].toString() + test[3].toString(),\n       0)\n      };\n     },\n\n    write: toString\n   },\n\n   SIX_CHAR_HEX: {\n    read: function(original) {\n     const test = original.match(/^#([A-F0-9]{6})$/i);\n     if (test === null) {\n      return false;\n     }\n\n     return {\n      space: 'HEX',\n      hex: parseInt('0x' + test[1].toString(), 0)\n     };\n    },\n\n    write: toString\n   },\n\n   CSS_RGB: {\n    read: function(original) {\n     const test = original.match(/^rgb\\(\\s*(.+)\\s*,\\s*(.+)\\s*,\\s*(.+)\\s*\\)/);\n     if (test === null) {\n      return false;\n     }\n\n     return {\n      space: 'RGB',\n      r: parseFloat(test[1]),\n      g: parseFloat(test[2]),\n      b: parseFloat(test[3])\n     };\n    },\n\n    write: toString\n   },\n\n   CSS_RGBA: {\n    read: function(original) {\n     const test = original.match(/^rgba\\(\\s*(.+)\\s*,\\s*(.+)\\s*,\\s*(.+)\\s*,\\s*(.+)\\s*\\)/);\n     if (test === null) {\n      return false;\n     }\n\n     return {\n      space: 'RGB',\n      r: parseFloat(test[1]),\n      g: parseFloat(test[2]),\n      b: parseFloat(test[3]),\n      a: parseFloat(test[4])\n     };\n    },\n\n    write: toString\n   }\n  }\n },\n\n // Numbers\n {\n  litmus: common.isNumber,\n\n  conversions: {\n\n   HEX: {\n    read: function(original) {\n     return {\n      space: 'HEX',\n      hex: original,\n      conversionName: 'HEX'\n     };\n    },\n\n    write: function(color) {\n     return color.hex;\n    }\n   }\n\n  }\n\n },\n\n // Arrays\n {\n  litmus: common.isArray,\n  conversions: {\n   RGB_ARRAY: {\n    read: function(original) {\n     if (original.length !== 3) {\n      return false;\n     }\n\n     return {\n
```

```
space: 'RGB',\n r: original[0],\n g: original[1],\n b: original[2]\n };\n },\n\n write: function(color) {\n return [color.r, color.g, color.b];\n }\n },\n\n RGBA_ARRAY: {\n read: function(original) {\n if (original.length !== 4) return false;\n return {\n space: 'RGB',\n r: original[0],\n g: original[1],\n b: original[2],\n a: original[3]\n };\n },\n\n write: function(color) {\n return [color.r, color.g, color.b, color.a];\n }\n }\n }\n },\n\n // Objects\n {\n litmus: common.isObject,\n conversions: {\n\n RGBA_OBJ: {\n read: function(original) {\n if (common.isNumber(original.r) &&\n common.isNumber(original.g) &&\n common.isNumber(original.b) &&\n common.isNumber(original.a)) {\n return {\n space: 'RGB',\n r: original.r,\n g: original.g,\n b: original.b,\n a: original.a\n };\n }\n return false;\n },\n\n write: function(color) {\n return {\n r: color.r,\n g: color.g,\n b: color.b,\n a: color.a\n };\n }\n },\n\n RGB_OBJ: {\n read: function(original) {\n if (common.isNumber(original.r) &&\n common.isNumber(original.g) &&\n common.isNumber(original.b)) {\n return {\n space: 'RGB',\n r: original.r,\n g: original.g,\n b: original.b\n };\n }\n return false;\n },\n\n write: function(color) {\n return {\n r: color.r,\n g: color.g,\n b: color.b\n };\n }\n },\n\n HSVA_OBJ: {\n read: function(original) {\n if (common.isNumber(original.h) &&\n common.isNumber(original.s) &&\n common.isNumber(original.v) &&\n common.isNumber(original.a)) {\n return {\n space: 'HSV',\n h: original.h,\n s: original.s,\n v: original.v,\n a: original.a\n };\n }\n return false;\n },\n\n write: function(color) {\n return {\n h: color.h,\n s: color.s,\n v: color.v,\n a: color.a\n };\n }\n },\n\n HSV_OBJ: {\n read: function(original) {\n if (common.isNumber(original.h) &&\n common.isNumber(original.s) &&\n common.isNumber(original.v)) {\n return {\n space: 'HSV',\n h: original.h,\n s: original.s,\n v: original.v\n };\n }\n return false;\n },\n\n write: function(color) {\n return {\n h: color.h,\n s: color.s,\n v: color.v\n };\n }\n }\n }\n ];\n\nlet result;\nlet toReturn;\n\nconst interpret = function() {\n toReturn = false;\n\n const original = arguments.length > 1 ? common.toArray(arguments) : arguments[0];\n common.each(INTERPRETATIONS, function(family) {\n if (family.litmus(original)) {\n common.each(family.conversions, function(conversion, conversionName) {\n result = conversion.read(original);\n\n if (toReturn === false && result !== false) {\n toReturn = result;\n result.conversionName = conversionName;\n result.conversion = conversion;\n return common.BREAK;\n }\n });\n\n return common.BREAK;\n }\n });\n\n return toReturn;\n};\n\nexport default interpret;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nlet tmpComponent;\n\nconst ColorMath = {\n hsv_to_rgb: function(h, s, v) {\n const hi = Math.floor(h / 60) % 6;\n\n const f = h / 60 - Math.floor(h / 60);\n const p = v * (1.0 - s);\n const q = v * (1.0 - (f * s));\n const t = v * (1.0 - ((1.0 - f) * s));\n\n const c = [\n [v, t, p],\n [q, v, p],\n [p, v, t],\n [p, q, v],\n [t, p, v],\n [v, p, q]\n ][hi];\n\n return {\n r: c[0] * 255,\n g: c[1] * 255,\n b: c[2] * 255\n };\n },\n\n rgb_to_hsv: function(r, g, b) {\n const min = Math.min(r, g, b);\n const max = Math.max(r, g, b);\n const delta = max - min;\n let h;\n let s;\n\n if (max !== 0) {\n s = delta / max;\n } else {\n return {\n h: NaN,\n s: 0,\n v: 0\n };\n }\n\n if (r === max) {\n h = (g - b) / delta;\n } else if (g === max) {\n h = 2 + (b - r) / delta;\n } else {\n h = 4 + (r - g) / delta;\n }\n h /= 6;\n if (h < 0) {\n h += 1;\n }\n\n return {\n h: h * 360,\n s: s,\n v: max / 255\n };\n },\n\n rgb_to_hex: function(r, g, b) {\n let hex = this.hex_with_component(0, 2, r);\n hex = this.hex_with_component(hex, 1, g);\n hex = this.hex_with_component(hex, 0, b);\n return hex;\n },\n\n component_from_hex: function(hex, componentIndex) {\n return (hex >> (componentIndex * 8)) & 0xFF;\n
```

},\n\n hex_with_component:
 function(hex, componentIndex, value) {\n   return value << (tmpComponent = componentIndex * 8) | (hex &
~(0xFF << tmpComponent));\n }\n};\n\nexport default ColorMath;\n","/**\n * dat-gui JavaScript Controller
Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n *
Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in
compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport interpret from './interpret';\nimport math from
'./math';\nimport colorToString from './toString';\nimport common from '../utils/common';\n\nclass Color {\n
constructor() {\n   this.__state = interpret.apply(this, arguments);\n\n   if (this.__state === false) {\n   throw new
Error('Failed to interpret color arguments');\n   }\n\n   this.__state.a = this.__state.a || 1;\n }\n\n toString() {\n
return colorToString(this);\n
  }\n\n toHexString() {\n   return colorToString(this, true);\n }\n\n toOriginal() {\n   return
this.__state.conversion.write(this);\n }\n}\n\nfunction defineRGBComponent(target, component,
componentHexIndex) {\n Object.defineProperty(target, component, {\n   get: function() {\n   if
(this.__state.space === 'RGB') {\n   return this.__state[component];\n   }\n\n   Color.recalculateRGB(this,
component, componentHexIndex);\n\n   return this.__state[component];\n   },\n\n   set: function(v) {\n   if
(this.__state.space !== 'RGB') {\n   Color.recalculateRGB(this, component, componentHexIndex);\n
this.__state.space = 'RGB';\n   }\n\n   this.__state[component] = v;\n   }\n });\n}\n\nfunction
defineHSVComponent(target, component) {\n Object.defineProperty(target, component, {\n   get: function() {\n
if (this.__state.space === 'HSV') {\n   return this.__state[component];\n   }\n\n
Color.recalculateHSV(this);\n\n   return
 this.__state[component];\n   },\n\n   set: function(v) {\n   if (this.__state.space !== 'HSV') {\n
Color.recalculateHSV(this);\n   this.__state.space = 'HSV';\n   }\n\n   this.__state[component] = v;\n   }\n
});\n}\n\n\nColor.recalculateRGB = function(color, component, componentHexIndex) {\n if (color.__state.space
=== 'HEX') {\n   color.__state[component] = math.component_from_hex(color.__state.hex,
componentHexIndex);\n } else if (color.__state.space === 'HSV') {\n   common.extend(color.__state,
math.hsv_to_rgb(color.__state.h, color.__state.s, color.__state.v));\n } else {\n   throw new Error('Corrupted color
state');\n }\n};\n\nColor.recalculateHSV = function(color) {\n const result = math.rgb_to_hsv(color.r, color.g,
color.b);\n\n common.extend(color.__state,\n   {\n   s: result.s,\n   v: result.v\n   }\n);\n\n if
(!common.isNaN(result.h)) {\n   color.__state.h = result.h;\n } else if (common.isUndefined(color.__state.h)) {\n
color.__state.h
 = 0;\n }\n};\n\nColor.COMPONENTS = ['r', 'g', 'b', 'h', 's', 'v', 'hex', 'a'];\n\ndefineRGBComponent(Color.prototype,
'r', 2);\ndefineRGBComponent(Color.prototype, 'g', 1);\ndefineRGBComponent(Color.prototype, 'b',
0);\n\ndefineHSVComponent(Color.prototype, 'h');\ndefineHSVComponent(Color.prototype,
's');\ndefineHSVComponent(Color.prototype, 'v');\n\nObject.defineProperty(Color.prototype, 'a', {\n get: function()
{\n   return this.__state.a;\n },\n\n set: function(v) {\n   this.__state.a = v;\n
}\n});\n\nObject.defineProperty(Color.prototype, 'hex', {\n get: function() {\n   if (!this.__state.space !== 'HEX')
{\n   this.__state.hex = math.rgb_to_hex(this.r, this.g, this.b);\n   }\n\n   return this.__state.hex;\n },\n\n set:
function(v) {\n   this.__state.space = 'HEX';\n   this.__state.hex = v;\n }\n});\n\nexport default Color;\n","/**\n *
dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team,
 Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not
use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n */\n\n/**\n * @class An \"abstract\" class that represents a given
property of an object.\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property
The name of the property to be manipulated\n */\nclass Controller {\n constructor(object, property) {\n
this.initialValue = object[property];\n\n   /**\n   * Those who extend this class will put their DOM elements in
here.\n   * @type {DOMElement}\n   */\n   this.domElement = document.createElement('div');\n\n   /**\n   *
The object to manipulate\n   * @type {Object}\n   */\n   this.object = object;\n\n   /**\n   * The name of the

property to manipulate\n * @type {String}\n */\n this.property = property;\n\n /**\n * The function to be called on change.\n * @type {Function}\n * @ignore\n */\n this.__onChange = undefined;\n\n /**\n * The function to be called on finishing change.\n * @type {Function}\n * @ignore\n */\n this.__onFinishChange = undefined;\n }\n\n /**\n * Specify that a function fire every time someone changes the value with\n * this Controller.\n *\n * @param {Function} fnc This function will be called whenever the value\n * is modified via this Controller.\n * @returns {Controller} this\n */\n onChange(fnc) {\n this.__onChange = fnc;\n return this;\n }\n\n /**\n * Specify that a function fire every time someone \"finishes\" changing\n * the value wih this Controller. Useful for values that change\n * incrementally like numbers or strings.\n *\n * @param {Function} fnc This function will be called whenever\n * someone \"finishes\" changing the value via this Controller.\n * @returns {Controller} this\n */\n onFinishChange(fnc) {\n this.__onFinishChange = fnc;\n return this;\n }\n\n /**\n * Change the value of <code>object[property]</code>\n *\n * @param {Object} newValue The new value of <code>object[property]</code>\n */\n setValue(newValue) {\n this.object[this.property] = newValue;\n if (this.__onChange) {\n this.__onChange.call(this, newValue);\n }\n\n this.updateDisplay();\n return this;\n }\n\n /**\n * Gets the value of <code>object[property]</code>\n *\n * @returns {Object} The current value of <code>object[property]</code>\n */\n getValue() {\n return this.object[this.property];\n }\n\n /**\n * Refreshes the visual display of a Controller in order to keep sync\n * with the object's current value.\n * @returns {Controller} this\n */\n updateDisplay() {\n return this;\n }\n\n /**\n * @returns {Boolean} true if the value has deviated from initialValue\n */\n isModified() {\n return this.initialValue !== this.getValue();\n }\n}\n\nexport default Controller;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport common from '../utils/common';\n\nconst EVENT_MAP = {\n HTMLEvents: ['change'],\n MouseEvents: ['click', 'mousemove', 'mousedown', 'mouseup', 'mouseover'],\n KeyboardEvents: ['keydown']\n};\n\nconst EVENT_MAP_INV = {};\ncommon.each(EVENT_MAP, function(v, k) {\n common.each(v, function(e) {\n EVENT_MAP_INV[e] = k;\n });\n});\n\nconst CSS_VALUE_PIXELS = /(\\d+(\\.\\d+)?)px/;\n\nfunction cssValueToPixels(val) {\n if (val === '0' || common.isUndefined(val)) {\n return 0;\n }\n\n const match = val.match(CSS_VALUE_PIXELS);\n\n if (!common.isNull(match)) {\n return parseFloat(match[1]);\n }\n\n // TODO ...ems? %?\n\n return 0;\n}\n\n/**\n * @namespace\n * @member dat.dom\n */\nconst dom = {\n\n /**\n *\n * @param elem\n * @param selectable\n */\n makeSelectable: function(elem, selectable) {\n if (elem === undefined || elem.style === undefined) return;\n\n elem.onselectstart = selectable ? function() {\n return false;\n } : function() {\n };\n\n elem.style.MozUserSelect = selectable ? 'auto' : 'none';\n elem.style.KhtmlUserSelect = selectable ? 'auto' : 'none';\n elem.unselectable = selectable ? 'on' : 'off';\n },\n\n /**\n *\n * @param elem\n * @param horizontal\n * @param vert\n */\n makeFullscreen: function(elem, hor, vert) {\n let vertical = vert;\n let horizontal = hor;\n\n if (common.isUndefined(horizontal)) {\n horizontal = true;\n }\n\n if (common.isUndefined(vertical)) {\n vertical = true;\n }\n\n elem.style.position = 'absolute';\n\n if (horizontal) {\n elem.style.left = 0;\n elem.style.right = 0;\n }\n if (vertical) {\n elem.style.top = 0;\n elem.style.bottom = 0;\n }\n },\n\n /**\n *\n * @param elem\n * @param eventType\n * @param params\n */\n fakeEvent: function(elem, eventType, pars, aux) {\n const params = pars || {};\n const className = EVENT_MAP_INV[eventType];\n if (!className) {\n throw new Error('Event type ' + eventType + ' not supported.');\n }\n const evt = document.createEvent(className);\n switch (className) {\n case 'MouseEvents':\n {\n const clientX = params.x || params.clientX || 0;\n const clientY = params.y || params.clientY || 0;\n evt.initMouseEvent(eventType, params.bubbles || false,\n params.cancelable || true, window, params.clickCount || 1,\n 0, // screen X\n 0, // screen Y\n clientX, // client X\n clientY, // client

```
Y\n false, false, false, false, 0, null);\n break;\n }\n case 'KeyboardEvents':\n {\n const init = evt.initKeyboardEvent || evt.initKeyEvent; // webkit || moz\n common.defaults(params, {\n cancelable: true,\n ctrlKey: false,\n altKey: false,\n shiftKey: false,\n metaKey: false,\n keyCode: undefined,\n charCode: undefined\n });\n init(eventType, params.bubbles || false,\n params.cancelable, window,\n params.ctrlKey, params.altKey,\n params.shiftKey, params.metaKey,\n params.keyCode, params.charCode);\n break;\n }\n default:\n {\n evt.initEvent(eventType, params.bubbles || false, params.cancelable || true);\n break;\n }\n }\n common.defaults(evt, aux);\n elem.dispatchEvent(evt);\n },\n\n /**\n *\n * @param elem\n * @param event\n\n * @param func\n * @param bool\n */\n bind: function(elem, event, func, newBool) {\n const bool = newBool || false;\n if (elem.addEventListener) {\n elem.addEventListener(event, func, bool);\n } else if (elem.attachEvent) {\n elem.attachEvent('on' + event, func);\n }\n return dom;\n },\n\n /**\n *\n * @param elem\n * @param event\n * @param func\n * @param bool\n */\n unbind: function(elem, event, func, newBool) {\n const bool = newBool || false;\n if (elem.removeEventListener) {\n elem.removeEventListener(event, func, bool);\n } else if (elem.detachEvent) {\n elem.detachEvent('on' + event, func);\n }\n return dom;\n },\n\n /**\n *\n * @param elem\n * @param className\n */\n addClass: function(elem, className) {\n if (elem.className === undefined) {\n elem.className = className;\n } else if (elem.className !== className) {\n const classes = elem.className.split(/ +/);\n if (classes.indexOf(className)
 === -1) {\n classes.push(className);\n elem.className = classes.join(' ').replace(/^\\s+/, '').replace(/\\s+$/, '');\n }\n }\n return dom;\n },\n\n /**\n *\n * @param elem\n * @param className\n */\n removeClass: function(elem, className) {\n if (className) {\n if (elem.className === className) {\n elem.removeAttribute('class');\n } else {\n const classes = elem.className.split(/ +/);\n const index = classes.indexOf(className);\n if (index !== -1) {\n classes.splice(index, 1);\n elem.className = classes.join(' ');\n }\n }\n } else {\n elem.className = undefined;\n }\n return dom;\n },\n\n hasClass: function(elem, className) {\n return new RegExp('(?:^|\\\\s+)' + className + '(?:\\\\s+|$)').test(elem.className) || false;\n },\n\n /**\n *\n * @param elem\n */\n getWidth: function(elem) {\n const style = getComputedStyle(elem);\n\n
 return cssValueToPixels(style['border-left-width']) +\n cssValueToPixels(style['border-right-width']) +\n cssValueToPixels(style['padding-left']) +\n cssValueToPixels(style['padding-right']) +\n cssValueToPixels(style.width);\n },\n\n /**\n *\n * @param elem\n */\n getHeight: function(elem) {\n const style = getComputedStyle(elem);\n\n return cssValueToPixels(style['border-top-width']) +\n cssValueToPixels(style['border-bottom-width']) +\n cssValueToPixels(style['padding-top']) +\n cssValueToPixels(style['padding-bottom']) +\n cssValueToPixels(style.height);\n },\n\n /**\n *\n * @param el\n */\n getOffset: function(el) {\n let elem = el;\n const offset = { left: 0, top: 0 };\n if (elem.offsetParent) {\n do {\n offset.left += elem.offsetLeft;\n offset.top += elem.offsetTop;\n elem = elem.offsetParent;\n } while (elem);\n }\n return offset;\n },\n\n //
http://stackoverflow.com/posts/2684561/revisions\n
 /**\n *\n * @param elem\n */\n isActive: function(elem) {\n return elem === document.activeElement &&
(elem.type || elem.href);\n }\n\n};\n\nexport default dom;\n","/**\n * dat-gui JavaScript Controller Library\n *
http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
*/\n\nimport Controller from './Controller';\nimport dom from '../dom/dom';\n\n/**\n * @class Provides a checkbox
input to alter the boolean property of an object.\n *\n * @extends dat.controllers.Controller\n *\n * @param
{Object} object The object to be manipulated\n * @param {string} property The name of the property to be
manipulated\n */\nclass BooleanController extends Controller {\n constructor(object,
```

property) {\n super(object, property);\n\n const _this = this;\n this.__prev = this.getValue();\n\n this.__checkbox = document.createElement('input');\n this.__checkbox.setAttribute('type', 'checkbox');\n\n function onChange() {\n   _this.setValue(!_this.__prev);\n }\n\n dom.bind(this.__checkbox, 'change', onChange, false);\n\n this.domElement.appendChild(this.__checkbox);\n\n // Match original value\n this.updateDisplay();\n }\n\n setValue(v) {\n const toReturn = super.setValue(v);\n if (this.__onFinishChange) {\n   this.__onFinishChange.call(this, this.getValue());\n }\n this.__prev = this.getValue();\n return toReturn;\n }\n\n updateDisplay() {\n if (this.getValue() === true) {\n   this.__checkbox.setAttribute('checked', 'checked');\n   this.__checkbox.checked = true;\n   this.__prev = true;\n } else {\n   this.__checkbox.checked = false;\n   this.__prev = false;\n }\n\n return super.updateDisplay();\n }\n}\n\nexport default BooleanController;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Controller from './Controller';\nimport dom from '../dom/dom';\nimport common from '../utils/common';\n\n/**\n * @class Provides a select input to alter the property of an object, using a\n * list of accepted values.\n *\n * @extends dat.controllers.Controller\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n * @param {Object|string[]} options A map of labels to acceptable values, or\n * a list of acceptable string values.\n */\nclass OptionController extends Controller\n {\n constructor(object, property, opts) {\n super(object, property);\n\n let options = opts;\n\n const _this = this;\n\n /**\n   * The drop down menu\n   * @ignore\n   */\n this.__select = document.createElement('select');\n\n if (common.isArray(options)) {\n   const map = {};\n   common.each(options, function(element) {\n   map[element] = element;\n   });\n   options = map;\n }\n\n common.each(options, function(value, key) {\n   const opt = document.createElement('option');\n   opt.innerHTML = key;\n   opt.setAttribute('value', value);\n   _this.__select.appendChild(opt);\n });\n\n // Acknowledge original value\n this.updateDisplay();\n\n dom.bind(this.__select, 'change', function() {\n   const desiredValue = this.options[this.selectedIndex].value;\n   _this.setValue(desiredValue);\n });\n\n this.domElement.appendChild(this.__select);\n }\n\n setValue(v) {\n const toReturn = super.setValue(v);\n\n if (this.__onFinishChange) {\n   this.__onFinishChange.call(this, this.getValue());\n }\n return toReturn;\n }\n\n updateDisplay() {\n if (dom.isActive(this.__select)) return this; // prevent number from updating if user is trying to manually update\n this.__select.value = this.getValue();\n return super.updateDisplay();\n }\n}\n\nexport default OptionController;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Controller from './Controller';\nimport dom from '../dom/dom';\n\n/**\n * @class Provides a text input to alter the string property of an object.\n *\n * @extends dat.controllers.Controller\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n */\nclass StringController extends Controller {\n constructor(object, property) {\n super(object, property);\n\n const _this = this;\n\n function onChange() {\n   _this.setValue(_this.__input.value);\n }\n\n function onBlur() {\n   if (_this.__onFinishChange) {\n   _this.__onFinishChange.call(_this, _this.getValue());\n   }\n }\n\n this.__input = document.createElement('input');\n this.__input.setAttribute('type', 'text');\n\n dom.bind(this.__input, 'keyup', onChange);\n dom.bind(this.__input, 'change', onChange);\n dom.bind(this.__input, 'blur', onBlur);\n dom.bind(this.__input, 'keydown', function(e) {\n   if (e.keyCode === 13) {\n   this.blur();\n   }\n });\n\n this.updateDisplay();\n\n this.domElement.appendChild(this.__input);\n }\n\n updateDisplay() {\n // Stops the caret from moving on account of:\n // keyup -> setValue -> updateDisplay\n if (!dom.isActive(this.__input)) {\n   this.__input.value = this.getValue();\n }\n return super.updateDisplay();\n }\n}\n\nexport default StringController;\n","/**\n * dat-

gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Controller from './Controller';\nimport common from '../utils/common';\n\nfunction numDecimals(x) {\n const _x = x.toString();\n if (_x.indexOf('.') > -1) {\n   return _x.length - _x.indexOf('.') - 1;\n }\n\n return 0;\n}\n\n/**\n * @class Represents a given property of an object that is a number.\n *\n * @extends dat.controllers.Controller\n *\n * @param {Object} object
 The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n * @param {Object} [params] Optional parameters\n * @param {Number} [params.min] Minimum allowed value\n * @param {Number} [params.max] Maximum allowed value\n * @param {Number} [params.step] Increment by which to change value\n */\nclass NumberController extends Controller {\n constructor(object, property, params) {\n   super(object, property);\n\n   const _params = params || {};\n\n   this.__min = _params.min;\n   this.__max = _params.max;\n   this.__step = _params.step;\n\n   if (common.isUndefined(this.__step)) {\n   if (this.initialValue === 0) {\n   this.__impliedStep = 1; // What are we, psychics?\n   } else {\n   // Hey Doug, check this out.\n
    this.__impliedStep = Math.pow(10, Math.floor(Math.log(Math.abs(this.initialValue)) / Math.LN10)) / 10;\n
    }\n   } else {\n   this.__impliedStep = this.__step;\n   }\n\n   this.__precision = numDecimals(this.__impliedStep);\n
  }\n\n setValue(v) {\n   let _v = v;\n\n   if (this.__min !== undefined && _v < this.__min) {\n   _v = this.__min;\n   } else if (this.__max !== undefined && _v > this.__max) {\n   _v = this.__max;\n   }\n\n   if (this.__step !== undefined && _v % this.__step !== 0) {\n   _v = Math.round(_v / this.__step) * this.__step;\n   }\n\n   return super.setValue(_v);\n }\n\n /**\n   * Specify a minimum value for <code>object[property]</code>.\n   *\n   * @param {Number} minValue The minimum value for\n   * <code>object[property]</code>\n   * @returns {dat.controllers.NumberController} this\n   */\n min(minValue) {\n   this.__min = minValue;\n   return this;\n }\n\n /**\n   * Specify a maximum value for <code>object[property]</code>.\n   *\n   * @param {Number} maxValue The maximum value for\n   * <code>object[property]</code>\n   * @returns {dat.controllers.NumberController} this\n   */\n max(maxValue) {\n   this.__max = maxValue;\n   return this;\n }\n\n /**\n   * Specify a step value that dat.controllers.NumberController\n   * increments by.\n   *\n   * @param {Number} stepValue The step value for\n   * dat.controllers.NumberController\n   * @default if minimum and maximum specified increment is 1% of the\n   * difference otherwise stepValue is 1\n   * @returns {dat.controllers.NumberController} this\n   */\n step(stepValue) {\n   this.__step = stepValue;\n   this.__impliedStep = stepValue;\n   this.__precision = numDecimals(stepValue);\n   return this;\n }\n}\n\nexport default NumberController;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport NumberController from './NumberController';\nimport dom from '../dom/dom';\nimport common from '../utils/common';\n\nfunction roundToDecimal(value, decimals) {\n const tenTo = Math.pow(10, decimals);\n return Math.round(value * tenTo) / tenTo;\n}\n\n/**\n * @class Represents a given property of an object that is a number and\n * provides an input element with which to manipulate it.\n *\n * @extends dat.controllers.Controller\n * @extends dat.controllers.NumberController\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n * @param {Object} [params] Optional parameters\n * @param {Number} [params.min] Minimum allowed value\n * @param {Number} [params.max] Maximum allowed value\n * @param {Number} [params.step] Increment by which to change value\n */\nclass NumberControllerBox extends NumberController {\n constructor(object, property, params) {\n   super(object, property, params);\n\n   this.__truncationSuspended = false;\n\n
    const _this = this;\n\n   /**\n   * {Number} Previous mouse y position\n   * @ignore\n   */\n   let prevY;\n\n   function onChange() {\n   const attempted = parseFloat(_this.__input.value);\n   if (!common.isNaN(attempted)) {\n   _this.setValue(attempted);\n   }\n   }\n\n   function onFinish() {\n   if (_this.__onFinishChange) {\n

_this.__onFinishChange.call(_this, _this.getValue());\n }\n }\n\n function onBlur() {\n onFinish();\n }\n\n function onMouseDrag(e) {\n const diff = prevY - e.clientY;\n _this.setValue(_this.getValue() + diff * _this.__impliedStep);\n\n prevY = e.clientY;\n }\n\n function onMouseUp() {\n dom.unbind(window, 'mousemove', onMouseDrag);\n dom.unbind(window, 'mouseup', onMouseUp);\n onFinish();\n }\n\n function onMouseDown(e) {\n dom.bind(window, 'mousemove', onMouseDrag);\n dom.bind(window, 'mouseup', onMouseUp);\n prevY = e.clientY;\n }\n\n this.__input = document.createElement('input');\n this.__input.setAttribute('type', 'text');\n\n // Makes it so manually specified values are not truncated.\n\n dom.bind(this.__input, 'change', onChange);\n dom.bind(this.__input, 'blur', onBlur);\n dom.bind(this.__input, 'mousedown', onMouseDown);\n dom.bind(this.__input, 'keydown', function(e) {\n // When pressing enter, you can be as precise as you want.\n if (e.keyCode === 13) {\n _this.__truncationSuspended = true;\n this.blur();\n _this.__truncationSuspended = false;\n onFinish();\n }\n });\n\n this.updateDisplay();\n\n this.domElement.appendChild(this.__input);\n }\n\n updateDisplay() {\n this.__input.value = this.__truncationSuspended ? this.getValue() : roundToDecimal(this.getValue(), this.__precision);\n return super.updateDisplay();\n }\n}\n\nexport default NumberControllerBox;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport NumberController from './NumberController';\nimport dom from '../dom/dom';\n\nfunction map(v, i1, i2, o1, o2) {\n return o1 + (o2 - o1) * ((v - i1) / (i2 - i1));\n}\n\n/**\n * @class Represents a given property of an object that is a number, contains\n * a minimum and maximum, and provides a slider element with which to\n * manipulate it. It should be noted that the slider element is made up of\n * <code><div></code> tags, not the html5\n * <code><slider></code> element.\n *\n * @extends dat.controllers.Controller\n * @extends dat.controllers.NumberController\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n * @param {Number} minValue Minimum allowed value\n * @param {Number} maxValue Maximum allowed value\n * @param {Number} stepValue Increment by which to change value\n */\nclass NumberControllerSlider extends NumberController {\n constructor(object, property, min, max, step) {\n super(object, property, { min: min, max: max, step: step });\n\n const _this = this;\n\n this.__background = document.createElement('div');\n this.__foreground = document.createElement('div');\n\n dom.bind(this.__background, 'mousedown', onMouseDown);\n dom.bind(this.__background, 'touchstart', onTouchStart);\n\n dom.addClass(this.__background, 'slider');\n dom.addClass(this.__foreground, 'slider-fg');\n\n function onMouseDown(e) {\n document.activeElement.blur();\n\n dom.bind(window, 'mousemove', onMouseDrag);\n dom.bind(window, 'mouseup', onMouseUp);\n\n onMouseDrag(e);\n }\n\n function onMouseDrag(e) {\n e.preventDefault();\n\n const bgRect = _this.__background.getBoundingClientRect();\n\n _this.setValue(\n map(e.clientX, bgRect.left, bgRect.right, _this.__min, _this.__max)\n);\n\n return false;\n }\n\n function onMouseUp() {\n dom.unbind(window, 'mousemove', onMouseDrag);\n dom.unbind(window, 'mouseup', onMouseUp);\n if (_this.__onFinishChange) {\n _this.__onFinishChange.call(_this, _this.getValue());\n }\n }\n\n function onTouchStart(e) {\n if (e.touches.length !== 1) { return; }\n dom.bind(window, 'touchmove', onTouchMove);\n dom.bind(window, 'touchend', onTouchEnd);\n onTouchMove(e);\n }\n\n function onTouchMove(e) {\n const clientX = e.touches[0].clientX;\n const bgRect = _this.__background.getBoundingClientRect();\n\n _this.setValue(\n map(clientX, bgRect.left, bgRect.right, _this.__min, _this.__max)\n);\n }\n\n function onTouchEnd() {\n dom.unbind(window, 'touchmove', onTouchMove);\n dom.unbind(window, 'touchend', onTouchEnd);\n if (_this.__onFinishChange) {\n _this.__onFinishChange.call(_this, _this.getValue());\n }\n }\n\n this.updateDisplay();\n\n this.__background.appendChild(this.__foreground);\n this.domElement.appendChild(this.__background);\n }\n\n updateDisplay() {\n const pct = (this.getValue() -

this.__min) / (this.__max - this.__min);\n   this.__foreground.style.width = pct * 100 + '%';\n   return super.updateDisplay();\n }\n}\n\nexport default NumberControllerSlider;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Controller from './Controller';\nimport dom from '../dom/dom';\n\n/**\n * @class Provides a GUI interface to fire a specified method, a property of an object.\n *\n * @extends dat.controllers.Controller\n *\n * @param {Object} object The object to be manipulated\n * @param {string} property The name of the property to be manipulated\n */\nclass FunctionController extends Controller {\n constructor(object, property, text) {\n   super(object, property);\n\n   const _this = this;\n\n   this.__button = document.createElement('div');\n   this.__button.innerHTML = text === undefined ? 'Fire' : text;\n\n   dom.bind(this.__button, 'click', function(e) {\n   e.preventDefault();\n   _this.fire();\n   return false;\n   });\n\n   dom.addClass(this.__button, 'button');\n\n   this.domElement.appendChild(this.__button);\n }\n\n fire() {\n   if (this.__onChange) {\n   this.__onChange.call(this);\n   }\n   this.getValue().call(this.object);\n   if (this.__onFinishChange) {\n   this.__onFinishChange.call(this, this.getValue());\n   }\n }\n}\n\nexport default FunctionController;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport Controller from './Controller';\nimport dom from '../dom/dom';\nimport Color from '../color/Color';\nimport interpret from '../color/interpret';\nimport common from '../utils/common';\n\n/**\n * @class Represents a given property of an object that is a color.\n * @param {Object} object\n * @param {string} property\n */\nclass ColorController extends Controller {\n constructor(object, property) {\n   super(object, property);\n\n   this.__color = new Color(this.getValue());\n   this.__temp = new Color(0);\n\n   const _this = this;\n\n   this.domElement = document.createElement('div');\n\n   dom.makeSelectable(this.domElement, false);\n\n   this.__selector = document.createElement('div');\n   this.__selector.className = 'selector';\n\n   this.__saturation_field = document.createElement('div');\n   this.__saturation_field.className = 'saturation-field';\n\n   this.__field_knob = document.createElement('div');\n   this.__field_knob.className = 'field-knob';\n   this.__field_knob_border = '2px solid ';\n\n   this.__hue_knob = document.createElement('div');\n   this.__hue_knob.className = 'hue-knob';\n\n   this.__hue_field = document.createElement('div');\n   this.__hue_field.className = 'hue-field';\n\n   this.__input = document.createElement('input');\n   this.__input.type = 'text';\n   this.__input_textShadow = '0 1px 1px ';\n\n   dom.bind(this.__input, 'keydown', function(e) {\n   if (e.keyCode === 13) { // on enter\n   onBlur.call(this);\n   }\n   });\n\n   dom.bind(this.__input, 'blur', onBlur);\n\n   dom.bind(this.__selector, 'mousedown', function(/* e */) {\n   dom\n   .addClass(this, 'drag')\n   .bind(window, 'mouseup', function(/* e */) {\n   dom.removeClass(_this.__selector, 'drag');\n   });\n   });\n\n   dom.bind(this.__selector, 'touchstart', function(/* e */) {\n   dom\n   .addClass(this, 'drag')\n   .bind(window, 'touchend', function(/* e */) {\n   dom.removeClass(_this.__selector, 'drag');\n   });\n   });\n\n   const valueField = document.createElement('div');\n\n   common.extend(this.__selector.style, {\n   width: '122px',\n   height: '102px',\n   padding: '3px',\n   backgroundColor: '#222',\n   boxShadow: '0px 1px 3px rgba(0,0,0,0.3)'\n   });\n\n   common.extend(this.__field_knob.style, {\n   position: 'absolute',\n   width: '12px',\n   height: '12px',\n   border: this.__field_knob_border + (this.__color.v < 0.5 ? '#fff' : '#000'),\n   boxShadow: '0px 1px 3px rgba(0,0,0,0.5)',\n   borderRadius: '12px',\n   zIndex: 1\n   });\n\n   common.extend(this.__hue_knob.style, {\n   position: 'absolute',\n   width: '15px',\n   height: '2px',\n   borderRight: '4px solid #fff',\n   zIndex: 1\n   });\n\n   common.extend(this.__saturation_field.style, {\n   width: '100px',\n   height: '100px',\n   border: '1px solid #555',\n   marginRight: '3px',\n   display: 'inline-block',\n   cursor: 'pointer'\n   });\n\n   common.extend(valueField.style, {\n   width: '100%',\n   height: '100%',\n   background: 'none'\n   });\n\n   linearGradient(valueField, 'top', 'rgba(0,0,0,0)', '#000');\n\n

```
common.extend(this.__hue_field.style, {\n      width: '15px',\n      height: '100px',\n      border: '1px solid #555',\n
cursor: 'ns-resize',\n      position: 'absolute',\n      top: '3px',\n      right: '3px'\n    });\n\n
hueGradient(this.__hue_field);\n\n    common.extend(this.__input.style,
 {\n      outline: 'none',\n//      width: '120px',\n      textAlign: 'center',\n//      padding: '4px',\n//      marginBottom:
'6px',\n      color: '#fff',\n      border: 0,\n      fontWeight: 'bold',\n      textShadow: this.__input_textShadow +
'rgba(0,0,0,0.7)'\n    });\n\n    dom.bind(this.__saturation_field, 'mousedown', fieldDown);\n
dom.bind(this.__saturation_field, 'touchstart', fieldDown);\n\n    dom.bind(this.__field_knob, 'mousedown',
fieldDown);\n    dom.bind(this.__field_knob, 'touchstart', fieldDown);\n\n    dom.bind(this.__hue_field,
'mousedown', fieldDownH);\n    dom.bind(this.__hue_field, 'touchstart', fieldDownH);\n\n    function fieldDown(e)
{\n      setSV(e);\n      dom.bind(window, 'mousemove', setSV);\n      dom.bind(window, 'touchmove', setSV);\n
dom.bind(window, 'mouseup', fieldUpSV);\n      dom.bind(window, 'touchend', fieldUpSV);\n    }\n\n    function
fieldDownH(e) {\n      setH(e);\n      dom.bind(window, 'mousemove', setH);\n
     dom.bind(window, 'touchmove', setH);\n      dom.bind(window, 'mouseup', fieldUpH);\n      dom.bind(window,
'touchend', fieldUpH);\n    }\n\n    function fieldUpSV() {\n      dom.unbind(window, 'mousemove', setSV);\n
dom.unbind(window, 'touchmove', setSV);\n      dom.unbind(window, 'mouseup', fieldUpSV);\n
dom.unbind(window, 'touchend', fieldUpSV);\n      onFinish();\n    }\n\n    function fieldUpH() {\n
dom.unbind(window, 'mousemove', setH);\n      dom.unbind(window, 'touchmove', setH);\n      dom.unbind(window,
'mouseup', fieldUpH);\n      dom.unbind(window, 'touchend', fieldUpH);\n      onFinish();\n    }\n\n    function
onBlur() {\n      const i = interpret(this.value);\n      if (i !== false) {\n        _this.__color.__state = i;\n
_this.setValue(_this.__color.toOriginal());\n      } else {\n        this.value = _this.__color.toString();\n      }\n    }\n\n
function onFinish() {\n      if (_this.__onFinishChange) {\n        _this.__onFinishChange.call(_this,
 _this.__color.toOriginal());\n      }\n    }\n\n    this.__saturation_field.appendChild(valueField);\n
this.__selector.appendChild(this.__field_knob);\n    this.__selector.appendChild(this.__saturation_field);\n
this.__selector.appendChild(this.__hue_field);\n    this.__hue_field.appendChild(this.__hue_knob);\n\n
this.domElement.appendChild(this.__input);\n    this.domElement.appendChild(this.__selector);\n\n
this.updateDisplay();\n\n    function setSV(e) {\n      if (e.type.indexOf('touch') === -1) { e.preventDefault(); }\n\n
const fieldRect = _this.__saturation_field.getBoundingClientRect();\n      const { clientX, clientY } = (e.touches &&
e.touches[0]) || e;\n      let s = (clientX - fieldRect.left) / (fieldRect.right - fieldRect.left);\n      let v = 1 - (clientY -
fieldRect.top) / (fieldRect.bottom - fieldRect.top);\n\n      if (v > 1) {\n        v = 1;\n      } else if (v < 0) {\n        v =
0;\n      }\n\n      if (s > 1) {\n        s = 1;\n      } else
 if (s < 0) {\n        s = 0;\n      }\n\n      _this.__color.v = v;\n      _this.__color.s = s;\n\n
_this.setValue(_this.__color.toOriginal());\n\n\n      return false;\n    }\n\n    function setH(e) {\n      if
(e.type.indexOf('touch') === -1) { e.preventDefault(); }\n\n      const fieldRect =
_this.__hue_field.getBoundingClientRect();\n      const { clientY } = (e.touches && e.touches[0]) || e;\n      let h = 1
- (clientY - fieldRect.top) / (fieldRect.bottom - fieldRect.top);\n\n      if (h > 1) {\n        h = 1;\n      } else if (h < 0)
{\n        h = 0;\n      }\n\n      _this.__color.h = h * 360;\n\n      _this.setValue(_this.__color.toOriginal());\n\n
return false;\n    }\n  }\n\n  updateDisplay() {\n    const i = interpret(this.getValue());\n\n    if (i !== false) {\n      let
mismatch = false;\n\n      // Check for mismatch on the interpreted value.\n\n
common.each(Color.COMPONENTS, function(component) {\n        if (!common.isUndefined(i[component]) &&
!common.isUndefined(this.__color.__state[component])
 &&\n            i[component] !== this.__color.__state[component]) {\n          mismatch = true;\n          return {}; //
break\n        }\n      }, this);\n\n      // If nothing diverges, we keep our previous values\n      // for statefulness,
otherwise we recalculate fresh\n      if (mismatch) {\n        common.extend(this.__color.__state, i);\n      }\n    }\n\n
common.extend(this.__temp.__state, this.__color.__state);\n\n    this.__temp.a = 1;\n\n    const flip = (this.__color.v
< 0.5 || this.__color.s > 0.5) ? 255 : 0;\n    const _flip = 255 - flip;\n\n    common.extend(this.__field_knob.style, {\n
  marginLeft: 100 * this.__color.s - 7 + 'px',\n      marginTop: 100 * (1 - this.__color.v) - 7 + 'px',\n
backgroundColor: this.__temp.toHexString(),\n      border: this.__field_knob_border + 'rgb(' + flip + ',' + flip + ',' +
flip + ')'\n    });\n\n    this.__hue_knob.style.marginTop = (1 - this.__color.h / 360) * 100 + 'px';\n\n    this.__temp.s
```

```
 = 1;\n    this.__temp.v = 1;\n\n    linearGradient(this.__saturation_field, 'left', '#fff', this.__temp.toHexString());\n\n
this.__input.value = this.__color.toString();\n\n    common.extend(this.__input.style, {\n      backgroundColor:
this.__color.toHexString(),\n      color: 'rgb(' + flip + ',' + flip + ',' + flip + ')',\n      textShadow:
this.__input_textShadow + 'rgba(' + _flip + ',' + _flip + ',' + _flip + ',.7)'\n    });\n  }\n}\n\nconst vendors = ['-moz-', '-
o-', '-webkit-', '-ms-', ''];\n\nfunction linearGradient(elem, x, a, b) {\n  elem.style.background = '';\n
common.each(vendors, function(vendor) {\n    elem.style.cssText += 'background: ' + vendor + 'linear-gradient(' + x
+ ', ' + a + ' 0%, ' + b + ' 100%); ';\n  });\n}\n\nfunction hueGradient(elem) {\n  elem.style.background = '';\n
elem.style.cssText += 'background: -moz-linear-gradient(top,  #ff0000 0%, #ff00ff 17%, #0000ff 34%, #00ffff 50%,
#00ff00 67%, #ffff00 84%, #ff0000 100%);';\n  elem.style.cssText
 += 'background: -webkit-linear-gradient(top,  #ff0000 0%,#ff00ff 17%,#0000ff 34%,#00ffff 50%,#00ff00
67%,#ffff00 84%,#ff0000 100%);';\n  elem.style.cssText += 'background: -o-linear-gradient(top,  #ff0000
0%,#ff00ff 17%,#0000ff 34%,#00ffff 50%,#00ff00 67%,#ffff00 84%,#ff0000 100%);';\n  elem.style.cssText +=
'background: -ms-linear-gradient(top,  #ff0000 0%,#ff00ff 17%,#0000ff 34%,#00ffff 50%,#00ff00 67%,#ffff00
84%,#ff0000 100%);';\n  elem.style.cssText += 'background: linear-gradient(top,  #ff0000 0%,#ff00ff 17%,#0000ff
34%,#00ffff 50%,#00ff00 67%,#ffff00 84%,#ff0000 100%);';\n}\n\nexport default ColorController;\n","/**\n * dat-
gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team,
Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use
this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n *
http://www.apache.org/licenses/LICENSE-2.0\n
 */\n\nconst css = {\n  load: function(url, indoc) {\n    const doc = indoc || document;\n    const link =
doc.createElement('link');\n    link.type = 'text/css';\n    link.rel = 'stylesheet';\n    link.href = url;\n
doc.getElementsByTagName('head')[0].appendChild(link);\n  },\n\n  inject: function(cssContent, indoc) {\n    const
doc = indoc || document;\n    const injected = document.createElement('style');\n    injected.type = 'text/css';\n
injected.innerHTML = cssContent;\n    const head = doc.getElementsByTagName('head')[0];\n    try {\n
head.appendChild(injected);\n    } catch (e) { // Unable to inject CSS, probably because of a Content Security
Policy\n    }\n  }\n};\n\nexport default css;\n","const saveDialogContents = `<div id=\"dg-save\" class=\"dg
dialogue\">\n\n  Here's the new load parameter for your <code>GUI</code>'s constructor:\n\n  <textarea id=\"dg-
new-constructor\"></textarea>\n\n  <div id=\"dg-save-locally\">\n\n    <input id=\"dg-local-storage\"
 type=\"checkbox\"/> Automatically save\n    values to <code>localStorage</code> on exit.\n\n    <div id=\"dg-
local-explain\">The values saved to <code>localStorage</code> will\n      override those passed to
<code>dat.GUI</code>'s constructor. This makes it\n      easier to work incrementally, but
<code>localStorage</code> is fragile,\n      and your friends may not see the same values you do.\n\n    </div>\n\n
</div>\n\n</div>`;\n\nexport default saveDialogContents;\n","/**\n * dat-gui JavaScript Controller Library\n *
http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed
under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the
License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n
*/\n\nimport OptionController from './OptionController';\nimport NumberControllerBox from
'./NumberControllerBox';\nimport NumberControllerSlider
 from './NumberControllerSlider';\nimport StringController from './StringController';\nimport FunctionController
from './FunctionController';\nimport BooleanController from './BooleanController';\nimport common from
'../utils/common';\n\nconst ControllerFactory = function(object, property) {\n  const initialValue =
object[property];\n\n  // Providing options?\n  if (common.isArray(arguments[2]) || common.isObject(arguments[2]))
{\n    return new OptionController(object, property, arguments[2]);\n  }\n\n  // Providing a map?\n  if
(common.isNumber(initialValue)) {\n    // Has min and max? (slider)\n    if (common.isNumber(arguments[2]) &&
common.isNumber(arguments[3])) {\n      // has step?\n      if (common.isNumber(arguments[4])) {\n        return new
NumberControllerSlider(object, property,\n                               arguments[2], arguments[3], arguments[4]);\n      }\n\n
return new NumberControllerSlider(object, property, arguments[2], arguments[3]);\n    }\n\n    // number
```

box\n if (common.isNumber(arguments[4])) { // has step\n return new NumberControllerBox(object, property,\n { min: arguments[2], max: arguments[3], step: arguments[4] });\n }\n return new NumberControllerBox(object, property, { min: arguments[2], max: arguments[3] });\n }\n\n if (common.isString(initialValue)) {\n return new StringController(object, property);\n }\n\n if (common.isFunction(initialValue)) {\n return new FunctionController(object, property, '');\n }\n\n if (common.isBoolean(initialValue)) {\n return new BooleanController(object, property);\n }\n\n return null;\n};\n\nexport default ControllerFactory;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the
License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nfunction requestAnimationFrame(callback) {\n setTimeout(callback, 1000 / 60);\n}\n\nexport default window.requestAnimationFrame ||\n window.webkitRequestAnimationFrame ||\n window.mozRequestAnimationFrame ||\n window.oRequestAnimationFrame ||\n window.msRequestAnimationFrame ||\n requestAnimationFrame;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport dom from '../dom/dom';\nimport common from '../utils/common';\n\nclass CenteredDiv {\n constructor() {\n this.backgroundElement = document.createElement('div');\n common.extend(this.backgroundElement.style,
  {\n backgroundColor: 'rgba(0,0,0,0.8)',\n top: 0,\n left: 0,\n display: 'none',\n zIndex: '1000',\n opacity: 0,\n WebkitTransition: 'opacity 0.2s linear',\n transition: 'opacity 0.2s linear'\n });\n\n dom.makeFullscreen(this.backgroundElement);\n this.backgroundElement.style.position = 'fixed';\n\n this.domElement = document.createElement('div');\n common.extend(this.domElement.style, {\n position: 'fixed',\n display: 'none',\n zIndex: '1001',\n opacity: 0,\n WebkitTransition: '-webkit-transform 0.2s ease-out, opacity 0.2s linear',\n transition: 'transform 0.2s ease-out, opacity 0.2s linear'\n });\n\n\n document.body.appendChild(this.backgroundElement);\n document.body.appendChild(this.domElement);\n\n const _this = this;\n dom.bind(this.backgroundElement, 'click', function() {\n _this.hide();\n });\n }\n\n show() {\n const _this = this;\n\n this.backgroundElement.style.display
  = 'block';\n\n this.domElement.style.display = 'block';\n this.domElement.style.opacity = 0;\n// this.domElement.style.top = '52%';\n this.domElement.style.webkitTransform = 'scale(1.1)';\n\n this.layout();\n\n common.defer(function() {\n _this.backgroundElement.style.opacity = 1;\n _this.domElement.style.opacity = 1;\n _this.domElement.style.webkitTransform = 'scale(1)';\n });\n }\n\n /**\n * Hide centered div\n */\n hide() {\n const _this = this;\n\n const hide = function() {\n _this.domElement.style.display = 'none';\n _this.backgroundElement.style.display = 'none';\n\n dom.unbind(_this.domElement, 'webkitTransitionEnd', hide);\n dom.unbind(_this.domElement, 'transitionend', hide);\n dom.unbind(_this.domElement, 'oTransitionEnd', hide);\n };\n\n dom.bind(this.domElement, 'webkitTransitionEnd', hide);\n dom.bind(this.domElement, 'transitionend', hide);\n dom.bind(this.domElement, 'oTransitionEnd', hide);\n\n this.backgroundElement.style.opacity = 0;\n// this.domElement.style.top = '48%';\n this.domElement.style.opacity = 0;\n this.domElement.style.webkitTransform = 'scale(1.1)';\n }\n\n layout() {\n this.domElement.style.left = window.innerWidth / 2 - dom.getWidth(this.domElement) / 2 + 'px';\n this.domElement.style.top = window.innerHeight / 2 - dom.getHeight(this.domElement) / 2 + 'px';\n }\n}\n\nexport default CenteredDiv;\n","/**\n * dat-gui JavaScript Controller Library\n * http://code.google.com/p/dat-gui\n *\n * Copyright 2011 Data Arts Team, Google Creative Lab\n *\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n */\n\nimport css from '../utils/css';\nimport saveDialogueContents from './saveDialogue.html';\nimport ControllerFactory from

'../controllers/ControllerFactory';\nimport
Controller from '../controllers/Controller';\nimport BooleanController from
'../controllers/BooleanController';\nimport FunctionController from '../controllers/FunctionController';\nimport
NumberControllerBox from '../controllers/NumberControllerBox';\nimport NumberControllerSlider from
'../controllers/NumberControllerSlider';\nimport ColorController from '../controllers/ColorController';\nimport
requestAnimationFrame from '../utils/requestAnimationFrame';\nimport CenteredDiv from
'../dom/CenteredDiv';\nimport dom from '../dom/dom';\nimport common from '../utils/common';\n\nimport
styleSheet from './style.scss'; // CSS to embed in build\n\ncss.inject(styleSheet);\n\n/** @ignore Outer-most
className for GUI's */\nconst CSS_NAMESPACE = 'dg';\n\nconst HIDE_KEY_CODE = 72;\n\n/** @ignore The
only value shared between the JS and SCSS. Use caution. */\nconst CLOSE_BUTTON_HEIGHT = 20;\n\nconst
DEFAULT_DEFAULT_PRESET_NAME = 'Default';\n\nconst SUPPORTS_LOCAL_STORAGE =
(function() {\n try {\n   return !!window.localStorage;\n } catch (e) {\n   return false;\n }\n}());\n\nlet
SAVE_DIALOGUE;\n\n/** @ignore Have we yet to create an autoPlace GUI? */\nlet autoPlaceVirgin =
true;\n\n/** @ignore Fixed position div that auto place GUI's go inside */\nlet autoPlaceContainer;\n\n/** @ignore
Are we hiding the GUI's ? */\nlet hide = false;\n\n/** @private GUI's which should be hidden */\nconst
hideableGuis = [];\n\n/**\n * @class A lightweight controller library for JavaScript. It allows you to easily\n *
manipulate variables and fire functions on the fly.\n *\n * @typicalname gui\n *\n * @example\n * // Creating a
GUI with options.\n * var gui = new dat.GUI({name: 'My GUI'});\n *\n * @example\n * // Creating a GUI and a
subfolder.\n * var gui = new dat.GUI();\n * var folder1 = gui.addFolder('Flow Field');\n *\n * @param {Object}
[params]\n * @param {String} [params.name] The name of this GUI.\n * @param {Object} [params.load] JSON
object representing the
saved state of\n * this GUI.\n * @param {dat.gui.GUI} [params.parent] The GUI I'm nested in.\n * @param
{Boolean} [params.autoPlace=true]\n * @param {Boolean} [params.hideable=true] If true, GUI is shown/hidden by
<kbd>h</kbd> keypress.\n * @param {Boolean} [params.closed=false] If true, starts closed\n * @param {Boolean}
[params.closeOnTop=false] If true, close/open button shows on top of the GUI\n */\nconst GUI = function(pars) {\n
const _this = this;\n\n let params = pars || {};\n\n /**\n   * Outermost DOM Element\n   * @type {DOMElement}\n
*/\n this.domElement = document.createElement('div');\n this.__ul = document.createElement('ul');\n
this.domElement.appendChild(this.__ul);\n\n dom.addClass(this.domElement, CSS_NAMESPACE);\n\n /**\n   *
Nested GUI's by name\n   * @ignore\n   */\n this.__folders = {};\n\n this.__controllers = [];\n\n /**\n   * List of
objects I'm remembering for save, only used in top level GUI\n   * @ignore\n   */\n this.__rememberedObjects =
[];\n\n
  /**\n   * Maps the index of remembered objects to a map of controllers, only used\n   * in top level GUI.\n   *\n   *
@private\n   * @ignore\n   *\n   * @example\n   * [\n   * {\n   *   propertyName: Controller,\n   *
anotherPropertyName: Controller\n   * },\n   * {\n   *   propertyName: Controller\n   * }\n   *]\n   */\n
this.__rememberedObjectIndecesToControllers = [];\n\n this.__listening = [];\n\n // Default parameters\n params =
common.defaults(params, {\n   closeOnTop: false,\n   autoPlace: true,\n   width: GUI.DEFAULT_WIDTH\n
});\n\n params = common.defaults(params, {\n   resizable: params.autoPlace,\n   hideable: params.autoPlace\n
});\n\n if (!common.isUndefined(params.load)) {\n   // Explicit preset\n   if (params.preset) {\n
params.load.preset = params.preset;\n   }\n } else {\n   params.load = { preset:
DEFAULT_DEFAULT_PRESET_NAME };\n }\n\n if (common.isUndefined(params.parent) &&
params.hideable) {\n   hideableGuis.push(this);\n
  }\n\n // Only root level GUI's are resizable.\n params.resizable = common.isUndefined(params.parent) &&
params.resizable;\n\n if (params.autoPlace && common.isUndefined(params.scrollable)) {\n   params.scrollable =
true;\n }\n//   params.scrollable = common.isUndefined(params.parent) && params.scrollable === true;\n\n // Not
part of params because I don't want people passing this in via\n // constructor. Should be a 'remembered' value.\n
let useLocalStorage =\n   SUPPORTS_LOCAL_STORAGE &&\n
localStorage.getItem(getLocalStorageHash(this, 'isLocal')) === 'true';\n\n let saveToLocalStorage;\n let
titleRow;\n\n Object.defineProperties(this,\n   /** @lends GUI.prototype */\n   {\n   /**\n   * The parent

<code>GUI</code>\n * @type dat.gui.GUI\n */\n parent: {\n get: function() {\n return params.parent;\n }\n },\n\n scrollable: {\n get: function() {\n return params.scrollable;\n }\n

},\n\n /**\n * Handles <code>GUI</code>'s element placement for you\n * @type Boolean\n */\n autoPlace: {\n get: function() {\n return params.autoPlace;\n }\n },\n\n /**\n * Handles <code>GUI</code>'s position of open/close button\n * @type Boolean\n */\n closeOnTop: {\n get: function() {\n return params.closeOnTop;\n }\n },\n\n /**\n * The identifier for a set of saved values\n * @type String\n */\n preset: {\n get: function() {\n if (_this.parent) {\n return _this.getRoot().preset;\n }\n\n return params.load.preset;\n },\n\n set: function(v) {\n if (_this.parent) {\n _this.getRoot().preset = v;\n } else {\n params.load.preset = v;\n }\n setPresetSelectIndex(this);\n _this.revert();\n }\n },\n\n /**\n
* The width of <code>GUI</code> element\n * @type Number\n */\n width: {\n get: function() {\n return params.width;\n },\n set: function(v) {\n params.width = v;\n setWidth(_this, v);\n }\n },\n\n /**\n * The name of <code>GUI</code>. Used for folders. i.e\n * a folder's name\n * @type String\n */\n name: {\n get: function() {\n return params.name;\n },\n set: function(v) {\n // TODO Check for collisions among sibling folders\n params.name = v;\n if (titleRow) {\n titleRow.innerHTML = params.name;\n }\n }\n },\n\n /**\n * Whether the <code>GUI</code> is collapsed or not\n * @type Boolean\n */\n closed: {\n get: function() {\n return params.closed;\n },\n set: function(v) {\n params.closed = v;\n if (params.closed) {\n dom.addClass(_this.__ul, GUI.CLASS_CLOSED);\n } else {\n dom.removeClass(_this.__ul, GUI.CLASS_CLOSED);\n }\n // For browsers that aren't going to respect the CSS transition,\n // Lets just check our height against the window height right off\n // the bat.\n this.onResize();\n\n if (_this.__closeButton) {\n _this.__closeButton.innerHTML = v ? GUI.TEXT_OPEN : GUI.TEXT_CLOSED;\n }\n }\n },\n\n /**\n * Contains all presets\n * @type Object\n */\n load: {\n get: function() {\n return params.load;\n }\n },\n\n /**\n
* Determines whether or not to use localStorage as the means for\n * <code>remember</code>ing\n * @type Boolean\n */\n useLocalStorage: {\n\n get: function() {\n return useLocalStorage;\n
},\n set: function(bool) {\n if (SUPPORTS_LOCAL_STORAGE) {\n useLocalStorage = bool;\n if (bool) {\n dom.bind(window, 'unload', saveToLocalStorage);\n } else {\n dom.unbind(window, 'unload', saveToLocalStorage);\n }\n localStorage.setItem(getLocalStorageHash(_this, 'isLocal'), bool);\n }\n }\n }\n });\n\n // Are we a root level GUI?\n if (common.isUndefined(params.parent)) {\n this.closed = params.closed || false;\n\n dom.addClass(this.domElement, GUI.CLASS_MAIN);\n dom.makeSelectable(this.domElement, false);\n\n // Are we supposed to be loading locally?\n if (SUPPORTS_LOCAL_STORAGE) {\n if (useLocalStorage) {\n _this.useLocalStorage = true;\n\n const savedGui = localStorage.getItem(getLocalStorageHash(this, 'gui'));\n\n if (savedGui) {\n params.load = JSON.parse(savedGui);\n }\n }\n }\n\n this.__closeButton = document.createElement('div');\n this.__closeButton.innerHTML = GUI.TEXT_CLOSED;\n dom.addClass(this.__closeButton, GUI.CLASS_CLOSE_BUTTON);\n if (params.closeOnTop) {\n dom.addClass(this.__closeButton, GUI.CLASS_CLOSE_TOP);\n this.domElement.insertBefore(this.__closeButton, this.domElement.childNodes[0]);\n } else {\n dom.addClass(this.__closeButton, GUI.CLASS_CLOSE_BOTTOM);\n this.domElement.appendChild(this.__closeButton);\n }\n\n dom.bind(this.__closeButton, 'click', function() {\n _this.closed = !_this.closed;\n });\n // Oh, you're a nested GUI!\n } else {\n if (params.closed === undefined) {\n params.closed = true;\n }\n\n const titleRowName = document.createTextNode(params.name);\n dom.addClass(titleRowName, 'controller-name');\n\n titleRow = addRow(_this, titleRowName);\n\n const onClickTitle = function(e) {\n e.preventDefault();\n _this.closed = !_this.closed;\n return

```
 false;\n    };\n\n    dom.addClass(this.__ul, GUI.CLASS_CLOSED);\n\n    dom.addClass(titleRow, 'title');\n
dom.bind(titleRow, 'click', onClickTitle);\n\n    if (!params.closed) {\n      this.closed = false;\n    }\n  }\n\n  if
(params.autoPlace) {\n    if (common.isUndefined(params.parent)) {\n      if (autoPlaceVirgin) {\n
autoPlaceContainer = document.createElement('div');\n        dom.addClass(autoPlaceContainer,
CSS_NAMESPACE);\n        dom.addClass(autoPlaceContainer, GUI.CLASS_AUTO_PLACE_CONTAINER);\n
  document.body.appendChild(autoPlaceContainer);\n        autoPlaceVirgin = false;\n      }\n\n      // Put it in the dom
for you.\n      autoPlaceContainer.appendChild(this.domElement);\n\n      // Apply the auto styles\n
dom.addClass(this.domElement, GUI.CLASS_AUTO_PLACE);\n    }\n\n\n    // Make it not elastic.\n    if
(!this.parent) {\n      setWidth(_this, params.width);\n    }\n  }\n\n  this.__resizeHandler = function() {\n
_this.onResizeDebounced();\n
  };\n\n  dom.bind(window, 'resize', this.__resizeHandler);\n  dom.bind(this.__ul, 'webkitTransitionEnd',
this.__resizeHandler);\n  dom.bind(this.__ul, 'transitionend', this.__resizeHandler);\n  dom.bind(this.__ul,
'oTransitionEnd', this.__resizeHandler);\n  this.onResize();\n\n  if (params.resizable) {\n    addResizeHandle(this);\n
}\n\n  saveToLocalStorage = function() {\n    if (SUPPORTS_LOCAL_STORAGE &&
localStorage.getItem(getLocalStorageHash(_this, 'isLocal')) === 'true') {\n
localStorage.setItem(getLocalStorageHash(_this, 'gui'), JSON.stringify(_this.getSaveObject()));\n    }\n  };\n\n  //
expose this method publicly\n  this.saveToLocalStorageIfPossible = saveToLocalStorage;\n\n  function resetWidth()
{\n    const root = _this.getRoot();\n    root.width += 1;\n    common.defer(function() {\n      root.width -= 1;\n
});\n  }\n\n  if (!params.parent) {\n    resetWidth();\n  }\n};\n\nGUI.toggleHide = function() {\n  hide = !hide;\n
common.each(hideableGuis, function(gui)
 {\n    gui.domElement.style.display = hide ? 'none' : '';\n  });\n};\n\nGUI.CLASS_AUTO_PLACE =
'a';\nGUI.CLASS_AUTO_PLACE_CONTAINER = 'ac';\nGUI.CLASS_MAIN =
'main';\nGUI.CLASS_CONTROLLER_ROW = 'cr';\nGUI.CLASS_TOO_TALL = 'taller-than-
window';\nGUI.CLASS_CLOSED = 'closed';\nGUI.CLASS_CLOSE_BUTTON = 'close-
button';\nGUI.CLASS_CLOSE_TOP = 'close-top';\nGUI.CLASS_CLOSE_BOTTOM = 'close-
bottom';\nGUI.CLASS_DRAG = 'drag';\n\nGUI.DEFAULT_WIDTH = 245;\nGUI.TEXT_CLOSED = 'Close
Controls';\nGUI.TEXT_OPEN = 'Open Controls';\n\nGUI._keydownHandler = function(e) {\n  if
(document.activeElement.type !== 'text' &&\n    (e.which === HIDE_KEY_CODE || e.keyCode ===
HIDE_KEY_CODE)) {\n    GUI.toggleHide();\n  }\n};\ndom.bind(window, 'keydown', GUI._keydownHandler,
false);\n\ncommon.extend(\n  GUI.prototype,\n\n  /** @lends GUI.prototype */\n  {\n\n    /**\n     * Adds a new
{@link Controller} to the GUI. The type of controller created\n     * is inferred from the initial value of
<code>object[property]</code>.
 For\n     * color properties, see {@link addColor}.\n     *\n     * @param {Object} object The object to be
manipulated\n     * @param {String} property The name of the property to be manipulated\n     * @param
{Number} [min] Minimum allowed value\n     * @param {Number} [max] Maximum allowed value\n     * @param
{Number} [step] Increment by which to change value\n     * @returns {Controller} The controller that was added to
the GUI.\n     * @instance\n     *\n     * @example\n     * // Add a string controller.\n     * var person = {name:
'Sam'};\n     * gui.add(person, 'name');\n     *\n     * @example\n     * // Add a number controller slider.\n     * var
person = {age: 45};\n     * gui.add(person, 'age', 0, 100);\n     */\n    add: function(object, property) {\n      return
add(\n        this,\n        object,\n        property,\n        {\n          factoryArgs: Array.prototype.slice.call(arguments, 2)\n
        }\n      );\n    },\n\n    /**\n     * Adds a new color controller
 to the GUI.\n     *\n     * @param object\n     * @param property\n     * @returns {Controller} The controller that
was added to the GUI.\n     * @instance\n     *\n     * @example\n     * var palette = {\n     *   color1: '#FF0000', //
CSS string\n     *   color2: [ 0, 128, 255 ], // RGB array\n     *   color3: [ 0, 128, 255, 0.3 ], // RGB with alpha\n     *
color4: { h: 350, s: 0.9, v: 0.3 } // Hue, saturation, value\n     * };\n     * gui.addColor(palette, 'color1');\n     *
gui.addColor(palette, 'color2');\n     * gui.addColor(palette, 'color3');\n     * gui.addColor(palette, 'color4');\n     */\n
addColor: function(object, property) {\n      return add(\n        this,\n        object,\n        property,\n        {\n
color: true\n        }\n      );\n    },\n\n    /**\n     * Removes the given controller from the GUI.\n     * @param
```

```
{Controller} controller\n     * @instance\n     */\n    remove: function(controller) {\n      // TODO listening?\n
this.__ul.removeChild(controller.__li);\n
    this.__controllers.splice(this.__controllers.indexOf(controller), 1);\n      const _this = this;\n
common.defer(function() {\n        _this.onResize();\n      });\n    },\n\n    /**\n     * Removes the root GUI from the
document and unbinds all event listeners.\n     * For subfolders, use `gui.removeFolder(folder)` instead.\n     *
@instance\n     */\n    destroy: function() {\n      if (this.parent) {\n        throw new Error(\n          'Only the root GUI
should be removed with .destroy(). ' +\n          'For subfolders, use gui.removeFolder(folder) instead.'\n        );\n
}\n\n      if (this.autoPlace) {\n        autoPlaceContainer.removeChild(this.domElement);\n      }\n\n      const _this =
this;\n      common.each(this.__folders, function(subfolder) {\n        _this.removeFolder(subfolder);\n      });\n\n
dom.unbind(window, 'keydown', GUI._keydownHandler, false);\n\n      removeListeners(this);\n    },\n\n    /**\n     *
Creates
 a new subfolder GUI instance.\n     * @param name\n     * @returns {dat.gui.GUI} The new folder.\n     * @throws
{Error} if this GUI already has a folder by the specified\n     * name\n     * @instance\n     */\n    addFolder:
function(name) {\n      // We have to prevent collisions on names in order to have a key\n      // by which to
remember saved values\n      if (this.__folders[name] !== undefined) {\n        throw new Error('You already have a
folder in this GUI by the' +\n          ' name \"' + name + '\"');\n      }\n\n      const newGuiParams = { name: name,
parent: this };\n\n      // We need to pass down the autoPlace trait so that we can\n      // attach event listeners to
open/close folder actions to\n      // ensure that a scrollbar appears if the window is too short.\n
newGuiParams.autoPlace = this.autoPlace;\n\n      // Do we have saved appearance data for this folder?\n      if
(this.load && // Anything loaded?\n          this.load.folders && // Was my parent a dead-end?\n
        this.load.folders[name]) { // Did daddy remember me?\n        // Start me closed if I was closed\n
newGuiParams.closed = this.load.folders[name].closed;\n\n        // Pass down the loaded data\n
newGuiParams.load = this.load.folders[name];\n      }\n\n      const gui = new GUI(newGuiParams);\n
this.__folders[name] = gui;\n\n      const li = addRow(this, gui.domElement);\n      dom.addClass(li, 'folder');\n
return gui;\n    },\n\n    /**\n     * Removes a subfolder GUI instance.\n     * @param {dat.gui.GUI} folder The
folder to remove.\n     * @instance\n     */\n    removeFolder: function(folder) {\n
this.__ul.removeChild(folder.domElement.parentElement);\n\n      delete this.__folders[folder.name];\n\n      // Do
we have saved appearance data for this folder?\n      if (this.load && // Anything loaded?\n          this.load.folders &&
// Was my parent a dead-end?\n          this.load.folders[folder.name]) {\n        delete this.load.folders[folder.name];\n
    }\n\n      removeListeners(folder);\n\n      const _this = this;\n\n      common.each(folder.__folders,
function(subfolder) {\n        folder.removeFolder(subfolder);\n      });\n\n      common.defer(function() {\n
_this.onResize();\n      });\n    },\n\n    /**\n     * Opens the GUI.\n     */\n    open: function() {\n      this.closed =
false;\n    },\n\n    /**\n     * Closes the GUI.\n     */\n    close: function() {\n      this.closed = true;\n    },\n\n    /**\n
* Hides the GUI.\n     */\n    hide: function() {\n      this.domElement.style.display = 'none';\n    },\n\n    /**\n     *
Shows the GUI.\n     */\n    show: function() {\n      this.domElement.style.display = '';\n    },\n\n\n    onResize:
function() {\n      // we debounce this function to prevent performance issues when rotating on tablet/mobile\n
const root = this.getRoot();\n      if (root.scrollable) {\n        const top = dom.getOffset(root.__ul).top;\n        let h =
0;\n\n        common.each(root.__ul.childNodes,
 function(node) {\n          if (!(root.autoPlace && node === root.__save_row)) {\n            h +=
dom.getHeight(node);\n          }\n        });\n\n        if (window.innerHeight - top - CLOSE_BUTTON_HEIGHT < h)
{\n          dom.addClass(root.domElement, GUI.CLASS_TOO_TALL);\n          root.__ul.style.height =
window.innerHeight - top - CLOSE_BUTTON_HEIGHT + 'px';\n        } else {\n
dom.removeClass(root.domElement, GUI.CLASS_TOO_TALL);\n          root.__ul.style.height = 'auto';\n        }\n
}\n\n      if (root.__resize_handle) {\n        common.defer(function() {\n          root.__resize_handle.style.height =
root.__ul.offsetHeight + 'px';\n        });\n      }\n\n      if (root.__closeButton) {\n        root.__closeButton.style.width
= root.width + 'px';\n      }\n    },\n\n    onResizeDebounced: common.debounce(function() { this.onResize(); },
50),\n\n    /**\n     * Mark objects for saving. The order of these objects cannot change as\n
```

```
 * the GUI grows. When remembering new objects, append them to the end\n * of the list.\n *\n * @param {...Object} objects\n * @throws {Error} if not called on a top level GUI.\n * @instance\n * @ignore\n */\n remember: function() {\n if (common.isUndefined(SAVE_DIALOGUE)) {\n SAVE_DIALOGUE = new CenteredDiv();\n SAVE_DIALOGUE.domElement.innerHTML = saveDialogueContents;\n }\n\n if (this.parent) {\n throw new Error('You can only call remember on a top level GUI.');\n }\n\n const _this = this;\n\n common.each(Array.prototype.slice.call(arguments), function(object) {\n if (_this.__rememberedObjects.length === 0) {\n addSaveMenu(_this);\n }\n if (_this.__rememberedObjects.indexOf(object) === -1) {\n _this.__rememberedObjects.push(object);\n }\n });\n\n if (this.autoPlace) {\n // Set save row width\n setWidth(this, this.width);\n }\n },\n\n /**\n * @returns {dat.gui.GUI} the topmost parent GUI of a nested GUI.\n * @instance\n */\n getRoot: function() {\n let gui = this;\n while (gui.parent) {\n gui = gui.parent;\n }\n return gui;\n },\n\n /**\n * @returns {Object} a JSON object representing the current state of\n * this GUI as well as its remembered properties.\n * @instance\n */\n getSaveObject: function() {\n const toReturn = this.load;\n toReturn.closed = this.closed;\n\n // Am I remembering any values?\n if (this.__rememberedObjects.length > 0) {\n toReturn.preset = this.preset;\n\n if (!toReturn.remembered) {\n toReturn.remembered = {};\n }\n\n toReturn.remembered[this.preset] = getCurrentPreset(this);\n }\n\n toReturn.folders = {};\n common.each(this.__folders, function(element, key) {\n toReturn.folders[key] = element.getSaveObject();\n });\n\n return toReturn;\n },\n\n save: function() {\n if (!this.load.remembered) {\n this.load.remembered = {};\n }\n\n this.load.remembered[this.preset] = getCurrentPreset(this);\n markPresetModified(this, false);\n this.saveToLocalStorageIfPossible();\n },\n\n saveAs: function(presetName) {\n if (!this.load.remembered) {\n // Retain default values upon first save\n this.load.remembered = {};\n this.load.remembered[DEFAULT_DEFAULT_PRESET_NAME] = getCurrentPreset(this, true);\n }\n\n this.load.remembered[presetName] = getCurrentPreset(this);\n this.preset = presetName;\n addPresetOption(this, presetName, true);\n this.saveToLocalStorageIfPossible();\n },\n\n revert: function(gui) {\n common.each(this.__controllers, function(controller) {\n // Make revert work on Default.\n if (!this.getRoot().load.remembered) {\n controller.setValue(controller.initialValue);\n } else {\n recallSavedValue(gui || this.getRoot(), controller);\n }\n\n // fire onFinishChange callback\n if (controller.__onFinishChange) {\n controller.__onFinishChange.call(controller, controller.getValue());\n }\n }, this);\n\n common.each(this.__folders, function(folder) {\n folder.revert(folder);\n });\n\n if (!gui) {\n markPresetModified(this.getRoot(), false);\n }\n },\n\n listen: function(controller) {\n const init = this.__listening.length === 0;\n this.__listening.push(controller);\n if (init) {\n updateDisplays(this.__listening);\n }\n },\n\n updateDisplay: function() {\n common.each(this.__controllers, function(controller) {\n controller.updateDisplay();\n });\n common.each(this.__folders, function(folder) {\n folder.updateDisplay();\n });\n }\n });\n\n/**\n * Add a row to the end of the GUI or before another row.\n *\n * @param gui\n * @param [newDom] If specified, inserts the dom content in the new row\n * @param [liBefore] If specified, places the new row before another row\n *\n * @ignore\n */\nfunction addRow(gui, newDom, liBefore) {\n const li = document.createElement('li');\n if (newDom) {\n li.appendChild(newDom);\n }\n\n if (liBefore) {\n gui.__ul.insertBefore(li, liBefore);\n } else {\n gui.__ul.appendChild(li);\n }\n gui.onResize();\n return li;\n}\n\nfunction removeListeners(gui) {\n dom.unbind(window, 'resize', gui.__resizeHandler);\n\n if (gui.saveToLocalStorageIfPossible) {\n dom.unbind(window, 'unload', gui.saveToLocalStorageIfPossible);\n }\n}\n\nfunction markPresetModified(gui, modified) {\n const opt = gui.__preset_select[gui.__preset_select.selectedIndex];\n\n if (modified) {\n opt.innerHTML = opt.value + '*';\n } else {\n opt.innerHTML = opt.value;\n }\n}\n\nfunction augmentController(gui, li, controller) {\n controller.__li = li;\n controller.__gui
 = gui;\n\n common.extend(controller, /** @lends Controller.prototype */ {\n /**\n * @param {Array|Object} options\n * @return {Controller}\n */\n options: function(options) {\n if (arguments.length > 1) {\n
```

```
const nextSibling = controller.__li.nextElementSibling;\n controller.remove();\n\n return add(\n gui,\n controller.object,\n controller.property,\n {\n before: nextSibling,\n factoryArgs: [common.toArray(arguments)]\n }\n );\n }\n\n if (common.isArray(options) || common.isObject(options)) {\n const nextSibling = controller.__li.nextElementSibling;\n controller.remove();\n\n return add(\n gui,\n controller.object,\n controller.property,\n {\n before: nextSibling,\n factoryArgs: [options]\n }\n );\n }\n },\n\n /**\n * Sets the name of the
 controller.\n * @param {string} name\n * @return {Controller}\n */\n name: function(name) {\n controller.__li.firstElementChild.firstElementChild.innerHTML = name;\n return controller;\n },\n\n /**\n * Sets controller to listen for changes on its underlying object.\n * @return {Controller}\n */\n listen: function() {\n controller.__gui.listen(controller);\n return controller;\n },\n\n /**\n * Removes the controller from its parent GUI.\n * @return {Controller}\n */\n remove: function() {\n controller.__gui.remove(controller);\n return controller;\n }\n });\n\n // All sliders should be accompanied by a box.\n if (controller instanceof NumberControllerSlider) {\n const box = new NumberControllerBox(controller.object, controller.property,\n { min: controller.__min, max: controller.__max, step: controller.__step });\n\n common.each(['updateDisplay', 'onChange', 'onFinishChange', 'step', 'min', 'max'], function(method) {\n const pc = controller[method];\n const pb = box[method];\n controller[method] = box[method] = function() {\n const args = Array.prototype.slice.call(arguments);\n pb.apply(box, args);\n return pc.apply(controller, args);\n };\n });\n\n dom.addClass(li, 'has-slider');\n controller.domElement.insertBefore(box.domElement, controller.domElement.firstElementChild);\n } else if (controller instanceof NumberControllerBox) {\n const r = function(returned) {\n // Have we defined both boundaries?\n if (common.isNumber(controller.__min) && common.isNumber(controller.__max)) {\n // Well, then lets just replace this with a slider.\n\n // lets remember if the old controller had a specific name or was listening\n const oldName = controller.__li.firstElementChild.firstElementChild.innerHTML;\n const wasListening = controller.__gui.__listening.indexOf(controller) > -1;\n\n controller.remove();\n const newController = add(\n gui,\n controller.object,\n controller.property,\n {\n before: controller.__li.nextElementSibling,\n factoryArgs: [controller.__min, controller.__max, controller.__step]\n });\n\n newController.name(oldName);\n if (wasListening) newController.listen();\n\n return newController;\n }\n\n return returned;\n };\n\n controller.min = common.compose(r, controller.min);\n controller.max = common.compose(r, controller.max);\n } else if (controller instanceof BooleanController) {\n dom.bind(li, 'click', function() {\n dom.fakeEvent(controller.__checkbox, 'click');\n });\n\n dom.bind(controller.__checkbox, 'click', function(e) {\n e.stopPropagation(); // Prevents double-toggle\n });\n } else if (controller instanceof FunctionController) {\n dom.bind(li, 'click', function() {\n dom.fakeEvent(controller.__button, 'click');\n });\n\n dom.bind(li, 'mouseover', function() {\n dom.addClass(controller.__button, 'hover');\n });\n\n dom.bind(li, 'mouseout', function() {\n dom.removeClass(controller.__button, 'hover');\n });\n } else if (controller instanceof ColorController) {\n dom.addClass(li, 'color');\n controller.updateDisplay = common.compose(function(val) {\n li.style.borderLeftColor = controller.__color.toString();\n return val;\n }, controller.updateDisplay);\n\n controller.updateDisplay();\n }\n\n controller.setValue = common.compose(function(val) {\n if (gui.getRoot().__preset_select && controller.isModified()) {\n markPresetModified(gui.getRoot(), true);\n }\n\n return val;\n }, controller.setValue);\n}\n\nfunction recallSavedValue(gui, controller) {\n // Find the topmost GUI, that's where remembered objects live.\n const root = gui.getRoot();\n\n // Does the object we're controlling match anything we've
 been told to\n // remember?\n const matchedIndex = root.__rememberedObjects.indexOf(controller.object);\n\n // Why yes, it does!\n if (matchedIndex !== -1) {\n // Let me fetch a map of controllers for thcommon.isObject.\n let controllerMap = root.__rememberedObjectIndecesToControllers[matchedIndex];\n\n // Ohp, I believe this is the first controller we've created for this\n // object. Lets make the map fresh.\n if (controllerMap === undefined) {\n controllerMap = {};\n root.__rememberedObjectIndecesToControllers[matchedIndex] =\n
```

```
controllerMap;\n    }\n\n    // Keep track of this controller\n    controllerMap[controller.property] = controller;\n\n
// Okay, now have we saved any values for this controller?\n    if (root.load && root.load.remembered) {\n      const
presetMap = root.load.remembered;\n\n      // Which preset are we trying to load?\n      let preset;\n\n      if
(presetMap[gui.preset]) {\n        preset = presetMap[gui.preset];\n
 } else if (presetMap[DEFAULT_DEFAULT_PRESET_NAME]) {\n        // Uhh, you can have the default
instead?\n        preset = presetMap[DEFAULT_DEFAULT_PRESET_NAME];\n      } else {\n        // Nada.\n
return;\n      }\n\n      // Did the loaded object remember thcommon.isObject? &&  Did we remember this particular
property?\n      if (preset[matchedIndex] && preset[matchedIndex][controller.property] !== undefined) {\n        //
We did remember something for this guy ...\n        const value = preset[matchedIndex][controller.property];\n\n
// And that's what it is.\n        controller.initialValue = value;\n        controller.setValue(value);\n      }\n    }\n
}\n}\n\nfunction add(gui, object, property, params) {\n  if (object[property] === undefined) {\n    throw new
Error(`Object \"${object}\" has no property \"${property}\"`);\n  }\n\n  let controller;\n\n  if (params.color) {\n
controller = new ColorController(object, property);\n  } else {\n    const factoryArgs = [object,
 property].concat(params.factoryArgs);\n    controller = ControllerFactory.apply(gui, factoryArgs);\n  }\n\n  if
(params.before instanceof Controller) {\n    params.before = params.before.__li;\n  }\n\n  recallSavedValue(gui,
controller);\n\n  dom.addClass(controller.domElement, 'c');\n\n  const name = document.createElement('span');\n
dom.addClass(name, 'property-name');\n  name.innerHTML = controller.property;\n\n  const container =
document.createElement('div');\n  container.appendChild(name);\n
container.appendChild(controller.domElement);\n\n  const li = addRow(gui, container, params.before);\n\n
dom.addClass(li, GUI.CLASS_CONTROLLER_ROW);\n  if (controller instanceof ColorController) {\n
dom.addClass(li, 'color');\n  } else {\n    dom.addClass(li, typeof controller.getValue());\n  }\n\n
augmentController(gui, li, controller);\n\n  gui.__controllers.push(controller);\n\n  return controller;\n}\n\nfunction
getLocalStorageHash(gui, key) {\n  // TODO how does this deal with
 multiple GUI's?\n  return document.location.href + '.' + key;\n}\n\nfunction addPresetOption(gui, name,
setSelected) {\n  const opt = document.createElement('option');\n  opt.innerHTML = name;\n  opt.value = name;\n
gui.__preset_select.appendChild(opt);\n  if (setSelected) {\n    gui.__preset_select.selectedIndex =
gui.__preset_select.length - 1;\n  }\n}\n\nfunction showHideExplain(gui, explain) {\n  explain.style.display =
gui.useLocalStorage ? 'block' : 'none';\n}\n\nfunction addSaveMenu(gui) {\n  const div = gui.__save_row =
document.createElement('li');\n\n  dom.addClass(gui.domElement, 'has-save');\n\n  gui.__ul.insertBefore(div,
gui.__ul.firstChild);\n\n  dom.addClass(div, 'save-row');\n\n  const gears = document.createElement('span');\n
gears.innerHTML = ' ';\n  dom.addClass(gears, 'button gears');\n\n  // TODO replace with
FunctionController\n  const button = document.createElement('span');\n  button.innerHTML = 'Save';\n
dom.addClass(button, 'button');\n  dom.addClass(button,
 'save');\n\n  const button2 = document.createElement('span');\n  button2.innerHTML = 'New';\n
dom.addClass(button2, 'button');\n  dom.addClass(button2, 'save-as');\n\n  const button3 =
document.createElement('span');\n  button3.innerHTML = 'Revert';\n  dom.addClass(button3, 'button');\n
dom.addClass(button3, 'revert');\n\n  const select = gui.__preset_select = document.createElement('select');\n\n  if
(gui.load && gui.load.remembered) {\n    common.each(gui.load.remembered, function(value, key) {\n
addPresetOption(gui, key, key === gui.preset);\n    });\n  } else {\n    addPresetOption(gui,
DEFAULT_DEFAULT_PRESET_NAME, false);\n  }\n\n  dom.bind(select, 'change', function() {\n    for (let index
= 0; index < gui.__preset_select.length; index++) {\n      gui.__preset_select[index].innerHTML =
gui.__preset_select[index].value;\n    }\n\n    gui.preset = this.value;\n  });\n\n  div.appendChild(select);\n
div.appendChild(gears);\n  div.appendChild(button);\n  div.appendChild(button2);\n
  div.appendChild(button3);\n\n  if (SUPPORTS_LOCAL_STORAGE) {\n    const explain =
document.getElementById('dg-local-explain');\n    const localStorageCheckBox = document.getElementById('dg-
local-storage');\n    const saveLocally = document.getElementById('dg-save-locally');\n\n
saveLocally.style.display = 'block';\n\n    if (localStorage.getItem(getLocalStorageHash(gui, 'isLocal')) === 'true')
{\n      localStorageCheckBox.setAttribute('checked', 'checked');\n    }\n\n    showHideExplain(gui, explain);\n\n    //
```

TODO: Use a boolean controller, fool!\n dom.bind(localStorageCheckBox, 'change', function() {\n gui.useLocalStorage = !gui.useLocalStorage;\n showHideExplain(gui, explain);\n });\n }\n\n const newConstructorTextArea = document.getElementById('dg-new-constructor');\n\n dom.bind(newConstructorTextArea, 'keydown', function(e) {\n if (e.metaKey && (e.which === 67 || e.keyCode === 67)) {\n SAVE_DIALOGUE.hide();\n }\n });\n\n dom.bind(gears, 'click', function() {\n newConstructorTextArea.innerHTML = JSON.stringify(gui.getSaveObject(), undefined, 2);\n SAVE_DIALOGUE.show();\n newConstructorTextArea.focus();\n newConstructorTextArea.select();\n });\n\n dom.bind(button, 'click', function() {\n gui.save();\n });\n\n dom.bind(button2, 'click', function() {\n const presetName = prompt('Enter a new preset name.');\n if (presetName) {\n gui.saveAs(presetName);\n }\n });\n\n dom.bind(button3, 'click', function() {\n gui.revert();\n });\n\n // div.appendChild(button2);\n}\n\nfunction addResizeHandle(gui) {\n let pmouseX;\n\n gui.__resize_handle = document.createElement('div');\n\n common.extend(gui.__resize_handle.style, {\n\n width: '6px',\n marginLeft: '-3px',\n height: '200px',\n cursor: 'ew-resize',\n position: 'absolute'\n // border: '1px solid blue'\n\n });\n\n function drag(e) {\n e.preventDefault();\n\n gui.width += pmouseX - e.clientX;\n gui.onResize();\n pmouseX = e.clientX;\n\n return false;\n }\n\n function dragStop() {\n dom.removeClass(gui.__closeButton, GUI.CLASS_DRAG);\n dom.unbind(window, 'mousemove', drag);\n dom.unbind(window, 'mouseup', dragStop);\n }\n\n function dragStart(e) {\n e.preventDefault();\n\n pmouseX = e.clientX;\n\n dom.addClass(gui.__closeButton, GUI.CLASS_DRAG);\n dom.bind(window, 'mousemove', drag);\n dom.bind(window, 'mouseup', dragStop);\n\n return false;\n }\n\n dom.bind(gui.__resize_handle, 'mousedown', dragStart);\n dom.bind(gui.__closeButton, 'mousedown', dragStart);\n\n gui.domElement.insertBefore(gui.__resize_handle, gui.domElement.firstElementChild);\n}\n\nfunction setWidth(gui, w) {\n gui.domElement.style.width = w + 'px';\n // Auto placed save-rows are position fixed, so we have to\n // set the width manually if we want it to bleed to the edge\n if (gui.__save_row && gui.autoPlace) {\n gui.__save_row.style.width = w + 'px';\n }\n if (gui.__closeButton) {\n gui.__closeButton.style.width = w + 'px';\n }\n}\n\nfunction getCurrentPreset(gui, useInitialValues) {\n const toReturn = {};\n\n // For each object I'm remembering\n common.each(gui.__rememberedObjects, function(val, index) {\n const savedValues = {};\n\n // The controllers I've made for thcommon.isObject by property\n const controllerMap =\n gui.__rememberedObjectIndecesToControllers[index];\n\n // Remember each value for each property\n common.each(controllerMap, function(controller, property) {\n savedValues[property] = useInitialValues ? controller.initialValue : controller.getValue();\n });\n\n // Save the values for thcommon.isObject\n toReturn[index] = savedValues;\n });\n\n return toReturn;\n}\n\nfunction setPresetSelectIndex(gui) {\n for (let index = 0; index < gui.__preset_select.length; index++) {\n if (gui.__preset_select[index].value === gui.preset) {\n gui.__preset_select.selectedIndex = index;\n }\n }\n}\n\nfunction updateDisplays(controllerArray) {\n if (controllerArray.length !== 0) {\n requestAnimationFrame.call(window, function() {\n updateDisplays(controllerArray);\n });\n }\n\n common.each(controllerArray, function(c) {\n c.updateDisplay();\n });\n}\n\nexport default GUI;\n","// stats.js - http://github.com/mrdoob/stats.js\n(function(f,e){\"object\"===typeof exports&&\"undefined\"!==typeof module?module.exports=e():\"function\"===typeof define&&define.amd?define(e):f.Stats=e()})(this,function(){var f=function(){function e(a){c.appendChild(a.dom);return a}function u(a){for(var d=0;d<c.children.length;d++)c.children[d].style.display=d===a?\"block\":\"none\";l=a}var l=0,c=document.createElement(\"div\");c.style.cssText=\"position:fixed;top:0;left:0;cursor:pointer;opacity:0.9;z-index:10000\";c.addEventListener(\"click\",function(a){a.preventDefault();\nu(++l%c.children.length)},!1);var k=(performance||Date).now(),g=k,a=0,r=e(new f.Panel(\"FPS\",\"#0ff\",\"#002\")),h=e(new f.Panel(\"MS\",\"#0f0\",\"#020\"));if(self.performance&&self.performance.memory)var t=e(new f.Panel(\"MB\",\"#f08\",\"#201\"));u(0);return{REVISION:16,dom:c,addPanel:e,showPanel:u,begin:function(){k=(performance||Date).now()},end:function(){a++;var c=(performance||Date).now();h.update(c-k,200);if(c>g+1E3&&(r.update(1E3*a/(c-g),100),g=c,a=0,t)){var d=performance.memory;t.update(d.usedJSHeapSize/\n1048576,d.jsHeapSizeLimit/1048576)}return

c},update:function(){k=this.end()},domElement:c,setMode:u}};f.Panel=function(e,f,l){var c=Infinity,k=0,g=Math.round,a=g(window.devicePixelRatio||1),r=80*a,h=48*a,t=3*a,v=2*a,d=3*a,m=15*a,n=74*a,p=30*a,q=document.createElement(\"canvas\");q.width=r;q.height=h;q.style.cssText=\"width:80px;height:48px\";var b=q.getContext(\"2d\");b.font=\"bold \"+9*a+\"px Helvetica,Arial,sans-serif\";b.textBaseline=\"top\";b.fillStyle=l;b.fillRect(0,0,r,h);b.fillStyle=f;b.fillText(e,t,v);\nb.fillRect(d,m,n,p);b.fillStyle=l;b.globalAlpha=.9;b.fillRect(d,m,n,p);return{dom:q,update:function(h,w){c=Math.min(c,h);k=Math.max(k,h);b.fillStyle=l;b.globalAlpha=1;b.fillRect(0,0,r,m);b.fillStyle=f;b.fillText(g(h)+\" \"+e+\" (\"+g(c)+\"-\"+g(k)+\")\",t,v);b.drawImage(q,d+a,m,n-a,p,d,m,n-a,p);b.fillRect(d+n-a,m,a,p);b.fillStyle=l;b.globalAlpha=.9;b.fillRect(d+n-a,m,a,g((1-h/w)*p))}}};return f});\n","/**\n * @license\n * Copyright 2019 Google LLC. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * http://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *\n ==*/\nimport*as tf from\"@tensorflow/tfjs-core\";import{util,tidy,div,sub,buffer,Tensor,browser,pad3d,scalar,concat,tensor2d,tensor}from\"@tensorflow/tfjs-core\";import{loadGraphModel}from\"@tensorflow/tfjs-converter\";var VALID_OUTPUT_STRIDES=[8,16,32];function assertValidOutputStride(e){util.assert(\"number\"==typeof e,function(){return\"outputStride is not a number\"}),util.assert(VALID_OUTPUT_STRIDES.indexOf(e)>=0,function(){return\"outputStride of \"+e+\" is invalid. It must be either 8, 16, or 32\"})}function assertValidResolution(e,t){util.assert(\"number\"==typeof e,function(){return\"resolution is not a number\"}),util.assert((e-1)%t==0,function(){return\"resolution of \"+e+\" is invalid for output stride \"+t+\".\"})}function toFloatIfInt(e){return tidy(function(){return\"int32\"===e.dtype&&(e=e.toFloat()),e=div(e,127.5),sub(e,1)})}var MobileNet=function(){function e(e,t){this.model=e;var r=this.model.inputs[0].shape;util.assert(-1===r[1]&&-1===r[2],function(){return\"Input shape [\"+r[1]+\", \"+r[2]+\"] must both be -1\"}),this.outputStride=t}return e.prototype.predict=function(e){var t=this;return tidy(function(){var r=toFloatIfInt(e).expandDims(0),n=t.model.predict(r),o=n[0],i=n[1],s=n[2],a=n[3];return{heatmapScores:i.squeeze().sigmoid(),offsets:o.squeeze(),displacementFwd:s.squeeze(),displacementBwd:a.squeeze()}})},e.prototype.dispose=function(){this.model.dispose()},e}();function half(e){return Math.floor(e/2)}var MaxHeap=function(){function e(e,t){this.priorityQueue=new Array(e),this.numberOfElements=-1,this.getElementValue=t}return e.prototype.enqueue=function(e){this.priorityQueue[++this.numberOfElements]=e,this.swim(this.numberOfElements)},e.prototype.dequeue=function(){var e=this.priorityQueue[0];return this.exchange(0,this.numberOfElements--),this.sink(0),this.priorityQueue[this.numberOfElements+1]=null,e},e.prototype.empty=function(){return-1===this.numberOfElements},e.prototype.size=function(){return this.numberOfElements+1},e.prototype.all=function(){return this.priorityQueue.slice(0,this.numberOfElements+1)},e.prototype.max=function(){return this.priorityQueue[0]},e.prototype.swim=function(e){for(;e>0&&this.less(half(e),e);)this.exchange(e,half(e)),e=half(e)},e.prototype.sink=function(e){for(;2*e<=this.numberOfElements;){var t=2*e;if(t<this.numberOfElements&&this.less(t,t+1)&&t++,!this.less(e,t))break;this.exchange(e,t),e=t}},e.prototype.getValueAt=function(e){return this.getElementValue(this.priorityQueue[e])},e.prototype.less=function(e,t){return this.getValueAt(e)<this.getValueAt(t)},e.prototype.exchange=function(e,t){var r=this.priorityQueue[e];this.priorityQueue[e]=this.priorityQueue[t],this.priorityQueue[t]=r},e}();function scoreIsMaximumInLocalWindow(e,t,r,n,o,i){for(var s=i.shape,a=s[0],u=s[1],l=!0,f=Math.max(r-

```
o,0),c=Math.min(r+o+1,a),d=f;d<c;++d){for(var p=Math.max(n-
o,0),h=Math.min(n+o+1,u),m=p;m<h;++m)if(i.get(d,m,e)>t){l=!1;break}if(!l)break}return
 l}function buildPartWithScoreQueue(e,t,r){for(var n=r.shape,o=n[0],i=n[1],s=n[2],a=new
MaxHeap(o*i*s,function(e){return e.score}),u=0;u<o;++u)for(var l=0;l<i;++l)for(var f=0;f<s;++f){var
c=r.get(u,l,f);c<e||scoreIsMaximumInLocalWindow(f,c,u,l,t,r)&&a.enqueue({score:c,part:{heatmapY:u,heatmapX:l,
id:f}})}return a}var
partNames=[\"nose\",\"leftEye\",\"rightEye\",\"leftEar\",\"rightEar\",\"leftShoulder\",\"rightShoulder\",\"leftElbow\",
\"rightElbow\",\"leftWrist\",\"rightWrist\",\"leftHip\",\"rightHip\",\"leftKnee\",\"rightKnee\",\"leftAnkle\",\"rightAn
kle\"],NUM_KEYPOINTS=partNames.length,partIds=partNames.reduce(function(e,t,r){return
e[t]=r,e},{}),connectedPartNames=[[\"leftHip\",\"leftShoulder\"],[\"leftElbow\",\"leftShoulder\"],[\"leftElbow\",\"lef
tWrist\"],[\"leftHip\",\"leftKnee\"],[\"leftKnee\",\"leftAnkle\"],[\"rightHip\",\"rightShoulder\"],[\"rightElbow\",\"righ
tShoulder\"],[\"rightElbow\",\"rightWrist\"],[\"rightHip\",\"rightKnee\"],[\"rightKnee\",\"rightAnkle\"],[\"leftShould
er\",\"rightShoulder\"],[\"leftHip\",\"rightHip\"]],poseChain=[[\"nose\",\"leftEye\"],[\"leftEye\",\"leftEar\"],[\"nose\",
\"rightEye\"],[\"rightEye\",\"rightEar\"],[\"nose\",\"leftShoulder\"],[\"leftShoulder\",\"leftElbow\"],[\"leftElbow\",\"l
eftWrist\"],[\"leftShoulder\",\"leftHip\"],[\"leftHip\",\"leftKnee\"],[\"leftKnee\",\"leftAnkle\"],[\"nose\",\"rightShould
er\"],[\"rightShoulder\",\"rightElbow\"],[\"rightElbow\",\"rightWrist\"],[\"rightShoulder\",\"rightHip\"],[\"rightHip\",
\"rightKnee\"],[\"rightKnee\",\"rightAnkle\"]],connectedPartIndices=connectedPartNames.map(function(e){var
t=e[0],r=e[1];return[partIds[t],partIds[r]]}),partChannels=[\"left_face\",\"right_face\",\"right_upper_leg_front\",\"rig
ht_lower_leg_back\",\"right_upper_leg_back\",\"left_lower_leg_front\",\"left_upper_leg_front\",\"left_upper_leg_ba
ck\",\"left_lower_leg_back\",\"right_feet\",\"right_lower_leg_front\",\"left_feet\",\"torso_front\",\"torso_back\",\"rig
ht_upper_arm_front\",\"right_upper_arm_back\",\"right_lower_arm_back\",\"left_lower_arm_front\",\"left_upper_ar
m_front\",\"left_upper_arm_back\",\"left_lower_arm_back\",\"right_hand\",\"right_lower_arm_front\",\"left_hand\"]
;function
 getOffsetPoint(e,t,r,n){return{y:n.get(e,t,r),x:n.get(e,t,r+NUM_KEYPOINTS)}}function getImageCoords(e,t,r){var
n=getOffsetPoint(e.heatmapY,e.heatmapX,e.id,r),o=n.y,i=n.x;return{x:e.heatmapX*t+i,y:e.heatmapY*t+o}}functio
n clamp(e,t,r){return e<t?t:e>r?r:e}function squaredDistance(e,t,r,n){var o=r-e,i=n-t;return o*o+i*i}function
addVectors(e,t){return{x:e.x+t.x,y:e.y+t.y}}var parentChildrenTuples=poseChain.map(function(e){var
t=e[0],r=e[1];return[partIds[t],partIds[r]]}),parentToChildEdges=parentChildrenTuples.map(function(e){return
e[1]}),childToParentEdges=parentChildrenTuples.map(function(e){return e[0]});function
getDisplacement(e,t,r){var n=r.shape[2]/2;return{y:r.get(t.y,t.x,e),x:r.get(t.y,t.x,n+e)}}function
getStridedIndexNearPoint(e,t,r,n){return{y:clamp(Math.round(e.y/t),0,r-1),x:clamp(Math.round(e.x/t),0,n-
1)}}function
 traverseToTargetKeypoint(e,t,r,n,o,i,s,a){void 0===a&&(a=2);for(var
u=n.shape,l=u[0],f=u[1],c=getDisplacement(e,getStridedIndexNearPoint(t.position,i,l,f),s),d=addVectors(t.position,c
),p=0;p<a;p++){var
h=getStridedIndexNearPoint(d,i,l,f),m=getOffsetPoint(h.y,h.x,r,o);d=addVectors({x:h.x*i,y:h.y*i},{x:m.x,y:m.y})}
var g=getStridedIndexNearPoint(d,i,l,f),_=n.get(g.y,g.x,r);return{position:d,part:partNames[r],score:_}}function
decodePose(e,t,r,n,o,i){var s=t.shape[2],a=parentToChildEdges.length,u=new
Array(s),l=e.part,f=e.score,c=getImageCoords(l,n,r);u[l.id]={score:f,part:partNames[l.id],position:c};for(var d=a-
1;d>=0;--d){var
p=parentToChildEdges[d],h=childToParentEdges[d];u[p]&&!u[h]&&(u[h]=traverseToTargetKeypoint(d,u[p],h,t,r,n
,i))}for(d=0;d<a;++d){p=childToParentEdges[d],h=parentToChildEdges[d];u[p]&&!u[h]&&(u[h]=traverseToTarge
tKeypoint(d,u[p],h,t,r,n,o))}return u}function withinNmsRadiusOfCorrespondingPoint(e,t,r,n){var o=r.x,i=r.y;return
 e.some(function(e){var r=e.keypoints[n].position;return squaredDistance(i,o,r.y,r.x)<=t})}function
getInstanceScore(e,t,r){return r.reduce(function(r,n,o){var i=n.position,s=n.score;return
withinNmsRadiusOfCorrespondingPoint(e,t,i,o)||(r+=s),r},0)/r.length}var kLocalMaximumRadius=1;function
decodeMultiplePoses(e,t,r,n,o,i,s,a){void 0===s&&(s=.5),void 0===a&&(a=20);for(var
u=[],l=buildPartWithScoreQueue(s,kLocalMaximumRadius,e),f=a*a;u.length<i&&!l.empty();){var
```

```
c=l.dequeue();if(!withinNmsRadiusOfCorrespondingPoint(u,f,getImageCoords(c.part,o,t),c.part.id)){var
d=decodePose(c,e,t,o,r,n),p=getInstanceScore(u,f,d);u.push({keypoints:d,score:p})}}return u}var
__assign=function(){return(__assign=Object.assign||function(e){for(var t,r=1,n=arguments.length;r<n;r++)for(var o
in t=arguments[r])Object.prototype.hasOwnProperty.call(t,o)&&(e[o]=t[o]);return
e}).apply(this,arguments)};function __awaiter(e,t,r,n){return new(r||(r=Promise))(function(o,i){function
s(e){try{u(n.next(e))}catch(e){i(e)}}function
 a(e){try{u(n.throw(e))}catch(e){i(e)}}function u(e){e.done?o(e.value):new
r(function(t){t(e.value)}).then(s,a)}u((n=n.apply(e,t||[])).next())})}function __generator(e,t){var
r,n,o,i,s={label:0,sent:function(){if(1&o[0])throw o[1];return o[1]},trys:[],ops:[]};return
i={next:a(0),throw:a(1),return:a(2)},\"function\"==typeof Symbol&&(i[Symbol.iterator]=function(){return
this}),i;function a(i){return function(a){return function(i){if(r)throw new TypeError(\"Generator is already
executing.\");for(;s;)try{if(r=1,n&&(o=2&i[0]?n.return:i[0]?n.throw||((o=n.return)&&o.call(n),0):n.next)&&!(o=o.c
all(n,i[1])).done)return o;switch(n=0,o&&(i=[2&i[0],o.value]),i[0]){case 0:case 1:o=i;break;case 4:return
s.label++,{value:i[1],done:!1};case 5:s.label++,n=i[1],i=[0];continue;case
7:i=s.ops.pop(),s.trys.pop();continue;default:if(!(o=(o=s.trys).length>0&&o[o.length-
1])&&(6===i[0]||2===i[0])){s=0;continue}if(3===i[0]&&(!o||i[1]>o[0]&&i[1]<o[3])){s.label=i[1];break}if(6===i[
0]&&s.label<o[1]){s.label=o[1],o=i;break}if(o&&s.label<o[2]){s.label=o[2],s.ops.push(i);break}o[2]&&s.ops.pop(
),s.trys.pop();continue}i=t.call(e,s)}catch(e){i=[6,e],n=0}finally{r=o=0}if(5&i[0])throw
 i[1];return{value:i[0]?i[1]:void 0,done:!0}}([i,a])}}}function eitherPointDoesntMeetConfidence(e,t,r){return
e<r||t<r}function getAdjacentKeyPoints(e,t){return connectedPartIndices.reduce(function(r,n){var
o=n[0],i=n[1];return eitherPointDoesntMeetConfidence(e[o].score,e[i].score,t)?r:(r.push([e[o],e[i]]),r)},[])}var
NEGATIVE_INFINITY=Number.NEGATIVE_INFINITY,POSITIVE_INFINITY=Number.POSITIVE_INFINITY
;function getBoundingBox(e){return e.reduce(function(e,t){var
r=e.maxX,n=e.maxY,o=e.minX,i=e.minY,s=t.position,a=s.x,u=s.y;return{maxX:Math.max(r,a),maxY:Math.max(n,
u),minX:Math.min(o,a),minY:Math.min(i,u)}},{maxX:NEGATIVE_INFINITY,maxY:NEGATIVE_INFINITY,min
X:POSITIVE_INFINITY,minY:POSITIVE_INFINITY})}function getBoundingBoxPoints(e){var
t=getBoundingBox(e),r=t.minX,n=t.minY,o=t.maxX,i=t.maxY;return[{x:r,y:n},{x:o,y:n},{x:o,y:i},{x:r,y:i}]}functi
on
 toTensorBuffer(e,t){return void 0===t&&(t=\"float32\"),__awaiter(this,void 0,void 0,function(){var r;return
__generator(this,function(n){switch(n.label){case 0:return[4,e.data()];case 1:return
r=n.sent(),[2,buffer(e.shape,t,r)]}})})}function toTensorBuffers3D(e){return __awaiter(this,void 0,void
0,function(){return __generator(this,function(t){return[2,Promise.all(e.map(function(e){return
toTensorBuffer(e,\"float32\")}))]})})}function scalePose(e,t,r,n,o){return void 0===n&&(n=0),void
0===o&&(o=0),{score:e.score,keypoints:e.keypoints.map(function(e){var
i=e.score,s=e.part,a=e.position;return{score:i,part:s,position:{x:a.x*r+o,y:a.y*t+n}}})}}function
scalePoses(e,t,r,n,o){return void 0===n&&(n=0),void
0===o&&(o=0),1===r&&1===t&&0===n&&0===o?e:e.map(function(e){return scalePose(e,t,r,n,o)})}function
flipPoseHorizontal(e,t){return{score:e.score,keypoints:e.keypoints.map(function(e){var
r=e.score,n=e.part,o=e.position;return{score:r,part:n,position:{x:t-1-o.x,y:o.y}}})}}function
 flipPosesHorizontal(e,t){return t<=0?e:e.map(function(e){return flipPoseHorizontal(e,t)})}function
getInputTensorDimensions(e){return e instanceof Tensor?[e.shape[0],e.shape[1]]:[e.height,e.width]}function
toInputTensor(e){return e instanceof Tensor?e:browser.fromPixels(e)}function padAndResizeTo(e,t){var
r=t[0],n=t[1],o=getInputTensorDimensions(e),i=o[0],s=o[1],a=n/r,u=[0,0,0,0],l=u[0],f=u[1],c=u[2],d=u[3];return
s/i<a?(l=0,f=0,c=Math.round(.5*(a*i-s)),d=Math.round(.5*(a*i-s))):(l=Math.round(.5*(1/a*s-
i)),f=Math.round(.5*(1/a*s-i)),c=0,d=0),{resized:tidy(function(){var
t=toInputTensor(e);return(t=pad3d(t,[[l,f],[c,d],[0,0]])).resizeBilinear([r,n])}),padding:{top:l,left:c,right:d,bottom:f}
}}function scaleAndFlipPoses(e,t,r,n,o){var
i=t[0],s=t[1],a=r[0],u=r[1],l=scalePoses(e,(i+n.top+n.bottom)/a,(s+n.left+n.right)/u,-n.top,-n.left);return
```

o?flipPosesHorizontal(l,s):l}function mod(e,t){return tidy(function(){var r=e.div(scalar(t,\"int32\"));return e.sub(r.mul(scalar(t,\"int32\")))})}function argmax2d(e){var t=e.shape,r=t[0],n=t[1],o=t[2];return tidy(function(){var t=e.reshape([r*n,o]).argMax(0),i=t.div(scalar(n,\"int32\")).expandDims(1),s=mod(t,n).expandDims(1);return concat([i,s],1)})}function getPointsConfidence(e,t){for(var r=t.shape[0],n=new Float32Array(r),o=0;o<r;o++){var i=t.get(o,0),s=t.get(o,1);n[o]=e.get(i,s,o)}return n}function getOffsetPoint$1(e,t,r,n){return{y:n.get(e,t,r),x:n.get(e,t,r+NUM_KEYPOINTS)}}function getOffsetVectors(e,t){for(var r=[],n=0;n<NUM_KEYPOINTS;n++){var o=getOffsetPoint$1(e.get(n,0).valueOf(),e.get(n,1).valueOf(),n,t),i=o.x,s=o.y;r.push(s),r.push(i)}return tensor2d(r,[NUM_KEYPOINTS,2])}function getOffsetPoints(e,t,r){return tidy(function(){var n=getOffsetVectors(e,r);return e.toTensor().mul(scalar(t,\"int32\")).toFloat().add(n)})}function decodeSinglePose(e,t,r){return __awaiter(this,void 0,void 0,function(){var n,o,i,s,a,u,l,f,c,d;return __generator(this,function(p){switch(p.label){case 0:return n=0,o=argmax2d(e),[4,Promise.all([toTensorBuffer(e),toTensorBuffer(t),toTensorBuffer(o,\"int32\")])];case 1:return i=p.sent(),s=i[0],a=i[1],u=i[2],[4,toTensorBuffer(l=getOffsetPoints(u,r,a))];case 2:return f=p.sent(),c=Array.from(getPointsConfidence(s,u)),d=c.map(function(e,t){return n+=e,{position:{y:f.get(t,0),x:f.get(t,1)},part:partNames[t],score:e}}),o.dispose(),l.dispose(),[2,{keypoints:d,score:n/d.length}]}})})}var MOBILENET_BASE_URL=\"https://storage.googleapis.com/tfjs-models/savedmodel/posenet/mobilenet/\",RESNET50_BASE_URL=\"https://storage.googleapis.com/tfjs-models/savedmodel/posenet/resnet50/\";function resNet50Checkpoint(e,t){var r=\"model-stride\"+e+\".json\";return 4==t?RESNET50_BASE_URL+\"float/\"+r:RESNET50_BASE_URL+\"quant\"+t+\"/\"+r}function mobileNetCheckpoint(e,t,r){var n={1:\"100\",.75:\"075\",.5:\"050\"},o=\"model-stride\"+e+\".json\";return 4==r?MOBILENET_BASE_URL+\"float/\"+n[t]+\"/\"+o:MOBILENET_BASE_URL+\"quant\"+r+\"/\"+n[t]+\"/\"+o}function toFloatIfInt$1(e){return tidy(function(){\"int32\"===e.dtype&&(e=e.toFloat());var t=tensor([-123.15,-115.9,-103.06]);return e.add(t)})}var ResNet=function(){function e(e,t){this.model=e;var r=this.model.inputs[0].shape;util.assert(-1===r[1]&&-1===r[2],function(){return\"Input shape [\"+r[1]+\", \"+r[2]+\"] must both be equal to or -1\"}),this.outputStride=t}return e.prototype.predict=function(e){var t=this;return tidy(function(){var r=toFloatIfInt$1(e).expandDims(0),n=t.model.predict(r),o=n[0],i=n[1],s=n[2];return{heatmapScores:n[3].squeeze().sigmoid(),offsets:s.squeeze(),displacementFwd:o.squeeze(),displacementBwd:i.squeeze()}})},e.prototype.dispose=function(){this.model.dispose()},e}(),MOBILENET_V1_CONFIG={architecture:\"MobileNetV1\",outputStride:16,multiplier:.75,inputResolution:257},VALID_ARCHITECTURE=[\"MobileNetV1\",\"ResNet50\"],VALID_STRIDE={MobileNetV1:[8,16,32],ResNet50:[32,16]},VALID_INPUT_RESOLUTION=[161,193,257,289,321,353,385,417,449,481,513,801],VALID_MULTIPLIER={MobileNetV1:[.5,.75,1],ResNet50:[1]},VALID_QUANT_BYTES=[1,2,4];function validateModelConfig(e){if(null==(e=e||MOBILENET_V1_CONFIG).architecture&&(e.architecture=\"MobileNetV1\"),VALID_ARCHITECTURE.indexOf(e.architecture)<0)throw new Error(\"Invalid architecture \"+e.architecture+\". Should be one of \"+VALID_ARCHITECTURE);if(null==e.inputResolution&&(e.inputResolution=257),VALID_INPUT_RESOLUTION.indexOf(e.inputResolution)<0)throw new Error(\"Invalid inputResolution \"+e.inputResolution+\". Should be one of \"+VALID_INPUT_RESOLUTION);if(null==e.outputStride&&(e.outputStride=16),VALID_STRIDE[e.architecture].indexOf(e.outputStride)<0)throw new Error(\"Invalid outputStride \"+e.outputStride+\". Should be one of \"+VALID_STRIDE[e.architecture]+\" for architecutre \"+e.architecture+\".\");if(null==e.multiplier&&(e.multiplier=1),VALID_MULTIPLIER[e.architecture].indexOf(e.multiplier)<0)throw new Error(\"Invalid multiplier \"+e.multiplier+\". Should be one of \"+VALID_MULTIPLIER[e.architecture]+\" for architecutre \"+e.architecture+\".\");if(null==e.quantBytes&&(e.quantBytes=4),VALID_QUANT_BYTES.indexOf(e.quantByte

```
s)<0)throw
 new Error(\"Invalid quantBytes \"+e.quantBytes+\". Should be one of \"+VALID_QUANT_BYTES+\" for
architecutre \"+e.architecture+\".\");return e}var
SINGLE_PERSON_INFERENCE_CONFIG={flipHorizontal:!1},MULTI_PERSON_INFERENCE_CONFIG={fli
pHorizontal:!1,maxDetections:5,scoreThreshold:.5,nmsRadius:20};function validateMultiPersonInputConfig(e){var
t=e.maxDetections,r=e.scoreThreshold,n=e.nmsRadius;if(t<=0)throw new Error(\"Invalid maxDetections \"+t+\".
Should be > 0\");if(r<0||r>1)throw new Error(\"Invalid scoreThreshold \"+r+\". Should be in range [0.0,
1.0]\");if(n<=0)throw new Error(\"Invalid nmsRadius \"+n+\".\")}var PoseNet=function(){function
e(e,t){this.baseModel=e,this.inputResolution=t}return e.prototype.estimateMultiplePoses=function(e,t){return void
0===t&&(t=MULTI_PERSON_INFERENCE_CONFIG),__awaiter(this,void 0,void 0,function(){var
r,n,o,i,s,a,u,l,f,c,d,p,h,m,g,_,I,E,v,N,y;return
 __generator(this,function(T){switch(T.label){case 0:return
r=__assign({},MULTI_PERSON_INFERENCE_CONFIG,t),validateMultiPersonInputConfig(t),n=this.baseModel.
outputStride,o=this.inputResolution,assertValidOutputStride(n),assertValidResolution(this.inputResolution,n),i=getI
nputTensorDimensions(e),s=i[0],a=i[1],u=padAndResizeTo(e,[o,o]),l=u.resized,f=u.padding,c=this.baseModel.predi
ct(l),d=c.heatmapScores,p=c.offsets,h=c.displacementFwd,m=c.displacementBwd,[4,toTensorBuffers3D([d,p,h,m])]
;case 1:return
g=T.sent(),_=g[0],I=g[1],E=g[2],v=g[3],[4,decodeMultiplePoses(_,I,E,v,n,r.maxDetections,r.scoreThreshold,r.nmsR
adius)];case 2:return
N=T.sent(),y=scaleAndFlipPoses(N,[s,a],[o,o],f,r.flipHorizontal),d.dispose(),p.dispose(),h.dispose(),m.dispose(),l.di
spose(),[2,y]}})})},e.prototype.estimateSinglePose=function(e,t){return void
0===t&&(t=SINGLE_PERSON_INFERENCE_CONFIG),__awaiter(this,void 0,void 0,function(){var
r,n,o,i,s,a,u,l,f,c,d,p,h,m,g,_;return __generator(this,function(I){switch(I.label){case
 0:return
r=__assign({},SINGLE_PERSON_INFERENCE_CONFIG,t),n=this.baseModel.outputStride,o=this.inputResolutio
n,assertValidOutputStride(n),assertValidResolution(o,n),i=getInputTensorDimensions(e),s=i[0],a=i[1],u=padAndRe
sizeTo(e,[o,o]),l=u.resized,f=u.padding,c=this.baseModel.predict(l),d=c.heatmapScores,p=c.offsets,h=c.displacemen
tFwd,m=c.displacementBwd,[4,decodeSinglePose(d,p,n)];case 1:return
g=I.sent(),_=scaleAndFlipPoses([g],[s,a],[o,o],f,r.flipHorizontal),d.dispose(),p.dispose(),h.dispose(),m.dispose(),l.di
spose(),[2,_[0]]}})})},e.prototype.estimatePoses=function(e,t){return __awaiter(this,void 0,void 0,function(){return
__generator(this,function(r){switch(r.label){case 0:return\"single-
person\"!=t.decodingMethod?[3,2]:[4,this.estimateSinglePose(e,t)];case 1:return[2,[r.sent()]];case
2:return[2,this.estimateMultiplePoses(e,t)]}})})},e.prototype.dispose=function(){this.baseModel.dispose()},e}();fun
ction loadMobileNet(e){return __awaiter(this,void 0,void 0,function(){var
 t,r,n,o,i,s;return __generator(this,function(a){switch(a.label){case
0:if(t=e.outputStride,r=e.quantBytes,n=e.multiplier,null==tf)throw new Error(\"Cannot find TensorFlow.js. If you
are using a <script> tag, please also include @tensorflow/tfjs on the page before using this\\n        model.\");return
o=mobileNetCheckpoint(t,n,r),[4,loadGraphModel(e.modelUrl||o)];case 1:return i=a.sent(),s=new
MobileNet(i,t),[2,new PoseNet(s,e.inputResolution)]}})})}function loadResNet(e){return __awaiter(this,void 0,void
0,function(){var t,r,n,o,i;return __generator(this,function(s){switch(s.label){case
0:if(t=e.outputStride,r=e.quantBytes,null==tf)throw new Error(\"Cannot find TensorFlow.js. If you are using a
<script> tag, please also include @tensorflow/tfjs on the page before using this\\n        model.\");return
n=resNet50Checkpoint(t,r),[4,loadGraphModel(e.modelUrl||n)];case 1:return o=s.sent(),i=new ResNet(o,t),[2,new
PoseNet(i,e.inputResolution)]}})})}function load(e){return void
0===e&&(e=MOBILENET_V1_CONFIG),__awaiter(this,void
 0,void 0,function(){return
__generator(this,function(t){return\"ResNet50\"===(e=validateModelConfig(e)).architecture?[2,loadResNet(e)]:\"M
obileNetV1\"===e.architecture?[2,loadMobileNet(e)]:[2,null]})})}export{decodeMultiplePoses,decodeSinglePose,
```

MobileNet,partChannels,partIds,partNames,poseChain,load,PoseNet,VALID_INPUT_RESOLUTION,getAdjacentKeyPoints,getBoundingBox,getBoundingBoxPoints,scalePose};\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * https://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========\n */\nimport * as posenet from '@tensorflow-models/posenet';\nimport * as tf from '@tensorflow/tfjs-core';\n\nconst COLOR = 'aqua';\nconst BOUNDING_BOX_COLOR = 'red';\nconst LINE_WIDTH = 2;\n\nexport const TRY_RESNET_BUTTON_NAME = 'tryResNetButton';\nexport const TRY_RESNET_BUTTON_TEXT = '[New] Try ResNet50';\nconst TRY_RESNET_BUTTON_TEXT_CSS = 'width:100%;text-decoration:underline;';\nconst TRY_RESNET_BUTTON_BACKGROUND_CSS = 'background:#e61d5f;';\n\nfunction isAndroid() {\n return /Android/i.test(navigator.userAgent);\n}\n\nfunction isiOS() {\n return /iPhone|iPad|iPod/i.test(navigator.userAgent);\n}\n\nexport function isMobile() {\n return isAndroid() || isiOS();\n}\n\nfunction setDatGuiPropertyCss(propertyText, liCssString, spanCssString = '') {\n var spans = document.getElementsByClassName('property-name');\n for (var i = 0; i < spans.length; i++) {\n var text = spans[i].textContent || spans[i].innerText;\n if (text == propertyText) {\n spans[i].parentNode.parentNode.style = liCssString;\n if (spanCssString !== '') {\n spans[i].style = spanCssString;\n }\n }\n }\n}\nexport function updateTryResNetButtonDatGuiCss() {\n setDatGuiPropertyCss(\n TRY_RESNET_BUTTON_TEXT, TRY_RESNET_BUTTON_BACKGROUND_CSS,\n TRY_RESNET_BUTTON_TEXT_CSS);\n}\n\n/**\n * Toggles between the loading UI and the main canvas UI.\n */\nexport function toggleLoadingUI(\n showLoadingUI, loadingDivId = 'loading', mainDivId = 'main') {\n if (showLoadingUI) {\n document.getElementById(loadingDivId).style.display = 'block';\n document.getElementById(mainDivId).style.display = 'none';\n } else {\n document.getElementById(loadingDivId).style.display = 'none';\n document.getElementById(mainDivId).style.display = 'block';\n }\n}\n\nexport function drawPoint(ctx, y, x, r, color) {\n ctx.beginPath();\n ctx.arc(x, y, r, 0, 2 * Math.PI);\n ctx.fillStyle = color;\n ctx.fill();\n}\n\n/**\n * Draws a line on a canvas, i.e. a joint\n */\nexport function drawSegment([ay, ax], [by, bx], color, scale, ctx) {\n ctx.beginPath();\n ctx.moveTo(ax * scale, ay * scale);\n ctx.lineTo(bx * scale, by * scale);\n ctx.lineWidth = LINE_WIDTH;\n ctx.strokeStyle = color;\n ctx.stroke();\n}\n\n/**\n * Draws a pose skeleton by looking up all adjacent keypoints/joints\n */\nexport function drawSkeleton(keypoints, minConfidence, ctx, scale = 1) {\n const adjacentKeyPoints =\n posenet.getAdjacentKeyPoints(keypoints, minConfidence);\n\n function toTuple({y, x}) {\n return [y, x];\n }\n\n adjacentKeyPoints.forEach((keypoints) => {\n drawSegment(\n toTuple(keypoints[0].position), toTuple(keypoints[1].position), COLOR,\n scale, ctx);\n });\n}\n\n/**\n * Draw pose keypoints onto a canvas\n */\nexport function drawKeypoints(keypoints, minConfidence, ctx, scale = 1) {\n for (let i = 0; i < keypoints.length; i++) {\n const keypoint = keypoints[i];\n\n if (keypoint.score < minConfidence) {\n continue;\n }\n\n const {y, x} = keypoint.position;\n drawPoint(ctx, y * scale, x * scale, 3, COLOR);\n }\n}\n\n/**\n * Draw the bounding box of a pose. For example, for a whole person standing\n * in an image, the bounding box will begin at the nose and extend to one of\n * ankles\n */\nexport function drawBoundingBox(keypoints, ctx) {\n const boundingBox = posenet.getBoundingBox(keypoints);\n\n ctx.rect(\n boundingBox.minX, boundingBox.minY, boundingBox.maxX - boundingBox.minX,\n boundingBox.maxY - boundingBox.minY);\n\n ctx.strokeStyle = boundingBoxColor;\n ctx.stroke();\n}\n\n/**\n * Converts an array of pixel data into an ImageData object\n */\nexport async function renderToCanvas(a, ctx) {\n const [height, width] = a.shape;\n const imageData = new

ImageData(width, height);\n\n const data = await a.data();\n\n
  for (let i = 0; i < height * width; ++i) {\n   const j = i * 4;\n   const k = i * 3;\n\n   imageData.data[j + 0] = data[k + 0];\n   imageData.data[j + 1] = data[k + 1];\n   imageData.data[j + 2] = data[k + 2];\n   imageData.data[j + 3] = 255;\n }\n\n ctx.putImageData(imageData, 0, 0);\n}\n\n/**\n * Draw an image on a canvas\n */\nexport function renderImageToCanvas(image, size, canvas) {\n canvas.width = size[0];\n canvas.height = size[1];\n const ctx = canvas.getContext('2d');\n\n ctx.drawImage(image, 0, 0);\n}\n\n/**\n * Draw heatmap values, one of the model outputs, on to the canvas\n * Read our blog post for a description of PoseNet's heatmap outputs\n * https://medium.com/tensorflow/real-time-human-pose-estimation-in-the-browser-with-tensorflow-js-7dd0bc881cd5\n */\nexport function drawHeatMapValues(heatMapValues, outputStride, canvas) {\n const ctx = canvas.getContext('2d');\n const radius = 5;\n const scaledValues = heatMapValues.mul(tf.scalar(outputStride, 'int32'));\n\n drawPoints(ctx, scaledValues, radius, COLOR);\n}\n\n/**\n * Used by the drawHeatMapValues method to draw heatmap points on to\n * the canvas\n */\nfunction drawPoints(ctx, points, radius, color) {\n const data = points.buffer().values;\n\n for (let i = 0; i < data.length; i += 2) {\n   const pointY = data[i];\n   const pointX = data[i + 1];\n\n   if (pointX !== 0 && pointY !== 0) {\n   ctx.beginPath();\n   ctx.arc(pointX, pointY, radius, 0, 2 * Math.PI);\n   ctx.fillStyle = color;\n   ctx.fill();\n   }\n }\n}\n\n/**\n * Draw offset vector values, one of the model outputs, on to the canvas\n * Read our blog post for a description of PoseNet's offset vector outputs\n * https://medium.com/tensorflow/real-time-human-pose-estimation-in-the-browser-with-tensorflow-js-7dd0bc881cd5\n */\nexport function drawOffsetVectors(\n   heatMapValues, offsets, outputStride, scale = 1, ctx) {\n const offsetPoints =\n   posenet.singlePose.getOffsetPoints(heatMapValues,
 outputStride, offsets);\n\n const heatmapData = heatMapValues.buffer().values;\n const offsetPointsData = offsetPoints.buffer().values;\n\n for (let i = 0; i < heatmapData.length; i += 2) {\n   const heatmapY = heatmapData[i] * outputStride;\n   const heatmapX = heatmapData[i + 1] * outputStride;\n   const offsetPointY = offsetPointsData[i];\n   const offsetPointX = offsetPointsData[i + 1];\n\n   drawSegment(\n   [heatmapY, heatmapX], [offsetPointY, offsetPointX], COLOR, scale, ctx);\n }\n}\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * https://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS
 OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n *
==\n */\n// color schemes generated using d3-scale-chromatic:\n// https://github.com/d3/d3-scale-chromatic\n\nexport const rainbow = [\n [110, 64, 170], [143, 61, 178], [178, 60, 178], [210, 62, 167],\n [238, 67, 149], [255, 78, 125], [255, 94, 99], [255, 115, 75],\n [255, 140, 56], [239, 167, 47], [217, 194, 49], [194, 219, 64],\n [175, 240, 91], [135, 245, 87], [96, 247, 96], [64, 243, 115],\n [40, 234, 141], [28, 219, 169], [26, 199, 194], [33, 176, 213],\n [47, 150, 224], [65, 125, 224], [84, 101, 214], [99, 81, 195]\n];\n\nexport const warm = [\n [110, 64, 170], [106, 72, 183], [100, 81, 196], [92, 91, 206],\n [84, 101, 214], [75, 113, 221], [66, 125, 224], [56, 138, 226],\n [48, 150, 224], [40, 163, 220], [33, 176, 214], [29, 188, 205],\n
  [26, 199, 194], [26, 210, 182], [28, 219, 169], [33, 227, 155],\n [41, 234, 141], [51, 240, 128], [64, 243, 116], [79, 246, 105],\n [96, 247, 97], [115, 246, 91], [134, 245, 88], [155, 243, 88]\n];\n\nexport const spectral = [\n [158, 1, 66], [181, 26, 71], [202, 50, 74], [219, 73, 74],\n [232, 94, 73], [242, 117, 75], [248, 142, 83], [251, 167, 96],\n [253, 190, 112], [254, 210, 129], [254, 227, 149], [254, 240, 166],\n [251, 248, 176], [243, 249, 172], [231, 245, 163], [213, 238, 159],\n [190, 229, 160], [164, 218, 163], [137, 207, 165], [110, 192, 168],\n [86, 173, 174], [70, 150, 179], [67, 127, 180], [77, 103, 173]\n];\n","/**\n * @license\n * Copyright 2019 Google Inc. All Rights Reserved.\n * Licensed under the Apache License, Version 2.0 (the \"License\");\n * you may not use this file except in compliance with the License.\n * You may obtain a copy of the License at\n *\n * https://www.apache.org/licenses/LICENSE-2.0\n *\n * Unless required by applicable

```
 law or agreed to in writing, software\n * distributed under the License is distributed on an \"AS IS\" BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the License for the specific language governing permissions and\n * limitations under the License.\n * ==========================================================================\n */\nimport '@tensorflow/tfjs-backend-webgl';\nimport * as bodyPix from '@tensorflow-models/body-pix';\nimport dat from 'dat.gui';\nimport Stats from 'stats.js';\n\nimport {drawKeypoints, drawSkeleton, toggleLoadingUI, TRY_RESNET_BUTTON_NAME, TRY_RESNET_BUTTON_TEXT, updateTryResNetButtonDatGuiCss} from './demo_util';\nimport * as partColorScales from './part_color_scales';\n\n\nconst stats = new Stats();\n\nconst state = {\n  video: null,\n  stream: null,\n  net: null,\n  videoConstraints: {},\n  // Triggers the TensorFlow model to reload\n changingArchitecture: false,\n  changingMultiplier: false,\n  changingStride: false,\n  changingResolution: false,\n  changingQuantBytes: false,\n};\n\nfunction isAndroid() {\n  return /Android/i.test(navigator.userAgent);\n}\n\nfunction isiOS() {\n  return /iPhone|iPad|iPod/i.test(navigator.userAgent);\n}\n\nfunction isMobile() {\n  return isAndroid() || isiOS();\n}\n\nasync function getVideoInputs() {\n  if (!navigator.mediaDevices || !navigator.mediaDevices.enumerateDevices) {\n    console.log('enumerateDevices() not supported.');\n    return [];\n  }\n\n  const devices = await navigator.mediaDevices.enumerateDevices();\n\n  const videoDevices = devices.filter(device => device.kind === 'videoinput');\n\n  return videoDevices;\n}\n\nfunction stopExistingVideoCapture() {\n  if (state.video && state.video.srcObject) {\n state.video.srcObject.getTracks().forEach(track => {\n    track.stop();\n  })\n  state.video.srcObject = null;\n }\n}\n\nasync function getDeviceIdForLabel(cameraLabel) {\n  const videoInputs = await getVideoInputs();\n\n  for (let i = 0; i < videoInputs.length; i++) {\n    const videoInput = videoInputs[i];\n    if (videoInput.label === cameraLabel) {\n      return videoInput.deviceId;\n    }\n  }\n\n  return null;\n}\n\n// on mobile, facing mode is the preferred way to select a camera.\n// Here we use the camera label to determine if its the environment or\n// user facing camera\nfunction getFacingMode(cameraLabel) {\n  if (!cameraLabel) {\n    return 'user';\n  }\n  if (cameraLabel.toLowerCase().includes('back')) {\n    return 'environment';\n  } else {\n    return 'user';\n  }\n}\n\nasync function getConstraints(cameraLabel) {\n  let deviceId;\n  let facingMode;\n\n  if (cameraLabel) {\n deviceId = await getDeviceIdForLabel(cameraLabel);\n    // on mobile, use the facing mode based on the camera.\n facingMode = isMobile() ? getFacingMode(cameraLabel) : null;\n  };\n  return {deviceId, facingMode};\n}\n\n/**\n * Loads a the camera to be used in the demo\n *\n */\nasync function setupCamera(cameraLabel) {\n  if (!navigator.mediaDevices || !navigator.mediaDevices.getUserMedia) {\n    throw new Error(\n      'Browser API navigator.mediaDevices.getUserMedia not available');\n  }\n\n  const videoElement = document.getElementById('video');\n\n  stopExistingVideoCapture();\n\n  const videoConstraints = await getConstraints(cameraLabel);\n\n  const stream = await navigator.mediaDevices.getUserMedia(\n      {'audio': false, 'video': videoConstraints});\n  videoElement.srcObject = stream;\n\n  return new Promise((resolve) => {\n videoElement.onloadedmetadata = () => {\n    videoElement.width = videoElement.videoWidth;\n videoElement.height = videoElement.videoHeight;\n    resolve(videoElement);\n  };\n  });\n}\n\nasync function loadVideo(cameraLabel) {\n  try {\n    state.video = await setupCamera(cameraLabel);\n  } catch (e) {\n    let info = document.getElementById('info');\n    info.textContent = 'this browser does not support video capture,' +\n      'or this device does not have a camera';\n    info.style.display = 'block';\n    throw e;\n  }\n\n  state.video.play();\n}\n\nconst defaultQuantBytes = 2;\n\nconst defaultMobileNetMultiplier = isMobile() ? 0.50 : 0.75;\nconst defaultMobileNetStride = 16;\nconst defaultMobileNetInternalResolution = 'medium';\n\nconst defaultResNetMultiplier = 1.0;\nconst defaultResNetStride = 16;\nconst defaultResNetInternalResolution = 'low';\n\nconst guiState = {\n  algorithm: 'multi-person-instance',\n  estimate: 'partmap',\n  camera: null,\n flipHorizontal: true,\n  input: {\n    architecture: 'MobileNetV1',\n    outputStride: 16,\n    internalResolution: 'low',\n    multiplier: 0.50,\n    quantBytes: 2\n  },\n  multiPersonDecoding: {\n    maxDetections: 5,\n    scoreThreshold: 0.3,\n    nmsRadius: 20,\n    numKeypointForMatching: 17,\n    refineSteps: 10\n  },\n  segmentation: {\n
```

```
segmentationThreshold: 0.7,\n    effect: 'mask',\n    maskBackground: true,\n    opacity: 0.7,\n
backgroundBlurAmount: 3,\n    maskBlurAmount:
 0,\n    edgeBlurAmount: 3\n  },\n  partMap: {\n    colorScale: 'rainbow',\n    effect: 'partMap',\n
segmentationThreshold: 0.5,\n    opacity: 0.9,\n    blurBodyPartAmount: 3,\n    bodyPartEdgeBlurAmount: 3,\n  },\n
showFps: !isMobile()\n};\n\nfunction toCameraOptions(cameras) {\n  const result = {default: null};\n\n
cameras.forEach(camera => {\n    result[camera.label] = camera.label;\n  })\n\n  return result;\n}\n\n/**\n * Sets up
dat.gui controller on the top-right of the window\n */\nfunction setupGui(cameras) {\n  const gui = new
dat.GUI({width: 300});\n\n  let architectureController = null;\n  guiState[TRY_RESNET_BUTTON_NAME] =
function() {\n    architectureController.setValue('ResNet50')\n  };\n  gui.add(guiState,
TRY_RESNET_BUTTON_NAME).name(TRY_RESNET_BUTTON_TEXT);\n
updateTryResNetButtonDatGuiCss();\n\n  gui.add(guiState, 'camera', toCameraOptions(cameras))\n
.onChange(async function(cameraLabel) {\n        state.changingCamera = true;\n\n        await
loadVideo(cameraLabel);\n\n
        state.changingCamera = false;\n      });\n\n  gui.add(guiState, 'flipHorizontal');\n\n  // There are two algorithms
'person' and 'multi-person-instance'.\n  // The 'person' algorithm returns one single segmentation mask (or body\n  //
part map) for all people in the image. The 'multi-person-instance'\n  // algorithm returns an array of segmentation
mask (or body part map).\n  // Each element in the array corresponding to one of the people. In other\n  // words,
'multi-person-instance' algorithm does instance-level person\n  // segmentation and body part segmentation for every
person in the image.\n  const algorithmController =\n      gui.add(guiState, 'algorithm', ['person', 'multi-person-
instance']);\n\n  // Architecture: there are a few BodyPix models varying in size and\n  // accuracy.\n  // The input
parameters have the most effect on accuracy and speed of the\n  // network\n  let input = gui.addFolder('Input');\n\n
// Updates outputStride\n  // Output
 stride:  Internally, this parameter affects the height and width\n  // of the layers in the neural network. The lower the
value of the output\n  // stride the higher the accuracy but slower the speed, the higher the\n  // value the faster the
speed but lower the accuracy.\n  let outputStrideController = null;\n  function updateGuiOutputStride(outputStride,
outputStrideArray) {\n    if (outputStrideController) {\n      outputStrideController.remove();\n    }\n
guiState.input.outputStride = outputStride;\n    outputStrideController =\n        input.add(guiState.input,
'outputStride', outputStrideArray);\n    outputStrideController.onChange(function(outputStride) {\n
state.changingStride = true;\n      guiState.input.outputStride = +outputStride;\n    });\n  }\n\n  // Updates internal
resolution\n  // Internal resolution:  Internally, this parameter affects the height and\n  // width of the layers in the
neural network. The higher the value of the\n  // internal resolution the
 better the accuracy but slower the speed.\n  let internalResolutionController = null;\n  function
updateGuiInternalResolution(\n      internalResolution,\n      internalResolutionArray,\n  ) {\n    if
(internalResolutionController) {\n      internalResolutionController.remove();\n    }\n
guiState.input.internalResolution = internalResolution;\n    internalResolutionController = input.add(\n
guiState.input, 'internalResolution', internalResolutionArray);\n
internalResolutionController.onChange(function(internalResolution) {\n      guiState.input.internalResolution =
internalResolution;\n    });\n  }\n\n  // Updates depth multiplier\n  // Multiplier: this parameter affects the number of
feature map channels\n  // in the MobileNet. The higher the value, the higher the accuracy but\n  // slower the speed,
the lower the value the faster the speed but lower\n  // the accuracy.\n  let multiplierController = null;\n  function
updateGuiMultiplier(multiplier, multiplierArray) {\n
    if (multiplierController) {\n      multiplierController.remove();\n    }\n    guiState.input.multiplier = multiplier;\n
multiplierController =\n        input.add(guiState.input, 'multiplier', multiplierArray);\n
multiplierController.onChange(function(multiplier) {\n      state.changingMultiplier = true;\n
guiState.input.multiplier = +multiplier;\n    });\n  }\n\n  // updates quantBytes\n  // QuantBytes: this parameter
affects weight quantization in the ResNet50\n  // model. The available options are 1 byte, 2 bytes, and 4 bytes. The\n
// higher the value, the larger the model size and thus the longer the\n  // loading time, the lower the value, the
shorter the loading time but\n  // lower the accuracy.\n  let quantBytesController = null;\n  function
```

```
updateGuiQuantBytes(quantBytes, quantBytesArray) {\n    if (quantBytesController) {\n
quantBytesController.remove();\n    }\n    guiState.quantBytes = +quantBytes;\n    guiState.input.quantBytes =
+quantBytes;\n    quantBytesController
 =\n        input.add(guiState.input, 'quantBytes', quantBytesArray);\n
quantBytesController.onChange(function(quantBytes) {\n      state.changingQuantBytes = true;\n
guiState.input.quantBytes = +quantBytes;\n    });\n  }\n\n  function updateGuiInputSection() {\n    if
(guiState.input.architecture === 'MobileNetV1') {\n      updateGuiInternalResolution(\n
defaultMobileNetInternalResolution,\n          ['low', 'medium', 'high', 'full']);\n
updateGuiOutputStride(defaultMobileNetStride, [8, 16]);\n      updateGuiMultiplier(defaultMobileNetMultiplier,
[0.50, 0.75, 1.0])\n    } else {  // guiState.input.architecture === \"ResNet50\"\n      updateGuiInternalResolution(\n
    defaultResNetInternalResolution, ['low', 'medium', 'high', 'full']);\n
updateGuiOutputStride(defaultResNetStride, [32, 16]);\n      updateGuiMultiplier(defaultResNetMultiplier, [1.0]);\n
  }\n    updateGuiQuantBytes(defaultQuantBytes, [1, 2, 4]);\n  }\n\n  // Architecture:
 there are a few PoseNet models varying in size and\n  // accuracy. 1.01 is the largest, but will be the slowest. 0.50 is
the\n  // fastest, but least accurate.\n  architectureController =\n      input.add(guiState.input, 'architecture',
['ResNet50', 'MobileNetV1']);\n  guiState.architecture = guiState.input.architecture;\n
architectureController.onChange(function(architecture) {\n    // if architecture is ResNet50, then show ResNet50
options\n    state.changingArchitecture = true;\n    guiState.input.architecture = architecture;\n
updateGuiInputSection();\n  });\n\n  updateGuiInputSection();\n  input.open()\n\n  const estimateController =\n
gui.add(guiState, 'estimate', ['segmentation', 'partmap']);\n\n  let segmentation = gui.addFolder('Segmentation');\n
segmentation.add(guiState.segmentation, 'segmentationThreshold', 0.0, 1.0);\n  const segmentationEffectController
=\n      segmentation.add(guiState.segmentation, 'effect', ['mask', 'bokeh']);\n\n  let multiPersonDecoding =
 gui.addFolder('MultiPersonDecoding');\n  multiPersonDecoding.add(\n      guiState.multiPersonDecoding,
'maxDetections', 0, 20, 1);\n  multiPersonDecoding.add(\n      guiState.multiPersonDecoding, 'scoreThreshold', 0.0,
1.0);\n  multiPersonDecoding.add(guiState.multiPersonDecoding, 'nmsRadius', 0, 30, 1);\n
multiPersonDecoding.add(\n      guiState.multiPersonDecoding, 'numKeypointForMatching', 1, 17, 1);\n
multiPersonDecoding.add(\n      guiState.multiPersonDecoding, 'refineSteps', 1, 10, 1);\n
multiPersonDecoding.open();\n\n  algorithmController.onChange(function(value) {\n    switch (guiState.algorithm)
{\n      case 'single-person':\n        multiPersonDecoding.close();\n        singlePersonDecoding.open();\n        break;\n
    case 'multi-person':\n        singlePersonDecoding.close();\n        multiPersonDecoding.open();\n        break;\n    }\n
});\n\n  let darknessLevel;\n  let bokehBlurAmount;\n  let edgeBlurAmount;\n  let maskBlurAmount;\n  let
maskBackground;\n\n  segmentationEffectController.onChange(function(effectType)
 {\n    if (effectType === 'mask') {\n      if (bokehBlurAmount) {\n        bokehBlurAmount.remove();\n      }\n      if
(edgeBlurAmount) {\n        edgeBlurAmount.remove();\n      }\n      darknessLevel =\n
segmentation.add(guiState.segmentation, 'opacity', 0.0, 1.0);\n      maskBlurAmount =
segmentation.add(guiState.segmentation, 'maskBlurAmount')\n                          .min(0)\n
.max(20)\n                          .step(1);\n      maskBackground =\n          segmentation.add(guiState.segmentation,
'maskBackground');\n    } else if (effectType === 'bokeh') {\n      if (darknessLevel) {\n
darknessLevel.remove();\n      }\n      if (maskBlurAmount) {\n        maskBlurAmount.remove();\n      }\n      if
(maskBackground) {\n        maskBackground.remove();\n      }\n      bokehBlurAmount = segmentation\n
        .add(\n                            guiState.segmentation,\n
                    'backgroundBlurAmount',\n                          )\n                          .min(1)\n
.max(20)\n                          .step(1);\n      edgeBlurAmount = segmentation.add(guiState.segmentation,
'edgeBlurAmount')\n                          .min(0)\n                          .max(20)\n                          .step(1);\n    }\n  });\n\n
// manually set the effect so that the options are shown.\n
segmentationEffectController.setValue(guiState.segmentation.effect);\n\n  let partMap = gui.addFolder('Part
Map');\n  partMap.add(guiState.partMap, 'segmentationThreshold', 0.0, 1.0);\n  partMap.add(\n      guiState.partMap,
'effect', ['partMap', 'pixelation', 'blurBodyPart']);\n  partMap.add(guiState.partMap, 'opacity', 0.0, 1.0);\n
```

```
partMap.add(guiState.partMap, 'colorScale', Object.keys(partColorScales))\n      .onChange(colorScale => {\n setShownPartColorScales(colorScale);\n      });\n  setShownPartColorScales(guiState.partMap.colorScale);\n
  partMap.add(guiState.partMap, 'blurBodyPartAmount').min(1).max(20).step(1);\n  partMap.add(guiState.partMap,
'bodyPartEdgeBlurAmount')\n      .min(1)\n      .max(20)\n      .step(1);\n  partMap.open();\n\n
estimateController.onChange(function(estimationType) {\n    if (estimationType === 'segmentation') {\n
segmentation.open();\n      partMap.close();\n      document.getElementById('colors').style.display = 'none';\n    }
else {\n      segmentation.close();\n      partMap.open();\n      document.getElementById('colors').style.display =
'inline-block';\n    }\n  });\n\n  gui.add(guiState, 'showFps').onChange(showFps => {\n    if (showFps) {\n
document.body.appendChild(stats.dom);\n    } else {\n      document.body.removeChild(stats.dom);\n    }\n
})\n}\n\nfunction setShownPartColorScales(colorScale) {\n  const colors = document.getElementById('colors');\n
colors.innerHTML = '';\n\n  const partColors = partColorScales[colorScale];\n
  const partNames = bodyPix.PART_CHANNELS;\n\n  for (let i = 0; i < partColors.length; i++) {\n    const
partColor = partColors[i];\n    const child = document.createElement('li');\n\n    child.innerHTML = `\n        <div
class='color' style='background-color:rgb(${partColor[0]},${\n        partColor[1]},${partColor[2]})' ></div>\n
${partNames[i]}`;\n\n    colors.appendChild(child);\n  }\n}\n\n/**\n * Sets up a frames per second panel on the top-
left of the window\n */\nfunction setupFPS() {\n  stats.showPanel(0);  // 0: fps, 1: ms, 2: mb, 3+: custom\n  if
(guiState.showFps) {\n    document.body.appendChild(stats.dom);\n  }\n}\n\nasync function estimateSegmentation()
{\n  let multiPersonSegmentation = null;\n  switch (guiState.algorithm) {\n    case 'multi-person-instance':\n
return await state.net.segmentMultiPerson(state.video, {\n        internalResolution:
guiState.input.internalResolution,\n        segmentationThreshold: guiState.segmentation.segmentationThreshold,\n
      maxDetections: guiState.multiPersonDecoding.maxDetections,\n        scoreThreshold:
guiState.multiPersonDecoding.scoreThreshold,\n        nmsRadius: guiState.multiPersonDecoding.nmsRadius,\n
numKeypointForMatching:\n            guiState.multiPersonDecoding.numKeypointForMatching,\n        refineSteps:
guiState.multiPersonDecoding.refineSteps\n      });\n    case 'person':\n      return await
state.net.segmentPerson(state.video, {\n        internalResolution: guiState.input.internalResolution,\n
segmentationThreshold: guiState.segmentation.segmentationThreshold,\n        maxDetections:
guiState.multiPersonDecoding.maxDetections,\n        scoreThreshold:
guiState.multiPersonDecoding.scoreThreshold,\n        nmsRadius: guiState.multiPersonDecoding.nmsRadius,\n
});\n    default:\n      break;\n  };\n  return multiPersonSegmentation;\n}\n\nasync function
estimatePartSegmentation() {\n  switch (guiState.algorithm) {\n    case 'multi-person-instance':\n      return await
 state.net.segmentMultiPersonParts(state.video, {\n        internalResolution: guiState.input.internalResolution,\n
segmentationThreshold: guiState.segmentation.segmentationThreshold,\n        maxDetections:
guiState.multiPersonDecoding.maxDetections,\n        scoreThreshold:
guiState.multiPersonDecoding.scoreThreshold,\n        nmsRadius: guiState.multiPersonDecoding.nmsRadius,\n
numKeypointForMatching:\n            guiState.multiPersonDecoding.numKeypointForMatching,\n        refineSteps:
guiState.multiPersonDecoding.refineSteps\n      });\n    case 'person':\n      return await
state.net.segmentPersonParts(state.video, {\n        internalResolution: guiState.input.internalResolution,\n
segmentationThreshold: guiState.segmentation.segmentationThreshold,\n        maxDetections:
guiState.multiPersonDecoding.maxDetections,\n        scoreThreshold:
guiState.multiPersonDecoding.scoreThreshold,\n        nmsRadius: guiState.multiPersonDecoding.nmsRadius,\n
});\n
   default:\n      break;\n  };\n  return multiPersonPartSegmentation;\n}\n\nfunction
drawPoses(personOrPersonPartSegmentation, flipHorizontally, ctx) {\n  if
(Array.isArray(personOrPersonPartSegmentation)) {\n
personOrPersonPartSegmentation.forEach(personSegmentation => {\n      let pose = personSegmentation.pose;\n
if (flipHorizontally) {\n        pose = bodyPix.flipPoseHorizontal(pose, personSegmentation.width);\n      }\n
drawKeypoints(pose.keypoints, 0.1, ctx);\n      drawSkeleton(pose.keypoints, 0.1, ctx);\n    });\n  } else {\n
personOrPersonPartSegmentation.allPoses.forEach(pose => {\n      if (flipHorizontally) {\n        pose =
```

bodyPix.flipPoseHorizontal(\n pose, personOrPersonPartSegmentation.width);\n }\n drawKeypoints(pose.keypoints, 0.1, ctx);\n drawSkeleton(pose.keypoints, 0.1, ctx);\n })\n }\n}\n\nasync function loadBodyPix() {\n toggleLoadingUI(true);\n state.net = await bodyPix.load({\n architecture: guiState.input.architecture,\n
outputStride: guiState.input.outputStride,\n multiplier: guiState.input.multiplier,\n quantBytes: guiState.input.quantBytes\n });\n toggleLoadingUI(false);\n}\n\n/**\n * Feeds an image to BodyPix to estimate segmentation - this is where the\n * magic happens. This function loops with a requestAnimationFrame method.\n */\nfunction segmentBodyInRealTime() {\n const canvas = document.getElementById('output');\n // since images are being fed from a webcam\n\n async function bodySegmentationFrame() {\n // if changing the model or the camera, wait a second for it to complete\n // then try again.\n if (state.changingArchitecture || state.changingMultiplier ||\n state.changingCamera || state.changingStride ||\n state.changingQuantBytes) {\n console.log('load model...');\n loadBodyPix();\n state.changingArchitecture = false;\n state.changingMultiplier = false;\n state.changingStride = false;\n state.changingQuantBytes = false;\n }\n\n // Begin monitoring code for frames per second\n stats.begin();\n\n const flipHorizontally = guiState.flipHorizontal;\n\n switch (guiState.estimate) {\n case 'segmentation':\n const multiPersonSegmentation = await estimateSegmentation();\n switch (guiState.segmentation.effect) {\n case 'mask':\n const ctx = canvas.getContext('2d');\n const foregroundColor = {r: 255, g: 255, b: 255, a: 255};\n const backgroundColor = {r: 0, g: 0, b: 0, a: 255};\n const mask = bodyPix.toMask(\n multiPersonSegmentation, foregroundColor, backgroundColor,\n true);\n\n bodyPix.drawMask(\n canvas, state.video, mask, guiState.segmentation.opacity,\n guiState.segmentation.maskBlurAmount, flipHorizontally);\n drawPoses(multiPersonSegmentation, flipHorizontally, ctx);\n break;\n case 'bokeh':\n bodyPix.drawBokehEffect(\n canvas, state.video, multiPersonSegmentation,\n +guiState.segmentation.backgroundBlurAmount,\n guiState.segmentation.edgeBlurAmount, flipHorizontally);\n break;\n }\n\n break;\n case 'partmap':\n const ctx = canvas.getContext('2d');\n const multiPersonPartSegmentation = await estimatePartSegmentation();\n const coloredPartImageData = bodyPix.toColoredPartMask(\n multiPersonPartSegmentation,\n partColorScales[guiState.partMap.colorScale]);\n\n const maskBlurAmount = 0;\n switch (guiState.partMap.effect) {\n case 'pixelation':\n const pixelCellWidth = 10.0;\n\n bodyPix.drawPixelatedMask(\n canvas, state.video, coloredPartImageData,\n guiState.partMap.opacity, maskBlurAmount, flipHorizontally,\n pixelCellWidth);\n break;\n case 'partMap':\n bodyPix.drawMask(\n canvas, state.video, coloredPartImageData, guiState.opacity,\n maskBlurAmount, flipHorizontally);\n break;\n case 'blurBodyPart':\n const blurBodyPartIds = [0, 1];\n bodyPix.blurBodyPart(\n canvas, state.video, multiPersonPartSegmentation,\n blurBodyPartIds, guiState.partMap.blurBodyPartAmount,\n guiState.partMap.edgeBlurAmount, flipHorizontally);\n }\n drawPoses(multiPersonPartSegmentation, flipHorizontally, ctx);\n break;\n default:\n break;\n }\n\n // End monitoring code for frames per second\n stats.end();\n\n requestAnimationFrame(bodySegmentationFrame);\n }\n\n bodySegmentationFrame();\n}\n\n/**\n * Kicks off the demo.\n */\nexport async function bindPage() {\n // Load the BodyPix model weights with architecture 0.75\n await loadBodyPix();\n document.getElementById('loading').style.display = 'none';\n document.getElementById('main').style.display = 'inline-block';\n\n await loadVideo(guiState.camera);\n\n let cameras = await getVideoInputs();\n\n setupFPS();\n setupGui(cameras);\n\n segmentBodyInRealTime();\n}\n\n\nnavigator.getUserMedia = navigator.getUserMedia ||\n navigator.webkitGetUserMedia || navigator.mozGetUserMedia;\n// kick off the demo\nbindPage();\n"]}

Found in path(s):
* /tensorflow-models-zip/@tensorflow-models/body-pix/demos/dist/demos.ab0c720b.js.map

1.402 openssl 1.1.1f-1ubuntu2.10

1.402.1 Available under license :

This software is copyright (c) 2013 by Mark Jason Dominus <mjd@cpan.org>.

This is free software; you can redistribute it and/or modify it under
the same terms as the Perl 5 programming language system itself.

Terms of the Perl programming language system itself

a) the GNU General Public License as published by the Free
  Software Foundation; either version 1, or (at your option) any
  later version, or
b) the "Artistic License"

--- The GNU General Public License, Version 1, February 1989 ---

This software is Copyright (c) 2013 by Mark Jason Dominus <mjd@cpan.org>.

This is free software, licensed under:

 The GNU General Public License, Version 1, February 1989

                GNU GENERAL PUBLIC LICENSE
                 Version 1, February 1989

Copyright (C) 1989 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

                     Preamble

 The license agreements of most software companies try to keep users
at the mercy of those companies. By contrast, our General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. The
General Public License applies to the Free Software Foundation's
software and to any other program whose authors commit to using it.
You can use it for your programs, too.

 When we speak of free software, we are referring to freedom, not
price. Specifically, the General Public License is designed to make
sure that you have the freedom to give away or sell copies of free
software, that you receive source code or can get it if you want it,

that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of a such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must tell them their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any work containing the Program or a portion of it, either verbatim or with modifications. Each licensee is addressed as "you".

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this General Public License and to the absence of any warranty; and give any other recipients of the Program a copy of this General Public License along with the Program. You may charge a fee for the physical act of

transferring a copy.

2. You may modify your copy or copies of the Program or any portion of it, and copy and distribute such modifications under the terms of Paragraph 1 above, provided that you also do the following:

a) cause the modified files to carry prominent notices stating that you changed the files and the date of any change; and

b) cause the whole of any work that you distribute or publish, that in whole or in part contains the Program or any part thereof, either with or without modifications, to be licensed at no charge to all third parties under the terms of this General Public License (except that you may choose to grant warranty protection to some or all third parties, at your option).

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use
in the simplest and most usual way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this General Public License.

d) You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

Mere aggregation of another independent work with the Program (or its derivative) on a volume of a storage or distribution medium does not bring the other work under the scope of these terms.

3. You may copy and distribute the Program (or a portion or derivative of it, under Paragraph 2) in object code or executable form under the terms of Paragraphs 1 and 2 above provided that you also do one of the following:

a) accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Paragraphs 1 and 2 above; or,

b) accompany it with a written offer, valid for at least three years, to give any third party free (except for a nominal charge for the cost of distribution) a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Paragraphs 1 and 2 above; or,

c) accompany it with the information you received as to where the corresponding source code may be obtained. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form alone.)

Source code for a work means the preferred form of the work for making modifications to it. For an executable file, complete source code means all the source code for all modules it contains; but, as a special exception, it need not include source code for modules which are standard libraries that
accompany the operating system on which the executable file runs, or for standard header files or definitions files that accompany that operating system.

4. You may not copy, modify, sublicense, distribute or transfer the Program except as expressly provided under this General Public License. Any attempt otherwise to copy, modify, sublicense, distribute or transfer the Program is void, and will automatically terminate your rights to use the Program under this License. However, parties who have received copies, or rights to use copies, from you under this General Public License will not have their licenses terminated so long as such parties remain in full compliance.

5. By copying, distributing or modifying the Program (or any work based on the Program) you indicate your acceptance of this license to do so, and all its terms and conditions.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original
licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.

7. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of the license which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the license, you may choose any version ever published by the Free Software Foundation.

8. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

9. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

10. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to humanity, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>

Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 1, or (at your option)
any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free
Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19xx name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the
appropriate parts of the General Public License. Of course, the
commands you use may be called something other than `show w' and `show
c'; they could even be mouse-clicks or menu items--whatever suits your
program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here a sample; alter
the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
program `Gnomovision' (a program to direct compilers to make passes
at assemblers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

That's all there is to it!

--- The Artistic License 1.0 ---

This software is Copyright (c) 2013 by Mark Jason Dominus <mjd@cpan.org>.

This is free software, licensed under:

The Artistic License 1.0

The Artistic License

Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

- "Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.
- "Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder.
- "Copyright Holder" is whoever is named in the copyright or copyrights for the package.
- "You" is you, if you're thinking about copying or distributing this Package.
- "Reasonable copying fee" is whatever you can justify on the basis of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)
- "Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent notice in each changed file stating how and when you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as ftp.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified
Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) accompany any non-standard executables with their corresponding Standard Version executables, giving the non-standard executables non-standard names,
and clearly documenting the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided that you do not advertise this Package as a product of your own.

6. The scripts and library files supplied as input to or produced as output

from the programs of this Package do not automatically fall under the copyright
of this Package, but belong to whomever generated them, and may be sold
commercially, and may be aggregated with this Package.

7. C or perl subroutines supplied by you and linked into this Package
shall not
be considered part of this Package.

8. The name of the Copyright Holder may not be used to endorse or promote
products derived from this software without specific prior written permission.

9. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF
MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

Apache License
Version 2.0, January 2004
https://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,

or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

1.403 pydantic 1.9.0

1.403.1 Available under license :

The MIT License (MIT)

Copyright (c) 2017, 2018, 2019, 2020, 2021 Samuel Colvin and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
MIT

1.404 pymongo 3.12.3

1.404.1 Available under license :

PyMongo uses third-party libraries or other resources that may
be distributed under licenses different than the PyMongo software.

In the event that we accidentally failed to list a required notice,
please bring it to our attention through any of the ways detailed here:

mongodb-dev@googlegroups.com

The attached notices are provided for information only.

For any licenses that require disclosure of source, sources are available at
https://github.com/mongodb/mongo-python-driver.

1) License Notice for time64.c

Copyright (c) 2007-2010 Michael G Schwern

This software originally derived from Paul Sheer's pivotal_gmtime_r.c.

The MIT License:

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies
 of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

2) License Notice for bson-stdint-win32.h

ISO C9x compliant stdint.h for Microsoft Visual Studio
Based on ISO/IEC 9899:TC2 Committee draft (May 6, 2005) WG14/N1124

Copyright (c) 2006-2013 Alexander Chemeris

Redistribution and use in source
 and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
   notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.

3. Neither the name of the product nor the names of its contributors may
   be used to endorse or promote products derived from this software
   without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

3) License Notice for encoding_helpers.c

Portions Copyright 2001 Unicode, Inc.

Disclaimer

This source code is provided as is by Unicode, Inc. No claims are made as to fitness for any particular purpose. No warranties of any kind are expressed or implied. The recipient agrees to determine applicability of information provided. If this file has been purchased on magnetic or optical media from Unicode, Inc., the sole remedy for any claim will be exchange of defective media within 90 days of receipt.

Limitations on Rights to Redistribute This Code

Unicode, Inc. hereby grants the right
to freely use the information
supplied in this file in the creation of products supporting the Unicode Standard, and to make copies of this file in any form for internal or external distribution as long as this notice remains attached.

4) License Notice for ssl_match_hostname.py

Python License (Python-2.0)

Python License, Version 2 (Python-2.0)

PYTHON SOFTWARE FOUNDATION LICENSE VERSION 2
---

1. This LICENSE AGREEMENT is between the Python Software Foundation
("PSF"), and the Individual or Organization ("Licensee") accessing and
otherwise using this software ("Python") in source or binary form and
its associated documentation.

2. Subject to the terms and conditions of this License Agreement, PSF
hereby grants Licensee a nonexclusive, royalty-free, world-wide
license to reproduce, analyze, test, perform and/or display publicly,
prepare derivative works, distribute, and otherwise use Python
alone
or in any derivative version, provided, however, that PSF's
License Agreement and PSF's notice of copyright, i.e., "Copyright (c)
2001-2013 Python Software Foundation; All Rights Reserved" are retained in
Python alone or in any derivative version prepared by Licensee.

3. In the event Licensee prepares a derivative work that is based on
or incorporates Python or any part thereof, and wants to make
the derivative work available to others as provided herein, then
Licensee hereby agrees to include in any such work a brief summary of
the changes made to Python.

4. PSF is making Python available to Licensee on an "AS IS"
basis. PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR
IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND
DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS
FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON WILL NOT
INFRINGE ANY THIRD PARTY RIGHTS.

5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON
FOR ANY INCIDENTAL,
SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS
A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON,
OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material
breach of its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any
relationship of agency, partnership, or joint venture between PSF and

Licensee. This License Agreement does not grant permission to use PSF trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

8. By copying, installing or otherwise using Python, Licensee agrees to be bound by the terms and conditions of this License Agreement.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate

as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work

by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.405 expat 2.2.9-1build1

1.405.1 Available under license :

Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2017 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN

ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.406 systemd 245.4-4ubuntu3.15

1.406.1 Available under license :

MurmurHash2 was written by Austin Appleby, and is placed in the public
domain. The author hereby disclaims copyright to this source code.
GNU LIBRARY GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public
Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it.
And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which

gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most
GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public
License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library".
The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole.
If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work
under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections
1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because
it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold

for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work
is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you
must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may
place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void,
and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may
not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of
this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other

system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted
in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify
a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the library's name and an idea of what it does.
Copyright (C) year name of author

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Library General Public License for more details.

You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in
the library `Frob' (a library for tweaking knobs) written
by James Random Hacker.

signature of Ty Coon, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
// Copyright 2014 The Chromium OS Authors. All rights reserved.
//
// Redistribution and use in source and binary forms, with or without
// modification, are permitted provided that the following conditions are
// met:
//
// * Redistributions of source code must retain the above copyright
// notice, this list of conditions and the following disclaimer.
// * Redistributions in binary form must reproduce the above
// copyright notice, this list of conditions and the following disclaimer

// in the documentation and/or other materials provided with the
// distribution.
//   * Neither the name of Google Inc. nor the names of its
// contributors may be used to endorse or promote products derived from
// this software without specific prior written permission.
//
// THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
// "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
// LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
// A PARTICULAR
 PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
// OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
// SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
// LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
// DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
// THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
// (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
// OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
lookup3.c, by Bob Jenkins, May 2006, Public Domain.
Copyright (c) <dates>, <Copyright Holder> (<URL|email>),
with Reserved Font Name <Reserved Font Name>.
Copyright (c) <dates>, <additional Copyright Holder> (<URL|email>),
with Reserved Font Name <additional Reserved Font Name>.
Copyright (c) <dates>, <additional Copyright Holder> (<URL|email>).

This Font Software is licensed under the SIL Open Font License, Version 1.1.
This license is copied below, and is also available with a FAQ at:
http://scripts.sil.org/OFL

SIL OPEN FONT LICENSE Version 1.1 - 26 February 2007

PREAMBLE
The goals of the Open Font License (OFL) are to stimulate worldwide
development of collaborative font projects, to support the font creation
efforts of academic and linguistic communities, and to provide a free and
open framework in which fonts may be shared and improved in partnership
with others.

The OFL allows the licensed fonts to be used, studied,
 modified and
redistributed freely as long as they are not sold by themselves. The
fonts, including any derivative works, can be bundled, embedded,
redistributed and/or sold with any software provided that any reserved
names are not used by derivative works. The fonts and derivatives,
however, cannot be released under any other type of license. The

requirement for fonts to remain under this license does not apply
to any document created using the fonts or their derivatives.

DEFINITIONS
"Font Software" refers to the set of files released by the Copyright
Holder(s) under this license and clearly marked as such. This may
include source files, build scripts and documentation.

"Reserved Font Name" refers to any names specified as such after the
copyright statement(s).

"Original Version" refers to the collection of Font Software components as
distributed by the Copyright Holder(s).

"Modified Version" refers to any derivative made by adding to, deleting,
or substituting -- in part
or in whole -- any of the components of the
Original Version, by changing formats or by porting the Font Software to a
new environment.

"Author" refers to any designer, engineer, programmer, technical
writer or other person who contributed to the Font Software.

PERMISSION & CONDITIONS
Permission is hereby granted, free of charge, to any person obtaining
a copy of the Font Software, to use, study, copy, merge, embed, modify,
redistribute, and sell modified and unmodified copies of the Font
Software, subject to the following conditions:

1) Neither the Font Software nor any of its individual components,
in Original or Modified Versions, may be sold by itself.

2) Original or Modified Versions of the Font Software may be bundled,
redistributed and/or sold with any software, provided that each copy
contains the above copyright notice and this license. These can be
included either as stand-alone text files, human-readable headers or
in the appropriate machine-readable metadata fields within
text or
binary files as long as those fields can be easily viewed by the user.

3) No Modified Version of the Font Software may use the Reserved Font
Name(s) unless explicit written permission is granted by the corresponding
Copyright Holder. This restriction only applies to the primary font name as
presented to the users.

4) The name(s) of the Copyright Holder(s) or the Author(s) of the Font
Software shall not be used to promote, endorse or advertise any
Modified Version, except to acknowledge the contribution(s) of the

Copyright Holder(s) and the Author(s) or with their explicit written permission.

5) The Font Software, modified or unmodified, in part or in whole, must be distributed entirely under this license, and must not be distributed under any other license. The requirement for fonts to remain under this license does not apply to any document created using the Font Software.

TERMINATION
This license becomes null and void if any of the above conditions are not met.

DISCLAIMER
THE
FONT SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF COPYRIGHT, PATENT, TRADEMARK, OR OTHER RIGHT. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, INCLUDING ANY GENERAL, SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF THE USE OR INABILITY TO USE THE FONT SOFTWARE OR FROM OTHER DEALINGS IN THE FONT SOFTWARE.

NOTE! This copyright does *not* cover user programs that use kernel services by normal system calls - this is merely considered normal use of the kernel, and does *not* fall under the heading of "derived work". Also note that the GPL below is copyrighted by the Free Software Foundation, but the instance of code that it refers to (the Linux kernel) is copyrighted by me and others who actually wrote it.

Also note that the only valid version of the GPL as far as the kernel is concerned is _this_ particular version of the license (ie v2, not v2.2 or v3.x or whatever), unless explicitly otherwise stated.

Linus Torvalds

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public

License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively

when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer

to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to

this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it

free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.
systemd Project Licensing

Main License

The systemd project uses single-line references to Unique License Identifiers as
defined by the Linux Foundation's SPDX project (https://spdx.org/). The line in
each individual source file identifies the license applicable to that file.

The current set of valid, predefined SPDX identifiers can be found on the SPDX
License List at https://spdx.org/licenses/.

The 'LICENSES/' directory contains all the licenses used by the sources included in
the systemd project source tree.

Unless otherwise noted, the systemd project sources are licensed under the terms
and conditions of the **GNU Lesser General Public License v2.1 or later**.

New sources that cannot be distributed under LGPL-2.1-or-later will no longer
be accepted for inclusion in the systemd project to maintain license uniformity.

Other Licenses

The following exceptions apply:

* some udev sources under src/udev/ are licensed under **GPL-2.0-or-later**, so the
  udev binaries as a
 whole are also distributed under **GPL-2.0-or-later**.
* the header files contained in src/basic/linux/ and src/shared/linux/ are copied
  verbatim from the Linux kernel source tree and are licensed under **GPL-2.0 WITH
  Linux-syscall-note** and are used within the scope of the Linux-syscall-note
  exception provisions
* the src/shared/initreq.h header is licensed under original license,
  LGPL-2.0-or-later.
* the src/shared/linux/bpf_insn.h header is copied from the Linux kernel
  source tree and is licensed under either **BSD-2-Clause** or **GPL-2.0-only**,
  and thus is included in the systemd build under the BSD-2-Clause license.
* The src/basic/linux/wireguard.h header is copied from the Linux kernel
  source tree and is licensed under either **MIT** or **GPL-2.0 WITH Linux-syscall-note**,
  and thus is included in the systemd build under the MIT license.
* the following sources are licensed under the **MIT** license (in case of our

scripts, to facilitate copying
and reuse of those helpers to other projects):
- hwdb.d/parse_hwdb.py
- src/basic/linux/batman_adv.h
- src/basic/sparse-endian.h
- tools/catalog-report.py
* the following sources are licensed under the **CC0-1.0** license:
- src/basic/siphash24.c
- src/basic/siphash24.h
- src/systemctl/systemd-sysv-install.SKELETON
- tools/check-includes.pl
- all examples under man/
* the following sources are under **Public Domain** (LicenseRef-murmurhash2-public-domain):
- src/basic/MurmurHash2.c
- src/basic/MurmurHash2.h
* the following sources are under **Public Domain** (LicenseRef-lookup3-public-domain):
- src/libsystemd/sd-journal/lookup3.c
- src/libsystemd/sd-journal/lookup3.h
* the tools/chromiumos/gen_autosuspend_rules.py script is licensed under the
BSD-3-Clause license.
* Heebo fonts under docs/fonts/ are licensed under the **SIL Open Font License 1.1**,
* any files under test/ without an explicit license we assume non-copyrightable
(eg: computer-generated fuzzer data)

OpenSSL Notes

Note that building the systemd project with OpenSSL does not affect the libsystemd.so
shared library, which is not linked with the OpenSSL library.
MIT License

Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Copyright (c) <year> <owner> All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Creative Commons Legal Code

CC0 1.0 Universal

CREATIVE COMMONS CORPORATION IS NOT A LAW FIRM AND DOES NOT PROVIDE LEGAL SERVICES. DISTRIBUTION OF THIS DOCUMENT DOES NOT CREATE AN ATTORNEY-CLIENT RELATIONSHIP. CREATIVE COMMONS PROVIDES THIS INFORMATION ON AN "AS-IS" BASIS. CREATIVE COMMONS MAKES NO WARRANTIES REGARDING THE USE OF THIS DOCUMENT OR THE INFORMATION OR WORKS PROVIDED HEREUNDER, AND DISCLAIMS LIABILITY FOR DAMAGES RESULTING FROM THE USE OF THIS DOCUMENT OR THE INFORMATION OR WORKS PROVIDED HEREUNDER.

Statement of Purpose

The laws of most jurisdictions throughout the world automatically confer exclusive Copyright and Related Rights (defined below) upon the creator and subsequent owner(s) (each and all, an "owner") of an original work of authorship and/or a database (each, a "Work").

Certain owners wish to permanently relinquish those rights to a Work for the purpose of contributing to a commons of creative, cultural and scientific works ("Commons")
that the public can reliably and without fear
of later claims of infringement build upon, modify, incorporate in other works, reuse and redistribute as freely as possible in any form whatsoever and for any purposes, including without limitation commercial purposes. These owners may contribute to the Commons to promote the ideal of a free culture and the further production of creative, cultural and scientific

works, or to gain reputation or greater distribution for their Work in part through the use and efforts of others.

For these and/or other purposes and motivations, and without any expectation of additional consideration or compensation, the person associating CC0 with a Work (the "Affirmer"), to the extent that he or she is an owner of Copyright and Related Rights in the Work, voluntarily elects to apply CC0 to the Work and publicly distribute the Work under its terms, with knowledge of his or her Copyright and Related Rights in the Work and the meaning and intended legal effect of CC0 on those rights.

1. Copyright and Related Rights. A Work made available under CC0 may be protected by copyright and related or neighboring rights ("Copyright and Related Rights"). Copyright and Related Rights include, but are not limited to, the following:

i. the right to reproduce, adapt, distribute, perform, display, communicate, and translate a Work;
ii. moral rights retained by the original author(s) and/or performer(s);
iii. publicity and privacy rights pertaining to a person's image or likeness depicted in a Work;
iv. rights protecting against unfair competition in regards to a Work, subject to the limitations in paragraph 4(a), below;
v. rights protecting the extraction, dissemination, use and reuse of data in a Work;
vi. database rights (such as those arising under Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, and under any national implementation thereof, including any amended or successor version of such directive); and
vii. other similar, equivalent or corresponding rights throughout the world based on applicable law or treaty, and any national implementations thereof.

2. Waiver. To the greatest extent permitted by, but not in contravention of, applicable law, Affirmer hereby overtly, fully, permanently, irrevocably and unconditionally waives, abandons, and surrenders all of Affirmer's Copyright and Related Rights and associated claims and causes of action, whether now known or unknown (including existing as well as future claims and causes of action), in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable law or treaty (including future time extensions), (iii) in any current or future medium and for any number of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "Waiver"). Affirmer makes the

Waiver for the benefit of each
member of the public at large and to the detriment of Affirmer's heirs and successors, fully intending that such Waiver shall not be subject to revocation, rescission, cancellation, termination, or any other legal or equitable action to disrupt the quiet enjoyment of the Work by the public as contemplated by Affirmer's express Statement of Purpose.

3. Public License Fallback. Should any part of the Waiver for any reason be judged legally invalid or ineffective under applicable law, then the Waiver shall be preserved to the maximum extent permitted taking into account Affirmer's express Statement of Purpose. In addition, to the extent the Waiver is so judged Affirmer hereby grants to each affected person a royalty-free, non transferable, non sublicensable, non exclusive, irrevocable and unconditional license to exercise Affirmer's Copyright and Related Rights in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable
law or treaty (including future
time extensions), (iii) in any current or future medium and for any number of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "License"). The License shall be deemed effective as of the date CC0 was applied by Affirmer to the Work. Should any part of the License for any reason be judged legally invalid or ineffective under applicable law, such partial invalidity or ineffectiveness shall not invalidate the remainder of the License, and in such case Affirmer hereby affirms that he or she will not (i) exercise any of his or her remaining Copyright and Related Rights in the Work or (ii) assert any associated claims and causes of action with respect to the Work, in either case contrary to Affirmer's express Statement of Purpose.

4. Limitations and Disclaimers.

a. No trademark or patent rights held by Affirmer are waived, abandoned, surrendered, licensed or otherwise affected
by this document.
b. Affirmer offers the Work as-is and makes no representations or warranties of any kind concerning the Work, express, implied, statutory or otherwise, including without limitation warranties of title, merchantability, fitness for a particular purpose, non infringement, or the absence of latent or other defects, accuracy, or the present or absence of errors, whether or not discoverable, all to the greatest extent permissible under applicable law.
c. Affirmer disclaims responsibility for clearing rights of other persons that may apply to the Work or any use thereof, including without limitation any person's Copyright and Related Rights in the Work. Further, Affirmer disclaims responsibility for obtaining any necessary consents, permissions or other rights required for any use of the Work.

d. Affirmer understands and acknowledges that Creative Commons is not a
party to this document and has no duty or obligation with
respect to
this CC0 or use of the Work.

1.407 uvicorn 0.15.0

1.407.1 Available under license :

BSD-style without advertising clause
Copyright 2017-present, [Encode OSS Ltd](http://www.encode.io/).
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the name of the copyright holder nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.408 chardet 3.0.4

1.408.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of

running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to
a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy

from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work

during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with

this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest

possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

 To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line
 and a pointer to where the full notice is found.

  <one line to give the library's name and a brief idea of what it does.>
  Copyright (C) <year> <name of author>

  This library is free software; you can redistribute it and/or
  modify it under the terms of the GNU Lesser General Public
  License as published by the Free Software Foundation; either
  version 2.1 of the License, or (at your option) any later version.

  This library is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
  Lesser General Public License for more details.

  You should have received a copy of the GNU Lesser General Public
  License along with this library; if not, write to the Free Software
  Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
 also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

 Yoyodyne, Inc., hereby disclaims all copyright interest in the
 library `Frob' (a library for tweaking knobs) written by James Random Hacker.

 <signature of Ty Coon>, 1 April 1990
 Ty Coon, President of Vice

That's all there is to it!

1.409 hdrhistogram 2.1.12

1.409.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Written by Gil Tene of Azul Systems, and released to the public domain,
* as explained at http://creativecommons.org/publicdomain/zero/1.0/
*
* @author Gil Tene
*/

Found in path(s):
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoublePercentileIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/ZigZagEncoding.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/AllValuesIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/Base64Helper.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/IntCountsHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleLinearIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/PackedConcurrentDoubleHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/SynchronizedHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/packedarray/PackedArraySingleWriterRecorder.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/Histogram.java
*
 /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/LogarithmicIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/Version.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/RecordedValuesIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/LinearIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/PackedDoubleHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/AtomicHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/HistogramIterationValue.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/Recorder.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/ConcurrentDoubleHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/HistogramLogReader.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/HistogramLogProcessor.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/PackedHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/SingleWriterDoubleRecorder.java
*
 /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleRecorder.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleHistogramIterationValue.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/AbstractHistogramIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/SynchronizedDoubleHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/PercentileIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/PackedConcurrentHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleRecordedValuesIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleAllValuesIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/SingleWriterRecorder.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleLogarithmicIterator.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/ShortCountsHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/EncodableHistogram.java

*
 /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/HistogramLogScanner.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/packedarray/PackedArrayRecorder.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/ConcurrentHistogram.java
No license file was found, but licenses were detected in source scan.

/*
* Written by Gil Tene of Azul Systems, and released to the public domain,
* as explained at http://creativecommons.org/publicdomain/zero/1.0/
*
* @author Gil Tene
*/

Found in path(s):
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/AbstractHistogram.java
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/DoubleHistogram.java
No license file was found, but licenses were detected in source scan.

/**
* Written by Gil Tene of Azul Systems, and released to the public domain,
* as explained at http://creativecommons.org/publicdomain/zero/1.0/
*
* @author Gil Tene
*/

package org.HdrHistogram;

final class Version {
  public static final String version="$VERSION$";
  public static final String build_time="$BUILD_TIME$";
}

Found in path(s):
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/Version.java.template
No license file was found, but licenses were detected in source scan.

/*
* package-info.java
* Written by Gil Tene of Azul Systems, and released to the public domain,
* as explained at http://creativecommons.org/publicdomain/zero/1.0/
*/

Found in path(s):
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/package-info.java
No license file was found, but licenses were detected in source scan.

/**
* Written by Gil Tene of Azul Systems, and released to the public domain,

* as explained at http://creativecommons.org/publicdomain/zero/1.0/
*/

Found in path(s):
* /hdrhistogram-2-1-12-sources-jar/org/HdrHistogram/WriterReaderPhaser.java

1.410 hikaricp 3.4.5

1.410.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2013 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/PropertyElf.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/UtilityElf.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyStatement.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyPreparedStatement.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/HikariDataSource.java
*
 /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusHistogramMetricsTracker.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/hibernate/HikariConnectionProvider.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusMetricsTracker.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/hibernate/HikariConfigurationUtil.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/HikariPoolMXBean.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyCallableStatement.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodahaleMetricsTrackerFactory.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/HikariConfigMXBean.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2017 Brett Wooldridge
*

* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/IMetricsTracker.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2015 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/ClockSource.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/PoolStats.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2016 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software

* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusHistogramMetricsTrackerFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2013,2014 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/HikariPool.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/HikariJNDIFactory.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodaHaleMetricsTracker.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/MetricsTracker.java
*
 /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/MetricsTrackerFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2014 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodahaleHealthChecker.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/PoolEntry.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2016 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusMetricsTrackerFactory.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2019 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/IsolationLevel.java

No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2013, 2014 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/PoolBase.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2013, 2014 Brett Wooldridge
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/metrics/prometheus/HikariCPCollector.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/ConcurrentBag.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyResultSet.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/DriverDataSource.java
*
 /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/SuspendResumeLock.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/JavassistProxyFactory.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/HikariConfig.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyConnection.java

* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyLeakTaskFactory.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyFactory.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/util/FastList.java
* /hikaricp-3-4-5-sources-jar/com/zaxxer/hikari/pool/ProxyLeakTask.java

1.411 statistics 2.1

1.411.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work

(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work

or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.412 jctools-core 3.0.0

1.412.1 Available under license :

No license file was found, but licenses were detected in source scan.

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
<modelVersion>4.0.0</modelVersion>

<artifactId>jctools-core</artifactId>
<groupId>org.jctools</groupId>
<version>3.0.0</version>
<name>Java Concurrency Tools Core Library</name>
<description>Java Concurrency Tools Core Library</description>
<packaging>bundle</packaging>

<dependencies>
<dependency>
<groupId>org.hamcrest</groupId>

```
 <artifactId>hamcrest-all</artifactId>
 <version>${hamcrest.version}</version>
 <scope>test</scope>
</dependency>

<dependency>
 <groupId>junit</groupId>
 <artifactId>junit</artifactId>
 <version>${junit.version}</version>
 <scope>test</scope>
</dependency>

<dependency>
 <groupId>com.google.guava</groupId>
 <artifactId>guava-testlib</artifactId>
 <version>${guava-testlib.version}</version>
 <scope>test</scope>
</dependency>
</dependencies>
<build>
 <plugins>
  <plugin>
   <groupId>org.apache.maven.plugins</groupId>
   <artifactId>maven-surefire-plugin</artifactId>
   <version>3.0.0-M3</version>
   <configuration>
    <includes>
     <include>*</include>
    </includes>
   </configuration>
  </plugin>
  <plugin>
   <groupId>org.apache.felix</groupId>
   <artifactId>maven-bundle-plugin</artifactId>
   <version>4.2.1</version>
   <extensions>true</extensions>
   <configuration>
    <instructions>
     <Import-Package>sun.misc;resolution:=optional</Import-Package>
    </instructions>
   </configuration>
  </plugin>
  <plugin>
   <groupId>org.apache.maven.plugins</groupId>
   <artifactId>maven-source-plugin</artifactId>
   <version>3.2.0</version>
   <executions>
    <execution>
```

```
    <id>attach-sources</id>
    <phase>verify</phase>
    <goals>
     <goal>jar-no-fork</goal>
    </goals>
   </execution>
  </executions>
 </plugin>
 <plugin>
  <groupId>org.apache.maven.plugins</groupId>
  <artifactId>maven-javadoc-plugin</artifactId>
  <version>3.1.1</version>
  <configuration>
   <additionalOptions>
    <additionalOption>-Xdoclint:none</additionalOption>
   </additionalOptions>
   <source>8</source>
  </configuration>
  <executions>
   <execution>
    <id>attach-javadocs</id>
    <goals>
     <goal>jar</goal>
    </goals>
   </execution>
  </executions>
 </plugin>
</plugins>
</build>

<distributionManagement>
 <repository>
  <id>bintray-jctools-jctools</id>
  <name>jctools-jctools</name>
  <url>https://api.bintray.com/maven/jctools/jctools/jctools-core/;publish=1</url>
 </repository>
</distributionManagement>

<url>https://github.com/JCTools</url>
<inceptionYear>2013</inceptionYear>

<licenses>
 <license>
  <name>Apache
License, Version 2.0</name>
  <url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>
  <distribution>repo</distribution>
 </license>
```

```
</licenses>

<scm>
 <url>https://github.com/JCTools/JCTools</url>
 <connection>scm:git:https://github.com/JCTools/JCTools</connection>
 <tag>HEAD</tag>
</scm>

<developers>
 <developer>
  <url>https://github.com/nitsanw</url>
 </developer>
 <developer>
  <url>https://github.com/mjpt777</url>
 </developer>
 <developer>
  <url>https://github.com/RichardWarburton</url>
 </developer>
 <developer>
  <url>https://github.com/kay</url>
 </developer>
 <developer>
  <url>https://github.com/franz1981</url>
 </developer>
</developers>

<prerequisites>
 <maven>3.5.0</maven>
</prerequisites>

<properties>
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
 <java.version>1.6</java.version>
 <java.test.version>1.8</java.test.version>

 <maven.compiler.source>${java.version}</maven.compiler.source>
 <maven.compiler.target>${java.version}</maven.compiler.target>
 <maven.compiler.testSource>${java.test.version}</maven.compiler.testSource>
 <maven.compiler.testTarget>${java.test.version}</maven.compiler.testTarget>

 <hamcrest.version>1.3</hamcrest.version>
 <junit.version>4.12</junit.version>
 <guava-testlib.version>21.0</guava-testlib.version>
</properties>
</project>
```

Found

in path(s):
* /jctools-core-3-0-0-sources-jar/META-INF/maven/org.jctools/jctools-core/pom.xml
No license file was found, but licenses were detected in source scan.

/*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MessagePassingQueueUtil.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/UnsafeJvmInfo.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpscAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpscLinkedAtomicQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpmcAtomicArrayQueue.java
*
/jctools-core-3-0-0-sources-jar/org/jctools/queues/SpscGrowableArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SpscArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/ConcurrentAutoTable.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/NonBlockingIdentityHashMap.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscGrowableArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/Pow2.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/spec/ConcurrentQueueSpec.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/BaseLinkedQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/InternalAPI.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpmcUnboundedXaddArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SpscLinkedQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpscChunkedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/spec/Ordering.java
*
/jctools-core-3-0-0-sources-jar/org/jctools/queues/spec/Preference.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/AbstractEntry.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpscGrowableAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/BaseMpscLinkedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscLinkedQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/package-info.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/RangeUtil.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/PortableJvmInfo.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscArrayQueue.java

* /jctools-core-3-0-0-sources-jar/org/jctools/queues/QueueFactory.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpscChunkedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscBlockingConsumerArrayQueue.java
*
 /jctools-core-3-0-0-sources-jar/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/NonBlockingHashSet.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/IndexedQueueSizeUtil.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/LinkedQueueAtomicNode.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscCompoundQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscUnboundedArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpmcAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscUnboundedXaddChunk.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpscAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SupportsIterator.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpscGrowableAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/BaseMpscLinkedArrayQueue.java
*
 /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/AtomicReferenceArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/BaseLinkedAtomicQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SpmcArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SpscUnboundedArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/NonBlockingHashMapLong.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/ConcurrentCircularArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/NonBlockingSetInt.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpmcUnboundedXaddChunk.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/BaseSpscLinkedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscChunkedArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/maps/NonBlockingHashMap.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/UnsafeLongArrayAccess.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpscLinkedAtomicQueue.java
*
 /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpscUnboundedXaddArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/MpscUnboundedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MessagePassingQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SequencedAtomicReferenceArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/BaseSpscLinkedArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/LinkedQueueNode.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/MpmcArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/UnsafeAccess.java
* /jctools-core-3-0-0-sources-jar/org/jctools/util/UnsafeRefArrayAccess.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/SpscChunkedArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/SpscUnboundedAtomicArrayQueue.java
* /jctools-core-3-0-0-sources-jar/org/jctools/queues/atomic/AtomicQueueFactory.java

1.413 jansi-osx 1.8

1.413.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* Copyright (C) 2009-2017 the original author(s).
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*     http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

* /jansi-osx-1-8-sources-jar/org/fusesource/jansi/internal/Kernel32.java
* /jansi-osx-1-8-sources-jar/org/fusesource/jansi/internal/WindowsSupport.java
* /jansi-osx-1-8-sources-jar/org/fusesource/jansi/internal/CLibrary.java

1.414 jansi 1.8

1.414.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/**
* Copyright (C) 2009, Progress Software Corporation and/or its
* subsidiaries or affiliates.  All rights reserved.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*     http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
```

Found in path(s):

* /jansi-1-8-sources-jar/org/fusesource/jansi/AnsiOutputStream.java
* /jansi-1-8-sources-jar/org/fusesource/jansi/WindowsAnsiOutputStream.java
* /jansi-1-8-sources-jar/org/fusesource/jansi/Ansi.java
* /jansi-1-8-sources-jar/org/fusesource/jansi/AnsiConsole.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2009 the original author(s).
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /jansi-1-8-sources-jar/org/fusesource/jansi/AnsiString.java
* /jansi-1-8-sources-jar/org/fusesource/jansi/AnsiRenderWriter.java
* /jansi-1-8-sources-jar/org/fusesource/jansi/AnsiRenderer.java

1.415 hawtjni-runtime 1.17

1.415.1 Available under license :

Found license 'Eclipse Public License 1.0' in '* All rights reserved. This program and the accompanying materials * are made available under the terms of the Eclipse Public License v1.0'

1.416 jansi-native 1.8

1.416.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright (C) 2009-2017 the original author(s).
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /jansi-native-1-8-sources-jar/org/fusesource/jansi/internal/WindowsSupport.java
* /jansi-native-1-8-sources-jar/org/fusesource/jansi/internal/CLibrary.java
* /jansi-native-1-8-sources-jar/org/fusesource/jansi/internal/Kernel32.java

1.417 ehcache-api 3.8.1

1.417.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/SerializerException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/Status.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/expiry/Expiry.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/resilience/ResilienceStrategy.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/expiry/Expirations.java
*
 /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/Service.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/SerializationProvider.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/CacheWritingException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriterConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/OptionalServiceDependencies.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/CacheManager.java

* /ehcache-api-3-8-1-sources-jar/org/ehcache/StateTransitionException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/persistence/StateHolder.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/resilience/RecoveryStore.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/copy/Copier.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/expiry/ExpiryPolicy.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/units/package-info.java
*
/ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/MaintainableService.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/resilience/StoreAccessException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/Eviction.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/CacheConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/event/EventOrdering.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/persistence/PersistableResourceService.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/event/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/FluentConfigurationBuilder.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/Configuration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/ServiceDependencies.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/ValueSupplier.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/BulkCacheLoadingException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/package-info.java
*
/ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/CacheLoadingException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/ResourceType.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/copy/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/WriteBehindConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/persistence/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/event/EventType.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/PersistentUserManagedCache.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/ResourcePool.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/EvictionAdvisor.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/CacheIterationException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/PluralService.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/event/CacheEventListener.java
*
/ehcache-api-3-8-1-sources-jar/org/ehcache/config/ResourceUnit.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/Builder.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/BulkCacheWritingException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/Cache.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/units/MemoryUnit.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/resilience/ResilienceStrategyProvider.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriterProvider.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/event/EventFiring.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/UserManagedCache.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/expiry/Duration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/ResourcePools.java

* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/WriteBehindProvider.java
*
 /ehcache-api-3-8-1-sources-jar/org/ehcache/event/CacheEvent.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/CacheRuntimeConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/loaderwriter/CacheLoaderWriter.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/ServiceCreationConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/copy/CopyProvider.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/expiry/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/ServiceProvider.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/PersistentCacheManager.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/StatefulSerializer.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/UnsupportedTypeException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/FluentCacheConfigurationBuilder.java
*
 /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/resilience/package-info.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/service/ServiceConfiguration.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/CachePersistenceException.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/units/EntryUnit.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/serialization/Serializer.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/spi/persistence/StateRepository.java
* /ehcache-api-3-8-1-sources-jar/org/ehcache/config/SizedResourcePool.java

1.418 sizeof 0.3.0

1.418.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You"
(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special,

incidental,
or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.419 sequence-generator 5.7.3

1.419.1 Available under license :

No license file was found, but licenses were detected in source scan.

Copyright Terracotta, Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE
2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Found in path(s):
* /sequence-generator-5-7-3-jar/META-INF/maven/org.terracotta.management/sequence-generator/pom.xml
No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0
Bnd-LastModified: 1563545580901
Build-Jdk: 1.8.0_202
Built-By: jenkins-slave
Bundle-Description: A set of Java modules for management and monitoring,
 common to several Terracotta products
Bundle-License: http://www.apache.org/licenses/LICENSE-2.0.txt
Bundle-ManifestVersion: 2
Bundle-Name: Terracotta Management :: Sequence Generator
Bundle-SymbolicName: org.terracotta.management.sequence-generator
Bundle-Version: 5.7.3
Created-By: Apache Maven Bundle Plugin
Export-Package: org.terracotta.management.sequence;version="5.7.3",org.t
erracotta.management.sequence.perf;version="5.7.3"
Main-Class: org.terracotta.management.sequence.perf.PerfTest
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"
Tool: Bnd-2.4.1.201501161923

Found in path(s):
* /sequence-generator-5-7-3-jar/META-INF/MANIFEST.MF

1.420 ehcache-107 3.8.1

1.420.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/Jsr107ServiceConfigurationParser.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/ConfigurationMerger.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/config/Jsr107Configuration.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/config/package-info.java
*
 /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/Jsr107CacheConfigurationParser.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheLoaderWriterProvider.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107IdentityCopier.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/config/Jsr107CacheConfiguration.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Jsr107Service.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/EhcacheCachingProvider.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107Configuration.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheLoaderWriter.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/EventListenerAdaptors.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheManager.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/DefaultConfigurationResolver.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheMXBean.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107ReverseConfiguration.java
*
 /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/package-info.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107Expiry.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CompleteConfiguration.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/EhcacheExpiryWrapper.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/Jsr107CacheLoaderWriter.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheEntryEvent.java

* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/CacheResources.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107MXBean.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/CloseUtil.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/config/ConfigurationElementState.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107CacheStatisticsMXBean.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/ExpiryPolicyToEhcacheExpiry.java
*
 /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Unwrap.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/NullCompletionListener.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/tck/Eh107MBeanServerBuilder.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/DefaultJsr107Service.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/Eh107Cache.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/internal/WrappedCacheLoaderWriter.java
* /ehcache-107-3-8-1-sources-jar/org/ehcache/jsr107/ListenerResources.java

1.421 ehcache-core 3.8.1

1.421.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/ZeroOperationStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/EhcacheManager.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/time/TimeSource.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/PersistentUserManagedEhcache.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/exceptions/ExceptionFactory.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/LifeCycledAdapter.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/events/StoreEventFilter.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/time/package-info.java

* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/InternalStatus.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/LatencyHistogramConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/EventListenerWrapper.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/store/StoreEventSourceConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/store/StoreConfigurationImpl.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/CacheOperationOutcomes.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/osgi/EhcacheActivator.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/CacheManagerProviderService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/StoreEventSink.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheEvents.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/Jsr107Cache.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/Jsr107LatencyMonitor.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/internal/util/ValueSuppliers.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DefaultStatisticsServiceFactory.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheEventDispatcher.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheEventDispatcherFactory.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/internal/resilience/ThrowingResilienceStrategy.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/DefaultConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/OperationStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/ValueStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/util/CollectionUtil.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/tiering/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/tiering/LowerCachingTier.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/EhcacheBase.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/store/StoreStatisticsConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/StatsUtils.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/ConfigurationChangeSupport.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/package-info.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/TierStatistics.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/HumanReadable.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/LocalPersistenceService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/StatisticsService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheEventListenerConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/exceptions/StorePassThroughException.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/StatusTransitioner.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/Ehcache.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/time/TickingTimeSource.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheEventListenerProvider.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/SpecIterator.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/heap/package-info.java
*

/ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/LowerCachingTierOperationsOutcome.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/HigherCachingTierOperationOutcomes.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/CacheManagerListener.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/heap/SizeOfEngineProvider.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/StateChangeListener.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/CacheConfigurationProperty.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/Store.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/InternalCache.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/tiering/HigherCachingTier.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/CoreConfigurationBuilder.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/FileBasedPersistenceContext.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/tiering/AuthoritativeTier.java
*
/ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/NullStoreEventDispatcher.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DefaultStatisticsService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/WrapperStore.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/CachingTierOperationOutcomes.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/ExecutionService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/collections/ConcurrentWeakIdentityHashMap.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/events/StoreEventDispatcher.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/LifeCycled.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/InternalRuntimeConfiguration.java
*
/ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/heap/LimitExceededException.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/OperationObserver.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/SourceStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/TierOperationOutcomes.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/CacheStatistics.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DefaultCacheStatistics.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/DiskResourceService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/EhcacheRuntimeConfiguration.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/StoreOperationOutcomes.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/resilience/DefaultRecoveryStore.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/exceptions/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/CacheConfigurationChangeEvent.java
*
/ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/BulkOps.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DelegatingOperationStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/events/StoreEventSource.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/ServiceUtils.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/ServiceLocator.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/events/StoreEvent.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/AuthoritativeTierOperationOutcomes.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/osgi/SafeOsgi.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DelegatingOperationObserver.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/CacheConfigurationChangeListener.java

* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/util/ClassLoading.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/util/ByteBufferInputStream.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/InternalCacheManager.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/SuppliedValueStatistic.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DefaultTierStatistics.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/events/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/DefaultCacheManagerProviderService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/store/package-info.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/ChainedObserver.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/config/ExpiryUtils.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/AbstractWrapperStoreProvider.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/ChainedOperationObserver.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/store/StoreSupport.java
*
 /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/tiering/CachingTier.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/service/ServiceFactory.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/AbstractValueHolder.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/time/SystemTimeSource.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/heap/SizeOfEngine.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/osgi/OsgiServiceLoader.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/time/TimeSourceService.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/spi/store/events/StoreEventListener.java
* /ehcache-core-3-8-1-sources-jar/org/ehcache/core/statistics/DelegatedMappedOperationStatistics.java

1.422 management-model 5.7.3

1.422.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):

* /management-model-5-7-3-sources-jar/org/terracotta/management/model/message/DefaultManagementCallMessage.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/Sample.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/call/ContextualCall.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/DelegatingStatistic.java
*
 /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/descriptors/Descriptor.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/Statistic.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/context/CapabilityContext.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/call/Parameter.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/descriptors/CallDescriptor.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/ContextualStatistics.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/descriptors/StatisticDescriptor.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/DefaultCapability.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/context/ContextContainer.java
*
 /management-model-5-7-3-sources-jar/org/terracotta/management/model/context/Context.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/Capability.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/message/ManagementCallMessage.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/StatisticRegistry.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/message/DefaultMessage.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/call/ContextualReturn.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/message/Message.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/cluster/ClientIdentifier.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/capabilities/descriptors/Settings.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/notification/ContextualNotification.java
*
 /management-model-5-7-3-sources-jar/org/terracotta/management/model/context/Contextual.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/StatisticType.java
* /management-model-5-7-3-sources-jar/org/terracotta/management/model/stats/DelegatingSample.java

1.423 ehcache-xml 3.8.1

1.423.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0

*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/BaseConfigParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/OffHeapDiskStoreConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/exceptions/XmlConfigurationException.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/JaxbHelper.java
*
 /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/ThreadPoolServiceCreationConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/DomUtil.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/XmlModel.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/WriteBehindProviderConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/ServiceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/ServiceCreationConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/ResourceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CacheServiceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CoreCacheConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CacheManagerServiceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultCopierConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CoreServiceConfigurationParser.java
*
 /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/CacheEventDispatcherFactoryConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/DefaultSizeOfEngineProviderConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultCacheEventListenerConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/SizeOfEngineLimits.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/ListenersConfig.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/Expiry.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/multi/XmlMultiConfiguration.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/PooledExecutionServiceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultSerializerConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/SimpleCoreServiceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultCacheEventDispatcherConfigurationParser.java
*
 /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/DefaultCopyProviderConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/XmlConfiguration.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultCacheLoaderWriterConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/CacheTemplate.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CoreServiceCreationConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/ConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/DefaultSerializationProviderConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultResilienceStrategyConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultSizeOfEngineConfigurationParser.java

* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/SimpleCoreServiceCreationConfigurationParser.java
*
/ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/service/DefaultWriteBehindConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/CacheManagerPersistenceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/CacheResourceConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/CacheDefinition.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/provider/OffHeapDiskStoreProviderConfigurationParser.java
* /ehcache-xml-3-8-1-sources-jar/org/ehcache/xml/model/CacheSpec.java

1.424 offheap-store 2.4.3

1.424.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 cdennis.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/persistent/AbstractPersistentConcurrentOffHeapCache.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 Terracotta, Inc., a Software AG company.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/WriteLockedOffHeapHashMapFactory.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/AbstractOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/AbstractConcurrentOffHeapCache.java
*
 /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/storage/FileBackedStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/eviction/EvictionListeningReadWriteLockedOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ConcurrentOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentReadWriteLockedOffHeapClockCacheFactory.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/SplitStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/Segment.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/OffHeapBufferHalfStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/paging/PowerOfTwoFileAllocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ReadWriteLockedOffHeapHashMapFactory.java
*
 /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/PointerSize.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/SerializablePortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/allocator/LongBestFitAllocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/StorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/PhysicalMemory.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/buffersource/TimingBufferSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/paging/MappedPageSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/PhantomReferenceLimitedPageSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/IntegerStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/HashingMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/AATreeSet.java
*
 /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/LongStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/storage/PersistentSplitStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ConcurrentWriteLockedOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/listener/AbstractListenableStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/WeakIdentityHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentReadWriteLockedOffHeapHashMapFactory.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/UpfrontAllocatingPageSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/HalfStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ConcurrentWriteLockedOffHeapHashMap.java
*

/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/allocator/PowerOfTwoAllocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/Retryer.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/concurrent/ReadWriteLockedOffHeapClockCacheFactory.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/OffHeapBufferStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/storage/PersistentIntegerStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/FindbugsSuppressWarnings.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/AbstractConcurrentOffHeapMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/set/OffHeapHashSet.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/SerializableStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/MetadataTuple.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/PortabilityBasedHalfStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/StringStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/storage/AATreeFileAllocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/OffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/PortabilityBasedStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/OffHeapStorageArea.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/ByteBufferUtils.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ConcurrentOffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/AbstractLockedOffHeapHashMap.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/concurrent/WriteLockedOffHeapClockCacheFactory.java
*
/offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/persistent/PersistentConcurrentOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/BooleanHalfStorageEngine.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/eviction/EvictionListeningWriteLockedOffHeapClockCache.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/persistent/PersistentConcurrentOffHeapHashMap.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright 2015 Terracotta, Inc., a Software AG company.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/eviction/EvictionListener.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/DebuggingUtils.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/allocator/Allocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/BinaryStorageEngine.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/ReadWriteLockedOffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/Portability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentPortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/pinning/PinnableSegment.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/exceptions/OversizeMappingException.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/WriteLockedOffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/Validation.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/pinning/PinnableCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/buffersource/HeapBufferSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/buffersource/OffHeapBufferSource.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/Page.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/Persistent.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/PageSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/listener/RuntimeStorageEngineListener.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/ByteArrayPortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/BooleanPortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/Metadata.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/WriteLockedOffHeapClockCache.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/storage/portability/PersistentSerializablePortability.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/AbstractPersistentOffHeapCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/listener/RecoveryStorageEngineListener.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/storage/Region.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/ByteBufferInputStream.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentHalfStorageEngine.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/storage/portability/PersistentByteArrayPortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/Factory.java
* /offheap-store-2-4-3-sources-
jar/org/terracotta/offheapstore/disk/persistent/PersistentReadWriteLockedOffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/listener/StorageEngineListener.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/paging/MappedPage.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/buffersource/BufferSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/NoOpLock.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/WriteContext.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/WriteBackPortability.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/portability/StringPortability.java

* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/AbstractPersistentLockedOffHeapHashMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/listener/ListenableStorageEngine.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/MapInternals.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/PersistentReadWriteLockedOffHeapClockCache.java
*
/offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/paging/UnlimitedPageSource.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/allocator/IntegerBestFitAllocator.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/util/MemoryUnit.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/ReadWriteLockedOffHeapClockCache.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/disk/persistent/AbstractPersistentConcurrentOffHeapMap.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/storage/allocator/Region.java
* /offheap-store-2-4-3-sources-jar/org/terracotta/offheapstore/concurrent/ConcurrentMapInternals.java
No license file was found, but licenses were detected in source scan.

Copyright 2015 Terracotta, Inc., a Software AG company.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE
2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Found in path(s):
* /offheap-store-2-4-3-sources-jar/META-INF/maven/org.terracotta/offheap-store/pom.xml

1.425 ehcache-impl 3.8.1

1.425.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*

* http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/basic/NopStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/resilience/RobustLoaderWriterResilienceStrategy.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/StringSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/DefaultTimeSourceService.java
*
 /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/resilience/AbstractResilienceStrategy.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/loaderwriter/DefaultCacheLoaderWriterConfiguration.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/spi/serialization/DefaultSerializationProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/events/CacheEventDispatcherImpl.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/resilience/DefaultResilienceStrategyProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/IntegerSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/loaderwriter/writebehind/AbstractWriteBehind.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/Backend.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/WriteBehindConfigurationBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/OnDemandExecutionService.java
*
 /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/CacheManagerConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/CacheEventListenerConfigurationBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/persistence/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/sizeof/NoopSizeOfEngine.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/loaderwriter/DefaultCacheLoaderWriterProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/store/heap/DefaultSizeOfEngineProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/disk/EhcachePersistentConcurrentOffHeapClockCache.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/spi/resilience/DefaultResilienceStrategyProviderFactory.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/BatchOperation.java
*
 /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/CompactJavaSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/persistence/CacheManagerPersistenceConfiguration.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/serializer/DefaultSerializationProviderConfiguration.java

* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/resilience/RobustResilienceStrategy.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/TransientStateHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/persistence/FileUtils.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/WriteBehindProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/OutOfBandScheduledExecutor.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/event/DefaultCacheEventListenerConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/ClassInstanceProviderConfiguration.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/LongSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/DefaultExecutionServiceFactory.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/disk/factories/EhcachePersistentSegmentFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/OnHeapStoreProviderFactory.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/loaderwriter/LocalWriteBehindLoaderWriterStore.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/SingleOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/spi/resilience/DefaultResilienceStrategyProvider.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/BinaryOffHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/spi/loaderwriter/DefaultCacheLoaderWriterProviderFactory.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/events/CacheEventAdapter.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/PooledExecutionServiceConfigurationBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/copy/IdentityCopier.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/store/disk/OffHeapDiskStoreConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/ExecutorUtil.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/persistence/UserManagedPersistenceContext.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/persistence/DefaultDiskResourceServiceFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/ThreadLocalStoreEventDispatcher.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/TimeSourceConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/event/DefaultCacheEventDispatcherConfiguration.java
*
/ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/NonBatchingLocalHeapWriteBehindQueue.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/copy/DefaultCopyProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/OffHeapStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/FudgingInvocationScopedEventSink.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/event/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/copy/SerializingCopier.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/loaderwriter/writebehind/DefaultBatchingConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/store/disk/OffHeapDiskStoreProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/event/DefaultEventSourceConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/UserManagedCacheBuilder.java
*

/ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterStoreProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/ResourcePoolsBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/OnHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngine.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/SimpleBackend.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/tiering/TieredStoreProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/BinaryValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/spi/copy/DefaultCopyProvider.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/loaderwriter/writebehind/WriteBehindProviderConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/factories/EhcacheSegmentFactory.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/CloseableStoreEventSink.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/PlainJavaSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/serializer/DefaultSerializerConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/SerializedOnHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/loaderwriter/package-info.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/spi/event/DefaultCacheEventListenerProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/disk/OffHeapDiskStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/spi/serialization/DefaultSerializationProvider.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/tiering/CompoundCachingTierProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/EhcacheOffHeapBackingMap.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/DisabledCacheEventNotificationService.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/BatchingLocalHeapWriteBehindQueue.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/PooledExecutionService.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/OffHeapMapStatistics.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/SwitchableEvictionAdvisor.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/util/ThreadFactoryUtil.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/serializer/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/tiering/TieredStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/loaderwriter/writebehind/WriteBehind.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/copy/package-info.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/BasicOffHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/store/DefaultStoreEventDispatcher.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/AbstractStoreEventDispatcher.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/ClassInstanceProvider.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterStoreProvider.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/TransientStateRepository.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/WriteOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/StoreEvents.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/persistence/DefaultLocalPersistenceService.java

* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/executor/package-info.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/spi/event/DefaultCacheEventListenerProvider.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/KeyBasedOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/CharSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/PartitionedUnorderedExecutor.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/loaderwriter/writebehind/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/ResourcePoolsImpl.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/BaseCacheConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/CacheConfigurationBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/util/Pacer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/executor/PooledExecutionServiceConfiguration.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/OffHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/store/heap/DefaultSizeOfEngineConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/CacheEventDispatcherFactoryImpl.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/concurrent/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/PartitionedScheduledExecutor.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/offheap/EhcacheConcurrentOffHeapClockCache.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/persistence/DefaultLocalPersistenceServiceFactory.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/events/CacheEventNotificationListenerServiceProviderFactory.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/DeleteOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/package-info.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/OffHeapStoreUtils.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/StoreEventImpl.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/UserManagedCacheConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/MemorySizeParser.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/WriteAllOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/LookupOnlyOnHeapKey.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/FireableStoreEventHolder.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/loaderwriter/writebehind/operations/DeleteAllOperation.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/disk/OffHeapDiskStoreProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/loaderwriter/LocalLoaderWriterStore.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/loaderwriter/writebehind/StripedWriteBehind.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/ClassInstanceConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/FloatSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/concurrent/EvictingConcurrentMap.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/persistence/FileBasedStateRepository.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/copy/package-info.java

* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/OnHeapKey.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/OnHeapStrategy.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/store/heap/package-info.java
*
/ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/sizeof/listeners/exceptions/VisitorListenerException.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/BaseOnHeapKey.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/resilience/DefaultResilienceStrategyConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/CopiedOnHeapKey.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/holders/CopiedOnHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/DoubleSerializer.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/executor/PartitionedOrderedExecutor.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/AbstractResourcePool.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/store/disk/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/tiering/CompoundCachingTier.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/LazyOffHeapValueHolder.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/store/offheap/portability/OffHeapValueHolderPortability.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngineProvider.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/events/EventDispatchTask.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/internal/spi/loaderwriter/DefaultCacheLoaderWriterProvider.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/OffHeapStoreProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/spi/copy/DefaultCopyProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/util/ServiceUtil.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/ExpiryPolicyBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/events/package-info.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/sizeof/listeners/EhcacheVisitorListener.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/SizedResourcePoolImpl.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/ConfigurationBuilder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/events/InvocationScopedEventSink.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/OnHeapStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/AbstractOffHeapStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/copy/DefaultCopierConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/store/HashUtils.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/heap/KeyCopyBackend.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/event/CacheEventDispatcherFactoryConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/HeuristicConfiguration.java
*
/ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/persistence/DefaultDiskResourceService.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/copy/ReadWriteCopier.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/config/builders/CacheManagerBuilder.java
* /ehcache-impl-3-8-1-sources-
jar/org/ehcache/impl/config/loaderwriter/writebehind/DefaultWriteBehindConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/disk/DiskWriteThreadPool.java

* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/TimeSourceServiceFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/persistence/DefaultPersistenceConfiguration.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/offheap/portability/SerializerPortability.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/sizeof/DefaultSizeOfEngineProviderFactory.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/store/BaseStore.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/serialization/ByteArraySerializer.java
*
 /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/store/loaderwriter/LoaderWriterValueHolder.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/config/persistence/package-info.java
No license file was found, but licenses were detected in source scan.

/*
* Licensed to the Apache Software Foundation (ASF) under one or more
* contributor license agreements. See the NOTICE file distributed with
* this work for additional information regarding copyright ownership.
* The ASF licenses this file to You under the Apache License, Version 2.0
* (the "License"); you may not use this file except in compliance with
* the License. You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/commonslang/ClassUtils.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/commonslang/reflect/MethodUtils.java
*
 /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/commonslang/ArrayUtils.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/commonslang/reflect/ConstructorUtils.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/classes/commonslang/reflect/MemberUtils.java
No license file was found, but licenses were detected in source scan.

/*
* Copyright Terracotta, Inc.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,

* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/
/*
* Written by Doug Lea with assistance from members of JCP JSR-166
* Expert Group and released to the public domain, as explained at
* http://creativecommons.org/publicdomain/zero/1.0/
*/

Found in path(s):
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/concurrent/ConcurrentHashMap.java
* /ehcache-impl-3-8-1-sources-jar/org/ehcache/impl/internal/concurrent/ThreadLocalRandomUtil.java

1.426 webjars-locator-core 0.45

1.426.1 Available under license :

MIT

1.427 byte-buddy 1.10.14

1.427.1 Available under license :

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You"

(or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations,
or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems
that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable

copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution
of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct, indirect, special,
incidental,

or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted
against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS
Copyright ${project.inceptionYear} - ${current.year} ${copyright.holder}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.428 apache-http-server 2.4.52

1.428.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE HTTP SERVER SUBCOMPONENTS:

The Apache HTTP Server includes a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for the these subcomponents is subject to the terms and
conditions of the following licenses.

For the mod_mime_magic component:

```
/*
* mod_mime_magic: MIME type lookup via file magic numbers
* Copyright (c) 1996-1997 Cisco Systems, Inc.
*
* This software was submitted by Cisco Systems to the Apache Group in July
* 1997.  Future revisions and derivatives of this source code must
* acknowledge Cisco Systems as the original contributor of this module.
* All other
 licensing and usage conditions are those of the Apache Group.
*
* Some of this code is derived from the free version of the file command
* originally posted to comp.sources.unix.  Copyright info for that program
* is included below as required.
* ---------------------------------------------------------------------------
* - Copyright (c) Ian F. Darwin, 1987. Written by Ian F. Darwin.
*
* This software is not subject to any license of the American Telephone and
* Telegraph Company or of the Regents of the University of California.
*
* Permission is granted to anyone to use this software for any purpose on any
* computer system, and to alter it and redistribute it freely, subject to
* the following restrictions:
*
* 1. The author is not responsible for the consequences of use of this
* software, no matter how awful, even if they arise from flaws in it.
*
* 2. The origin of this software must not be misrepresented, either by
* explicit claim or by omission.  Since
```

few users ever read sources, credits
* must appear in the documentation.
*
* 3. Altered versions must be plainly marked as such, and must not be
* misrepresented as being the original software. Since few users ever read
* sources, credits must appear in the documentation.
*
* 4. This notice may not be removed or altered.
* ---
*
*/

For the modules\mappers\mod_imagemap.c component:

"macmartinized" polygon code copyright 1992 by Eric Haines, erich@eye.com

For the server\util_md5.c component:

```
/**********************************************************************
* NCSA HTTPd Server
* Software Development Group
* National Center for Supercomputing Applications
* University of Illinois at Urbana-Champaign
* 605 E. Springfield, Champaign, IL 61820
* httpd@ncsa.uiuc.edu
*
* Copyright  (C)  1995, Board of Trustees of the University of Illinois
*
**********************************************************************
 *
* md5.c: NCSA HTTPd code which uses the md5c.c RSA Code
*
*  Original Code Copyright (C) 1994, Jeff Hostetler, Spyglass, Inc.
*  Portions of Content-MD5 code Copyright (C) 1993, 1994 by Carnegie Mellon
*     University (see Copyright below).
*  Portions of Content-MD5 code Copyright (C) 1991 Bell Communications
*     Research, Inc. (Bellcore) (see Copyright below).
*  Portions extracted from mpack, John G. Myers - jgm+@cmu.edu
*  Content-MD5 Code contributed by Martin Hamilton (martin@net.lut.ac.uk)
*
*/


/* these portions extracted from mpack, John G. Myers - jgm+@cmu.edu */
/* (C) Copyright 1993,1994 by Carnegie Mellon University
* All Rights Reserved.
*
```

* Permission to use, copy, modify, distribute, and sell this software
* and its documentation for any purpose is hereby granted without
* fee, provided that the above copyright notice appear in all copies
* and that both that copyright notice and this permission notice
* appear in supporting
documentation, and that the name of Carnegie
* Mellon University not be used in advertising or publicity
* pertaining to distribution of the software without specific,
* written prior permission. Carnegie Mellon University makes no
* representations about the suitability of this software for any
* purpose. It is provided "as is" without express or implied
* warranty.
*
* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
* THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
* AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
* FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
* AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
* OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
* SOFTWARE.
*/

/*
* Copyright (c) 1991 Bell Communications Research, Inc. (Bellcore)
*
* Permission to use, copy, modify,
and distribute this material
* for any purpose and without fee is hereby granted, provided
* that the above copyright notice and this permission notice
* appear in all copies, and that the name of Bellcore not be
* used in advertising or publicity pertaining to this
* material without the specific, prior written permission
* of an authorized representative of Bellcore. BELLCORE
* MAKES NO REPRESENTATIONS ABOUT THE ACCURACY OR SUITABILITY
* OF THIS MATERIAL FOR ANY PURPOSE. IT IS PROVIDED "AS IS",
* WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES.
*/

For the util_pcre.c and ap_regex.h components:

Copyright (c) 1997-2004 University of Cambridge

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions
and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

For the srclib\apr\include\apr_md5.h component:

/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
rights reserved.

License to copy and use this software is granted provided that it
is identified as the "RSA Data Security, Inc. MD5 Message-Digest
Algorithm" in all material mentioning or referencing this software
or this function.

License is also granted to make and
use derivative works provided
that such works are identified as "derived from the RSA Data
Security, Inc. MD5 Message-Digest Algorithm" in all material

mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either
the merchantability of this software or the suitability of this
software for any particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.
*/

For the srclib\apr\passwd\apr_md5.c component:

```
/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* MD5C.C - RSA Data Security, Inc., MD5 message-digest algorithm
*/

/* Copyright (C) 1991-2,
 RSA Data Security, Inc. Created 1991. All
 rights reserved.

 License to copy and use this software is granted provided that it
 is identified as the "RSA Data Security, Inc. MD5 Message-Digest
 Algorithm" in all material mentioning or referencing this software
 or this function.

 License is also granted to make and use derivative works provided
 that such works are identified as "derived from the RSA Data
 Security, Inc. MD5 Message-Digest Algorithm" in all material
 mentioning or referencing the derived work.

 RSA Data Security, Inc. makes no representations concerning either
 the merchantability of this software or the suitability of this
 software for any particular purpose. It is provided "as is"
 without express or implied warranty of any kind.

 These notices must be retained in any copies of any part of this
 documentation and/or software.
*/
/*
* The apr_md5_encode() routine uses much code obtained from the FreeBSD 3.0
```

* MD5 crypt() function,
 which is licenced as follows:
* --
* "THE BEER-WARE LICENSE" (Revision 42):
* <phk@login.dknet.dk> wrote this file. As long as you retain this notice you
* can do whatever you want with this stuff. If we meet some day, and you think
* this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp
* --
*/

For the srclib\apr-util\crypto\apr_md4.c component:

* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it
* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm" in all material mentioning or referencing this software
* or this function.
*
* License is also granted
 to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the srclib\apr-util\include\apr_md4.h component:

*
* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it

* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm"
in all material mentioning or referencing this software
* or this function.
*
* License is also granted to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the srclib\apr-util\test\testmd4.c component:

*
* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1990-2, RSA Data Security, Inc. Created 1990. All
* rights reserved.
*
* RSA Data Security, Inc. makes no representations
concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the test\zb.c component:

/* ZeusBench V1.01
==========

This program is Copyright (C) Zeus Technology Limited 1996.

This program may be used and copied freely providing this copyright notice
is not removed.

This software is provided "as is" and any express or implied warranties,
including but not limited to, the implied warranties of merchantability and
fitness for a particular purpose are disclaimed. In no event shall
Zeus Technology Ltd. be liable for any direct, indirect, incidental, special,
exemplary, or consequential damaged (including, but not limited to,
procurement of substitute good or services; loss of use, data,
 or profits;
or business interruption) however caused and on theory of liability. Whether
in contract, strict liability or tort (including negligence or otherwise)
arising in any way out of the use of this software, even if advised of the
possibility of such damage.

   Written by Adam Twiss (adam@zeus.co.uk). March 1996

Thanks to the following people for their input:
 Mike Belshe (mbelshe@netscape.com)
 Michael Campanella (campanella@stevms.enet.dec.com)

*/

1.429 golang 1.15.15

1.429.1 Available under license :

This is the official list of people who can contribute
(and typically have contributed) code to the Go repository.
The AUTHORS file lists the copyright holders; this file
lists people. For example, Google employees are listed here
but not in AUTHORS, because Google holds the copyright.
#
Names should be added to this file only after verifying that
the individual or the individual's organization has agreed to
the appropriate Contributor License Agreement, found here:
#
http://code.google.com/legal/individual-cla-v1.0.html
http://code.google.com/legal/corporate-cla-v1.0.html
#
The agreement for individuals can be filled out on the web.

Names should be added to this file like so:
Individual's name <submission email address>
Individual's name <submission email address> <email2> <emailN>
#
An entry with multiple email addresses specifies that the
first address should be used in the submit logs and
that the other addresses should be recognized

as the
same person when interacting with Gerrit.

Please keep the list sorted.

Aamir Khan <syst3m.w0rm@gmail.com>
Aaron Beitch <aaronb@arista.com>
Aaron Bieber <deftly@gmail.com>
Aaron Cannon <cannona@fireantproductions.com>
Aaron France <aaron.l.france@gmail.com>
Aaron Jacobs <jacobsa@google.com>
Aaron Kemp <kemp.aaron@gmail.com>
Aaron Patterson <tenderlove@ruby-lang.org>
Aaron Stein <aaronstein12@gmail.com>
Aaron Torres <tcboox@gmail.com>
Aaron Zinman <aaron@azinman.com>
Aarti Parikh <aarti.parikh@gmail.com>
Abdullah Al Maruf <mymail.maruf@gmail.com>
Abe Haskins <abeisgreat@abeisgreat.com>
Abhinav Gupta <abhinav.g90@gmail.com>
Adam Azarchs <adam.azarchs@10xgenomics.com>
Adam Bender <abender@google.com>
Adam Eijdenberg <adam@continusec.com>
Adam Harvey <aharvey@php.net>
Adam Kisala <adam.kisala@gmail.com>
Adam Langley <agl@golang.org>
Adam Medzinski <adam.medzinski@gmail.com>
Adam Shannon <adamkshannon@gmail.com>
Adam Shelton <aashelt90@gmail.com>
Adam Sindelar <adamsh@google.com>
Adam
Thomason <athomason@gmail.com>
Adam Williams <pwnfactory@gmail.com>
Adam Woodbeck <adam@woodbeck.net>
Adarsh Ravichandran <adarshravichandran91@gmail.com>
Aditya Harindar <aditya.harindar@gmail.com>
Aditya Mukerjee <dev@chimeracoder.net>
Adrian Hesketh <adrianhesketh@hushmail.com>
Adrian Nos <nos.adrian@gmail.com>
Adrian O'Grady <elpollouk@gmail.com>
Adrien Bustany <adrien-xx-google@bustany.org>
Adrien Delorme <adrien.delorme@icloud.com>
Adrien Petel <peteladrien@gmail.com>
Acio Jnior <aeciodantasjunior@gmail.com>
Aeneas Rekkas (arekkas) <aeneas@ory.am>
Afanasev Stanislav <phpprogger@gmail.com>
Agis Anastasopoulos <agis.anast@gmail.com>
Agniva De Sarker <agnivade@yahoo.co.in>

Ahmed Wahed <oneofone@gmail.com>
Ahmet Alp Balkan <ahmetb@google.com>
Ahmet Soormally <ahmet@mangomm.co.uk>
Ahmy Yulrizka <yulrizka@gmail.com>
Ahsun Ahmed <ahmed.ahsun@gmail.com>
Aiden Scandella <ai@uber.com>
Ainar Garipov <gugl.zadolbal@gmail.com>
Aishraj Dahal <aishraj@users.noreply.github.com>
Akhil Indurti
<aindurti@gmail.com>
Akihiro Suda <suda.kyoto@gmail.com>
Akshat Kumar <seed@mail.nanosouffle.net>
Al Cutter <al@google.com>
Alan Braithwaite <alan@ipaddr.org>
Alan Donovan <adonovan@google.com>
Alan Shreve <alan@inconshreveable.com>
Albert Nigmatzianov <albertnigma@gmail.com>
Albert Strasheim <fullung@gmail.com>
Albert Teoh <albert.teoh@gmail.com>
Albert Yu <yukinying@gmail.com>
Alberto Bertogli <albertito@blitiri.com.ar>
Alberto Donizetti <alb.donizetti@gmail.com>
Alberto Garca Hierro <alberto@garciahierro.com> <alberto.garcia.hierro@gmail.com>
Alec Benzer <alec.benzer@gmail.com>
Aleksa Sarai <cyphar@cyphar.com>
Aleksandar Dezelin <dezelin@gmail.com>
Aleksandr Lukinykh <a.lukinykh@xsolla.com>
Aleksandr Razumov <ar@cydev.ru>
Alekseev Artem <a.artem060@gmail.com>
Alessandro Arzilli <alessandro.arzilli@gmail.com>
Alessandro Baffa <alessandro.baffa@gmail.com>
Alex A Skinner <alex@lx.lc>
Alex Brainman <alex.brainman@gmail.com>
Alex Bramley <abramley@google.com>
Alex Browne <stephenalexbrowne@gmail.com>
Alex
Buchanan <buchanae@gmail.com>
Alex Carol <alex.carol.c@gmail.com>
Alex Gaynor <alex@alloy.us>
Alex Harford <alex.harford@saucelabs.com>
Alex Jin <toalexjin@gmail.com>
Alex Kohler <alexjohnkohler@gmail.com>
Alex Myasoedov <msoedov@gmail.com>
Alex Plugaru <alex@plugaru.org> <alexandru.plugaru@gmail.com>
Alex Schroeder <alex@gnu.org>
Alex Sergeyev <abc@alexsergeyev.com>
Alex Tokarev <aleksator@gmail.com>
Alex Vaghin <crhyme@google.com>

Alex Zhirov <azhirov@google.com>
Alexander Demakin <alexander.demakin@gmail.com>
Alexander Dring <email@alexd.ch>
Alexander F Rdseth <alexander.rodseth@appeartv.com>
Alexander Greim <alexxx@iltempo.de>
Alexander Guz <kalimatas@gmail.com>
Alexander Kauer <alexander@affine.space>
Alexander Kucherenko <alxkchr@gmail.com>
Alexander Larsson <alexander.larsson@gmail.com>
Alexander Lourier <aml@rulezz.ru>
Alexander Menzhinsky <amenzhinsky@gmail.com>
Alexander Morozov <lk4d4math@gmail.com>
Alexander Neumann <alexander@bumpern.de>
Alexander
Nohe <alex.nohe427@gmail.com>
Alexander Orlov <alexander.orlov@loxal.net>
Alexander Pantyukhin <apantykhin@gmail.com>
Alexander Polcyn <apolcyn@google.com>
Alexander Rakoczy <alex@golang.org>
Alexander Reece <awreece@gmail.com>
Alexander Surma <surma@surmair.de>
Alexander Zhavnerchik <alex.vizor@gmail.com>
Alexander Zillion <alex@alexzillion.com>
Alexander Zolotov <goldifit@gmail.com>
Alexandr Mayorskiy <a.mayorskiy@corp.mail.ru>
Alexandre Cesaro <alexandre.cesaro@gmail.com>
Alexandre Fiori <fiorix@gmail.com>
Alexandre Maari <draeron@gmail.com>
Alexandre Normand <alexandre.normand@gmail.com>
Alexandre Parentea <aubonbeurre@gmail.com>
Alexandre Viau <alexandre@alexandreviau.net>
Alexandru Mooi <brtzsnr@gmail.com>
Alexei Sholik <alcosholik@gmail.com>
Alexey Alexandrov <aalexand@google.com>
Alexey Borzenkov <snaury@gmail.com>
Alexey Naidonov <alexey.naidyonov@gmail.com>
Alexey Neganov <neganovalexey@gmail.com>
Alexey Palazhchenko <alexey.palazhchenko@gmail.com>
Alexey Semenyuk <alexsemenyuk88@gmail.com>
Alexis
Hildebrandt <surryhill@gmail.com>
Alexis Hunt <lexer@google.com>
Alexis Imperial-Legrand <ail@google.com>
Ali Farooq <ali.farooq0@pm.me>
Ali Rizvi-Santiago <arizvisa@gmail.com>
Aliaksandr Valialkin <valyala@gmail.com>
Alif Rachmawadi <subosito@gmail.com>
Allan Simon <allan.simon@supinfo.com>

Allen Li <ayatane@google.com>
Alok Menghrajani <alok.menghrajani@gmail.com>
Aman Gupta <aman@tmm1.net>
Amarjeet Anand <amarjeetanandsingh@gmail.com>
Amir Mohammad Saied <amir@gluegadget.com>
Amr Mohammed <merodiro@gmail.com>
Amrut Joshi <amrut.joshi@gmail.com>
An Long <aisk1988@gmail.com>
An Xiao <hac@zju.edu.cn>
Anand K. Mistry <anand@mistry.ninja>
Anders Pearson <anders@columbia.edu>
Anderson Queiroz <contato@andersonq.eti.br>
Andr Carvalho <asantostc@gmail.com>
Andr Martins <aanm90@gmail.com>
Andre Nathan <andrenth@gmail.com>
Andrea Nodari <andrea.nodari91@gmail.com>
Andrea Spadaccini <spadaccio@google.com>
Andreas Auernhammer <aead@mail.de>
Andreas Jellinghaus <andreas@ionisiert.de>
<anj@google.com>
Andreas Litt <andreas.litt@gmail.com>
Andrei Enshin <b1os@bk.ru>
Andrei Gherzan <andrei@resin.io>
Andrei Korzhevskii <a.korzhevskiy@gmail.com>
Andrei Matei <andrei@cockroachlabs.com>
Andrei Tudor Clin <mail@acln.ro>
Andrei Vagin <avagin@google.com>
Andrei Vieru <euvieru@gmail.com>
Andres Erbsen <andreser@google.com>
Andres Lowrie <andres.lowrie@gmail.com>
Andrew Austin <andrewaclt@gmail.com>
Andrew Balholm <andybalholm@gmail.com>
Andrew Benton <andrewmbenton@gmail.com>
Andrew Bonventre <andybons@chromium.org>
Andrew Braunstein <awbraunstein@gmail.com>
Andrew Bursavich <abursavich@gmail.com>
Andrew Ekstedt <andrew.ekstedt@gmail.com>
Andrew Etter <andrew.etter@gmail.com>
Andrew G. Morgan <agm@google.com>
Andrew Gerrand <adg@golang.org>
Andrew Harding <andrew@spacemonkey.com>
Andrew Jackura <ajackura@google.com>
Andrew Louis <alouis@digitalocean.com>
Andrew Lutomirski <andy@luto.us>
Andrew Medvedev <andrew.y.medvedev@gmail.com>
Andrew Pilloud <andrewpilloud@igneoussystems.com>
Andrew

Pogrebnoy <absourd.noise@gmail.com>
Andrew Poydence <apoydence@pivotal.io>
Andrew Pritchard <awpritchard@gmail.com>
Andrew Radev <andrey.radev@gmail.com>
Andrew Skiba <skibaa@gmail.com>
Andrew Stormont <astormont@racktopsystems.com>
Andrew Stribblehill <ads@wompom.org>
Andrew Szeto <andrew@jabagawee.com>
Andrew Todd <andrew.todd@wework.com>
Andrew Werner <andrew@upthere.com> <awerner32@gmail.com>
Andrew Wilkins <axwalk@gmail.com>
Andrew Williams <williams.andrew@gmail.com>
Andrew Z Allen <me@andrewzallen.com>
Andrey Mirtchovski <mirtchovski@gmail.com>
Andrey Petrov <andrey.petrov@shazow.net>
Andrii Soldatenko <andrii.soldatenko@gmail.com>
Andrii Soluk <isoluchok@gmail.com>
Andriy Lytvynov <lytvynov.a.v@gmail.com>
Andrzej eel <andrii.zhezhel@gmail.com>
Andy Balholm <andy@balholm.com>
Andy Davis <andy@bigandian.com>
Andy Finkenstadt <afinkenstadt@zynga.com>
Andy Lindeman <andy@lindeman.io>
Andy Maloney <asmaloney@gmail.com>
Andy Pan <panjf2000@gmail.com>
Andy Walker
<walkeraj@gmail.com>
Andy Wang <cbeuw.andy@gmail.com>
Andzej Maciusovic <andzej.maciusovic@gmail.com>
Anfernee Yongkun Gui <anfernee.gui@gmail.com>
Angelo Bulfone <mbulfone@gmail.com>
Anh Hai Trinh <anh.hai.trinh@gmail.com>
Anit Gandhi <anitgandhi@gmail.com>
Ankit Goyal <ankit3goyal@gmail.com>
Anmol Sethi <anmol@aubble.com>
Annirudh Prasad <annirudh@wandb.com>
Anschel Schaffer-Cohen <anschelsc@gmail.com>
Anthony Alves <cvballa3g0@gmail.com>
Anthony Canino <anthony.canino1@gmail.com>
Anthony Eufemio <anthony.eufemio@gmail.com>
Anthony Fok <foka@debian.org>
Anthony Martin <ality@pbrane.org>
Anthony Sottile <asottile@umich.edu>
Anthony Starks <ajstarks@gmail.com>
Anthony Voutas <voutasaurus@gmail.com>
Anthony Woods <awoods@raintank.io>
Antoine GIRARD <sapk@sapk.fr>
Antoine Martin <antoine97.martin@gmail.com>

Anton Gyllenberg <anton@iki.fi>
Anton Kuklin <anton.a.kuklin@gmail.com>
Antonin Amand <antonin.amand@gmail.com>
Antonio Antelo <aantelov87@gmail.com>
Antonio Bibiano <antbbn@gmail.com>
Antonio
Huete Jimenez <tuxillo@quantumachine.net>
Antonio Murdaca <runcom@redhat.com>
Antonio Troina <thoeni@gmail.com>
Anze Kolar <me@akolar.com>
Aofei Sheng <aofei@aofeisheng.com>
Apisak Darakananda <pongad@gmail.com>
Aram Hvrneanu <aram@mgk.ro>
Araragi Hokuto <kanseihonbucho@protonmail.com>
Arash Bina <arash@arash.io>
Arda Gl <ardaguclu@gmail.com>
Areski Belaid <areski@gmail.com>
Ariel Mashraki <ariel@mashraki.co.il>
Arkadi Pyuro <arkadi@google.com>
Arlo Breault <arlolra@gmail.com>
Arnaud Ysmal <arnaud.ysmal@gmail.com>
Arne Hormann <arnehormann@gmail.com>
Arnout Engelen <arnout@bzzt.net>
Aron Nopanen <aron.nopanen@gmail.com>
Artem Alekseev <artem.alekseev@intel.com>
Artem Kolin <artemkaxboy@gmail.com>
Arthur Fabre <arthur@arthurfabre.com>
Arthur Khashaev <arthur@khashaev.ru>
Artyom Pervukhin <artyom.pervukhin@gmail.com>
Arvindh Rajesh Tamilmani <art@a-30.net>
Ashish Gandhi <ag@ashishgandhi.org>
Asim Shankar <asimshankar@gmail.com>
Atin Malaviya <amalaviy@akamai.com>
Ato Araki
<ato.araki@gmail.com>
Audrey Lim <audreylh@gmail.com>
Audrius Butkevicius <audrius.butkevicius@gmail.com>
Augusto Roman <aroman@gmail.com>
Aulus Egnatius Varialus <varialus@gmail.com>
Aurlien Rainone <aurelien.rainone@gmail.com>
Aurlio A. Heckert <aurium@gmail.com>
Austin Clements <austin@google.com> <aclements@csail.mit.edu>
Avi Flax <avi@timehop.com>
awaw fumin <awawfumin@gmail.com>
Awn Umar <awn@cryptolosophy.io>
Axel Wagner <axel.wagner.hh@googlemail.com>
Ayan George <ayan@ayan.net>
Ayanamist Yang <ayanamist@gmail.com>

Ayke van Laethem <aykevanlaethem@gmail.com>
Aymerick Jhanne <aymerick@jehanne.org>
Azat Kaumov <kaumov.a.r@gmail.com>
Baiju Muthukadan <baiju.m.mail@gmail.com>
Balaram Makam <bmakam.qdt@qualcommdatacenter.com>
Balazs Lecz <leczb@google.com>
Baokun Lee <nototon@gmail.com>
Barnaby Keene <accounts@southcla.ws>
Bartosz Grzybowski <melkorm@gmail.com>
Bartosz Oler <brtsz@google.com>
Bastian Ike <bastian.ike@gmail.com>
Ben Burkert <ben@benburkert.com>
Ben Eitzen <eitzenb@golang.org>
Ben
Fried <ben.fried@gmail.com>
Ben Haines <bhainesva@gmail.com>
Ben Hoyt <benhoyt@gmail.com>
Ben Laurie <ben@links.org> <benl@google.com>
Ben Lubar <ben.lubar@gmail.com>
Ben Lynn <benlynn@gmail.com>
Ben Olive <sionide21@gmail.com>
Ben Schwartz <bemasc@google.com>
Ben Shi <powerman1st@163.com>
Ben Toews <mastahyeti@gmail.com>
Benjamin Black <b@b3k.us>
Benjamin Cable <cable.benjamin@gmail.com>
Benjamin Hsieh <tanookiben@users.noreply.github.com>
Benjamin Peterson <benjamin@python.org>
Benjamin Prosnitz <bprosnitz@google.com>
Benjamin Wester <bwester@squareup.com>
Benjamin Wuethrich <benjamin.wuethrich@gmail.com>
Benny Siegert <bsiegert@gmail.com>
Benoit Sigoure <tsunanet@gmail.com>
Berengar Lehr <Berengar.Lehr@gmx.de>
Berkant Ipek <41230766+0xbkt@users.noreply.github.com>
Bharath Thiruveedula <tbharath91@gmail.com>
Bhavin Gandhi <bhavin7392@gmail.com>
Bill Neubauer <wcn@golang.org> <wcn@google.com> <bill.neubauer@gmail.com>
Bill O'Farrell <billo@ca.ibm.com>
Bill Prin <waprin@google.com>
Bill
Thiede <couchmoney@gmail.com>
Bill Zissimopoulos <billziss@navimatics.com>
Billie Harold Cleek <bhcleek@gmail.com>
Billy Lynch <wlynch@google.com>
Billy Zaelani Malik <m.billyzaelani@gmail.com>
Bjrn Erik Pedersen <bjorn.erik.pedersen@gmail.com>
Bjorn Tillenius <bjorn@tillenius.me>

Bjorn Tipling <bjorn.tipling@gmail.com>
Blain Smith <rebelgeek@blainsmith.com>
Blake Gentry <blakesgentry@gmail.com>
Blake Mesdag <blakemesdag@gmail.com>
Blake Mizerany <blake.mizerany@gmail.com>
Blixt <me@blixt.nyc>
Bob Briski <rbriski@gmail.com>
Bob McNaughton <bobmcn@gmail.com>
Bob Potter <bobby.potter@gmail.com>
Bobby DeSimone <bobbydesimone@gmail.com>
Bobby Powers <bobbypowers@gmail.com>
Boqin Qin <bobbqqin@gmail.com>
Boris Nagaev <nagaev@google.com>
Borja Clemente <borja.clemente@gmail.com>
Brad Burch <brad.burch@gmail.com>
Brad Erickson <bderickson@gmail.com>
Brad Fitzpatrick <bradfitz@golang.org> <bradfitz@gmail.com>
Brad Garcia <bgarcia@golang.org>
Brad Jones <rbjones@google.com>
Brad
Morgan <brad@morgabra.com>
Brad Whitaker <bwhitaker@fastly.com>
Braden Bassingthwaite <bbassingthwaite@vendasta.com>
Bradford Lamson-Scribner <brad.lamson@gmail.com>
Bradley Falzon <brad@teambrad.net>
Brady Catherman <brady@gmail.com>
Brady Sullivan <brady@bsull.com>
Brandon Bennett <bbennett@fb.com>
Brandon Gilmore <varz@google.com>
Brandon Philips <brandon@ifup.org>
Brandon Ryan <bjryan19@gmail.com>
Brayden Cloud <bcloud@google.com>
Brendan Daniel Tracey <tracey.brendan@gmail.com>
Brendan O'Dea <bod@golang.org>
Brett Cannon <bcannon@gmail.com>
Brett Merrill <brett.j.merrill94@gmail.com>
Brian Dellisanti <briandellisanti@gmail.com>
Brian Downs <brian.downs@gmail.com>
Brian Falk <falk@logicparty.org>
Brian G. Merrell <bgmerrell@gmail.com>
Brian Gitonga Marete <marete@toshnix.com> <bgmarete@gmail.com> <bgm@google.com>
Brian Kennedy <btkennedy@gmail.com>
Brian Kessler <brian.m.kessler@gmail.com>
Brian Ketelsen <bketelsen@gmail.com>
Brian Slesinsky <skybrian@google.com>
Brian Smith <ohohvi@gmail.com>
Brian

Starke <brian.starke@gmail.com>
Bryan Alexander <Kozical@msn.com>
Bryan C. Mills <bcmills@google.com>
Bryan Chan <bryan.chan@ca.ibm.com>
Bryan Ford <brynosaurus@gmail.com>
Bryan Heden <b.heden@gmail.com>
Bulat Gaifullin <gaifullinbf@gmail.com>
Burak Guven <bguven@gmail.com>
Caine Tighe <arctanofyourface@gmail.com>
Caio Marcelo de Oliveira Filho <caio.oliveira@intel.com>
Caleb Martinez <accounts@calebmartinez.com>
Caleb Spare <cespare@gmail.com>
Carl Chatfield <carlchatfield@gmail.com>
Carl Henrik Lunde <chlunde@ifi.uio.no>
Carl Jackson <carl@stripe.com>
Carl Johnson <me@carlmjohnson.net>
Carl Mastrangelo <notcarl@google.com>
Carl Shapiro <cshapiro@google.com> <cshapiro@golang.org>
Carlisia Campos <carlisia@grokkingtech.io>
Carlo Alberto Ferraris <cafxx@strayorange.com>
Carlos Amedee <carlos@golang.org>
Carlos Castillo <cookieo9@gmail.com>
Carlos Cirello <uldericofilho@gmail.com>
Carlos Eduardo <me@carlosedp.com>
Carlos Eduardo Seo <cseo@linux.vnet.ibm.com>
Carlos Iriarte
<ciriarte@gmail.com>
Carlos Souza <carloshrsouza@gmail.com>
Carolyn Van Slyck <me@carolynvanslyck.com>
Carrie Bynon <cbynon@gmail.com>
Cary Hull <chull@google.com>
Case Nelson <case.nelson@gmail.com>
Casey Callendrello <squeed@gmail.com>
Casey Marshall <casey.marshall@gmail.com>
Catalin Nicutar <cnicutar@google.com>
Catalin Patulea <catalinp@google.com>
Cedric Staub <cs@squareup.com>
Cezar S Espinola <cezarsa@gmail.com>
Chad Rosier <mrosier.qdt@qualcommdatacenter.com>
ChaiShushan <chaishushan@gmail.com>
Changkun Ou <hi@changkun.us>
Channing Kimble-Brown <channing@golang.org>
Chao Xu <xuchao@google.com>
Charles Fenwick Elliott <Charles@FenwickElliott.io>
Charles Kenney <charlesc.kenney@gmail.com>
Charles L. Dorian <cldorian@gmail.com>
Charles Lee <zombie.fml@gmail.com>
Charles Weill <weill@google.com>

Chauncy Cullitan <chauncyc@google.com>
Chen Zhihan <energiehund@gmail.com>
Cherry Zhang <cherryyz@google.com>
Chew Choon Keat <choonkeat@gmail.com>
Cholerae Hu <choleraehyq@gmail.com>
Chotepud
Teo <AlexRouSg@users.noreply.github.com>
Chris Ball <chris@printf.net>
Chris Biscardi <chris@christopherbiscardi.com>
Chris Broadfoot <cbro@golang.org>
Chris Dollin <ehog.hedge@gmail.com>
Chris Farmiloe <chrisfarms@gmail.com>
Chris Hines <chris.cs.guy@gmail.com>
Chris Howey <howeyc@gmail.com>
Chris Hundt <hundt@google.com>
Chris Jones <chris@cjones.org> <chris.jones.yar@gmail.com>
Chris Kastorff <encryptio@gmail.com>
Chris Le Roy <brompwnie@users.noreply.github.com>
Chris Lennert <calennert@gmail.com>
Chris Liles <caveryliles@gmail.com>
Chris Manghane <cmang@golang.org>
Chris Marchesi <chrism@vancluevertech.com>
Chris McGee <sirnewton_01@yahoo.ca> <newton688@gmail.com>
Chris Raynor <raynor@google.com>
Chris Roche <rodaine@gmail.com>
Chris Smith <chrsmith@users.noreply.github.com>
Chris Stockton <chrisstocktonaz@gmail.com>
Chris Zou <chriszou@ca.ibm.com>
Christian Alexander <christian@linux.com>
Christian Couder <chriscool@tuxfamily.org>
Christian Himpel <chressie@googlemail.com>
<chressie@gmail.com>
Christian Muehlhaeuser <muesli@gmail.com>
Christian Pellegrin <chri@evolware.org>
Christian R. Petrin <christianpetrin@gmail.com>
Christine Hansmann <chhansmann@gmail.com>
Christoffer Buchholz <christoffer.buchholz@gmail.com>
Christoph Blecker <admin@toph.ca>
Christoph Hack <christoph@tux21b.org>
Christopher Cahoon <chris.cahoon@gmail.com>
Christopher Guiney <chris@guiney.net>
Christopher Henderson <chris@chenderson.org>
Christopher Koch <chrisko@google.com>
Christopher Loessl <cloessl+github@gmail.com>
Christopher Nelson <nadiasvertex@gmail.com>
Christopher Nielsen <m4dh4tt3r@gmail.com>
Christopher Redden <christopher.redden@gmail.com>
Christopher Swenson <cswenson@google.com>

Christopher Wedgwood <cw@f00f.org>
Christos Zoulas <christos@zoulas.com> <zoulasc@gmail.com>
Christy Perez <christy@linux.vnet.ibm.com>
CL Sung <clsung@gmail.com> <cl_sung@htc.com>
Clment Chigot <clement.chigot@atos.net>
Clement Skau <clementskau@gmail.com>
Clint J. Edwards <clint.j.edwards@gmail.com>
Cody
Oss <the.cody.oss@gmail.com>
Colby Ranger <cranger@google.com>
Colin Arnott <colin@urandom.co.uk>
Colin Cross <ccross@android.com>
Colin Edwards <colin@recursivepenguin.com>
Colin Kennedy <moshen.colin@gmail.com>
Colin Nelson <colnnelson@google.com>
Colin Rice <clr@google.com>
Conrad Irwin <conrad.irwin@gmail.com>
Conrad Meyer <cemeyer@cs.washington.edu>
Conrado Gouvea <conradoplg@gmail.com>
Constantin Konstantinidis <constantinkonstantinidis@gmail.com>
Corey Thomasson <cthom.lists@gmail.com>
Corne van der Plas <vdplas@gmail.com>
Cosmos Nicolaou <cnicolaou@google.com>
Costin Chirvasuta <ctin@google.com>
Craig Citro <craigcitro@google.com>
Cristian Staretu <unclejacksons@gmail.com>
Cuihtlauac ALVARADO <cuihtlauac.alvarado@orange.com>
Cyrill Schumacher <cyrill@schumacher.fm>
Daisuke Fujita <dtanshi45@gmail.com>
Daisuke Suzuki <daisuzu@gmail.com>
Daker Fernandes Pinheiro <daker.fernandes.pinheiro@intel.com>
Damian Gryski <dgryski@gmail.com>
Damien Lespiau <damien.lespiau@gmail.com>
<damien.lespiau@intel.com>
Damien Mathieu <42@dmathieu.com>
Damien Neil <dneil@google.com>
Damien Tournoud <damien@platform.sh>
Dan Ballard <dan@mindstab.net>
Dan Caddigan <goldcaddy77@gmail.com>
Dan Callahan <dan.callahan@gmail.com>
Dan Harrington <harringtond@google.com>
Dan Jacques <dnj@google.com>
Dan Johnson <computerdruid@google.com>
Dan Peterson <dpiddy@gmail.com>
Dan Pupius <dan@medium.com>
Dan Scales <danscales@google.com>
Dan Sinclair <dan.sinclair@gmail.com>
Daniel Cormier <danielc@knowbe4.com>

Danil de Kok <me@danieldk.eu>
Daniel Fleischman <danielfleischman@gmail.com>
Daniel Ingram <ingramds@appstate.edu>
Daniel Johansson <dajo2002@gmail.com>
Daniel Kerwin <d.kerwin@gini.net>
Daniel Krech <eikeon@eikeon.com>
Daniel Kumor <rdkumor@gmail.com>
Daniel Langner <s8572327@gmail.com>
Daniel Lidn <daniel.liden.87@gmail.com>
Daniel Lublin <daniel@lublin.se>
Daniel Mangum <georgedanielmangum@gmail.com>
Daniel Mart <mvdan@mvdan.cc>
Daniel Morsing <daniel.morsing@gmail.com>
Daniel
Nadasi <dnadasi@google.com>
Daniel Nephin <dnephin@gmail.com>
Daniel Ortiz Pereira da Silva <daniel.particular@gmail.com>
Daniel Skinner <daniel@dasa.cc>
Daniel Speichert <daniel@speichert.pl>
Daniel Theophanes <kardianos@gmail.com>
Daniel Upton <daniel@floppy.co>
Daniela Petruzalek <daniela.petruzalek@gmail.com>
Danish Dua <danishdua@google.com>
Danish Prakash <grafitykoncept@gmail.com>
Danny Rosseau <daniel.rosseau@gmail.com>
Daria Kolistratova <daria.kolistratova@intel.com>
Darien Raymond <admin@v2ray.com>
Darren Elwood <darren@textnode.com>
Darren Grant <darren.e.grant@gmail.com>
Darren McCleary <darren.rmc@gmail.com>
Darshan Parajuli <parajulidarshan@gmail.com>
Datong Sun <dndx@idndx.com>
Dave Borowitz <dborowitz@google.com>
Dave Bort <dbort@golang.org>
Dave Cheney <dave@cheney.net>
Dave Day <djd@golang.org>
Dave Grijalva <dgrijalva@ngmoco.com>
Dave MacFarlane <driusan@gmail.com>
Dave Russell <forfuncsake@gmail.com>
David Anderson <danderson@google.com>
David Barnett <dbarnett@google.com>
David
Benjamin <davidben@google.com>
David Bond <davidsbond93@gmail.com>
David Brophy <dave@brophy.uk>
David Brgin <676c7473@gmail.com>
David Calavera <david.calavera@gmail.com>
David Carlier <devnexen@gmail.com>

David Carter <fresco.raja@gmail.com>
David Chase <drchase@google.com>
David Covert <davidhcovert@gmail.com>
David Crawshaw <david.crawshaw@zentus.com> <crawshaw@google.com> <crawshaw@golang.org>
David du Colombier <0intro@gmail.com>
David Finkel <david.finkel@gmail.com>
David Forsythe <dforsythe@gmail.com>
David G. Andersen <dave.andersen@gmail.com>
David Glasser <glasser@meteor.com>
David Golden <david@autopragmatic.com>
David Heuschmann <heuschmann.d@gmail.com>
David Howden <dhowden@gmail.com>
David Hubbard <dsp@google.com>
David Jakob Fritz <david.jakob.fritz@gmail.com>
David Jones <dxjones@gmail.com>
David Lazar <lazard@golang.org>
David Leon Gil <coruus@gmail.com>
David McLeish <davemc@google.com>
David Ndungu <dnjuguna@gmail.com>
David NewHamlet <david@newhamlet.com>
David
Presotto <presotto@gmail.com>
David R. Jenni <david.r.jenni@gmail.com>
David Sansome <me@davidsansome.com>
David Stainton <dstainton415@gmail.com>
David Symonds <dsymonds@golang.org>
David Thomas <davidthomas426@gmail.com>
David Timm <dtimm@pivotal.io>
David Titarenco <david.titarenco@gmail.com>
David Tolpin <david.tolpin@gmail.com>
David Url <david@urld.io>
David Volquartz Lebech <david@lebech.info>
David Wimmer <davidlwimmer@gmail.com>
Davies Liu <davies.liu@gmail.com>
Davor Kapsa <davor.kapsa@gmail.com>
Dean Eigenmann <7621705+decanus@users.noreply.github.com>
Dean Prichard <dean.prichard@gmail.com>
Deepak Jois <deepak.jois@gmail.com>
Denis Bernard <db047h@gmail.com>
Denis Brandolini <denis.brandolini@gmail.com>
Denis Isaev <idenx@yandex.com>
Denis Nagorny <denis.nagorny@intel.com>
Dennis Kuhnert <mail.kuhnert@gmail.com>
Denys Honsiorovskyi <honsiorovskyi@gmail.com>
Denys Smirnov <denis.smirnov.91@gmail.com>
Derek Buitenhuis <derek.buitenhuis@gmail.com>
Derek

Che <drc@yahoo-inc.com>
Derek McGowan <derek@mcgstyle.net>
Derek Parker <parkerderek86@gmail.com>
Derek Phan <derekphan94@gmail.com>
Derek Shockey <derek.shockey@gmail.com>
Dev Ojha <dojha12@gmail.com>
Dev Zhoujun <dev.zhoujun@gmail.com>
Devon H. O'Dell <devon.odell@gmail.com>
Dhaivat Pandit <dhaivatpandit@gmail.com>
Dhananjay Nakrani <dhananjayn@google.com>
Dhiru Kholia <dhiru.kholia@gmail.com>
Dhruvdutt Jadhav <dhruvdutt.jadhav@gmail.com>
Di Xiao <dixiao@google.com>
Didier Spezia <didier.06@gmail.com>
Diego Siqueira <diego9889@gmail.com>
Dieter Plaetinck <dieter@raintank.io>
Dimitri Sokolyuk <sokolyuk@gmail.com>
Dimitri Tcaciuc <dtcaciuc@gmail.com>
Dina Garmash <dgrmsh@gmail.com>
Diogo Pinela <diogoid7400@gmail.com>
Dirk Gadsden <dirk@esherido.com>
Diwaker Gupta <diwakergupta@gmail.com>
Dmitri Goutnik <dgoutnik@gmail.com>
Dmitri Popov <operator@cv.dp-net.com>
Dmitri Shuralyov <dmitshur@golang.org> <dmitri@shuralyov.com>
Dmitriy Cherchenko <dcherchenko@gmail.com>
Dmitriy Dudkin <dudkin.dmitriy@gmail.com>
Dmitriy
Shelenin <deemok@googlemail.com> <deemok@gmail.com>
Dmitriy Vyukov <dvyukov@google.com>
Dmitry Chestnykh <dchest@gmail.com>
Dmitry Doroginin <doroginin@gmail.com>
Dmitry Mottl <dmitry.mottl@gmail.com>
Dmitry Neverov <dmitry.neverov@gmail.com>
Dmitry Savintsev <dsavints@gmail.com>
Dmitry Yakunin <nonamezeil@gmail.com>
Doga Fincan <doga@icloud.com>
Domas Tamaauskas <puerdomus@gmail.com>
Domen Ipavec <domen@ipavec.net>
Dominic Green <dominicgreen1@gmail.com>
Dominik Honnef <dominik.honnef@gmail.com>
Dominik Vogt <vogt@linux.vnet.ibm.com>
Don Byington <don@dbyington.com>
Donald Huang <don.hcd@gmail.com>
Dong-hee Na <donghee.na92@gmail.com>
Donovan Hide <donovanhide@gmail.com>
Doug Anderson <douga@google.com>
Doug Fawley <dfawley@google.com>

Douglas Danger Manley <doug.manley@gmail.com>
Drew Flower <drewvanstone@gmail.com>
Drew Hintz <adhintz@google.com>
Duco van Amstel <duco.vanamstel@gmail.com>
Duncan Holm <mail@frou.org>
Dustin Carlino <dcarlino@google.com>
Dustin
Herbison <djherbis@gmail.com>
Dustin Long <dustmop@gmail.com>
Dustin Sallings <dsallings@gmail.com>
Dustin Shields-Cloues <dcloues@gmail.com>
Dvir Volk <dvir@everything.me> <dvirsky@gmail.com>
Dylan Waits <dylan@waits.io>
Ed Schouten <ed@nuxi.nl>
Edan Bedrik <3d4nb3@gmail.com>
Eddie Scholtz <escholtz@google.com>
Eden Li <eden.li@gmail.com>
Eduard Urbach <e.urbach@gmail.com>
Eduardo Ramalho <eduardo.ramalho@gmail.com>
Eduardo Villaseor <evillasrmx@gmail.com>
Edward Muller <edwardam@interlix.com>
Egon Elbre <egonelbre@gmail.com>
Ehren Kret <ehren.kret@gmail.com>
Eitan Adler <lists@eitanadler.com>
Eivind Uggedal <eivind@uggedal.com>
Elbert Fliek <efliek@gmail.com>
Eldar Rakhimberdin <ibeono@gmail.com>
Elena Grahovac <elena@grahovac.me>
Eli Bendersky <eliben@google.com>
Elias Naur <mail@eliasnaur.com> <elias.naur@gmail.com>
Elliot Morrison-Reed <elliotmr@gmail.com>
Ellison Leao <ellisonleao@gmail.com>
Emerson Lin <linyintor@gmail.com>
Emil Hessman <emil@hessman.se>
Emil Mursalimov <mursalimovemeel@gmail.com>
Emilien
Kenler <hello@emilienkenler.com>
Emmanuel Odeke <emm.odeke@gmail.com> <odeke@ualberta.ca>
Emrecan Bati <emrecanbati@gmail.com>
Eno Compton <enocom@google.com>
Eoghan Sherry <ejsherry@gmail.com>
Eric Biggers <ebiggers@google.com>
Eric Brown <browne@vmware.com>
Eric Chiang <eric.chiang.m@gmail.com>
Eric Clark <zerohp@gmail.com>
Eric Daniels <eric@erdaniels.com>
Eric Engestrom <eric@engestrom.ch>
Eric Garrido <ekg@google.com>

Eric Koleda <ekoleda+devrel@google.com>
Eric Lagergren <ericscottlagergren@gmail.com>
Eric Milliken <emilliken@gmail.com>
Eric Pauley <eric@pauley.me>
Eric Ponce <tricokun@gmail.com>
Eric Rescorla <ekr@rtfm.com>
Eric Roshan-Eisner <eric.d.eisner@gmail.com>
Eric Rutherford <erutherford@gmail.com>
Eric Rykwalder <e.rykwalder@gmail.com>
Erick Tryzelaar <etryzelaar@google.com>
Erik Aigner <aigner.erik@gmail.com>
Erik Dubbelboer <erik@dubbelboer.com>
Erik St. Martin <alakriti@gmail.com>
Erik Staab <estaab@google.com>
Erik Westrup <erik.westrup@gmail.com>
Erin
Masatsugu <erin.masatsugu@gmail.com>
Ernest Chiang <ernest_chiang@htc.com>
Erwin Oegema <blablaechthema@hotmail.com>
Esko Luontola <esko.luontola@gmail.com>
Ethan Burns <eaburns@google.com>
Ethan Miller <eamiller@us.ibm.com>
Euan Kemp <euank@euank.com>
Eugene Formanenko <mo4islona@gmail.com>
Eugene Kalinin <e.v.kalinin@gmail.com>
Evan Broder <evan@stripe.com>
Evan Brown <evanbrown@google.com>
Evan Digby <evandigby@gmail.com>
Evan Hicks <evan.hicks2@gmail.com>
Evan Jones <ej@evanjones.ca>
Evan Klitzke <evan@eklitzke.org>
Evan Kroske <evankroske@google.com>
Evan Martin <evan.martin@gmail.com>
Evan Phoenix <evan@phx.io>
Evan Shaw <chickencha@gmail.com>
Evgeniy Kulikov <tuxuls@gmail.com>
Evgeniy Polyakov <zbr@ioremap.net>
Ewan Chou <coocood@gmail.com>
Ewan Valentine <ewan.valentine89@gmail.com>
Eyal Posener <posener@gmail.com>
Fabian Wickborn <fabian@wickborn.net>
Fabian Zaremba <fabian@youremail.eu>
Fabrizio Milo <mistobaan@gmail.com>
Faiyaz Ahmed <ahmedf@vmware.com>
Fan
Hongjian <fan.howard@gmail.com>
Fangming Fang <fangming.fang@arm.com>
Fannie Zhang <fannie.zhang@arm.com>

Fatih Arslan <fatih@arslan.io>
Fazal Majid <majid@apsalar.com>
Fazlul Shahriar <fshahriar@gmail.com>
Federico Bond <federicobond@gmail.com>
Federico Simoncelli <fsimonce@redhat.com>
Fedor Indutny <fedor@indutny.com>
Fedor Korotkiy <dartslon@gmail.com>
Felipe Oliveira <felipeweb.programador@gmail.com>
Felix Bnemann <Felix.Buenemann@gmail.com>
Felix Cornelius <9767036+fcornelius@users.noreply.github.com>
Felix Geisendrfer <haimuiba@gmail.com>
Felix Kollmann <fk@konsorten.de>
Ferenc Szabo <frncmx@gmail.com>
Filip Gruszczyski <gruszczy@gmail.com>
Filip Haglund <drathier@users.noreply.github.com>
Filip Stanis <fstanis@google.com>
Filippo Valsorda <filippo@golang.org> <filippo@cloudflare.com> <hi@filippo.io>
Firmansyah Adiputra <frm.adiputra@gmail.com>
Florian Forster <octo@google.com>
Florian Uekermann <florian@uekermann-online.de> <f1@uekermann-online.de>
Florian Weimer <fw@deneb.enyo.de>
Florin
Patan <florinpatan@gmail.com>
Folke Behrens <folke@google.com>
Ford Hurley <ford.hurley@gmail.com>
Francesc Campoy <campoy@golang.org>
Francesco Renzi <rentziass@gmail.com>
Francisco Claude <fclaude@recoded.cl>
Francisco Rojas <francisco.rojas.gallegos@gmail.com>
Francisco Souza <franciscossouza@gmail.com>
Frank Schroeder <frank.schroeder@gmail.com>
Frank Somers <fsomers@arista.com>
Frederic Guillot <frederic.guillot@gmail.com>
Frederick Kelly Mayle III <frederickmayle@gmail.com>
Frederik Ring <frederik.ring@gmail.com>
Frederik Zipp <fzipp@gmx.de>
Fredrik Enestad <fredrik.enestad@soundtrackyourbrand.com>
Fredrik Forsmo <fredrik.forsmo@gmail.com>
Fredrik Wallgren <fredrik.wallgren@gmail.com>
Frew Schmidt <github@frew.co>
Frithjof Schulze <schulze@math.uni-hannover.de> <sfrithjof@gmail.com>
Frits van Bommel <fvbommel@gmail.com>
Fujimoto Kyosuke <kyoro.f@gmail.com>
Fumitoshi Ukai <ukai@google.com>
G. Hussain Chinoy <ghchinoy@gmail.com>
Gaal Yahas <gaal@google.com>
Gabrel

Arthr Ptursson <gabriel@system.is>
Gabriel Aszalos <gabriel.aszalos@gmail.com>
Gabriel Guzman <gabe.guzman@gmail.com>
Gabriel Nelle <tehsphinx@web.de>
Gabriel Nicolas Avellaneda <avellaneda.gabriel@gmail.com>
Gabriel Rosenhouse <rosenhouse@gmail.com>
Gabriel Russell <gabriel.russell@gmail.com>
Gareth Paul Jones <gpj@foursquare.com>
Garret Kelly <gdk@google.com>
Garrick Evans <garrick@google.com>
Gary Burd <gary@beagledreams.com> <gary.burd@gmail.com>
Gary Elliott <garyelliott@google.com>
Gaurish Sharma <contact@gaurishsharma.com>
Gautham Thambidorai <gautham.dorai@gmail.com>
Gauthier Jolly <gauthier.jolly@gmail.com>
Gawen Arab <gawen.arab@c.zen.ly>
Geert-Johan Riemer <gjr19912@gmail.com>
Genevieve Luyt <genevieve.luyt@gmail.com>
Gengliang Wang <ltnwgl@gmail.com>
Geoff Berry <gberry.qdt@qualcommdatacenter.com>
Geoffroy Lorieux <lorieux.g@gmail.com>
Geon Kim <geon0250@gmail.com>
Georg Reinke <guelfey@gmail.com>
George Gkirtsou <ggirtsou@gmail.com>
George Hartzell <hartzell@alerce.com>
George
Shammas <george@shamm.as> <georgyo@gmail.com>
Gerasimos (Makis) Maropoulos <kataras2006@hotmail.com>
Gerasimos Dimitriadis <gedimitr@gmail.com>
Gergely Brautigam <skarlso777@gmail.com>
Gernot Vormayr <gvormayr@gmail.com>
Gert Cuykens <gert.cuykens@gmail.com>
Getulio Snchez <valentin2507@gmail.com>
Ghazni Nattarshah <ghazni.nattarshah@gmail.com>
Gianguido Sora` <g.sora4@gmail.com>
Gideon Jan-Wessel Redelinghuys <gjredelinghuys@gmail.com>
Giles Lean <giles.lean@pobox.com>
Giovanni Bajo <rasky@develer.com>
GitHub User @aca (50316549) <acadx0@gmail.com>
GitHub User @ajnirp (1688456) <ajnirp@users.noreply.github.com>
GitHub User @ajz01 (4744634) <ajzdenek@gmail.com>
GitHub User @alkesh26 (1019076) <alkesh26@gmail.com>
GitHub User @andig (184815) <cpuidle@gmx.de>
GitHub User @andrius4669 (4699695) <andrius4669@gmail.com>
GitHub User @as (8127015) <as.utf8@gmail.com>
GitHub User @bakape (7851952) <bakape@gmail.com>
GitHub User @bgadrian (830001) <aditza8@gmail.com>
GitHub User @bontequero

(2674999) <bontequero@gmail.com>
GitHub User @cch123 (384546) <buaa.cch@gmail.com>
GitHub User @chainhelen (7046329) <chainhelen@gmail.com>
GitHub User @chanxuehong (3416908) <chanxuehong@gmail.com>
GitHub User @cncal (23520240) <flycalvin@qq.com>
GitHub User @DQNEO (188741) <dqneoo@gmail.com>
GitHub User @Dreamacro (8615343) <chuainian@gmail.com>
GitHub User @dupoxy (1143957) <dupoxy@users.noreply.github.com>
GitHub User @erifan (31343225) <eric.fang@arm.com>
GitHub User @esell (9735165) <eujon.sellers@gmail.com>
GitHub User @fatedier (7346661) <fatedier@gmail.com>
GitHub User @frennkie (6499251) <mail@rhab.de>
GitHub User @geedchin (11672310) <geedchin@gmail.com>
GitHub User @GrigoriyMikhalkin (3637857) <grigoriymikhalkin@gmail.com>
GitHub User @hengwu0 (41297446) <41297446+hengwu0@users.noreply.github.com>
GitHub User @itchyny (375258) <itchyny@hatena.ne.jp>
GitHub User @jinmiaoluo (39730824) <jinmiaoluo@icloud.com>
GitHub User @jopbrown (6345470) <msshane2008@gmail.com>
GitHub User
@kazyshr (30496953) <kazyshr0301@gmail.com>
GitHub User @kc1212 (1093806) <kc1212@users.noreply.github.com>
GitHub User @Kropekk (13366453) <kamilkropiewnicki@gmail.com>
GitHub User @linguohua (3434367) <lghchinaidea@gmail.com>
GitHub User @LotusFenn (13775899) <fenn.lotus@gmail.com>
GitHub User @ly303550688 (11519839) <yang.liu636@gmail.com>
GitHub User @madiganz (18340029) <zacharywmadigan@gmail.com>
GitHub User @maltalex (10195391) <code@bit48.net>
GitHub User @Matts966 (28551465) <Matts966@users.noreply.github.com>
GitHub User @micnncim (21333876) <micnncim@gmail.com>
GitHub User @mkishere (224617) <224617+mkishere@users.noreply.github.com>
GitHub User @nu50218 (40682920) <nu_ll@icloud.com>
GitHub User @OlgaVlPetrova (44112727) <OVPpetrova@gmail.com>
GitHub User @pityonline (438222) <pityonline@gmail.com>
GitHub User @po3rin (29445112) <abctail30@gmail.com>
GitHub User @pokutuna (57545) <popopopopokutuna@gmail.com>
GitHub User @pytimer (17105586) <lixin20101023@gmail.com>
GitHub
User @ramenjuniti (32011829) <ramenjuniti@gmail.com>
GitHub User @saitarunreddy (21041941) <saitarunreddypalla@gmail.com>
GitHub User @shogo-ma (9860598) <Choroma194@gmail.com>
GitHub User @skanehira (7888591) <sho19921005@gmail.com>
GitHub User @tatsumack (4510569) <tatsu.mack@gmail.com>
GitHub User @tell-k (26263) <ffk2005@gmail.com>
GitHub User @tennashi (10219626) <tennashio@gmail.com>
GitHub User @uhei (2116845) <uhei@users.noreply.github.com>
GitHub User @uropek (39370426) <uropek@gmail.com>
GitHub User @utkarsh-extc (53217283) <utkarsh.extc@gmail.com>
GitHub User @witchard (4994659) <witchard@hotmail.co.uk>

GitHub User @yah01 (12216890) <kagaminehuan@gmail.com>
GitHub User @yuanhh (1298735) <yuan415030@gmail.com>
GitHub User @zikaeroh (48577114) <zikaeroh@gmail.com>
GitHub User @ZZMarquis (7624583) <zhonglingjian3821@163.com>
Giulio Iotti <dullgiulio@gmail.com>
Giulio Micheloni <giulio.micheloni@gmail.com>
Giuseppe Valente <gvalente@arista.com>
Gleb Stepanov <glebstepanov1992@gmail.com>
Glenn
Brown <glennb@google.com>
Glenn Lewis <gmlewis@google.com>
Gordon Klaus <gordon.klaus@gmail.com>
Gordon Tyler <gordon@doxxx.net>
Graham King <graham4king@gmail.com>
Graham Miller <graham.miller@gmail.com>
Grant Griffiths <ggp493@gmail.com>
Greg Poirier <greg.istehbest@gmail.com>
Greg Steuck <gnezdo+github@google.com>
Greg Thelen <gthelen@google.com>
Greg Ward <greg@gerg.ca>
Grgoire Delattre <gregoire.delattre@gmail.com>
Gregory Man <man.gregory@gmail.com>
Gregory Petrosyan <gregory.petrosyan@gmail.com>
Guilherme Caruso <gui.martinscaruso@gmail.com>
Guilherme Garnier <guilherme.garnier@gmail.com>
Guilherme Goncalves <guilhermeaugustosg@gmail.com>
Guilherme Rezende <guilhermebr@gmail.com>
Guillaume J. Charmes <guillaume@charmes.net>
Gnther Noack <gnoack@google.com>
Guobiao Mei <meiguobiao@gmail.com>
Guoliang Wang <iamwgliang@gmail.com>
Gustav Paul <gustav.paul@gmail.com>
Gustav Westling <gustav@westling.xyz>
Gustavo Franco <gustavorfranco@gmail.com>
Gustavo Niemeyer <gustavo@niemeyer.net>
<n13m3y3r@gmail.com>
Gwenael Treguier <gwenn.kahz@gmail.com>
Gyu-Ho Lee <gyuhox@gmail.com>
H. brahim Gngr <igungor@gmail.com>
Hajime Hoshi <hajimehoshi@gmail.com>
Hallgrimur Gunnarsson <halg@google.com>
HAMANO Tsukasa <hamano@osstech.co.jp>
Han-Wen Nienhuys <hanwen@google.com>
Hang Qian <hangqian90@gmail.com>
Hanjun Kim <hallazzang@gmail.com>
Haosdent Huang <haosdent@gmail.com>
Harald Nordgren <haraldnordgren@gmail.com>
Hari haran <hariharan.uno@gmail.com>

Hariharan Srinath <srinathh@gmail.com>
Harley Laue <losinggeneration@gmail.com>
Harry Moreno <morenoh149@gmail.com>
Harshavardhana <hrshvardhana@gmail.com>
Hasan Ozgan <hasan@ozgan.net>
Hasit Bhatt <hasit.p.bhatt@gmail.com>
Hauke Lffler <hloeffler@users.noreply.github.com>
Hvard Haugen <havard.haugen@gmail.com>
He Liu <liulonnie@gmail.com>
Hector Chu <hectorchu@gmail.com>
Hector Martin Cantero <hector@marcansoft.com>
Henning Schmiedehausen <henning@schmiedehausen.org>
Henrik Edwards <henrik.edwards@gmail.com>
Henrik
Hodne <henrik@hodne.io>
Henry Adi Sumarto <henry.adisumarto@gmail.com>
Henry Bubert <google@mindeco.de>
Henry Chang <mr.changyuheng@gmail.com>
Henry Clifford <h.a.clifford@gmail.com>
Henry Wong <liushuai.wang@elastic.co>
Herbert Georg Fischer <herbert.fischer@gmail.com>
Herbie Ong <herbie@google.com>
Heschi Kreinick <heschi@google.com>
Hidetatsu Yaginuma <ygnmhdtt@gmail.com>
Hilko Bengen <bengen@hilluzination.de>
Hiroaki Nakamura <hnakamur@gmail.com>
Hiromichi Ema <ema.hiro@gmail.com>
Hironao OTSUBO <motemen@gmail.com>
Hiroshi Ioka <hirochachacha@gmail.com>
Hitoshi Mitake <mitake.hitoshi@gmail.com>
Holden Huang <ttyh061@gmail.com>
Hong Ruiqi <hongruiqi@gmail.com>
Hongfei Tan <feilengcui008@gmail.com>
Horacio Duran <horacio.duran@gmail.com>
Horst Rutter <hhrutter@gmail.com>
Hossein Sheikh Attar <hattar@google.com>
Howard Zhang <howard.zhang@arm.com>
Hsin Tsao <tsao@google.com>
Hsin-Ho Yeh <yhh92u@gmail.com>
Hu Keping <hukeping@huawei.com>
Huan Du <i@huandu.me>
Hugues Bruant <hugues.bruant@gmail.com>
Huy
Le <huy.dinh.le.89@gmail.com>
Hyang-Ah Hana Kim <hakim@google.com> <hyangah@gmail.com>
Hyoyoung Chang <hyoyoung@gmail.com>
Ian Cottrell <iancottrell@google.com>
Ian Davis <nospam@iandavis.com>

Ian Gudger <ian@loosescre.ws>
Ian Haken <ihaken@netflix.com>
Ian Kent <iankent85@gmail.com>
Ian Lance Taylor <iant@golang.org>
Ian Leue <ian@appboy.com>
Ian Zapolsky <ianzapolsky@gmail.com>
Ibrahim AshShohail <ibra.sho@gmail.com>
Icarus Sparry <golang@icarus.freeuk.com>
Iccha Sethi <icchasethi@gmail.com>
Idora Shinatose <idora.shinatose@gmail.com>
Ignacio Hagopian <jsign.uy@gmail.com>
Igor Bernstein <igorbernstein@google.com>
Igor Dolzhikov <bluesriverz@gmail.com>
Igor Vashyst <ivashyst@gmail.com>
Igor Zhilianin <igor.zhilianin@gmail.com>
Illya Yalovyy <yalovoy@gmail.com>
Ilya Sinelnikov <sidhmangh@gmail.com>
Ilya Tocar <ilya.tocar@intel.com>
INADA Naoki <songofacandy@gmail.com>
Inanc Gumus <m@inanc.io>
Ingo Gottwald <in.gottwald@gmail.com>
Ingo Krabbe <ikrabbe.ask@gmail.com>
Ingo
Oeser <nightlyone@googlemail.com> <nightlyone@gmail.com>
Ioannis Georgoulas <geototti21@hotmail.com>
Irbe Krumina <irbekrm@gmail.com>
Irfan Sharif <irfanmahmoudsharif@gmail.com>
Irieda Noboru <irieda@gmail.com>
Isaac Ardis <isaac.ardis@gmail.com>
Isaac Wagner <ibw@isaacwagner.me>
Isfan Azhabil <isfanazhabil@gmail.com>
Iskander Sharipov <iskander.sharipov@intel.com> <quasilyte@gmail.com>
Issac Trotts <issactrotts@google.com>
Ivan Babrou <ivan@cloudflare.com>
Ivan Bertona <ivan.bertona@gmail.com>
Ivan Krasin <krasin@golang.org>
Ivan Kutuzov <arbrix@gmail.com>
Ivan Markin <sw@nogoegst.net>
Ivan Moscoso <moscoso@gmail.com>
Ivan Osadchiy <ivan.osadchii@gmail.com>
Ivan Sharavuev <shpiwan@gmail.com>
Ivan Trubach <mr.trubach@icloud.com>
Ivan Ukhov <ivan.ukhov@gmail.com>
Ivy Evans <ivy@ivyevans.net>
Jaana Burcu Dogan <jbd@google.com> <jbd@golang.org> <burcujdogan@gmail.com>
Jaap Aarts <jaap.aarts1@gmail.com>
Jack Britton <jackxbritton@gmail.com>
Jack Lindamood <jlindamo@justin.tv>

Jacob Baskin
<jbaskin@google.com>
Jacob Blain Christen <dweomer5@gmail.com>
Jacob H. Haven <jacob@cloudflare.com>
Jacob Hoffman-Andrews <github@hoffman-andrews.com>
Jacob Walker <jacobwalker0814@gmail.com>
Jae Kwon <jae@tendermint.com>
Jake B <doogie1012@gmail.com>
Jakob Borg <jakob@nym.se>
Jakob Weisblat <jakobw@mit.edu>
Jakub ajka <jcajka@redhat.com>
Jakub Kaczmarzyk <jakubk@mit.edu>
Jakub Ryszard Czarnowicz <j.czarnowicz@gmail.com>
Jamal Carvalho <jamal.a.carvalho@gmail.com>
James Aguilar <jaguilar@google.com>
James Bardin <j.bardin@gmail.com>
James Chacon <jchacon@google.com>
James Clarke <jrtc27@jrtc27.com>
James Cowgill <James.Cowgill@imgtec.com>
James Craig Burley <james-github@burleyarch.com>
James David Chalfant <james.chalfant@gmail.com>
James Eady <jmeady@google.com>
James Fysh <james.fysh@gmail.com>
James Gray <james@james4k.com>
James Hartig <fastest963@gmail.com>
James Lawrence <jljatone@gmail.com>
James Meneghello <rawrz0r@gmail.com>
James Myers <jfmyers9@gmail.com>
James Neve <jamesoneve@gmail.com>
James
Nugent <james@jen20.com>
James P. Cooper <jamespcooper@gmail.com>
James Robinson <jamesr@google.com> <jamesr.gatech@gmail.com>
James Schofield <james@shoeboxapp.com>
James Smith <jrs1995@icloud.com>
James Sweet <james.sweet88@googlemail.com>
James Toy <nil@opensesame.st>
James Treanor <jtreanor3@gmail.com>
James Tucker <raggi@google.com>
James Whitehead <jnwhiteh@gmail.com>
Jamie Beverly <jamie.r.beverly@gmail.com>
Jamie Gennis <jgennis@google.com> <jgennis@gmail.com>
Jamie Kerr <jkerr113@googlemail.com>
Jamie Liu <jamieliu@google.com>
Jamie Stackhouse <contin673@gmail.com>
Jamie Turner <jamwt@dropbox.com>
Jamie Wilkinson <jaq@spacepants.org>
Jamil Djadala <djadala@gmail.com>

Jan Berktold <jan@berktold.co>
Jan H. Hosang <jan.hosang@gmail.com>
Jan Kratochvil <jan.kratochvil@redhat.com>
Jan Lehnardt <jan@apache.org>
Jan Mercl <0xjnml@gmail.com> <befelemepeseveze@gmail.com>
Jan Newmarch <jan.newmarch@gmail.com>
Jan Pilzer <jan.pilzer@gmx.de>
Jan Steinke <jan.steinke@gmail.com>
Jan
Ziak <0xe2.0x9a.0x9b@gmail.com>
Jani Monoses <jani.monoses@ubuntu.com> <jani.monoses@gmail.com>
Jannis Andrija Schnitzer <jannis@schnitzer.im>
Jared Allard <jaredallard@users.noreply.github.com>
Jared Culp <jculp14@gmail.com>
Jaroslavas Poepko <jp@webmaster.ms>
Jason A. Donenfeld <Jason@zx2c4.com>
Jason Baker <jason-baker@users.noreply.github.com>
Jason Barnett <jason.w.barnett@gmail.com>
Jason Buberel <jbuberel@google.com>
Jason Chu <jasonchujc@gmail.com>
Jason Del Ponte <delpontej@gmail.com>
Jason Hall <jasonhall@google.com>
Jason Keene <jasonkeene@gmail.com>
Jason LeBrun <jblebrun@gmail.com>
Jason Smale <jsmale@zendesk.com>
Jason Travis <infomaniac7@gmail.com>
Jason Wangsadinata <jwangsadinata@gmail.com>
Javier Kohen <jkohen@google.com>
Javier Revillas <jrevillas@massivedynamic.io>
Javier Segura <javism@gmail.com>
Jay Conrod <jayconrod@google.com>
Jay Taylor <outtatime@gmail.com>
Jay Weisskopf <jay@jayschwa.net>
Jean de Klerk <deklerk@google.com>
Jean-Andr Santoni
<jean.andre.santoni@gmail.com>
Jean-Franois Bustarret <jf@bustarret.com>
Jean-Francois Cantin <jfcantin@gmail.com>
Jean-Marc Eurin <jmeurin@google.com>
Jean-Nicolas Moal <jn.moal@gmail.com>
Jed Denlea <jed@fastly.com>
Jdrzej Szczepaniak <jbszczepaniak@gmail.com>
Jeet Parekh <jeetparekh96@gmail.com>
Jeevanandam M <jeeva@myjeeva.com>
Jeff (Zhefu) Jiang <jeffjiang@google.com>
Jeff Craig <jeffcraig@google.com>
Jeff Dupont <jeff.dupont@gmail.com>
Jeff Hodges <jeff@somethingsimilar.com>

Jeff Johnson <jrjohnson@google.com>
Jeff R. Allen <jra@nella.org> <jeff.allen@gmail.com>
Jeff Sickel <jas@corpus-callosum.com>
Jeff Wendling <jeff@spacemonkey.com>
Jeffrey H <jeffreyh192@gmail.com>
Jelte Fennema <github-tech@jeltef.nl>
Jens Frederich <jfrederich@gmail.com>
Jeremiah Harmsen <jeremiah@google.com>
Jeremy Banks <_@jeremy.ca>
Jeremy Canady <jcanady@gmail.com>
Jeremy Faller <jeremy@golang.org>
Jeremy Jackins <jeremyjackins@gmail.com>
Jeremy Jay <jeremy@pbnjay.com>
Jeremy Schlatter <jeremy.schlatter@gmail.com>
Jeroen
Bobbeldijk <jerbob92@gmail.com>
Jeroen Simonetti <jeroen@simonetti.nl>
Jerrin Shaji George <jerrinsg@gmail.com>
Jess Frazelle <me@jessfraz.com>
Jesse Szwedko <jesse.szwedko@gmail.com>
Jess Espino <jespinog@gmail.com>
Jia Zhan <jzhan@uber.com>
Jiacai Liu <jiacai2050@gmail.com>
Jianing Yu <jnyu@google.com>
Jianqiao Li <jianqiaoli@google.com>
Jie Ma <jienius@outlook.com>
Jihyun Yu <yjh0502@gmail.com>
Jim Cote <jfcote87@gmail.com>
Jim Kingdon <jim@bolt.me>
Jim McGrath <jimmc2@gmail.com>
Jim Minter <jminter@redhat.com>
Jimmy Frasche <soapboxcicero@gmail.com>
Jimmy Zelinskie <jimmyzelinskie@gmail.com>
Jin-wook Jeong <jeweljar@hanmail.net>
Jingcheng Zhang <diogin@gmail.com>
Jingguo Yao <yaojingguo@gmail.com>
Jingnan Si <jingnan.si@gmail.com>
Jinkun Zhang <franksnolf@gmail.com>
Jiong Du <londevil@gmail.com>
Jirka Dank <dnk@mail.muni.cz>
Jiulong Wang <jiulongw@gmail.com>
Joakim Sernbrant <serbaut@gmail.com>
Joe Bowbeer <joe.bowbeer@gmail.com>
Joe Cortopassi <joe@joecortopassi.com>
Joe
Farrell <joe2farrell@gmail.com>
Joe Harrison <joehazzers@gmail.com>
Joe Henke <joed.henke@gmail.com>

Joe Kyo <xunianzu@gmail.com>
Joe Poirier <jdpoirier@gmail.com>
Joe Richey <joerichey@google.com>
Joe Shaw <joe@joeshaw.org>
Joe Sylve <joe.sylve@gmail.com>
Joe Tsai <joetsai@digital-static.net>
Joel Sing <joel@sing.id.au> <jsing@google.com>
Jol Stemmer <jstemmer@google.com>
Joel Stemmer <stemmertech@gmail.com>
Joey Geiger <jgeiger@users.noreply.github.com>
Johan Brandhorst <johan.brandhorst@gmail.com>
Johan Euphrosine <proppy@google.com>
Johan Jansson <johan.jansson@iki.fi>
Johan Sageryd <j@1616.se>
John Asmuth <jasmuth@gmail.com>
John Beisley <huin@google.com>
John C Barstow <jbowtie@amathaine.com>
John DeNero <denero@google.com>
John Dethridge <jcd@golang.org>
John Gibb <johngibb@gmail.com>
John Gilik <john@jgilik.com>
John Graham-Cumming <jgc@jgc.org> <jgrahamc@gmail.com>
John Howard Palevich <jack.palevich@gmail.com>
John Jeffery <jjeffery@sp.com.au>
John Jenkins <twodopeshaggy@gmail.com>
John
Leidegren <john.leidegren@gmail.com>
John McCabe <john@johnmccabe.net>
John Moore <johnkenneth.moore@gmail.com>
John Newlin <jnewlin@google.com>
John Papandriopoulos <jpap.code@gmail.com>
John Potocny <johnp@vividcortex.com>
John R. Lenton <jlenton@gmail.com>
John Schnake <schnake.john@gmail.com>
John Shahid <jvshahid@gmail.com>
John Tuley <john@tuley.org>
John Weldon <johnweldon4@gmail.com>
Johnny Luo <johnnyluo1980@gmail.com>
Jon Chen <jchen@justin.tv>
Jon Johnson <jonjohnson@google.com>
Jonas Bernoulli <jonas@bernoul.li>
Jonathan Allie <jonallie@google.com>
Jonathan Amsterdam <jba@google.com>
Jonathan Boulle <jonathanboulle@gmail.com>
Jonathan Chen <dijonkitchen@users.noreply.github.com>
Jonathan Feinberg <feinberg@google.com>
Jonathan Gold <jgold.bg@gmail.com>
Jonathan Hseu <jhseu@google.com>

Jonathan Mark <jhmark@xenops.com> <jhmark000@gmail.com>
Jonathan Nieder <jrn@google.com>
Jonathan Pentecost <pentecostjonathan@gmail.com>
Jonathan Pittman <jmpittman@google.com>
<jonathan.mark.pittman@gmail.com>
Jonathan Rudenberg <jonathan@titanous.com>
Jonathan Stacks <jonstacks13@gmail.com>
Jonathan Wills <runningwild@gmail.com>
Jonathon Lacher <jonathon.lacher@gmail.com>
Jongmin Kim <atomaths@gmail.com>
Joonas Kuorilehto <joneskoo@derbian.fi>
Joop Kiefte <ikojba@gmail.com> <joop@kiefte.net>
Jordan Christiansen <xordspar0@gmail.com>
Jordan Krage <jmank88@gmail.com>
Jordan Lewis <jordanthelewis@gmail.com>
Jordan Liggitt <liggitt@google.com>
Jordan Rhee <jordanrh@microsoft.com>
Jordi Martin <jordimartin@gmail.com>
Jorge Araya <jorgejavieran@yahoo.com.mx>
Jorge L. Fatta <jorge.fatta@auth0.com>
Jos Visser <josv@google.com>
Josa Gesell <josa@gesell.me>
Jose Luis Vzquez Gonzlez <josvazg@gmail.com>
Joseph Bonneau <jcb@google.com>
Joseph Holsten <joseph@josephholsten.com>
Josh Baum <joshbaum@google.com>
Josh Bleecher Snyder <josharian@gmail.com>
Josh Chorlton <jchorlton@gmail.com>
Josh Deprez <josh.deprez@gmail.com>
Josh Goebel <dreamer3@gmail.com>
Josh Hoak
<jhoak@google.com>
Josh Holland <jrh@joshh.co.uk>
Josh Roppo <joshroppo@gmail.com>
Josh Varga <josh.varga@gmail.com>
Joshua Bezaleel Abednego <joshua.bezaleel@gmail.com>
Joshua Boelter <joshua.boelter@intel.com>
Joshua Chase <jcjoshuachase@gmail.com>
Joshua Crowgey <jcrowgey@uw.edu>
Joshua M. Clulow <josh.clulow@joyent.com>
Joshua Rubin <joshua@rubixconsulting.com>
Josselin Costanzi <josselin@costanzi.fr>
Jostein Stuhaug <js@solidsystem.no>
JP Sugarbroad <jpsugar@google.com>
JT Olds <jtolds@xnet5.com>
JT Olio <hello@jtolio.com>
Juan Carlos <juanjcsr@gmail.com>
Juan Pablo Civile <elementohb@gmail.com>

Jude Pereira <judebpereira@gmail.com>
Jukka-Pekka Kekkonen <karatepekka@gmail.com>
Julia Hansbrough <flowerhack@google.com>
Julian Kornberger <jk+github@digineo.de>
Julian Pastarmov <pastarmovj@google.com>
Julian Phillips <julian@quantumfyre.co.uk>
Julian Tibble <julian.tibble@gmail.com>
Julie Qiu <julie@golang.org>
Julien Kauffmann <julien.kauffmann@freelan.org>
Julien Salleyron <julien.salleyron@gmail.com>
Julien
Schmidt <google@julienschmidt.com>
Julio Montes <julio.montes@intel.com>
Jun Zhang <jim.zoumo@gmail.com>
Junda Liu <junda@celer.network>
Jungho Ahn <jhahn@google.com>
Junya Hayashi <ledmonster@gmail.com>
Juraj Sukop <sukop@users.noreply.github.com>
Jure Ham <jure.ham@zemanta.com>
Justin Gracenin <jgracenin@gmail.com>
Justin Li <git@justinli.net>
Justin Nu <nuss.justin@gmail.com>
Justyn Temme <justyntemme@gmail.com>
Kai Backman <kaib@golang.org>
Kai Dong <dokia2357@gmail.com>
Kai Trukenmller <ktye78@gmail.com>
Kale Blankenship <kale@lemnisys.com>
Kaleb Elwert <kelwert@atlassian.com>
Kalman Bekesi <kalmanb@google.com>
Kamal Aboul-Hosn <aboulhosn@google.com>
Kamil Chmielewski <kamil.chm@gmail.com>
Kamil Kisiel <kamil@kamilkisiel.net> <kamil.kisiel@gmail.com>
Kamil Rytarowski <krytarowski@users.noreply.github.com>
Kang Hu <hukangustc@gmail.com>
Kanta Ebihara <kantaebihara@gmail.com>
Karan Dhiman <karandhi@ca.ibm.com>
Karel Pazdera <pazderak@gmail.com>
Karoly
Negyesi <chx1975@gmail.com>
Karsten Khler <karsten.koehler95@gmail.com>
Karthik Nayak <karthik.188@gmail.com>
Kashav Madan <kshvmdn@gmail.com>
Kate Manson <kate.manson@izettle.com>
Katharine Berry <ktbry@google.com>
Katie Hockman <katie@golang.org>
Kato Kazuyoshi <kato.kazuyoshi@gmail.com>
Katrina Owen <katrina.owen@gmail.com>
Kaviraj Kanagaraj <kavirajkanagaraj@gmail.com>

Kay Zhu <kayzhu@google.com>
Kazuhiro Sera <seratch@gmail.com>
KB Sriram <kbsriram@google.com>
Keegan Carruthers-Smith <keegan.csmith@gmail.com>
Kei Son <hey.calmdown@gmail.com>
Keiji Yoshida <keijiyoshida.mail@gmail.com>
Keisuke Kishimoto <keisuke.kishimoto@gmail.com>
Keith Ball <inflatablewoman@gmail.com>
Keith Randall <khr@golang.org>
Keith Rarick <kr@xph.us>
Kelly Heller <pestophagous@gmail.com>
Kelsey Hightower <kelsey.hightower@gmail.com>
Kelvin Foo Chuan Lyi <vmirage@gmail.com>
Ken Friedenbach <kenliz@cruzio.com>
Ken Rockot <ken@oz.gs> <ken.rockot@gmail.com>
Ken Sedgwick <ken@bonsai.com>
Ken Thompson <ken@golang.org>
Kenichi
Tsunokawa <kenichi.tsunokawa@gmail.com>
Kenji Kaneda <kenji.kaneda@gmail.com>
Kenji Yano <kenji.yano@gmail.com>
Kenneth Shaw <kenshaw@gmail.com>
Kenny Grant <kennygrant@gmail.com>
Kenta Mori <zoncoen@gmail.com>
Kerollos Magdy <kerolloz@yahoo.com>
Ketan Parmar <ketanbparmar@gmail.com>
Kevan Swanberg <kevswanberg@gmail.com>
Kevin Ballard <kevin@sb.org>
Kevin Burke <kev@inburke.com>
Kvin Dunglas <dunglas@gmail.com>
Kevin Gillette <extemporalgenome@gmail.com>
Kevin Kirsche <kev.kirsche@gmail.com>
Kevin Klues <klueska@gmail.com> <klueska@google.com>
Kevin Malachowski <chowski@google.com>
Kevin Ruffin <kruffin@gmail.com>
Kevin Vu <kevin.m.vu@gmail.com>
Kevin Zita <bleedgreenandgold@gmail.com>
Keyan Pishdadian <kpishdadian@gmail.com>
Kezhu Wang <kezhuw@gmail.com>
Khosrow Moossavi <khos2ow@gmail.com>
Kieran Colford <kieran@kcolford.com>
Kim Shrier <kshrier@racktopsystems.com>
Kim Yongbin <kybinz@gmail.com>
Kir Kolyshkin <kolyshkin@gmail.com>
Kirill Korotaev <kirillx@gmail.com>
Kirill
Motkov <Motkov.Kirill@gmail.com>
Kirill Smelkov <kirr@nexedi.com>

Kirill Tatchihin <kirabsuir@gmail.com>
Kirk Han <kirk91.han@gmail.com>
Kirklin McDonald <kirklin.mcdonald@gmail.com>
Klaus Post <klauspost@gmail.com>
Kodie Goodwin <kodiegoodwin@gmail.com>
Koichi Shiraishi <zchee.io@gmail.com>
Koki Ide <niconegoto@yahoo.co.jp>
Koki Tomoshige <tomocy.dev@gmail.com>
Komu Wairagu <komuw05@gmail.com>
Konstantin <konstantin8105@gmail.com>
Konstantin Shaposhnikov <k.shaposhnikov@gmail.com>
Koya IWAMURA <kiwamura0314@gmail.com>
Kris Kwiatkowski <kris@cloudflare.com>
Kris Nova <kris@nivenly.com>
Kris Rousey <krousey@google.com>
Kristopher Watts <traetox@gmail.com>
Kshitij Saraogi <kshitijsaraogi@gmail.com>
Kun Li <likunarmstrong@gmail.com>
Kunpei Sakai <namusyaka@gmail.com>
Kuntal Majumder <hellozee@disroot.org>
Kush Patel <kush.patel@hootsuite.com>
Kyle Consalus <consalus@gmail.com>
Kyle Isom <kyle@gokyle.net>
Kyle Jones <kyle@kyledj.com>
Kyle Lemons <kyle@kylelemons.net> <kevlar@google.com>
Kyle
Nusbaum <kyle@datadog.com>
Kyle Shannon <kyle@pobox.com>
Kyle Spiers <eiais@google.com>
Kyle Wood <kyle@kylewood.cc>
Kyohei Kadota <lufia@lufia.org>
Kyrylo Silin <silin@kyrylo.org>
L Campbell <unpantsu@gmail.com>
Lai Jiangshan <eag0628@gmail.com>
Lajos Papp <lalyos@yahoo.com>
Lakshay Garg <lakshay.garg.1996@gmail.com>
Lann Martin <lannm@google.com>
Lanre Adelowo <yo@lanre.wtf>
Larry Clapp <larry@theclapp.org>
Larry Hosken <lahosken@golang.org>
Lars Jeppesen <jeppesen.lars@gmail.com>
Lars Lehtonen <lars.lehtonen@gmail.com>
Lars Wiegman <lars@namsral.com>
Larz Conwell <larzconwell@gmail.com>
Laurent Voisin <lpvoisin@gmail.com>
Laurie Clark-Michalek <laurie@qubit.com>
LE Manh Cuong <cuong.manhle.vn@gmail.com>
Lee Hinman <hinman@gmail.com>

Lee Packham <lpackham@gmail.com>
Lehner Florian <dev@der-flo.net>
Leigh McCulloch <leighmcc@gmail.com>
Leo Antunes <leo@costela.net>
Leo Rudberg <ljr@google.com>
Leon Klingele <git@leonklingele.de>
Leonardo Comelli <leonardo.comelli@gmail.com>
Leonel
Quinteros <leonel.quinteros@gmail.com>
Lev Shamardin <shamardin@gmail.com>
Lewin Bormann <lewin.bormann@gmail.com>
Liam Haworth <liam@haworth.id.au>
Lily Chung <lilithkchung@gmail.com>
Lion Yang <lion@aosc.xyz>
Liz Rice <liz@lizrice.com>
Lloyd Dewolf <foolswisdom@gmail.com>
Lorenz Bauer <lmb@cloudflare.com>
Lorenz Brun <lorenz@brun.one>
Lorenz Nickel <mail@lorenznickel.de>
Lorenzo Masini <rugginoso@develer.com>
Lorenzo Stoakes <lstoakes@gmail.com>
Louis Kruger <louisk@google.com>
Luan Santos <cfcluan@gmail.com>
Lubomir I. Ivanov <neolit123@gmail.com>
Luca Bruno <luca.bruno@coreos.com>
Luca Greco <luca.greco@alcacoop.it>
Lucas Bremgartner <lucas.bremgartner@gmail.com>
Lucas Clemente <lclemente@google.com>
Lucien Stuker <lucien.stuker@gmail.com>
Lucio De Re <lucio.dere@gmail.com>
Ludi Rehak <ludi317@gmail.com>
Luigi Riefolo <luigi.riefolo@gmail.com>
Luit van Drongelen <luitvd@gmail.com>
Luka Zakrajek <tr00.g33k@gmail.com>
Luka Zitnik <luka.zitnik@gmail.com>
Lukasz Milewski <lmmilewski@gmail.com>
Luke
Champine <luke.champine@gmail.com>
Luke Curley <qpingu@gmail.com>
Luke Granger-Brown <git@lukegb.com>
Luke Young <bored-engineer@users.noreply.github.com>
Luna Duclos <luna.duclos@palmstonegames.com>
Luuk van Dijk <lvd@golang.org> <lvd@google.com>
Lyle Franklin <lylejfranklin@gmail.com>
Lynn Boger <laboger@linux.vnet.ibm.com>
Ma Peiqi <mapeiqi2017@gmail.com>
Maarten Bezemer <maarten.bezemer@gmail.com>
Maciej Dbski <maciejd@google.com>

Madhu Rajanna <madhupr007@gmail.com>
Magnus Hiie <magnus.hiie@gmail.com>
Maicon Costa <maiconscosta@gmail.com>
Mak Kolybabi <mak@kolybabi.com>
Maksym Trykur <maksym.trykur@gmail.com>
Mal Curtis <mal@mal.co.nz>
Manfred Touron <m@42.am>
Manigandan Dharmalingam <manigandan.jeff@gmail.com>
Manish Goregaokar <manishsmail@gmail.com>
Manoj Dayaram <platform-dev@moovweb.com> <manoj.dayaram@moovweb.com>
Mansour Rahimi <rahimi.mnr@gmail.com>
Manu Garg <manugarg@google.com>
Manu S Ajith <neo@codingarena.in>
Manuel Mendez <mmendez534@gmail.com>
Marat
Khabibullin <marat.khabibullin@jetbrains.com>
Marc Sanmiquel <marcsanmiquel@gmail.com>
Marc Weistroff <marc@weistroff.net>
Marc-Antoine Ruel <maruel@chromium.org>
Marcel Edmund Franke <marcel.edmund.franke@gmail.com>
Marcel van Lohuizen <mpvl@golang.org>
Marcelo Cantos <marcelo.cantos@gmail.com>
Marcelo E. Magallon <marcelo.magallon@gmail.com>
Marco Hennings <marco.hennings@freiheit.com>
Marcus Weiner <marcus.weiner@gmail.com>
Marcus Willock <crazcalm@gmail.com>
Marga Manterola <marga@google.com>
Mariano Cano <mariano@smallstep.com>
Marin Bai <marin.basic02@gmail.com>
Mario Arranz <marioarranzr@gmail.com>
Marius A. Eriksen <marius@grailbio.com>
Marius Nuennerich <mnu@google.com>
Mark Adams <mark@markadams.me>
Mark Bucciarelli <mkbucc@gmail.com>
Mark Glines <mark@glines.org>
Mark Harrison <marhar@google.com>
Mark Percival <m@mdp.im>
Mark Pulford <mark@kyne.com.au>
Mark Rushakoff <mark.rushakoff@gmail.com>
Mark Ryan <mark.d.ryan@intel.com>
Mark Severson <miquella@gmail.com>
Mark Theunissen
<mark.theunissen@gmail.com>
Mark Villacampa <m@markvillacampa.com>
Mark Wolfe <mark@wolfe.id.au>
Mark Zavislak <zavislak@google.com>
Marko Juhani Silokunnas <marko.silokunnas@gmail.com>
Marko Kevac <marko@kevac.org>

Marko Kungla <marko.kungla@gmail.com>
Marko Mikulicic <mkm@google.com>
Marko Mudrinic <mudrinic.mare@gmail.com>
Marko Tiikkaja <marko@joh.to>
Markus Duft <markus.duft@salomon.at>
Markus Sonderegger <marraison@gmail.com>
Markus Zimmermann <zimmski@gmail.com>
Marten Seemann <martenseemann@gmail.com>
Martin Asquino <martin.asquino@gmail.com>
Martin Bertschler <mbertschler@gmail.com>
Martin Garton <garton@gmail.com>
Martin Habbecke <marhab@google.com>
Martin Hamrle <martin.hamrle@gmail.com>
Martin Hoefling <martin.hoefling@gmx.de>
Martin Kreichgauer <martinkr@google.com>
Martin Kunc <martinkunc@users.noreply.github.com>
Martin Lindhe <martin.j.lindhe@gmail.com>
Martin Mohrmann <moehrmann@google.com> <martisch@uos.de>
Martin Neubauer <m.ne@gmx.net>
Martin Olsen <github.com@martinolsen.net>
Martin
Olsson <martin@minimum.se>
Martin Probst <martin@probst.io>
Martin Sucha <anty.sk+git@gmail.com>
Martin Tournoij <martin@arp242.net>
Martins Sipenko <martins.sipenko@gmail.com>
Martynas Budrinas <mabu@google.com>
Marvin Stenger <marvin.stenger94@gmail.com>
Marwan Sulaiman <marwan.sulaiman@work.co>
Maryan Hratson <gmarik@gmail.com>
Masahiro Furudate <masahiro.furudate@gmail.com>
Masahiro Wakame <vvakame@gmail.com>
Masaki Yoshida <yoshida.masaki@gmail.com>
Masaya Watanabe <sfbgwm30@gmail.com>
Mat Byczkowski <mbyczkowski@gmail.com>
Mat Ryer <thatmatryer@gmail.com>
Mt Gulys <mgulyas86@gmail.com>
Matej Bao <matejbaco@gmail.com>
Mateus Amin <mateus.amin@gmail.com>
Mateusz Czapliski <czapkofan@gmail.com>
Mathias Beke <git@denbeke.be>
Mathias Hall-Andersen <mathias@hall-andersen.dk>
Mathias Leppich <mleppich@muhqu.de>
Mathieu Lonjaret <mathieu.lonjaret@gmail.com>
Mats Lidell <mats.lidell@cag.se> <mats.lidell@gmail.com>
Matt Aimonetti <mattaimonetti@gmail.com>
Matt Blair

<me@matthewblair.net>
Matt Bostock <matt@mattbostock.com>
Matt Brown <mdbrown@google.com>
Matt Dee <mdee@hioscar.com>
Matt Drollette <matt@drollette.com>
Matt Harden <matt.harden@gmail.com>
Matt Jibson <matt.jibson@gmail.com>
Matt Joiner <anacrolix@gmail.com>
Matt Jones <mrjones@google.com>
Matt Juran <thepciet@gmail.com>
Matt Layher <mdlayher@gmail.com>
Matt Reiferson <mreiferson@gmail.com>
Matt Robenolt <matt@ydekproductions.com>
Matt Strong <mstrong1341@gmail.com>
Matt T. Proud <matt.proud@gmail.com>
Matt Williams <gh@mattyw.net> <mattyjwilliams@gmail.com>
Matthew Brennan <matty.brennan@gmail.com>
Matthew Broberg <matthewbbroberg@gmail.com>
Matthew Cottingham <mattcottingham@gmail.com>
Matthew Dempsky <mdempsky@google.com>
Matthew Denton <mdenton@skyportsystems.com>
Matthew Holt <Matthew.Holt+git@gmail.com>
Matthew Horsnell <matthew.horsnell@gmail.com>
Matthew Waters <mwwaters@gmail.com>
Matthieu Hauglustaine <matt.hauglustaine@gmail.com>
Matthieu Olivier <olivier.matthieu@gmail.com>
Matthijs
Kooijman <matthijs@stdin.nl>
Max Riveiro <kavu13@gmail.com>
Max Schmitt <max@schmitt.mx>
Max Semenik <maxsem.wiki@gmail.com>
Max Ushakov <ushmax@gmail.com>
Maxim Eryomenko <moeryomenko@gmail.com>
Maxim Khitrov <max@mxcrypt.com>
Maxim Pimenov <mpimenov@google.com>
Maxim Pugachev <pugachev.mm@gmail.com>
Maxim Ushakov <ushakov@google.com>
Maxime de Roucy <maxime.deroucy@gmail.com>
Mximo Cuadros Ortiz <mcuadros@gmail.com>
Maxwell Krohn <themax@gmail.com>
Maya Rashish <maya@NetBSD.org>
Mayank Kumar <krmayankk@gmail.com>
Meir Fischer <meirfischer@gmail.com>
Meng Zhuo <mengzhuo1203@gmail.com> <mzh@golangcn.org>
Mhd Sulhan <m.shulhan@gmail.com>
Micah Stetson <micah.stetson@gmail.com>
Michael Anthony Knyszek <mknyszek@google.com>
Michael Brandenburg <mbrandenburg@bolste.com>

Michael Chaten <mchaten@gmail.com>
Michael Cook <code@mdcook.net>
Michael Darakananda <pongad@google.com>
Michael Dorner <mail@michaeldorner.de>
Michael Edwards <medwards@walledcity.ca>
Michael Elkins <michael.elkins@gmail.com>
Michael
Ellis <micellis@justin.tv>
Michael Fraenkel <michael.fraenkel@gmail.com>
Michael Fromberger <michael.j.fromberger@gmail.com>
Michael Gehring <mg@ebfe.org> <gnirheg.leahcim@gmail.com>
Michael Henderson <mdhender@users.noreply.github.com>
Michael Hendricks <michael@ndrix.org>
Michael Hoisie <hoisie@gmail.com>
Michael Hudson-Doyle <michael.hudson@linaro.org>
Michael Kasch <michael.kasch@gmail.com>
Michael Kufl <golang@c.michael-kaeufl.de>
Michael Kelly <mjk@google.com>
Michael Lewis <mikelikespie@gmail.com>
Michael MacInnis <Michael.P.MacInnis@gmail.com>
Michael Marineau <michael.marineau@coreos.com>
Michael Matloob <matloob@google.com>
Michael McConville <momcconville@gmail.com>
Michael McGreevy <mcgreevy@golang.org>
Michael McLoughlin <mmcloughlin@gmail.com>
Michael Munday <mike.munday@ibm.com>
Michael Pearson <mipearson@gmail.com>
Michael Piatek <piatek@google.com>
Michael Pratt <mpratt@google.com>
Michael Schaller <michael@5challer.de>
Michael Schurter <michael.schurter@gmail.com>
Michael
Shields <mshields@google.com>
Michael Stapelberg <michael@stapelberg.de> <mstplbrg@googlemail.com>
Michael Steinert <mike.steinert@gmail.com>
Michael T. Jones <mtj@google.com> <michael.jones@gmail.com>
Michael Teichgrber <mteichgraeber@gmx.de> <mt4swm@googlemail.com>
Michael Traver <mtraver@google.com>
Michael Vetter <g.bluehut@gmail.com>
Michael Vogt <mvo@ubuntu.com>
Michal Bohuslvek <mbohuslavek@gmail.com>
Michal Cierniak <cierniak@google.com>
Micha Derkacz <ziutek@lnet.pl>
Michal Franc <lam.michal.franc@gmail.com>
Micha owicki <mlowicki@gmail.com>
Michal Pristas <michal.pristas@gmail.com>
Michal Rostecki <mrostecki@suse.de>
Michalis Kargakis <michaliskargakis@gmail.com>

Michel Lespinasse <walken@google.com>
Mickael Kerjean <mickael.kerjean@gmail.com>
Mickey Reiss <mickeyreiss@gmail.com>
Miek Gieben <miek@miek.nl> <remigius.gieben@gmail.com>
Miguel Acero <acero@google.com>
Miguel Mendez <stxmendez@gmail.com>
Miguel Molina <hi@mvader.me>
Mihai Borobocea
<MihaiBorobocea@gmail.com>
Mihai Moldovan <ionic@ionic.de>
Mihai Todor <todormihai@gmail.com>
Mihail Minaev <minaev.mike@gmail.com>
Mikael Tillenius <mikti42@gmail.com>
Mike Andrews <mra@xoba.com>
Mike Appleby <mike@app.leby.org>
Mike Danese <mikedanese@google.com>
Mike Houston <mike@kothar.net>
Mike Kabischev <kabischev@gmail.com>
Mike Rosset <mike.rosset@gmail.com>
Mike Samuel <mikesamuel@gmail.com>
Mike Solomon <msolo@gmail.com>
Mike Strosaker <strosake@us.ibm.com>
Mike Tsao <mike@sowbug.com>
Mike Wiacek <mjwiacek@google.com>
Mikhail Fesenko <proggga@gmail.com>
Mikhail Gusarov <dottedmag@dottedmag.net>
Mikhail Panchenko <m@mihasya.com>
Miki Tebeka <miki.tebeka@gmail.com>
Mikio Hara <mikioh.mikioh@gmail.com>
Mikkel Krautz <mikkel@krautz.dk> <krautz@gmail.com>
Mikoaj Baranowski <mikolajb@gmail.com>
Milan Knezevic <milan.knezevic@mips.com>
Milan Patel <bicelot3@gmail.com>
Milutin Jovanovic <jovanovic.milutin@gmail.com>
MinJae Kwon <mingrammer@gmail.com>
Miquel Sabat Sol <mikisabate@gmail.com>
Mirko
Hansen <baaazen@gmail.com>
Miroslav Genov <mgenov@gmail.com>
Misty De Meo <mistydemeo@gmail.com>
Mohit Agarwal <mohit@sdf.org>
Mohit kumar Bajoria <mohitbajo36@gmail.com>
Mohit Verma <vmohit.93@gmail.com>
Momchil Velikov <momchil.velikov@gmail.com>
Monis Khan <mkhan@redhat.com>
Monty Taylor <mordred@inaugust.com>
Moritz Fain <moritz@fain.io>
Moriyoshi Koizumi <mozo@mozo.jp>

Morten Siebuhr <sbhr@sbhr.dk>
Mshe van der Sterre <moshevds@gmail.com>
Mostyn Bramley-Moore <mostyn@antipode.se>
Mrunal Patel <mrunalp@gmail.com>
Muhammad Falak R Wani <falakreyaz@gmail.com>
Muhammed Uluyol <uluyol0@gmail.com>
Muir Manders <muir@mnd.rs>
Mukesh Sharma <sharma.mukesh439@gmail.com>
Mura Li <mura_li@castech.com.tw>
Mykhailo Lesyk <mikhail@lesyk.org>
Naman Aggarwal <aggarwal.nam@gmail.com>
Nan Deng <monnand@gmail.com>
Nao Yonashiro <owan.orisano@gmail.com>
Naoki Kanatani <k12naoki@gmail.com>
Nate Wilkinson <nathanwilk7@gmail.com>
Nathan Cantelmo <n.cantelmo@gmail.com>
Nathan Caza <mastercactapus@gmail.com>
Nathan
Dias <nathan.dias@orijtech.com>
Nathan Fiscaletti <nathan.fiscaletti@vrazo.com>
Nathan Humphreys <nkhumphreys@gmail.com>
Nathan John Youngman <nj@nathany.com>
Nathan Otterness <otternes@cs.unc.edu>
Nathan P Finch <nate.finch@gmail.com>
Nathan VanBenschoten <nvanbenschoten@gmail.com>
Nathan Youngman <git@nathany.com>
Nathan(yinian) Hu <nathanhu@google.com>
Nathaniel Cook <nvcook42@gmail.com>
Naveen Kumar Sangi <naveenkumarsangi@protonmail.com>
Neeilan Selvalingam <neeilan96@gmail.com>
Neelesh Chandola <neelesh.c98@gmail.com>
Neil Lyons <nwjlyons@googlemail.com>
Neuman Vong <neuman.vong@gmail.com>
Neven Sajko <nsajko@gmail.com>
Nevins Bartolomeo <nevins.bartolomeo@gmail.com>
Niall Sheridan <nsheridan@gmail.com>
Nic Day <nic.day@me.com>
Nicholas Katsaros <nick@nickkatsaros.com>
Nicholas Maniscalco <nicholas@maniscalco.com>
Nicholas Ng <nickng@nickng.io>
Nicholas Presta <nick@nickpresta.ca> <nick1presta@gmail.com>
Nicholas Sullivan <nicholas.sullivan@gmail.com>
Nicholas
Waples <nwaples@gmail.com>
Nick Anthony <Liberatys@outlook.com>
Nick Cooper <nmvc@google.com>
Nick Craig-Wood <nick@craig-wood.com> <nickcw@gmail.com>
Nick Harper <nharper@google.com>

Nick Kubala <nkubala@google.com>
Nick Leli <nicholasleli@gmail.com>
Nick Miyake <nmiyake@users.noreply.github.com>
Nick Patavalis <nick.patavalis@gmail.com>
Nick Petroni <npetroni@cs.umd.edu>
Nick Robinson <nrobinson13@gmail.com>
Nick Smolin <nick27surgut@gmail.com>
Nicolas BRULEZ <n.brulez@gmail.com>
Nicolas Kaiser <nikai@nikai.net>
Nicolas Owens <mischief@offblast.org>
Nicolas S. Dade <nic.dade@gmail.com>
Niek Sanders <niek.sanders@gmail.com>
Niels Widger <niels.widger@gmail.com>
Nigel Kerr <nigel.kerr@gmail.com>
Nigel Tao <nigeltao@golang.org>
Nik Nyby <nnyby@columbia.edu>
Nikhil Benesch <nikhil.benesch@gmail.com>
Nikita Gillmann <nikita@n0.is> <ng0@n0.is>
Nikita Kryuchkov <nkryuchkov10@gmail.com>
Nikita Vanyasin <nikita.vanyasin@gmail.com>
Niklas Schnelle <niklas.schnelle@gmail.com>
Niko Dziemba
<niko@dziemba.com>
Nikolay Turpitko <nikolay@turpitko.com>
Nikson Kanti Paul <nikson.sust@gmail.com>
Nils Larsgrd <nilsmagnus@gmail.com>
Nir Soffer <nirsof@gmail.com>
Niranjan Godbole <niranjan8192@gmail.com>
Nishanth Shanmugham <nishanth.gerrard@gmail.com>
Noah Campbell <noahcampbell@gmail.com>
Noah Goldman <noahg34@gmail.com>
Noble Johnson <noblepoly@gmail.com>
Nodir Turakulov <nodir@google.com>
Noel Georgi <git@frezbo.com>
Norberto Lopes <nlopes.ml@gmail.com>
Norman B. Lancaster <qbradq@gmail.com>
Nuno Cruces <ncruces@users.noreply.github.com>
Obeyda Djeffal <djefobey@gmail.com>
Odin Ugedal <odin@ugedal.com>
Oleg Bulatov <dmage@yandex-team.ru>
Oleg Vakheta <helginet@gmail.com>
Oleku Konko <oleku.konko@gmail.com>
Oling Cat <olingcat@gmail.com>
Oliver Hookins <ohookins@gmail.com>
Oliver Powell <oliverpowell84@gmail.com>
Oliver Stenbom <ostenbom@pivotal.io>
Oliver Tonnhofer <olt@bogosoft.com>
Olivier Antoine <olivier.antoine@gmail.com>

Olivier Duperray <duperray.olivier@gmail.com>
Olivier
Poitrey <rs@dailymotion.com>
Olivier Saingre <osaingre@gmail.com>
Omar Jarjur <ojarjur@google.com>
Oryan Moshe <iamoryanmoshe@gmail.com>
Osamu TONOMORI <osamingo@gmail.com>
zgr Kesim <oec-go@kesim.org>
Pablo Caderno <kaderno@gmail.com>
Pablo Lalloni <plalloni@gmail.com>
Pablo Rozas Larraondo <pablo.larraondo@anu.edu.au>
Pablo Santiago Blum de Aguiar <scorphus@gmail.com>
Padraig Kitterick <padraigkitterick@gmail.com>
Pallat Anchaleechamaikorn <yod.pallat@gmail.com>
Panos Georgiadis <pgeorgiadis@suse.de>
Pantelis Sampaziotis <psampaz@gmail.com>
Paolo Giarrusso <p.giarrusso@gmail.com>
Paolo Martini <mrtnpaolo@gmail.com>
Parker Moore <parkrmoore@gmail.com>
Parminder Singh <parmsingh101@gmail.com>
Pascal Dierich <pascal@pascaldierich.com>
Pascal S. de Kloe <pascal@quies.net>
Paschalis Tsilias <paschalis.tsilias@gmail.com>
Pasi Thkp <pasi.tahkapaa@gmail.com>
Pat Moroney <pat@pat.email>
Patrick Barker <barkerp@vmware.com>
Patrick Crosby <patrick@stathat.com>
Patrick Gavlin <pgavlin@gmail.com>
Patrick
Higgins <patrick.allen.higgins@gmail.com>
Patrick Lee <pattyshack101@gmail.com>
Patrick Mzard <patrick@mezard.eu>
Patrick Mylund Nielsen <patrick@patrickmn.com>
Patrick Pelletier <pp.pelletier@gmail.com>
Patrick Riley <pfr@google.com>
Patrick Smith <pat42smith@gmail.com>
Patrik Lundin <patrik@sigterm.se>
Paul A Querna <paul.querna@gmail.com>
Paul Borman <borman@google.com>
Paul Boyd <boyd.paul2@gmail.com>
Paul Chang <paulchang@google.com>
Paul D. Weber <x0bdev@gmail.com>
Paul Hammond <paul@paulhammond.org>
Paul Hankin <paulhankin@google.com>
Paul Jolly <paul@myitcv.org.uk>
Paul Lalonde <paul.a.lalonde@gmail.com>
Paul M Furley <paul@paulfurley.com>
Paul Marks <pmarks@google.com>

Paul Meyer <paul.meyer@microsoft.com>
Paul Nasrat <pnasrat@google.com>
Paul PISCUC <paul.piscuc@gmail.com>
Paul Querna <pquerna@apache.org>
Paul Rosania <paul.rosania@gmail.com>
Paul Ruest <pruest@gmail.com>
Paul Sbarra <Sbarra.Paul@gmail.com>
Paul Smith <paulsmith@pobox.com> <paulsmith@gmail.com>
Paul
Tyng <paul@paultyng.net>
Paul van Brouwershaven <paul@vanbrouwershaven.com>
Paul Wankadia <junyer@google.com>
Paulo Casaretto <pcasaretto@gmail.com>
Paulo Flabiano Smorigo <pfsmorigo@linux.vnet.ibm.com>
Paulo Gomes <paulo.gomes.uk@gmail.com>
Pavel Paulau <pavel.paulau@gmail.com>
Pavel Zinovkin <pavel.zinovkin@gmail.com>
Pavlo Sumkin <ymkins@gmail.com>
Pawel Knap <pawelknap88@gmail.com>
Pawel Szczur <filemon@google.com>
Pei Xian Chee <luciolas1991@gmail.com>
Percy Wegmann <ox.to.a.cart@gmail.com>
Perry Abbott <perry.j.abbott@gmail.com>
Petar Dambovaliev <petar.atanasov.1987@gmail.com>
Petar Maymounkov <petarm@gmail.com>
Peter Armitage <peter.armitage@gmail.com>
Peter Bourgon <peter@bourgon.org>
Peter Collingbourne <pcc@google.com>
Peter Conerly <pconerly@gmail.com>
Peter Dotchev <dotchev@gmail.com>
Peter Froehlich <peter.hans.froehlich@gmail.com>
Peter Gonda <pgonda@google.com>
Peter Hoyes <pahoyes@gmail.com>
Peter Kleiweg <pkleiweg@xs4all.nl>
Peter McKenzie <petermck@google.com>
Peter
Moody <pmoody@uber.com>
Peter Morjan <pmorjan@gmail.com>
Peter Mundy <go.peter.90@gmail.com>
Peter Nguyen <peter@mictis.com>
Pter Surnyi <speter.go1@gmail.com>
Pter Szab <pts@google.com>
Pter Szilgyi <peterke@gmail.com>
Peter Teichman <pteichman@fastly.com>
Peter Tseng <ptseng@squareup.com>
Peter Waldschmidt <peter@waldschmidt.com>
Peter Waller <peter.waller@gmail.com>
Peter Weinberger <pjw@golang.org>

Peter Williams <pwil3058@gmail.com>
Peter Wu <pwu@cloudflare.com>
Peter Zhang <i@ddatsh.com>
Petr Jedin <petr.jediny@gmail.com>
Petrica Voicu <pvoicu@paypal.com>
Phil Pearl <philip.j.r.pearl@gmail.com>
Phil Pennock <pdp@golang.org>
Philip Brgesen <philip.borgesen@gmail.com>
Philip Brown <phil@bolthole.com>
Philip Hofer <phofer@umich.edu>
Philip K. Warren <pkwarren@gmail.com>
Philip Nelson <me@pnelson.ca>
Philipp Stephani <phst@google.com>
Pierre Carru <pierre.carru@eshard.com>
Pierre Durand <pierredurand@gmail.com>
Pierre Prinetti <pierreprinetti@gmail.com>
Pierre Roullon <pierre.roullon@gmail.com>
Piers
<google@hellopiers.pro>
Pieter Droogendijk <pieter@binky.org.uk>
Pietro Gagliardi <pietro10@mac.com>
Piyush Mishra <piyush@codeitout.com>
Plekhanov Maxim <kishtatix@gmail.com>
Polina Osadcha <polliosa@google.com>
Pontus Leitzler <leitzler@gmail.com>
Povilas Versockas <p.versockas@gmail.com>
Prasanga Siripala <pj@pjebs.com.au>
Prasanna Swaminathan <prasanna@mediamath.com>
Prashant Agrawal <prashant.a.vjti@gmail.com>
Prashant Varanasi <prashant@prashantv.com>
Praveen Kumar <praveen+git@kumar.in>
Pravendra Singh <hackpravj@gmail.com>
Preetam Jinka <pj@preet.am>
Pure White <wu.purewhite@gmail.com>
Qais Patankar <qaisjp@gmail.com>
Qiuxuan Zhu <ilsh1022@gmail.com>
Quan Tran <qeed.quan@gmail.com>
Quan Yong Zhai <qyzhai@gmail.com>
Quentin Perez <qperez@ocs.online.net>
Quentin Renard <contact@asticode.com>
Quentin Smith <quentin@golang.org>
Quey-Liang Kao <s101062801@m101.nthu.edu.tw>
Quinn Slack <sqs@sourcegraph.com>
Quinten Yearsley <qyearsley@chromium.org>
Quoc-Viet Nguyen
<afelion@gmail.com>
Radek Sohlich <sohlich@gmail.com>
Radu Berinde <radu@cockroachlabs.com>

Rafal Jeczalik <rjeczalik@gmail.com>
Raghavendra Nagaraj <jamdagni86@gmail.com>
Rahul Chaudhry <rahulchaudhry@chromium.org>
Raif S. Naffah <go@naffah-raif.name>
Rajat Goel <rajat.goel2010@gmail.com>
Rajath Agasthya <rajathagasthya@gmail.com>
Rajender Reddy Kompally <rajenderreddykompally@gmail.com>
Ralph Corderoy <ralph@inputplus.co.uk>
Ramazan AYYILDIZ <rayyildiz@gmail.com>
Ramesh Dharan <dharan@google.com>
Raph Levien <raph@google.com>
Raphael Geronimi <raphael.geronimi@gmail.com>
Raul Silvera <rsilvera@google.com>
Ravil Bikbulatov <weeellz12@gmail.com>
RaviTeja Pothana <ravi.tezu@gmail.com>
Ray Tung <rtung@thoughtworks.com>
Raymond Kazlauskas <raima220@gmail.com>
Rebecca Stambler <rstambler@golang.org>
Reilly Watson <reillywatson@gmail.com>
Reinaldo de Souza Jr <juniorz@gmail.com>
Remi Gillig <remigillig@gmail.com>
Rmy Oudompheng <oudomphe@phare.normalesup.org> <remyoudompheng@gmail.com>
Ren
Ogaki <re.yuz77777@gmail.com>
Rens Rikkerink <Ikkerens@users.noreply.github.com>
Rhys Hiltner <rhys@justin.tv>
Ricardo Padilha <ricardospadilha@gmail.com>
Ricardo Seriani <ricardo.seriani@gmail.com>
Richard Barnes <rlb@ipv.sx>
Richard Crowley <r@rcrowley.org>
Richard Dingwall <rdingwall@gmail.com>
Richard Eric Gavaletz <gavaletz@gmail.com>
Richard Gibson <richard.gibson@gmail.com>
Richard Miller <miller.research@gmail.com>
Richard Musiol <mail@richard-musiol.de> <neelance@gmail.com>
Richard Ulmer <codesoap@mailbox.org>
Richard Wilkes <wilkes@me.com>
Rick Arnold <rickarnoldjr@gmail.com>
Rick Hudson <rlh@golang.org>
Rick Sayre <whorfin@gmail.com>
Rijnard van Tonder <rvantonder@gmail.com>
Riku Voipio <riku.voipio@linaro.org>
Risto Jaakko Saarelma <rsaarelm@gmail.com>
Rob Earhart <earhart@google.com>
Rob Findley <rfindley@google.com>
Rob Norman <rob.norman@infinitycloud.com>
Rob Phoenix <rob@robphoenix.com>
Rob Pike <r@golang.org>

Robert Ayrapetyan <robert.ayrapetyan@gmail.com>
Robert
Daniel Kortschak <dan.kortschak@adelaide.edu.au> <dan@kortschak.io>
Robert Dinu <r@varp.se>
Robert Figueiredo <robfig@gmail.com>
Robert Griesemer <gri@golang.org>
Robert Hencke <robert.hencke@gmail.com>
Robert Iannucci <iannucci@google.com>
Robert Kuska <rkuska@gmail.com>
Robert Obryk <robryk@gmail.com>
Robert Sesek <rsesek@google.com>
Robert Snedegar <roberts@google.com>
Robert Stepanek <robert.stepanek@gmail.com>
Robert van Gent <rvangent@google.com>
Robert-Andr Mauchin <zebob.m@gmail.com>
Roberto Clapis <robclap8@gmail.com>
Roberto Selbach <roberto@selbach.ca>
Robin Eklind <r.eklind.87@gmail.com>
Robin Zhong <robin@robinzhong.co>
Rodolfo Carvalho <rhcarvalho@gmail.com>
Rodolfo Rodriguez <rodolfobgibson@gmail.com>
Rodrigo Moraes de Oliveira <rodrigo.moraes@gmail.com>
Rodrigo Rafael Monti Kochenburger <divoxx@gmail.com>
Roger Pau Monn <royger@gmail.com>
Roger Peppe <rogpeppe@gmail.com>
Rohan Challa <rohan@golang.org>
Rohan Verma <rohanverma2004@gmail.com>
Rohith Ravi <entombedvirus@gmail.com>
Roland
Illig <roland.illig@gmx.de>
Roland Shoemaker <rolandshoemaker@gmail.com>
Romain Baugue <romain.baugue@elwinar.com>
Roman Budnikov <romanyx90@yandex.ru>
Roman Kollr <roman.kollar.0@gmail.com>
Roman Shchekin <mrqtros@gmail.com>
Ron Hashimoto <mail@h2so5.net>
Ron Minnich <rminnich@gmail.com>
Ross Chater <rdchater@gmail.com>
Ross Kinsey <rossikinsey@gmail.com>
Ross Light <light@google.com> <rlight2@gmail.com>
Ross Smith II <ross@smithii.com>
Rowan Marshall <rowanajmarshall@gmail.com>
Rowan Worth <sqweek@gmail.com>
Rudi Kramer <rudi.kramer@gmail.com>
Rui Ueyama <ruiu@google.com>
Ruixin Bao <ruixin.bao@ibm.com>
Ruslan Nigmatullin <elessar@dropbox.com>
Russ Cox <rsc@golang.org>

Russell Haering <russellhaering@gmail.com>
Ryan Bagwell <ryanbagwell@outlook.com>
Ryan Barrett <ryanb@google.com>
Ryan Boehning <ryan.boehning@apcera.com>
Ryan Brown <ribrdb@google.com>
Ryan Canty <jrcanty@gmail.com>
Ryan Dahl <ry@tinyclouds.org>
Ryan Hitchman <hitchmanr@gmail.com>
Ryan Lower <rpjlower@gmail.com>
Ryan
Roden-Corrent <ryan@rcorre.net>
Ryan Seys <ryan@ryanseys.com>
Ryan Slade <ryanslade@gmail.com>
Ryan Zhang <ryan.zhang@docker.com>
Ryoichi KATO <ryo1kato@gmail.com>
Ryuji Iwata <qt.luigi@gmail.com>
Ryuma Yoshida <ryuma.y1117@gmail.com>
Ryuzo Yamamoto <ryuzo.yamamoto@gmail.com>
S.alar Onur <caglar@10ur.org>
Sabin Mihai Rapan <sabin.rapan@gmail.com>
Sad Pencil <qh06@qq.com>
Sai Cheemalapati <saicheems@google.com>
Sakeven Jiang <jc5930@sina.cn>
Salmn Aljammz <s@0x65.net>
Sam Arnold <sarnold64@bloomberg.net>
Sam Boyer <tech@samboyer.org>
Sam Chen <chenxsan@gmail.com>
Sam Cross <samgcdev@gmail.com>
Sam Ding <samding@ca.ibm.com>
Sam Hug <samuel.b.hug@gmail.com>
Sam Thorogood <thorogood@google.com> <sam.thorogood@gmail.com>
Sam Whited <sam@samwhited.com>
Sameer Ajmani <sameer@golang.org> <ajmani@gmail.com>
Sami Commerot <samic@google.com>
Sami Pnknen <sami.ponkanen@gmail.com>
Samuel Kelemen <SCKelemen@users.noreply.github.com>
Samuel Tan <samueltan@google.com>
Samuele Pedroni
<pedronis@lucediurna.net>
Sander van Harmelen <sander@vanharmelen.nl>
Sanjay Menakuru <balasanjay@gmail.com>
Santhosh Kumar Tekuri <santhosh.tekuri@gmail.com>
Sarah Adams <shadams@google.com>
Sardorbek Pulatov <sardorbek.pulatov@outlook.com>
Sascha Brawer <sascha@brawer.ch>
Sasha Lionheart <lionhearts@google.com>
Sasha Sobol <sasha@scaledinference.com>
Scott Barron <scott.barron@github.com>

Scott Bell <scott@sctsm.com>
Scott Crunkleton <crunk1@gmail.com>
Scott Ferguson <scottwferg@gmail.com>
Scott Lawrence <bytbox@gmail.com>
Scott Mansfield <smansfield@netflix.com>
Scott Ragan <ragansa@fb.com>
Scott Schwartz <scotts@golang.org>
Scott Van Woudenberg <scottvw@google.com>
Sean Burford <sburford@google.com>
Sean Chen <oohcode@gmail.com>
Sean Chittenden <seanc@joyent.com>
Sean Christopherson <sean.j.christopherson@intel.com>
Sean Dolphin <Sean.Dolphin@kpcompass.com>
Sean Harger <sharger@google.com>
Sean Liao <seankhliao@gmail.com>
Sean Rees <sean@erifax.org>
Sebastiaan van Stijn <github@gone.nl>
Sebastian
Chlopecki <sebsebmc@gmail.com>
Sebastian Kinne <skinne@google.com>
Sebastian Schmidt <yath@google.com>
Sebastien Binet <seb.binet@gmail.com>
Sbastien Paolacci <sebastien.paolacci@gmail.com>
Sebastien Williams-Wynn <sebastien@cytora.com>
Segev Finer <segev208@gmail.com>
Seiji Takahashi <timaki.st@gmail.com>
Sergei Lemeshkin <sergeilem@gmail.com>
Sergei Skorobogatov <skorobo@rambler.ru>
Sergei Zagurskii <gvozdoder@gmail.com>
Sergey 'SnakE' Gromov <snake.scaly@gmail.com>
Sergey Arseev <sergey.arseev@intel.com>
Sergey Dobrodey <sergey.dobrodey@synesis.ru>
Sergey Frolov <sfrolov@google.com>
Sergey Glushchenko <gsserge@gmail.com>
Sergey Ivanov <ser1325@gmail.com>
Sergey Lukjanov <me@slukjanov.name>
Sergey Mishin <sergeymishine@gmail.com>
Sergey Mudrik <sergey.mudrik@gmail.com>
Sergey Semin <gray12511@gmail.com>
Sergey Yanykin <syanykin@ozon.ru>
Sergio Luis O. B. Correia <sergio@correia.cc>
Sergiusz Bazanski <bazanski@gmail.com>
Serhat Giydiren <serhatgiydiren@gmail.com>
Serhii
Aheienko <serhii.aheienko@gmail.com>
Seth Hoenig <seth.a.hoenig@gmail.com>
Seth Vargo <sethvargo@gmail.com>
Shahar Kohanim <skohanim@gmail.com>

Shamil Garatuev <garatuev@gmail.com>
Shane Hansen <shanemhansen@gmail.com>
Shang Jian Ding <sding3@ncsu.edu>
Shaozhen Ding <dsz0111@gmail.com>
Shaquille Wyan Que <shaqqywyan@gmail.com>
Shaun Dunning <shaun.dunning@uservoice.com>
Shawn Elliott <selliott@microsoft.com>
Shawn Ledbetter <sledbetter@google.com>
Shawn Smith <shawn.p.smith@gmail.com>
Shawn Walker-Salas <shawn.walker@oracle.com>
Shenghou Ma <minux@golang.org> <minux.ma@gmail.com>
Shengjing Zhu <zsj950618@gmail.com>
Shengyu Zhang <shengyu.zhang@chaitin.com>
Shi Han Ng <shihanng@gmail.com>
Shijie Hao <haormj@gmail.com>
Shinji Tanaka <shinji.tanaka@gmail.com>
Shintaro Kaneko <kaneshin0120@gmail.com>
Shivakumar GN <shivakumar.gn@gmail.com>
Shivani Singhal <shivani.singhal2804@gmail.com>
Shivansh Rai <shivansh@freebsd.org>
Shivashis Padhi <shivashispadhi@gmail.com>
Shubham Sharma <shubham.sha12@gmail.com>
Shun
Fan <sfan@google.com>
Silvan Jegen <s.jegen@gmail.com>
Simarpreet Singh <simar@linux.com>
Simon Drake <simondrake1990@gmail.com>
Simon Ferquel <simon.ferquel@docker.com>
Simon Jefford <simon.jefford@gmail.com>
Simon Rawet <simon@rawet.se>
Simon Rozman <simon@rozman.si>
Simon Thulbourn <simon+github@thulbourn.com>
Simon Whitehead <chemnova@gmail.com>
Sina Siadat <siadat@gmail.com>
Sjoerd Siebinga <sjoerd.siebinga@gmail.com>
Sokolov Yura <funny.falcon@gmail.com>
Song Gao <song@gao.io>
Soojin Nam <jsunam@gmail.com>
Sren L. Hansen <soren@linux2go.dk>
Spencer Kocot <spencerkocot@gmail.com>
Spencer Nelson <s@spenczar.com>
Spencer Tung <spencertung@google.com>
Spring Mc <heresy.mc@gmail.com>
Srdjan Petrovic <spetrovic@google.com>
Sridhar Venkatakrishnan <sridhar@laddoo.net>
Srinidhi Kaushik <shrinidhi.kaushik@gmail.com>
StalkR <stalkr@stalkr.net>
Stan Schwertly <stan@schwertly.com>

Stanislav Afanasev <php.progger@gmail.com>
Steeve Morin <steeve.morin@gmail.com>
Stefan Baebler
<sbaebler@outbrain.com>
Stefan Nilsson <snilsson@nada.kth.se> <trolleriprofessorn@gmail.com>
Stepan Shabalin <neverliberty@gmail.com>
Stephan Renatus <srenatus@chef.io>
Stephan Zuercher <zuercher@gmail.com>
Stphane Travostino <stephane.travostino@gmail.com>
Stephen Lewis <stephen@sock.org.uk>
Stephen Lu <steuhs@users.noreply.github.com>
Stephen Ma <stephenm@golang.org>
Stephen McQuay <stephen@mcquay.me>
Stephen Searles <stephens2424@gmail.com>
Stephen Weinberg <stephen@q5comm.com>
Steve Francia <spf@golang.org>
Steve Gilbert <stevegilbert23@gmail.com>
Steve LoFurno <slofurno@gmail.com>
Steve McCoy <mccoyst@gmail.com>
Steve Mynott <steve.mynott@gmail.com>
Steve Newman <snewman@google.com>
Steve Phillips <elimisteve@gmail.com>
Steve Streeting <steve@stevestreeting.com>
Steven Buss <sbuss@google.com>
Steven Elliot Harris <seharris@gmail.com>
Steven Erenst <stevenerenst@gmail.com>
Steven Hartland <steven.hartland@multiplay.co.uk>
Steven Littiebrant <imgroxx@gmail.com>
Steven Wilkin
<stevenwilkin@gmail.com>
Stuart Jansen <sjansen@buscaluz.org>
Sue Spence <virtuallysue@gmail.com>
Sugu Sougoumarane <ssougou@gmail.com>
Suharsh Sivakumar <suharshs@google.com>
Sukrit Handa <sukrit.handa@utoronto.ca>
Sunny <me@darkowlzz.space>
Suriyaa Sundararuban <suriyaasundararuban@gmail.com>
Suyash <dextrous93@gmail.com>
Suzy Mueller <suzmue@golang.org>
Sven Almgren <sven@tras.se>
Sven Blumenstein <svbl@google.com>
Sven Taute <sven.taute@gmail.com>
Sylvain Zimmer <sylvain@sylvainzimmer.com>
Syohei YOSHIDA <syohex@gmail.com>
Szabolcs Nagy <nsz@port70.net>
Taavi Kivisik <taavi.kivisik@gmail.com>
Tad Fisher <tadfisher@gmail.com>
Tad Glines <tad.glines@gmail.com>

Tadas Valiukas <tadovas@gmail.com>
Tadeo Kondrak <me@tadeo.ca>
Taesu Pyo <pyotaesu@gmail.com>
Tai Le <letientai299@gmail.com>
Taj Khattra <taj.khattra@gmail.com>
Takashi Matsuo <tmatsuo@google.com>
Takayoshi Nishida <takayoshi.nishida@gmail.com>
Takeshi YAMANASHI <9.nashi@gmail.com>
Takuto Ikuta <tikuta@google.com>
Takuya Ueda
<uedatakuya@gmail.com>
Tal Shprecher <tshprecher@gmail.com>
Tams Gulcsi <tgulacsi78@gmail.com>
Tamir Duberstein <tamird@gmail.com>
Tao Qingyun <qingyunha@gmail.com>
Tao Shen <shentaoskyking@gmail.com>
Tao Wang <twang2218@gmail.com>
Tarmigan Casebolt <tarmigan@gmail.com>
Taro Aoki <aizu.s1230022@gmail.com>
Taru Karttunen <taruti@taruti.net>
Tatsuhiro Tsujikawa <tatsuhiro.t@gmail.com>
Tatsuya Kaneko <m.ddotx.f@gmail.com>
Taufiq Rahman <taufiqrx8@gmail.com>
Teague Cole <tnc1443@gmail.com>
Ted Kornish <golang@tedkornish.com>
Tejasvi Nareddy <tejunareddy@gmail.com>
Terin Stock <terinjokes@gmail.com>
Terrel Shumway <gopher@shumway.us>
Tetsuo Kiso <tetsuokiso9@gmail.com>
Than McIntosh <thanm@google.com>
Thanabodee Charoenpiriyakij <wingyminus@gmail.com>
Thanatat Tamtan <acoshift@gmail.com>
The Hatsune Daishi <nao20010128@gmail.com>
Thiago Avelino <t@avelino.xxx>
Thiago Fransosi Farina <thiago.farina@gmail.com> <tfarina@chromium.org>
Thomas Alan Copeland <talan.copeland@gmail.com>
Thomas Bonfort
<thomas.bonfort@gmail.com>
Thomas Bouldin <inlined@google.com>
Thomas Bruyelle <thomas.bruyelle@gmail.com>
Thomas Bushnell, BSG <tbushnell@google.com>
Thomas de Zeeuw <thomasdezeeuw@gmail.com>
Thomas Desrosiers <thomasdesr@gmail.com>
Thomas Habets <habets@google.com>
Thomas Kappler <tkappler@gmail.com>
Thomas Meson <zllak@hycik.org>
Thomas Symborski <thomas.symborski@gmail.com>
Thomas Wanielista <tomwans@gmail.com>

Thorben Krueger <thorben.krueger@gmail.com>
Thordur Bjornsson <thorduri@secnorth.net>
Tiago Queiroz <contato@tiago.eti.br>
Tianji Wu <the729@gmail.com>
Tianon Gravi <admwiggin@gmail.com>
Tilman Dilo <tilman.dilo@gmail.com>
Tim Cooijmans <timcooijmans@gmail.com>
Tim Cooper <tim.cooper@layeh.com>
Tim Ebringer <tim.ebringer@gmail.com>
Tim Heckman <t@heckman.io>
Tim Henderson <tim.tadh@gmail.com>
Tim Hockin <thockin@google.com>
Tim Mhlmann <muhlemmer@gmail.com>
Tim Swast <swast@google.com>
Tim Wright <tenortim@gmail.com>
Tim Xu <xiaoxubeii@gmail.com>
Timmy Douglas <timmyd983@gmail.com>
Timo
Savola <timo.savola@gmail.com>
Timo Truyts <alkaloid.btx@gmail.com>
Timothy Studd <tim@timstudd.com>
Tipp Moseley <tipp@google.com>
Tobias Assarsson <tobias.assarsson@gmail.com>
Tobias Columbus <tobias.columbus@gmail.com> <tobias.columbus@googlemail.com>
Tobias Klauser <tklauser@distanz.ch>
Toby Burress <kurin@google.com>
Todd Kulesza <tkulesza@google.com>
Todd Neal <todd@tneal.org>
Todd Wang <toddwang@gmail.com>
Tom Anthony <git@tomanthony.co.uk>
Tom Bergan <tombergan@google.com>
Tom Heng <zhm20070928@gmail.com>
Tom Lanyon <tomlanyon@google.com>
Tom Levy <tomlevy93@gmail.com>
Tom Limoncelli <tal@whatexit.org>
Tom Linford <tomlinford@gmail.com>
Tom Parkin <tom.parkin@gmail.com>
Tom Payne <twpayne@gmail.com>
Tom Szymanski <tgs@google.com>
Tom Thorogood <me+google@tomthorogood.co.uk>
Tom Wilkie <tom@weave.works>
Tomas Dabasinskas <tomas@dabasinskas.net>
Tommy Schaefer <tommy.schaefer@teecom.com>
Tomohiro Kusumoto <zabio1192@gmail.com>
Tomoya Ishizaki <zaq1tomo@gmail.com>
Tonis
Tiigi <tonistiigi@gmail.com>
Tony Reix <tony.reix@bull.net>

Tony Walker <walkert.uk@gmail.com>
Tooru Takahashi <tooru.takahashi134@gmail.com>
Tor Andersson <tor.andersson@gmail.com>
Torben Schinke <torben.schinke@neotos.de>
Tormod Erevik Lea <tormodlea@gmail.com>
Toshihiro Shiino <shiino.toshihiro@gmail.com>
Toshiki Shima <hayabusa1419@gmail.com>
Totoro W <tw19881113@gmail.com>
Travis Bischel <travis.bischel@gmail.com>
Travis Cline <travis.cline@gmail.com>
Trevor Strohman <trevor.strohman@gmail.com>
Trey Lawrence <lawrence.trey@gmail.com>
Trey Roessig <trey.roessig@gmail.com>
Trey Tacon <ttacon@gmail.com>
Tristan Amini <tamini01@ca.ibm.com>
Tristan Colgate <tcolgate@gmail.com>
Tristan Ooohry <ooohry@gmail.com>
Tristan Rice <rice@fn.lc>
Troels Thomsen <troels@thomsen.io>
Trung Nguyen <trung.n.k@gmail.com>
Tsuji Daishiro <dram.dt.shonan@gmail.com>
Tudor Golubenco <tudor.g@gmail.com>
Tugdual Saunier <tugdual.saunier@gmail.com>
Tuo Shan <sturbo89@gmail.com> <shantuo@google.com>
Tyler
Bui-Palsulich <tpalsulich@google.com>
Tyler Bunnell <tylerbunnell@gmail.com>
Tyler Treat <ttreat31@gmail.com>
Tyson Andre <tysonandre775@gmail.com>
Tzach Shabtay <tzachshabtay@gmail.com>
Tzu-Jung Lee <roylee17@currant.com>
Udalov Max <re.udalov@gmail.com>
Ugorji Nwoke <ugorji@gmail.com>
Ulf Holm Nielsen <doktor@dyregod.dk>
Ulrich Kunitz <uli.kunitz@gmail.com>
Umang Parmar <umangjparmar@gmail.com>
Uriel Mangado <uriel@berlinblue.org>
Urvil Patel <patelurvil38@gmail.com>
Uttam C Pawar <uttam.c.pawar@intel.com>
Vadim Grek <vadimprog@gmail.com>
Vadim Vygonets <unixdj@gmail.com>
Val Polouchkine <vpolouch@justin.tv>
Valentin Vidic <vvidic@valentin-vidic.from.hr>
Vee Zhang <veezhang@126.com> <vveezhang@gmail.com>
Vega Garcia Luis Alfonso <vegacom@gmail.com>
Venil Noronha <veniln@vmware.com>
Veselkov Konstantin <kostozyb@gmail.com>
Viacheslav Poturaev <vearutop@gmail.com>

Victor Chudnovsky <vchudnov@google.com>
Victor Vrantchan <vrancean+github@gmail.com>
Vignesh Ramachandra <vickyramachandra@gmail.com>
Vikas
Kedia <vikask@google.com>
Ville Skytt <ville.skytta@iki.fi>
Vincent Ambo <tazjin@googlemail.com>
Vincent Batts <vbatts@hashbangbash.com> <vbatts@gmail.com>
Vincent Vanackere <vincent.vanackere@gmail.com>
Vinu Rajashekhar <vinutheraj@gmail.com>
Vish Subramanian <vish@google.com>
Vishvananda Ishaya <vishvananda@gmail.com>
Visweswara R <r.visweswara@gmail.com>
Vitaly Zdanevich <zdanevich.vitaly@ya.ru>
Vitor De Mario <vitordemario@gmail.com>
Vivek Sekhar <vsekhar@google.com>
Vivian Liang <vliang88@gmail.com>
Vlad Krasnov <vlad@cloudflare.com>
Vladimir Evgrafov <evgrafov.vladimir@gmail.com>
Vladimir Kovpak <cn007b@gmail.com>
Vladimir Kuzmin <vkuzmin@uber.com>
Vladimir Mihailenco <vladimir.webdev@gmail.com>
Vladimir Nikishenko <vova616@gmail.com>
Vladimir Stefanovic <vladimir.stefanovic@imgtec.com>
Vladimir Varankin <nek.narqo@gmail.com>
Vojtech Bocek <vbocek@gmail.com>
Volker Dobler <dr.volker.dobler@gmail.com>
Volodymyr Paprotski <vpaprots@ca.ibm.com>
W. Trevor King <wking@tremily.us>
Wade
Simmons <wade@wades.im>
Wagner Riffel <wgrriffel@gmail.com>
Walt Della <walt@javins.net>
Walter Poupore <wpoupore@google.com>
Wander Lairson Costa <wcosta@mozilla.com>
Wang Xuerui <git@xen0n.name>
Warren Fernandes <warren.f.fernandes@gmail.com>
Wayne Ashley Berry <wayneashleyberry@gmail.com>
Wedson Almeida Filho <wedsonaf@google.com>
Weerasak Chongnguluam <singpor@gmail.com>
Wi Cngru <crvv.mail@gmail.com>
Wei Fu <fhfuwei@163.com>
Wei Guangjing <vcc.163@gmail.com>
Wei Xiao <wei.xiao@arm.com>
Wei Xikai <xykwei@gmail.com>
Weichao Tang <tevic.tt@gmail.com>
Wembley G. Leach, Jr <wembley.gl@gmail.com>
Wenlei (Frank) He <wlhe@google.com>

Wenzel Lowe <lowewenzel@gmail.com>
Wil Selwood <wselwood@gmail.com>
Wilfried Teiken <wteiken@google.com>
Will Beason <willbeason@gmail.com>
Will Chan <willchan@google.com>
Will Faught <will.faught@gmail.com>
Will Morrow <wmorrow.qdt@qualcommdatacenter.com>
Will Norris <willnorris@google.com>
Will Storey <will@summercat.com>
Willem van der Schyff
<willemvds@gmail.com>
William Chan <willchan@chromium.org>
William Chang <mr.williamchang@gmail.com>
William Josephson <wjosephson@gmail.com>
William Orr <will@worrbase.com> <ay1244@gmail.com>
William Poussier <william.poussier@gmail.com>
Wisdom Omuya <deafgoat@gmail.com>
Wu Yunzhou <yunzhouwu@gmail.com>
Xi Ruoyao <xry23333@gmail.com>
Xia Bin <snyh@snyh.org>
Xiangdong Ji <xiangdong.ji@arm.com>
Xing Xing <mikespook@gmail.com>
Xingqang Bai <bxq2011hust@qq.com>
Xu Fei <badgangkiller@gmail.com>
Xudong Zhang <felixmelon@gmail.com>
Xudong Zheng <7pkvm5aw@slicealias.com>
Xuyang Kang <xuyangkang@gmail.com>
Yamagishi Kazutoshi <ykzts@desire.sh>
Yan Zou <yzou@google.com>
Yang Hau <vulxj0j8j8@gmail.com>
Yang Tian <linuxty@gmail.com>
Yann Hodique <yhodique@google.com>
Yann Kerherv <yann.kerherve@gmail.com>
Yann Salan <yannsalaun1@gmail.com>
Yannic Bonenberger <contact@yannic-bonenberger.com>
Yao Zhang <lunaria21@gmail.com>
Yaron de Leeuw <jarondl@google.com>
Yaroslav Vorobiov <yar.vorobiov@gmail.com>
Yasha
Bubnov <girokompass@gmail.com>
Yasser Abdolmaleki <yasser@yasser.ca>
Yasuharu Goto <matope.ono@gmail.com>
Yasuhiro Matsumoto <mattn.jp@gmail.com>
Yasuyuki Oka <yasuyk@gmail.com>
Yazen Shunnar <yazen.shunnar@gmail.com>
Yestin Sun <ylh@pdx.edu>
Yesudeep Mangalapilly <yesudeep@google.com>
Yissakhar Z. Beck <yissakhar.beck@gmail.com>

Yo-An Lin <yoanlin93@gmail.com>
Yohei Takeda <yo.tak0812@gmail.com>
Yongjian Xu <i3dmaster@gmail.com>
Yorman Arias <cixtords@gmail.com>
Yoshiyuki Kanno <nekotaroh@gmail.com> <yoshiyuki.kanno@stoic.co.jp>
Yoshiyuki Mineo <yoshiyuki.mineo@gmail.com>
Yosuke Akatsuka <yosuke.akatsuka@gmail.com>
Yu Heng Zhang <annita.zhang@cn.ibm.com>
Yu Xuan Zhang <zyxsh@cn.ibm.com>
Yuichi Kishimoto <yk2220s@gmail.com>
Yuichi Nishiwaki <yuichi.nishiwaki@gmail.com>
Yuji Yaginuma <yuuji.yaginuma@gmail.com>
Yuki OKUSHI <huyuumi.dev@gmail.com>
Yuki Yugui Sonoda <yugui@google.com>
Yukihiro Nishinaka <6elpinal@gmail.com>
Yury Smolsky <yury@smolsky.by>
Yusuke Kagiwada <block.rxckin.beats@gmail.com>
Yuusei
Kuwana <kuwana@kumama.org>
Yuval Pavel Zholkover <paulzhol@gmail.com>
Yves Junqueira <yvesj@google.com> <yves.junqueira@gmail.com>
Zac Bergquist <zbergquist99@gmail.com>
Zach Bintliff <zbintliff@gmail.com>
Zach Gershman <zachgersh@gmail.com>
Zach Jones <zachj1@gmail.com>
Zachary Amsden <zach@thundertoken.com>
Zachary Gershman <zgershman@pivotal.io>
Zak <zrjknill@gmail.com>
Zakatell Kanda <hi@zkanda.io>
Zellyn Hunter <zellyn@squareup.com> <zellyn@gmail.com>
Zev Goldstein <zev.goldstein@gmail.com>
Zhang Boyang <zhangboyang.id@gmail.com>
Zheng Dayu <davidzheng23@gmail.com>
Zheng Xu <zheng.xu@arm.com>
Zhengyu He <hzy@google.com>
Zhongpeng Lin <zplin@uber.com>
Zhongtao Chen <chenzhongtao@126.com>
Zhongwei Yao <zhongwei.yao@arm.com>
Zhou Peng <p@ctriple.cn>
Ziad Hatahet <hatahet@gmail.com>
Ziheng Liu <lzhfromustc@gmail.com>
Zorion Arrizabalaga <zorionk@gmail.com>
<a.maksadbek@gmail.com>
<max.faceless.frei@gmail.com>
<hagen1778@gmail.com>
<tbunyk@gmail.com>
<faxriddinjon@gmail.com>
<zs349596@gmail.com>

<bronze1man@gmail.com>

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License,
each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You

meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "{}"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate

comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at http://tip.golang.org/CONTRIBUTORS.
People who have agreed to one of the CLAs and can contribute patches.
The AUTHORS file lists the copyright holders; this file
lists people. For example, Google employees are listed here
but not in AUTHORS, because Google holds the copyright.
#
https://developers.google.com/open-source/cla/individual
https://developers.google.com/open-source/cla/corporate
#
Names should be added to this file as:
Name <email address>
Raul Silvera <rsilvera@google.com>
Tipp Moseley <tipp@google.com>
Hyoun Kyu Cho <netforce@google.com>
Martin Spier <spiermar@gmail.com>
Taco de Wolff <tacodewolff@gmail.com>
Andrew Hunter <andrewhhunter@gmail.com>
Copyright (c) 2009 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with the

distribution.
  * Neither the name of Google Inc. nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER
 OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
This source code was written by the Go contributors.
The master list of contributors is in the main Go distribution,
visible at https://tip.golang.org/CONTRIBUTORS.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,

including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this
License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Copyright 2010-2017 Mike Bostock
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,

this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the author nor the names of contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2015 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright (c) 2019 The Go Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Copyright 2009-2017 Andrea Leofreddi <a.leofreddi@vleo.net>. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS" AND ANY EXPRESS
OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE

GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The views and conclusions contained in the software and documentation are those of the
authors and should not be interpreted as representing official policies, either expressed
or implied, of Andrea Leofreddi.

1.430 openjdk-jre 11.0.11u9

1.430.1 Available under license :

c-libutl 20160225

c-libutl License
```

This software is distributed under the terms of the BSD license.

== BSD LICENSE ==========

(C) 2009 by Remo Dentato (rdentato@gmail.com)

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

http://opensource.org/licenses/bsd-license.php

```
## The Unicode Standard, Unicode Character Database, Version 10.0.0

### Unicode Character Database

```

UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE
Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,
http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

Unicode Data Files do not include PDF online code charts under the
directory http://www.unicode.org/Public/.

Software includes any source code published in the Unicode Standard
or under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,
http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

NOTICE TO USER: Carefully read the following legal agreement.
BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S
DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"),
YOU
 UNEQUIVOCALLY ACCEPT, AND AGREE TO BE BOUND BY, ALL OF THE
TERMS AND CONDITIONS OF THIS AGREEMENT.
IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE
THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2018 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files

or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b)
this copyright and permission notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

```
## Mozilla Elliptic Curve Cryptography (ECC)

### Mozilla ECC Notice

This notice is provided with respect to Elliptic Curve Cryptography,
which is included with JRE, JDK, and OpenJDK.

You are receiving a
[copy](http://hg.openjdk.java.net/jdk9/jdk9/jdk/file/tip/src/jdk.crypto.ec/share/native/libsunec/impl)
of the Elliptic Curve Cryptography library in source
form with the JDK and OpenJDK source distributions, and as object code in
the JRE & JDK runtimes.
<pre>
In the case of the JRE & JDK runtimes, the terms of the Oracle license do
NOT apply to the Elliptic Curve Cryptography library; it is licensed under the
following license, separately from Oracle's JDK & JRE.  If you do not wish to
install the Elliptic Curve Cryptography library, you may delete the
Elliptic Curve Cryptography library:
  - On Solaris and Linux systems: delete $(JAVA_HOME)/lib/libsunec.so
  - On Mac OSX systems: delete $(JAVA_HOME)/lib/libsunec.dylib
  - On Windows systems: delete $(JAVA_HOME)\bin\sunec.dll

</pre>
```

###
Written Offer for Source Code
<pre>

For third party technology that you receive from Oracle in binary form
which is licensed under an open source license that gives you the right
to receive the source code for that binary, you can obtain a copy of
the applicable source code from this page:
http://hg.openjdk.java.net/jdk9/jdk9/jdk/file/tip/src/jdk.crypto.ec/share/native/libsunec/impl

If the source code for the technology was not provided to you with the
binary, you can also receive a copy of the source code on physical
media by submitting a written request to:

Oracle America, Inc.
Attn: Associate General Counsel,
Development and Engineering Legal
500 Oracle Parkway, 10th Floor
Redwood Shores, CA 94065

Or, you may send an email to Oracle using the form at:

http://www.oracle.com/goto/opensourcecode/request

Your request should include:

- The name of the component or binary file(s) for which you are requesting the source code

- The name and version
number of the Oracle product containing the binary

- The date you received the Oracle product

- Your name

- Your company name (if applicable)

- Your return mailing address and email and

- A telephone number in the event we need to reach you.

We may charge you a fee to cover the cost of physical media and processing.
Your request must be sent (i) within three (3) years of the date you
received the Oracle product that included the component or binary
file(s) that are the subject of your request, or (ii) in the case of
code licensed under the GPL v3, for as long as Oracle offers spare
parts or customer support for that product model.

</pre>

LGPL 2.1
<pre>

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document,
but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not
price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave

you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library
after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must
be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General
Public
License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain

special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs
enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed
under the terms of
this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated

straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface
definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a
fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that,

in
the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole
must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary
GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source
code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even
though the source code is not.
Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by

modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in

certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE

LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE
WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can
redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims

all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

</pre>
xwd v1.0.7

xwd utility
<pre>

This is the copyright for the files in src/java.desktop/unix/native/libawt_xawt:
list.h, multiVis.h, wsutils.h, list.c, multiVis.c

Copyright 1994 Hewlett-Packard Co.
Copyright 1996, 1998 The Open Group

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that
copyright notice and this permission notice appear in supporting
documentation.

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE OPEN GROUP BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING
 FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of The Open Group shall
not be used in advertising or otherwise to promote the sale, use or
other dealings in this Software without prior written authorization
from The Open Group.

</pre>
IAIK (Institute for Applied Information Processing and Communication) PKCS#11 wrapper files v1

IAIK License
<pre>

Copyright (c) 2002 Graz University of Technology. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must
include the following acknowledgment:

"This product includes software developed by IAIK of Graz University of
Technology."

Alternately, this acknowledgment may appear in the software itself, if and
wherever such third-party
acknowledgments normally appear.

4. The names "Graz University of Technology" and "IAIK of Graz University of
Technology" must not be used to endorse or promote products derived from this
software without prior written permission.

5. Products derived from this software may not be called "IAIK PKCS Wrapper",
nor may "IAIK" appear in their name, without prior written permission of
Graz University of Technology.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
LICENSOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

</pre>
CUP Parser Generator for Java v 0.11b

CUP Parser Generator License
<pre>

Copyright 1996-2015 by Scott Hudson, Frank Flannery, C. Scott Ananian, Michael Petter

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted, provided
that the above copyright notice appear in all copies and that both
the copyright notice and this permission notice and warranty disclaimer
appear in supporting documentation, and that the names of the authors or
their employers not be used in advertising or publicity pertaining to
distribution of the software without specific, written prior permission.

The authors and their employers disclaim all warranties with regard to
this software, including all implied warranties of merchantability and
fitness. In no event shall the authors or their employers be liable for
any special, indirect or consequential damages or any damages whatsoever
resulting from loss of use, data or profits,
 whether in an action of
contract, negligence or other tortious action, arising out of or in
connection with the use or performance of this software.

</pre>
Double-conversion v1.1.5

Double-conversion License

https://raw.githubusercontent.com/google/double-conversion/master/LICENSE

<pre>

Copyright 2006-2011, the V8 project authors. All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
 notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
 copyright notice, this list of conditions and the following
 disclaimer in the documentation and/or other materials provided
 with the distribution.
* Neither the name of Google Inc. nor the names of its
 contributors may be used to endorse or promote products derived
 from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
 BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

</pre>
Harfbuzz v2.3.1

Harfbuzz License

http://cgit.freedesktop.org/harfbuzz/tree/COPYING

<pre>

HarfBuzz is licensed under the so-called "Old MIT" license. Details follow.
For parts of HarfBuzz that are licensed under different licenses see individual
files names COPYING in subdirectories where applicable.

Copyright 2010,2011,2012 Google, Inc.
Copyright 2012 Mozilla Foundation
Copyright 2011 Codethink Limited
Copyright 2008,2010 Nokia Corporation and/or its subsidiary(-ies)
Copyright 2009 Keith Stribley
Copyright 2009 Martin Hosken and SIL International
Copyright 2007 Chris Wilson
Copyright 2006 Behdad Esfahbod
Copyright 2005 David Turner
Copyright 2004,2007,2008,2009,2010 Red Hat, Inc.
Copyright 1998-2004 David Turner and Werner Lemberg

For full copyright notices consult the individual files in the package.

Permission is hereby granted, without written agreement and without
license or royalty fees, to use, copy, modify, and distribute this
software and its
 documentation for any purpose, provided that the
above copyright notice and the following two paragraphs appear in
all copies of this software.

IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE TO ANY PARTY FOR
DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES
ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS DOCUMENTATION, EVEN
IF THE COPYRIGHT HOLDER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH

DAMAGE.

THE COPYRIGHT HOLDER SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND THE COPYRIGHT HOLDER HAS NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

All source code, except for one section, is licensed as above. The one
exception is licensed with a slightly different MIT variant:
The contents of this directory are licensed under the following terms:

Copyright (C) 2012 Grigori Goronzy
<greg@kinoho.net>

Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

</pre>
Eastman Kodak Company: Portions of color management and imaging software

Eastman Kodak Notice
<pre>
Portions Copyright Eastman Kodak Company 1991-2003
</pre>
Thai Dictionary

Thai Dictionary License
<pre>

Copyright (C) 1982 The Royal Institute, Thai Royal Government.

Copyright (C) 1998 National Electronics and Computer Technology Center,
National Science and Technology Development Agency,
Ministry of Science Technology and Environment,
Thai Royal Government.

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal

in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
 OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

</pre>
Apache Xerces v2.12.1

Apache Xerces Notice
<pre>
  ==
  == NOTICE file corresponding to section 4(d) of the Apache License,   ==
  == Version 2.0, in this case for the Apache Xerces Java distribution. ==
  ==

  Apache Xerces Java
  Copyright 1999-2020 The Apache Software Foundation

  This product includes software developed at
  The Apache Software Foundation (http://www.apache.org/).

  Portions of this software were originally based on the following:
  - software copyright (c) 1999, IBM Corporation., http://www.ibm.com.
  - software copyright (c) 1999, Sun Microsystems., http://www.sun.com.
  - voluntary contributions made by Paul Eng on behalf of the
  Apache Software Foundation that were originally developed at iClick, Inc.,
  software copyright (c) 1999.
</pre>

Apache 2.0 License
<pre>

                                 Apache License
                           Version 2.0, January 2004
                        http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions

to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the
Licensor for the purpose of discussing and improving the Work,
but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make,
have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients

of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with
the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any
Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,

except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a

file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

</pre>

ADDITIONAL INFORMATION ABOUT LICENSING

Certain files distributed by Oracle America, Inc. and/or its affiliates are
subject to the following clarification and special exception to the GPLv2,
based on the GNU Project exception for its Classpath libraries, known as the
GNU Classpath Exception.

Note that Oracle includes multiple, independent programs in this software
package. Some of those programs are provided under licenses deemed
incompatible with the GPLv2 by the Free Software Foundation and others.
For example, the package includes programs licensed under the Apache
License, Version 2.0 and may include FreeType. Such programs are licensed
to you under their original licenses.

Oracle facilitates your further distribution of this package by adding the
Classpath Exception to the necessary parts of its GPLv2 code, which permits
you to use that code in combination with other independent modules not
licensed under the GPLv2. However, note that this would
not permit you to
commingle code under an incompatible license with Oracle's GPLv2 licensed
code by, for example, cutting and pasting such code into a file also
containing Oracle's GPLv2 licensed code and then distributing the result.

Additionally, if you were to remove the Classpath Exception from any of the
files to which it applies and distribute the result, you would likely be
required to license some or all of the other code in that distribution under
the GPLv2 as well, and since the GPLv2 is incompatible with the license terms
of some items included in the distribution by Oracle, removing the Classpath
Exception could therefore effectively compromise your ability to further

distribute the package.

Failing to distribute notices associated with some files may also create
unexpected legal consequences.

Proceed with caution and we recommend that you obtain the advice of a lawyer
skilled in open source matters before removing the Classpath Exception or
making modifications
 to this package which may subsequently be redistributed
and/or involve the use of third party software.
Apache Commons Byte Code Engineering Library (BCEL) Version 6.3.1

Apache Commons BCEL Notice
<pre>

  ==
  == NOTICE file corresponding to the section 4 d of   ==
  == the Apache License, Version 2.0,   ==
  == in this case for the Apache Commons BCEL distribution.   ==
  ==

  This product includes software developed by
  The Apache Software Foundation (http://www.apache.org/).

</pre>

Apache 2.0 License
<pre>

                                 Apache License
                           Version 2.0, January 2004
                        http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

   "License" shall mean the terms and conditions for use, reproduction,
   and distribution as defined by Sections 1 through 9 of
  this document.

   "Licensor" shall mean the copyright owner or entity authorized by
   the copyright owner that is granting the License.

   "Legal Entity" shall mean the union of the acting entity and all
   other entities that control, are controlled by, or are under common
   control with that entity. For the purposes of this definition,
   "control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation
of a Source form, including but
not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or
additions
to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of
Copyright License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the
Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of
this License, each Contributor hereby grants to You a perpetual,
worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from
the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one

of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute,
alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor
regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether
in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly

negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License,
Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

</pre>
OASIS PKCS #11 Cryptographic Token Interface v3.0

OASIS PKCS #11 Cryptographic Token Interface License
<pre>

Copyright OASIS Open 2020. All Rights Reserved.

All capitalized terms in the following text have the meanings
assigned to them in the OASIS Intellectual Property Rights Policy (the
"OASIS IPR Policy"). The full Policy may be found at the OASIS website:
[http://www.oasis-open.org/policies-guidelines/ipr]

This document and translations of it may be copied and furnished to
others, and derivative works that comment on or otherwise explain it or
assist in its implementation may be prepared, copied, published, and
distributed, in whole or in part, without restriction of any kind,
provided that the above copyright notice and this section are included
on all such copies and derivative works. However, this document itself
may not be modified in any way, including by removing the copyright
notice or references to OASIS, except as needed for the purpose of
developing any
document or deliverable produced by an OASIS Technical
Committee (in which case the rules applicable to copyrights, as set
forth in the OASIS IPR Policy, must be followed) or as required to
translate it into languages other than English.

The limited permissions granted above are perpetual and will not be
revoked by OASIS or its successors or assigns.

This document and the information contained herein is provided on an
"AS IS" basis and OASIS DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED,
INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE
INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED
WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. OASIS
AND ITS MEMBERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THIS DOCUMENT OR ANY
PART THEREOF.

[OASIS requests that any OASIS Party or any other party that
believes it has patent claims that would necessarily be infringed by
implementations
of this OASIS Standards Final Deliverable, to notify
OASIS TC Administrator and provide an indication of its willingness to
grant patent licenses to such patent claims in a manner consistent with
the IPR Mode of the OASIS Technical Committee that produced this
deliverable.]

[OASIS invites any party to contact the OASIS TC Administrator if it is aware of a claim of ownership of any patent claims that would necessarily be infringed by implementations of this OASIS Standards Final Deliverable by a patent holder that is not willing to provide a license to such patent claims in a manner consistent with the IPR Mode of the OASIS Technical Committee that produced this OASIS Standards Final Deliverable. OASIS may include such claims on its website, but disclaims any obligation to do so.]

[OASIS takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology
described in this OASIS
Standards Final Deliverable or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on OASIS' procedures with respect to rights in any document or deliverable produced by an OASIS Technical Committee can be found on the OASIS website. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this OASIS Standards Final Deliverable, can be obtained from the OASIS TC Administrator. OASIS makes no representation that any information or list of intellectual property rights will at any time be complete, or that any claims in such list are, in fact, Essential Claims.]

</pre>
Cryptix AES v3.2.0

Cryptix General License
<pre>

Cryptix General License

Copyright (c) 1995-2005 The Cryptix Foundation Limited.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in

the documentation and/or other materials provided with the
distribution.

THIS SOFTWARE IS PROVIDED BY THE CRYPTIX FOUNDATION LIMITED AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE CRYPTIX FOUNDATION LIMITED OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN
IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

</pre>

OPENJDK ASSEMBLY EXCEPTION

The OpenJDK source code made available by Oracle America, Inc. (Oracle) at
openjdk.java.net ("OpenJDK Code") is distributed under the terms of the GNU
General Public License <http://www.gnu.org/copyleft/gpl.html> version 2
only ("GPL2"), with the following clarification and special exception.

Linking this OpenJDK Code statically or dynamically with other code
is making a combined work based on this library. Thus, the terms
and conditions of GPL2 cover the whole combination.

As a special exception, Oracle gives you permission to link this
OpenJDK Code with certain code licensed by Oracle as indicated at
http://openjdk.java.net/legal/exception-modules-2007-05-08.html
("Designated Exception Modules") to produce an executable,
regardless of the license terms of the Designated Exception Modules,
and to copy and distribute the resulting executable under GPL2,
provided that the Designated Exception Modules continue to be
governed by the licenses under which they were offered by Oracle.

As such, it allows licensees and sublicensees of Oracle's GPL2 OpenJDK Code
to build an executable that includes those portions of necessary code that
Oracle could not provide under GPL2 (or that Oracle has provided under GPL2
with the Classpath exception). If you modify or add to the OpenJDK code,
that new GPL2 code may still be combined with Designated Exception Modules
if the new code is made subject to this exception by its copyright holder.
PC/SC Lite v1.8.26

PC/SC Lite License

<pre>

Copyright (c) 1999-2003 David Corcoran <corcoran@linuxnet.com>
Copyright (c) 2001-2011 Ludovic Rousseau <ludovic.rousseau@free.fr>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
  derived from this software without specific prior written permission.

Changes to this license can be made only by the copyright author with
explicit written consent.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
 OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

</pre>
Mesa 3-D Graphics Library v19.2.1

Mesa License

```
Copyright (C) 1999-2007  Brian Paul   All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:
```

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL
THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

Attention, Contributors

When contributing to the Mesa project you must agree to the licensing terms
of the component to which you're contributing.
The following section lists the primary components of the Mesa distribution
and their respective licenses.
Mesa Component Licenses

Component	Location	License
Main Mesa code	src/mesa/	MIT
Device drivers	src/mesa/drivers/*	MIT, generally
Gallium code	src/gallium/	MIT
Ext headers	GL/glext.h	Khronos
	GL/glxext.h	Khronos
	GL/wglext.h	Khronos
	KHR/khrplatform.h	Khronos

****

---
include/GL/gl.h :

Mesa 3-D
graphics library

Copyright (C) 1999-2006 Brian Paul All Rights Reserved.
Copyright (C) 2009 VMware, Inc. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),

to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL
THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
 OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.

****

---
include/GL/glext.h
include/GL/glxext.h
include/GL/wglxext.h :

Copyright (c) 2013 - 2018 The Khronos Group Inc.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and/or associated documentation files (the
"Materials"), to deal in the Materials without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Materials, and to
permit persons to whom the Materials are furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Materials.

THE MATERIALS ARE PROVIDED "AS IS", WITHOUT
 WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
MATERIALS OR THE USE OR OTHER DEALINGS IN THE MATERIALS.

****

---
include/KHR/khrplatform.h :

Copyright (c) 2008 - 2018 The Khronos Group Inc.

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and/or associated documentation files (the
"Materials"), to deal in the Materials without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Materials, and to
permit persons to whom the Materials are furnished to do
so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Materials.

THE MATERIALS ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
MATERIALS OR THE USE OR OTHER DEALINGS IN THE MATERIALS.

****

```
## International Components for Unicode (ICU4J) v60.2

### ICU4J License

```

UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE
Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,
http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

Unicode Data Files do not include PDF online code charts under the
directory http://www.unicode.org/Public/.

Software includes any source code published in the Unicode Standard
or under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,

http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

NOTICE TO USER: Carefully read the following legal agreement.
BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S
DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"),
YOU UNEQUIVOCALLY ACCEPT,
AND AGREE TO BE BOUND BY, ALL OF THE
TERMS AND CONDITIONS OF THIS AGREEMENT.
IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE
THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2018 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission
notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

```
```

Independent JPEG Group: JPEG release 6b

JPEG License
<pre>

Must reproduce following license in documentation and/or other materials
provided with distribution:

The authors make NO WARRANTY or representation, either express or implied,
with respect to this software, its quality, accuracy, merchantability, or
fitness for a particular purpose. This software is provided "AS IS",
and you, its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-1998, Thomas G. Lane.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute
this software (or portions thereof) for any purpose, without fee,
subject to these conditions:

(1) If any part of the source code for this software is distributed,
then this README file must be included, with this copyright and no-warranty
notice unaltered; and any additions, deletions, or changes to the original
files must be clearly indicated in accompanying documentation.

(2)
 If only executable code is distributed, then the accompanying documentation
must state that "this software is based in part on the work of the
Independent JPEG Group".

(3) Permission for use of this software is granted only if the user accepts
full responsibility for any undesirable consequences; the authors accept
NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code,
not just to the unmodified library. If you use our work, you ought to
acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name
in advertising or publicity relating to this software or products derived
from it. This software may be referred to only as "the Independent JPEG
Group's software".

We specifically permit and encourage the use of this software as the basis
of commercial products, provided that all warranty or liability claims are
assumed by the product vendor.

ansi2knr.c is included in this
 distribution by permission of L. Peter Deutsch,
sole proprietor of its copyright holder, Aladdin Enterprises of Menlo Park, CA.
ansi2knr.c is NOT covered by the above copyright and conditions, but instead
by the usual distribution terms of the Free Software Foundation; principally,
that you must include source code if you redistribute it.
(See the file ansi2knr.c for full details.) However, since ansi2knr.c is
not needed as part of any program generated from the IJG code, this does not
limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltconfig, ltmain.sh). Another support script, install-sh, is copyright
by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered
by patents owned by IBM, AT&T, and Mitsubishi.
  Hence arithmetic coding
cannot legally be used without obtaining one or more licenses. For this
reason, support for arithmetic coding has been removed from the free
JPEG software. (Since arithmetic coding provides only a marginal gain
over the unpatented Huffman mode, it is unlikely that very many
implementations will support it.) So far as we are aware, there are
no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent, GIF reading support
has been removed altogether, and the GIF writer has been simplified to
produce "uncompressed GIFs". This technique does not use the LZW algorithm;
the resulting GIF files are larger than usual, but are readable by all
standard GIF decoders.

We are required to state that "The Graphics Interchange Format(c) is
the Copyright property of CompuServe Incorporated. GIF(sm) is a
Service Mark property of CompuServe Incorporated."

</pre>
Apache Xalan v2.7.2

Apache Xalan Notice
<pre>

```
================================================================================
====
  ==  NOTICE file corresponding to the section 4d of the Apache License, Version 2.0, ==
  ==  in this case for the Apache Xalan distribution.                           ==
================================================================================
```

====

This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

Specifically, we only include the XSLTC portion of the source from the Xalan distribution.
The Xalan project has two processors: an interpretive one (Xalan Interpretive) and a
compiled one (The XSLT Compiler (XSLTC)). We *only* use the XSLTC part of Xalan; We use
the source from the packages that are part of the XSLTC sources.

Portions of this software was originally based on the following:

- software copyright (c) 1999-2002, Lotus Development Corporation.,
http://www.lotus.com.
- software copyright (c) 2001-2002, Sun Microsystems., http://www.sun.com.
- software copyright (c) 2003, IBM Corporation., http://www.ibm.com.
- voluntary contributions made by Ovidiu Predescu (ovidiu@cup.hp.com) on behalf of the
Apache Software Foundation and was originally developed at Hewlett Packard Company.

</pre>

Apache 2.0 License
<pre>

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control,
are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made
available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright
owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare

Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement,
then any patent licenses
granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative
Works that You distribute must
include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement
to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing
the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including
any direct, indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the

Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

JLEX COPYRIGHT NOTICE, LICENSE AND DISCLAIMER.
Copyright 1996-2003 by Elliot Joel Berk and C. Scott Ananian

Permission to use, copy, modify, and distribute this software and
its documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both the copyright notice and this permission notice and warranty
disclaimer appear in supporting documentation, and that the name of
the authors or their employers not be used in advertising or publicity
pertaining to distribution of the software without specific, written
prior permission.
The authors and their employers disclaim all warranties with regard to
this software, including all implied warranties of merchantability
and
fitness. In no event shall the authors or their employers be liable for
any special, indirect or consequential damages or any damages whatsoever
resulting from loss of use, data or profits, whether in an action of
contract, negligence or other tortious action, arising out of or in
connection with the use or performance of this software.The portions of
JLex output which are hard-coded into the JLex source code are (naturally)
covered by this same license.

</pre>
Apache Santuario v2.1.4

Apache Santuario Notice
<pre>

Apache Santuario - XML Security for Java
Copyright 1999-2019 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (http://www.apache.org/).

It was originally based on software copyright (c) 2001, Institute for
Data Communications Systems, <http://www.nue.et-inf.uni-siegen.de/>.

The development of this software was partly funded by the European
Commission in the <WebSig> project in the ISIS Programme.

</pre>

Apache 2.0 License
<pre>

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a

cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that
do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from
the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not
grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except
in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

</pre>
JLine v3.14.0

JLine License
<pre>

Copyright (c) 2002-2018, the original author or authors.
All rights reserved.

https://opensource.org/licenses/BSD-3-Clause

Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the following
conditions are met:

Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer
in the documentation and/or other materials provided with
the distribution.

Neither the name of JLine nor the names of its contributors
may be used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND
FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO
EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,

OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

</pre>
Little Color Management System (LCMS) v2.11

LCMS License
<pre>

Little Color Management System
Copyright (c) 1998-2020 Marti Maria Saguer

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the Software
is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO
THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
 LIABILITY, WHETHER IN AN ACTION
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

</pre>
DOM Level 3 Core Specification v1.0

W3C License
<pre>

W3C SOFTWARE NOTICE AND LICENSE

http://www.w3.org/Consortium/Legal/2002/copyright-software-20021231

This work (and included software, documentation such as READMEs, or other
related items) is being provided by the copyright holders under the following

license. By obtaining, using and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions.

Permission to copy, modify, and distribute this software and its documentation, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the software and documentation or portions thereof, including modifications:

1.The full text of this NOTICE in a location viewable to users of the redistributed or derivative work.

2.Any pre-existing intellectual property disclaimers, notices, or terms and conditions. If none exist, the W3C Software Short Notice should be included (hypertext is preferred, text is permitted) within the body of any redistributed or derivative code.

3.Notice of any changes or modifications to the files, including the date changes were made. (We recommend you provide URIs to the location from which the code is derived.)

THIS SOFTWARE AND DOCUMENTATION IS PROVIDED "AS IS," AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS,COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION. The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the software without specific, written prior permission. Title to copyright in this software and any associated documentation will at all times remain with copyright holders.

This formulation of W3C's notice and license became active on December 31 2002. This version removes the copyright ownership notice such that this license can be used with materials other than those owned by the W3C, reflects that ERCIM is now a host of the W3C, includes references to this specific dated version of the license, and removes the ambiguous grant of "use". Otherwise, this version is the same as the previous version and is written so as to preserve the Free Software Foundation's assessment of GPL compatibility and OSI's certification under the Open Source Definition. Please see our Copyright FAQ for common questions about using materials from our site,

including specific terms and conditions for packages like libwww, Amaya, and
Jigsaw. Other questions about this notice can be directed to
site-policy@w3.org.

</pre>
JRuby Joni v2.1.16

MIT License
<pre>

Copyright (c) 2017 JRuby Team

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL
THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING
 FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
OTHER DEALINGS IN THE SOFTWARE.

</pre>
GIFLIB v5.2.1

GIFLIB License
```

The GIFLIB distribution is Copyright (c) 1997  Eric S. Raymond

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.
```

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

https://sourceforge.net/p/giflib/code/ci/master/tree/openbsd-reallocarray.c

Copyright (c) 2008 Otto Moerbeek <otto@drijf.net>
SPDX-License-Identifier: MIT
libpng v1.6.37

libpng License
<pre>

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE
==========

PNG Reference Library License version 2
---

* Copyright (c) 1995-2019 The PNG Reference Library Authors.
* Copyright (c) 2018-2019 Cosmin Truta.
* Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson.
* Copyright (c) 1996-1997 Andreas Dilger.
* Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

The software is supplied "as is", without warranty of any kind,
express or implied, including, without limitation, the warranties
of merchantability, fitness for a particular purpose, title, and
non-infringement. In no event shall the Copyright owners, or
anyone distributing the software, be liable for any damages or
other liability, whether in contract, tort or otherwise, arising
from, out of, or in connection with the software, or the use or
other dealings in the software, even if advised of the possibility
of
such damage.

Permission is hereby granted to use, copy, modify, and distribute
this software, or portions hereof, for any purpose, without fee,
subject to the following restrictions:

1. The origin of this software must not be misrepresented; you

must not claim that you wrote the original software. If you
use this software in a product, an acknowledgment in the product
documentation would be appreciated, but is not required.

2. Altered source versions must be plainly marked as such, and must
not be misrepresented as being the original software.

3. This Copyright notice may not be removed or altered from any
source or altered source distribution.

PNG Reference Library License version 1 (for libpng 0.5 through 1.6.35)
---

libpng versions 1.0.7, July 1, 2000, through 1.6.35, July 15, 2018 are
Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson, are
derived from libpng-1.0.6, and
are distributed according to the same
disclaimer and license as libpng-1.0.6 with the following individuals
added to the list of Contributing Authors:

Simon-Pierre Cadieux
Eric S. Raymond
Mans Rullgard
Cosmin Truta
Gilles Vollant
James Yu
Mandar Sahastrabuddhe
Google Inc.
Vadim Barkov

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of
the library or against infringement. There is no warranty that our
efforts or the library will fulfill any of your particular purposes
or needs. This library is provided with all faults, and the entire
risk of satisfactory quality, performance, accuracy, and effort is
with the user.

Some files in the "contrib" directory and some configure-generated
files that are distributed with libpng have other copyright owners, and
are released under other open source licenses.

libpng versions 0.97, January 1998, through 1.0.6, March 20,
2000, are
Copyright (c) 1998-2000 Glenn Randers-Pehrson, are derived from
libpng-0.96, and are distributed according to the same disclaimer and

license as libpng-0.96, with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are Copyright (c) 1996-1997 Andreas Dilger, are derived from libpng-0.88, and are distributed according to the same disclaimer and license as libpng-0.88, with the following individuals added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

Some files in the "scripts" directory have other copyright owners, but are released under this license.

libpng versions 0.5, May 1995, through 0.88, January 1996, are Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors" is defined
as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing Authors and Group 42, Inc. disclaim all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The Contributing Authors and Group 42, Inc. assume no liability for direct, indirect, incidental, special, exemplary, or consequential damages, which may result from the use of the PNG Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this source code, or portions hereof, for any purpose, without fee, subject to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not
be misrepresented as being the original source.

3. This Copyright
notice may not be removed or altered from any
source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit,
without fee, and encourage the use of this source code as a component
to supporting the PNG file format in commercial products. If you use
this source code in a product, acknowledgment is not required but would
be appreciated.

</pre>
The GNU General Public License (GPL)

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license
document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share
and change it. By contrast, the GNU General Public License is intended to
guarantee your freedom to share and change free software--to make sure the
software is free for all its users. This General Public License applies to
most of the Free Software Foundation's software and to any other program whose
authors commit to using it. (Some other Free Software Foundation software is
covered by the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price. Our
General Public Licenses are designed to make sure that
you have the freedom to
distribute copies of free software (and charge for this service if you wish),
that you receive source code or can get it if you want it, that you can change
the software or use pieces of it in new free programs; and that you know you
can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny
you these rights or to ask you to surrender the rights. These restrictions

translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also,
for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be
distributed under the terms of
this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as

you receive it, in any medium, provided
that you conspicuously and
appropriately publish on each copy an appropriate copyright notice and
disclaimer of warranty; keep intact all the notices that refer to this License
and to the absence of any warranty; and give any other recipients of the
Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may
at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus
forming a work based on the Program, and copy and distribute such modifications
or work under the terms of Section 1 above, provided that you also meet all of
these conditions:

a) You must cause the modified files to carry prominent notices stating
that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or
in part contains or is derived from the Program or any part thereof, to
be
licensed as a whole at no charge to all third parties under the terms of
this License.

c) If the modified program normally reads commands interactively when run,
you must cause it, when started running for such interactive use in the
most ordinary way, to print or display an announcement including an
appropriate copyright notice and a notice that there is no warranty (or
else, saying that you provide a warranty) and that users may redistribute
the program under these conditions, and telling the user how to view a copy
of this License. (Exception: if the Program itself is interactive but does
not normally print such an announcement, your work based on the Program is
not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable
sections of that work are not derived from the Program, and can be reasonably
considered independent and separate works in themselves, then this License, and
its
terms, do not apply to those sections when you distribute them as separate
works. But when you distribute the same sections as part of a whole which is a
work based on the Program, the distribution of the whole must be on the terms
of this License, whose permissions for other licensees extend to the entire
whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your
rights to work written entirely by you; rather, the intent is to exercise the
right to control the distribution of derivative or collective works based on
the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and
2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source
code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute
the Program except as
expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or

rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically
receives a license from the original licensor to
copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you,
then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make

thoroughly clear what is believed to be a
consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain
countries either by patents or by copyrighted interfaces, the original
copyright holder who places the Program under this License may add an explicit
geographical distribution limitation excluding those countries, so that
distribution is permitted only in or among countries not thus excluded. In
such case, this License incorporates the limitation as if written in the body
of this License.

9. The Free Software Foundation may publish revised and/or new versions of the
General Public License from time to time. Such new versions will be similar in
spirit to the present version, but may differ in detail to address new problems
or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number of this License which applies to it and "any later
version", you have the option of following the
terms and conditions either of
that version or of any later version published by the Free Software Foundation.
If the Program does not specify a version number of this License, you may
choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs
whose distribution conditions are different, write to the author to ask for
permission. For software which is copyrighted by the Free Software Foundation,
write to the Free Software Foundation; we sometimes make exceptions for this.
Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of
software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR
THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE
STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE
PROGRAM "AS IS"
WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND
PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE,
YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL
ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE
THE
PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY

GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How
to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'. This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something
other than 'show w' and 'show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program 'Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

"CLASSPATH" EXCEPTION TO THE GPL

Certain source files distributed by Oracle America and/or its affiliates are subject to the following
clarification and special exception to the GPL, but
only where Oracle has expressly included in the particular source file's header the words "Oracle designates this particular file as subject to the "Classpath" exception as provided by Oracle in the LICENSE file that accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module
which is not derived from or based on this library. If
you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

Unicode Common Local Data Repository (CLDR) v33

CLDR License

```

UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE
Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,
http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

Unicode Data Files do not include PDF online code charts under the
directory http://www.unicode.org/Public/.

Software includes any source code published in the Unicode Standard
or under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/,
http://www.unicode.org/cldr/data/,
http://source.icu-project.org/repos/icu/, and
http://www.unicode.org/utility/trac/browser/.

NOTICE TO USER: Carefully read the following legal agreement.
BY DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S
DATA FILES ("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"),
YOU UNEQUIVOCALLY ACCEPT,
 AND AGREE TO BE BOUND BY, ALL OF THE
TERMS AND CONDITIONS OF THIS AGREEMENT.
IF YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE
THE DATA FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright  1991-2018 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that either
(a) this copyright and permission notice appear with all copies
of the Data Files or Software, or
(b) this copyright and permission
```

notice appear in associated
Documentation.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

```
## Dynalink v.5

### Dynalink License
<pre>

Copyright (c) 2009-2013, Attila Szegedi

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of the copyright holder nor the names of contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN
NO EVENT SHALL COPYRIGHT HOLDER
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
```

WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

</pre>
Mozilla Public Suffix List

Public Suffix Notice
```
You are receiving a copy of the Mozilla Public Suffix List in the following
file: <java-home>/lib/security/public_suffix_list.dat. The terms of the
Oracle license do NOT apply to this file; it is licensed under the
Mozilla Public License 2.0, separately from the Oracle programs you receive.
If you do not wish to use the Public Suffix List, you may remove the
<java-home>/lib/security/public_suffix_list.dat file.

The Source Code of this file is available under the
Mozilla Public License, v. 2.0 and is located at
https://raw.githubusercontent.com/publicsuffix/list/cbbba1d234670453df9c930dfbf510c0474d4301/public_suffix_list.dat.
If a copy of the MPL was not distributed with this file, you can obtain one
at https://mozilla.org/MPL/2.0/.

Software distributed under the License is distributed on an "AS IS" basis,
WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License
for the specific language governing rights and limitations
 under the License.
```

MPL v2.0
```
Mozilla Public License Version 2.0
==================================

1. Definitions
--------------

1.1. "Contributor"
  means each individual or legal entity that creates, contributes to
  the creation of, or owns Covered Software.

1.2. "Contributor Version"
  means the combination of the Contributions of others (if any) used
  by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
  means Covered Software of a particular Contributor.
```

1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"
means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"
means any form of the work other than Source Code Form.

1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"
means this document.

1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"
means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having

made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"
means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"
means the form of the work preferred for making modifications.

1.14. "You" (or "Your")
means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect,
to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark)
Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for
each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section
3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms
of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3.
Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of

the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

```
************************************************************************
*                                                                      *
*  6. Disclaimer of Warranty                                           *
*  -------------------------                                           *
*                                                                      *
*  Covered Software is provided under this License on an "as is"       *
*  basis, without warranty of any kind, either expressed, implied, or  *
*  statutory, including, without limitation, warranties that the       *
*  Covered Software is free of defects, merchantable, fit for a        *
*  particular purpose or non-infringing. The entire risk as to the     *
*  quality and performance of the Covered Software is with You.        *
*  Should any Covered Software prove defective in any respect, You     *
*  (not any Contributor) assume the cost of any necessary servicing,   *
*  repair, or correction. This disclaimer of warranty constitutes an   *
*  essential part of this License. No use of any Covered Software is   *
*  authorized under this License except under this disclaimer.         *
*                                                                      *
************************************************************************

************************************************************************
*                                                                      *
*  7. Limitation of Liability                                          *
*  --------------------------                                          *
*                                                                      *
*  Under no circumstances and under no legal theory, whether tort      *
*  (including negligence), contract, or otherwise, shall any           *
*  Contributor, or anyone who distributes Covered Software as          *
*  permitted above, be liable to You for any direct, indirect,         *
*  special, incidental, or consequential damages of any character      *
*  including, without limitation, damages for lost profits, loss of    *
*  goodwill, work stoppage, computer failure or malfunction, or any    *
*  and all other commercial damages or losses, even if such party      *
```

* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or *
* personal injury resulting from such party's negligence to the *
* extent applicable law prohibits such limitation. Some *
* jurisdictions do not allow the exclusion or limitation of *
* incidental or consequential damages, so this exclusion and *
* limitation may not apply to You. *
* *
****

8. Litigation

Any litigation relating to this License may be brought only in the courts
of a jurisdiction where the defendant maintains its principal
place of business and such litigation shall be governed by laws of that
jurisdiction, without reference to its conflict-of-law provisions.
Nothing in this Section shall prevent a party's ability to bring
cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject
matter hereof. If any provision of this License is held to be
unenforceable, such provision shall be reformed only to the extent
necessary to make it enforceable. Any law or regulation which provides
that the language of a contract shall be construed against the drafter
shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section
10.3, no one other than the license steward has the right to modify or
publish new versions of this License.
Each version will be given a
distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version
of the License under which You originally received the Covered Software,
or under the terms of any subsequent version published by the license
steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to
create a new license for such software, you may create and use a
modified version of this License if you rename the license and remove
any references to the name of the license steward (except to note that
such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary
Licenses

If You choose to distribute Source Code Form that is Incompatible With
Secondary Licenses under the terms of this version of the License, the
notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

 This Source Code Form is subject to the terms of the Mozilla Public
 License, v. 2.0. If a copy of the MPL was not distributed with this
 file, You can obtain one at https://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular
file, then You may include the notice in a location (such as a LICENSE
file in a relevant directory) where a recipient would be likely to look
for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

 This Source Code Form is "Incompatible With Secondary Licenses", as
 defined by the Mozilla Public License, v. 2.0.

```
## ASM Bytecode Manipulation Framework v6.0

### ASM License
<pre>

Copyright (c) 2000-2011 France Tlcom
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
```

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holders nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
THE POSSIBILITY OF SUCH DAMAGE.

</pre>

1.431 flyway-commandline 7.3.1

1.431.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* Copyright © Red Gate Software Ltd 2010-2020
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
*   http://www.apache.org/licenses/LICENSE-2.0
*
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/FileLog.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/ConsoleLogCreator.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/MultiLogCreator.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/FileLogCreator.java
*
 /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/Main.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/MultiLogger.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/ColorizedConsoleLog.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/ConsoleLog.java
* /flyway-commandline-7-3-1-sources-jar/org/flywaydb/commandline/CommandLineArguments.java
No license file was found, but licenses were detected in source scan.

2020

  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

      http://www.apache.org/licenses/LICENSE
2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.

Found in path(s):
* /flyway-commandline-7-3-1-sources-jar/META-INF/maven/org.flywaydb/flyway-commandline/pom.xml

1.432 cyrus-sasl 2.1.27+dfsg-2ubuntu0.1

1.432.1 Available under license :

/* CMU libsasl
* Tim Martin
* Rob Earhart
* Rob Siemborski
*/
/*
* Copyright (c) 1998-2003 Carnegie Mellon University. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*

```
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. The name "Carnegie Mellon University" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For permission or any other legal
*    details, please contact
*      Office of Technology Transfer
*      Carnegie Mellon University
*      5000 Forbes Avenue
 *      Pittsburgh, PA  15213-3890
*      (412) 268-4387, fax: (412) 268-7395
*      tech-transfer@andrew.cmu.edu
*
* 4. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by Computing Services
*     at Carnegie Mellon University (http://www.cmu.edu/computing/)."
*
* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
* THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
* AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
* FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
* AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
* OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
*/
/* CMU libsasl
* Tim Martin
* Rob Earhart
* Rob Siemborski
*/
/*
* Copyright (c) 2001 Carnegie Mellon University.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
```

* notice, this list of conditions and the following disclaimer in
* the documentation and/or other materials provided with the
* distribution.
*
* 3. The name "Carnegie Mellon University" must not be used to
* endorse or promote products derived from this software without
* prior written permission. For permission or any other legal
* details, please contact
* Office of Technology Transfer
* Carnegie Mellon University
* 5000 Forbes Avenue
* Pittsburgh, PA 15213-3890
* (412) 268-4387, fax: (412) 268-7395
* tech-transfer@andrew.cmu.edu
*
* 4. Redistributions of any form whatsoever must retain the following
* acknowledgment:
* "This product includes software developed by Computing Services
* at Carnegie Mellon University (http://www.cmu.edu/computing/)."
*
* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
* THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
* AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
* FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
* AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
* OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
*/
Copyright (C) 1995-1997 Eric Young (eay@mincom.oz.au)
All rights reserved.

This package is an DES implementation written by Eric Young (eay@mincom.oz.au).
The implementation was written so as to conform with MIT's libdes.

This library is free for commercial and non-commercial use as long as
the following conditions are aheared to. The following conditions
apply to all code found in this distribution.

Copyright remains Eric Young's, and as such any Copyright notices in
the code are not to be removed.
If this package is used in a product, Eric Young should be given attribution
as the author of that the SSL library. This can be in the form of a textual
message at program startup or in documentation (online or textual) provided
with the package.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

1. Redistributions of source code must retain the copyright
notice, this list of conditions and the
following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software
must display the following acknowledgement:
This product includes software developed by Eric Young (eay@mincom.oz.au)

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The license and distribution terms for any publically available version or
derivative of this code cannot be changed. i.e. this code cannot simply be
copied and put under another distrubution license
[including the GNU Public License.]

The reason behind this being stated in this direct manner is past
experience in code simply being copied and the attribution removed
from it and then being distributed as part of other packages. This
implementation was a non-trivial and unpaid effort.

1.433 openssl 1.1.1f-1ubuntu2.11

1.433.1 Available under license :

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

```
/* ====================================================================
* Copyright (c) 1998-2019 The OpenSSL Project.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. All advertising materials mentioning features or use
 of this
*    software must display the following acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For written permission, please contact
*    openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*    nor may "OpenSSL" appear in their names without prior written
*    permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS" AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
 TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
```

* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include

an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it

in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that
you distribute or publish, that in
whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived
from the Program,
and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those

sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component

itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even
though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying
the
Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if
a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals

of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM,
TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE
PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free
Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c'
for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public
License instead of this License.

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis
of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent

notice in each changed file stating how and
when you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable
form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided
that you do not advertise this Package as a
product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as
output from the programs of this Package do not automatically fall
under the copyright of this Package, but belong to whoever generated
them, and may be sold commercially, and may be aggregated with this
Package. If such scripts or library files are aggregated with this
Package via the so-called "undump" or "unexec" methods of producing a
binary executable image, then distribution of such an image shall
neither be construed as a distribution of this Package nor shall it
fall under the restrictions of Paragraphs 3 and 4, provided that you do
not represent such an executable image as a Standard Version of this
Package.

7. C subroutines
(or comparably compiled subroutines in other
languages) supplied by you and linked into this Package in order to
emulate subroutines and variables of the language defined by this
Package shall not be considered part of this Package, but are the
equivalent of input as in Paragraph 6, provided these subroutines do
not change the language in any way that would cause it to fail the
regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always
permitted provided that the use of this Package is embedded; that is,
when no overt attempt is made to make this Package's interfaces visible
to the end user of the commercial distribution. Such use shall not be
construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote
products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT
LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

1.434 jackson-dataformat-yaml 2.11.2

1.434.1 Available under license :

This copy of Jackson JSON processor YAML module is licensed under the
Apache (Software) License, version 2.0 ("the License").
See the License for details about distribution rights, and the
specific rights regarding derivate works.

You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0
Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library.
It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has
been in development since 2007.
It is currently developed by a community of developers, as well as supported
commercially by FasterXML.com.

Licensing

Jackson core and extension components may be licensed under different licenses.
To find the details that apply to this artifact see the accompanying LICENSE file.
For more information, including possible other licensing options, contact
FasterXML.com (http://fasterxml.com).

Credits

A list of contributors may be found from CREDITS file, which is included
in some artifacts (usually source distributions); but is always available
from the source code management (SCM) system project uses.

1.435 snake-yaml 1.26

1.435.1 Available under license :

Found license 'Eclipse Public License 1.0' in '// This module is multi-licensed and may be used under the terms // EPL, Eclipse Public License, V1.0 or later, http://www.eclipse.org/legal // LGPL, GNU Lesser General Public License, V2.1 or later, http://www.gnu.org/licenses/lgpl.html // GPL, GNU General Public License, V2 or later, http://www.gnu.org/licenses/gpl.html // AL, Apache License, V2.0 or later, http://www.apache.org/licenses // BSD, BSD License, http://www.opensource.org/licenses/bsd-license.php * Multi-licensed: EPL / LGPL / GPL / AL / BSD.'
Found license 'GNU Lesser General Public License' in '// This module is multi-licensed and may be used under the terms // EPL, Eclipse Public License, V1.0 or later, http://www.eclipse.org/legal // LGPL, GNU Lesser General Public License, V2.1 or later, http://www.gnu.org/licenses/lgpl.html // GPL, GNU General Public License, V2 or later, http://www.gnu.org/licenses/gpl.html // AL, Apache License, V2.0 or later, http://www.apache.org/licenses // BSD, BSD License, http://www.opensource.org/licenses/bsd-license.php * Multi-licensed: EPL / LGPL / GPL / AL / BSD.'

1.436 mongodb 5.0.6

1.436.1 Available under license :

Server Side Public License
VERSION 1, OCTOBER 16, 2018

Copyright © 2018 MongoDB, Inc.

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

TERMS AND CONDITIONS

0. Definitions.

“This License” refers to Server Side Public License.

“Copyright” also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

“The Program” refers to any copyrightable work licensed under this License. Each licensee is addressed as “you”. “Licensees” and “recipients” may be individuals or organizations.

To “modify” a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a “modified version” of the earlier work or a work “based on” the earlier work.

A “covered work” means either
the unmodified Program or a work based on
the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees
may convey the work under this License, and
how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language. The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface
for which an implementation is available to the
public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked
subprograms
that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program, subject to section 13. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by

copyright law. Subject to section 13, you may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law
fulfilling obligations under article 11
of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the
code; keep intact all notices
of the absence of any warranty; and give all recipients a copy of this License along with the Program. You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to

produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to “keep intact all notices”.

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an “aggregate” if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product

(including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product

is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue
to provide support service, warranty, or updates
for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License,
to the extent that
they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License

without regard to the additional permissions. When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections
15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive
additional terms are considered “further
restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must

place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms. Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and
you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do
so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An “entity transaction” is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A “contributor” is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's “contributor version”.

A contributor's “essential patent claims” are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, “control” includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a “patent license” is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to

sue for patent infringement). To “grant” such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available
for anyone to copy,
free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. “Knowingly relying” means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving
the
covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is “discriminatory” if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific
products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot use, propagate or convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not use, propagate or convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Offering the Program as a Service.

If you make the functionality of the Program or a modified version available to third parties as a service, you must make the Service Source Code available via network download to everyone at no charge, under the terms of this License. Making the functionality of the Program or modified version available to third parties as a service includes, without limitation, enabling third parties to interact with the functionality of the Program or modified version remotely through a computer network, offering a service the value of which entirely or primarily derives from the value of the Program or modified version, or offering a service that accomplishes for users the primary purpose of the Program or modified version.

“Service Source Code” means the Corresponding Source for the Program or the modified version, and the Corresponding Source for all programs that you use to make the Program or modified version available as a service, including, without limitation, management software, user interfaces, application program interfaces, automation software, monitoring software, backup software, storage software and hosting software, all such that a user could run an instance of the service using the Service Source Code you make available.

14. Revised Versions of this License.

MongoDB, Inc. may publish revised and/or new versions of the Server Side Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the Server Side Public License “or any later version” applies to it, you have the option of following the terms and conditions

either of that numbered version or of
any later version published by MongoDB, Inc. If the Program does not specify a version number of the Server Side Public License, you may choose any version ever published by MongoDB, Inc.

If the Program specifies that a proxy can decide which future versions of the Server Side Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING,
BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and
16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

1.437 libnettle6 3.4.1-1+deb10u1

1.437.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which

gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the
Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot

impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.
GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided

by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is
deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

2. Conveying
Modified Versions.

If you modify a copy of the Library, and, in your modifications, a
facility refers to a function or data to be supplied by an Application
that uses the facility (other than as an argument passed when the
facility is invoked), then you may convey a copy of the modified
version:

a) under this License, provided that you make a good faith effort to
ensure that, in the event an Application does not supply the
function or data, the facility still operates, and performs
whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of
this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from
a header file that is part of the Library. You may convey such object
code under terms of your choice, provided that, if the incorporated
material is not limited to numerical parameters, data

structure
layouts and accessors, or small macros, inline functions and templates
(ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the
Library is used in it and that the Library and its use are
covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license
document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that,
taken together, effectively do not restrict modification of the
portions of the Library contained in the Combined Work and reverse
engineering for debugging such modifications, if you also do each of
the following:

a) Give prominent notice with each copy of the Combined Work that
the Library is used in it and that the Library and its use are
covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license
document.

c) For a Combined Work that displays copyright
notices during
execution, include the copyright notice for the Library among
these notices, as well as a reference directing the user to the
copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this
License, and the Corresponding Application Code in a form
suitable for, and under terms that permit, the user to
recombine or relink the Application with a modified version of
the Linked Version to produce a modified Combined Work, in the
manner specified by section 6 of the GNU GPL for conveying
Corresponding Source.

1) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (a) uses at run time
a copy of the Library already present on the user's computer
system, and (b) will operate properly with a modified version
of the Library that is interface-compatible

with the Linked
Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under
terms of your
choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following
the terms and
conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser

General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:

(1)
assert copyright on the software, and (2) offer you this License
giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains
that there is no warranty for this free software. For both users' and
authors' sake, the GPL requires that modified versions be marked as
changed, so that their problems will not be attributed erroneously to
authors of previous versions.

Some devices are designed to deny users access to install or run
modified versions of the software inside them, although the manufacturer
can do so. This is fundamentally incompatible with the aim of
protecting users' freedom to change the software. The systematic
pattern of such abuse occurs in the area of products for individuals to
use, which is precisely where it is most unacceptable. Therefore, we
have designed this version of the GPL to prohibit the practice for those
products. If such problems arise substantially in other domains, we
stand
ready to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents.
States should not allow patents to restrict development and use of
software on general-purpose computers, but in those that do, we wish to
avoid the special danger that patents applied to a free program could
make it effectively proprietary. To prevent this, the GPL assures that
patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and
modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of
works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this
License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work
in a fashion requiring copyright permission, other than the making of an

exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to

produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;

section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms
of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from

a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work,

for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;

the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and

propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a

party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the
option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where

the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.

1.438 gnutls 3.6.7-4+deb10u7

1.438.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source

code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without

limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or

table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to
a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing

the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the

original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL

DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the

library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Statement of Purpose

The laws of most jurisdictions throughout the world automatically confer exclusive Copyright and Related Rights (defined below) upon the creator and subsequent owner(s) (each and all, an "owner") of an original work of authorship and/or a database (each, a "Work").

Certain owners wish to permanently relinquish those rights to a Work for the purpose of contributing to a commons of creative, cultural and scientific works ("Commons") that the public can reliably and without fear of later claims of infringement build upon, modify, incorporate in other works, reuse and redistribute as freely as possible in any form whatsoever and for any purposes, including without limitation commercial purposes. These owners may contribute to the Commons to promote the ideal of a free culture and the further production of creative, cultural and scientific works, or to gain reputation or greater distribution for their Work in part through the use and efforts of others.

For these and/or
other purposes and motivations, and without any expectation of additional consideration or compensation, the person associating CC0 with a Work (the "Affirmer"), to the extent that he or she is an owner of Copyright and Related Rights in the Work, voluntarily elects to apply CC0 to the Work and publicly distribute the Work under its terms, with knowledge of his or her Copyright and Related Rights in the Work and the meaning and intended legal effect of CC0 on those rights.

1. Copyright and Related Rights. A Work made available under CC0 may be protected by copyright and related or neighboring rights ("Copyright and Related Rights"). Copyright and Related Rights include, but are not limited to, the following:

the right to reproduce, adapt, distribute, perform, display, communicate, and translate a Work;
moral rights retained by the original author(s) and/or performer(s);
publicity and privacy rights pertaining to a person's image or likeness depicted in a Work;
rights
protecting against unfair competition in regards to a Work, subject to the limitations in paragraph 4(a), below;
rights protecting the extraction, dissemination, use and reuse of data in a Work;
database rights (such as those arising under Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, and under any national implementation thereof, including any amended or successor version of such directive); and
other similar, equivalent or corresponding rights throughout the world based on applicable law or treaty, and any national implementations thereof.

2. Waiver. To the greatest extent permitted by, but not in contravention of, applicable law, Affirmer hereby overtly, fully, permanently, irrevocably and unconditionally waives, abandons, and surrenders all of Affirmer's Copyright and Related Rights and associated claims and causes of action, whether now known or unknown (including existing as well as future claims
and causes of action), in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable law or treaty (including future time extensions), (iii) in any current or future medium and for any number

of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "Waiver"). Affirmer makes the Waiver for the benefit of each member of the public at large and to the detriment of Affirmer's heirs and successors, fully intending that such Waiver shall not be subject to revocation, rescission, cancellation, termination, or any other legal or equitable action to disrupt the quiet enjoyment of the Work by the public as contemplated by Affirmer's express Statement of Purpose.

3. Public License Fallback. Should any part of the Waiver for any reason be judged legally invalid or ineffective under applicable law, then the Waiver shall be preserved to the maximum extent permitted taking into account Affirmer's
express Statement of Purpose. In addition, to the extent the Waiver is so judged Affirmer hereby grants to each affected person a royalty-free, non transferable, non sublicensable, non exclusive, irrevocable and unconditional license to exercise Affirmer's Copyright and Related Rights in the Work (i) in all territories worldwide, (ii) for the maximum duration provided by applicable law or treaty (including future time extensions), (iii) in any current or future medium and for any number of copies, and (iv) for any purpose whatsoever, including without limitation commercial, advertising or promotional purposes (the "License"). The License shall be deemed effective as of the date CC0 was applied by Affirmer to the Work. Should any part of the License for any reason be judged legally invalid or ineffective under applicable law, such partial invalidity or ineffectiveness shall not invalidate the remainder of the License, and in such case Affirmer hereby affirms that he or she will
not (i) exercise any of his or her remaining Copyright and Related Rights in the Work or (ii) assert any associated claims and causes of action with respect to the Work, in either case contrary to Affirmer's express Statement of Purpose.

4. Limitations and Disclaimers.

No trademark or patent rights held by Affirmer are waived, abandoned, surrendered, licensed or otherwise affected by this document.

Affirmer offers the Work as-is and makes no representations or warranties of any kind concerning the Work, express, implied, statutory or otherwise, including without limitation warranties of title, merchantability, fitness for a particular purpose, non infringement, or the absence of latent or other defects, accuracy, or the present or absence of errors, whether or not discoverable, all to the greatest extent permissible under applicable law.

Affirmer disclaims responsibility for clearing rights of other persons that may apply to the Work or any use thereof, including without
limitation any person's Copyright and Related Rights in the Work. Further, Affirmer disclaims responsibility for obtaining any necessary consents, permissions or other rights required for any use of the Work.

Affirmer understands and acknowledges that Creative Commons is not a party to this document and has no duty or obligation with respect to this CC0 or use of the Work.

LICENSING
=========

Since GnuTLS version 3.1.10, the core library is released under
the GNU Lesser General Public License (LGPL) version 2.1 or later
(see doc/COPYING.LESSER for the license terms).

The GNU LGPL applies to the main GnuTLS library, while the
included applications as well as gnutls-openssl
library are under the GNU GPL version 3. The gnutls library is
located in the lib/ and libdane/ directories, while the applications
in src/ and, the gnutls-openssl library is at extra/.

The documentation in doc/ is under the GNU FDL license 1.3.

Note, however, that the nettle and the gmp libraries which are
GnuTLS dependencies, they are distributed under a LGPLv3+ or GPLv2+ dual
license. As such binaries linking to them need to adhere to either LGPLv3+
or the GPLv2+ license.

For any copyright year range specified as YYYY-ZZZZ in this package
note that the range specifies every single year in that closed interval.

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is deemed
a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the

portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the
Library side by side in a single library together with other library
facilities that are not Applications and are not covered by this
License, and convey such a combined library under terms
of your
choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based
on the Library, uncombined with any other library facilities,
conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it
is a work based on the Library, and explaining where to find the
accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions
of the GNU Lesser General Public License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the
Library as you received it specifies that a certain numbered version
of the GNU Lesser General Public License "or any later version"
applies to it, you have the option of following the
terms and
conditions either of that published version or of any later version
published by the Free Software Foundation. If the Library as you
received it does not specify a version number of the GNU Lesser
General Public License, you may choose any version of the GNU Lesser
General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide
whether future versions of the GNU Lesser General Public License shall
apply, that proxy's public statement of acceptance of any version is
permanent authorization for you to choose that version for the
Library.
==========
Written by Andy Polyakov <appro@fy.chalmers.se> for the OpenSSL
project. The module is, however, dual licensed under OpenSSL and
CRYPTOGAMS licenses depending on where you obtain it. For further
details see https://www.openssl.org/~appro/cryptogams/.
==========

Copyright (c) 2006-2012, CRYPTOGAMS by <appro@openssl.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

    * Redistributions of source code must retain copyright notices,
 this list of conditions and the following disclaimer.

    * Redistributions in binary form must reproduce the above
 copyright notice, this list of conditions and the following
 disclaimer in the documentation and/or other materials
 provided with the distribution.

    * Neither the name of the CRYPTOGAMS nor
 the names of its
 copyright holder and contributors may be used to endorse or
 promote products derived from this software without specific
 prior written permission.

ALTERNATIVELY, provided that this notice is retained in full, this
product may be distributed under the terms of the GNU General Public
License (GPL), in which case the provisions of the GPL apply INSTEAD OF
those given above.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
 OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

##
Constant-time SSSE3 AES core implementation.
version 0.1
##
By Mike Hamburg (Stanford University), 2009
Public domain.
##
For details see https://shiftleft.org/papers/vector_aes/ and
https://crypto.stanford.edu/vpaes/.

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright
   notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above
   copyright notice, this list of conditions and the following
   disclaimer in the documentation and/or other materials provided
   with the distribution.

3. The name of the author may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT,
INDIRECT,
 INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.
The MIT License (MIT)

Copyright (c) 2016 Wrymouth Innovation Ltd

Permission is hereby granted, free of charge, to any person obtaining a
copy of this software and associated documentation files (the "Software"),
to deal in the Software without restriction, including without limitation
the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL
THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR
OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM,

OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 1992-2015 by Bruce Korb - all rights reserved
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains

that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready
to extend this provision to those domains in future versions
of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients"
may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System
Libraries" of an executable work include anything, other
than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's

System Libraries, or general-purpose tools or generally available free
programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article

11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated

place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the

User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors
and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions;
the above requirements
apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third

paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder,
and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic
Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could

give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so

available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work,
then the patent license
you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this

License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option
of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation
of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) by Bruce Korb - all rights reserved

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) by Bruce Korb - all rights reserved
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is
what you want to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,

the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2)

tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that

same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is
covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you

receive it, in any medium, provided that you conspicuously and
appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;
keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,
and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to
produce it from the Program, in the form of source code under the
terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified
it, and giving a relevant date.

b) The work must carry prominent notices stating that it is
released under this License and any conditions added under section
7. This requirement modifies the requirement in section
4 to
"keep intact all notices".

c) You must license the entire work, as a whole, under this
License to anyone who comes into possession of a copy. This
License will therefore apply, along with any applicable section 7
additional terms, to the whole of the work, and all its parts,
regardless of how they are packaged. This License gives no
permission to license the work in any other way, but it does not
invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
in or on a volume of a storage or distribution
medium, is called an
"aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other

parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided

you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and

adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some

trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that

copyright
holder, and you cure the violation prior to 30 days after
your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered

work, then the patent license
you grant is automatically extended to all recipients of the covered
work and works based on it.

A patent license is "discriminatory" if it does not include within
the scope of its coverage, prohibits the exercise of, or is
conditioned on the non-exercise of one or more of the rights that are
specifically granted under this License. You may not convey a covered
work if you are a party to an arrangement with a third party that is
in the business of distributing software, under which you make payment
to the third party based on the extent of your activity of conveying
the work, and under which the third party grants, to any of the
parties who would receive the covered work from you, a discriminatory
patent license (a) in connection with copies of the covered work
conveyed by you (or copies made from those copies), or (b) primarily
for and in connection with specific products or compilations that
contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public
License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS),

EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want
to do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.

1.439 openssl 1.1.1n

1.439.1 Available under license :

LICENSE ISSUES
==============

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

/* ==
* Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright

* notice, this list of conditions and the following disclaimer in
* the documentation and/or other materials provided with the
* distribution.
*
* 3. All advertising materials mentioning features or use
of this
* software must display the following acknowledgment:
* "This product includes software developed by the OpenSSL Project
* for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
* endorse or promote products derived from this software without
* prior written permission. For written permission, please contact
* openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
* nor may "OpenSSL" appear in their names without prior written
* permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
* acknowledgment:
* "This product includes software developed by the OpenSSL Project
* for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

```
/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to.  The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code.  The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*    must display the following acknowledgement:
*    "This product includes cryptographic software written by
*     Eric Young (eay@cryptsoft.com)"
*    The word 'cryptographic' can be left out if the rouines from the library
*    being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*    the apps directory (application code) you must include
 an acknowledgement:
*    "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
```

* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their

rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the

notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt

otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the
Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if
a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made

generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE
PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free
Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c'
for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public
License instead of this License.

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a
Package may be copied, such that the Copyright Holder maintains some
semblance of artistic control over the development of the package,
while giving the users of the package the right to use and distribute
the Package in a more-or-less customary fashion, plus the right to make
reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis
of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent
notice in each changed file stating how and
when you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable
form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided
that you do not advertise this Package as a
product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as output from the programs of this Package do not automatically fall under the copyright of this Package, but belong to whoever generated them, and may be sold commercially, and may be aggregated with this Package. If such scripts or library files are aggregated with this Package via the so-called "undump" or "unexec" methods of producing a binary executable image, then distribution of such an image shall neither be construed as a distribution of this Package nor shall it fall under the restrictions of Paragraphs 3 and 4, provided that you do not represent such an executable image as a Standard Version of this Package.

7. C subroutines
(or comparably compiled subroutines in other
languages) supplied by you and linked into this Package in order to
emulate subroutines and variables of the language defined by this
Package shall not be considered part of this Package, but are the
equivalent of input as in Paragraph 6, provided these subroutines do
not change the language in any way that would cause it to fail the
regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always
permitted provided that the use of this Package is embedded; that is,
when no overt attempt is made to make this Package's interfaces visible
to the end user of the commercial distribution. Such use shall not be
construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote
products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT
LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

1.440 openssl 1.1.1f-1ubuntu2.12

1.440.1 Notifications :

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit
(http://www.openssl.org/)
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

1.440.2 Available under license :

This package was debianized by Christoph Martin martin@uni-mainz.de on
Fri, 22 Nov 1996 21:29:51 +0100.

Copyright (c) 1998-2004 The OpenSSL Project
Copyright (c) 1995-1998 Eric A. Young, Tim J. Hudson

The upstream sources were obtained from https://www.openssl.org/

LICENSE ISSUES
==============

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.

See below for the actual license texts. Actually both licenses are BSD-style
Open Source licenses. In case of any license issues related to OpenSSL
please contact openssl-core@openssl.org.

OpenSSL License

```
/* ====================================================================
* Copyright (c) 1998-2004 The OpenSSL Project.  All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions
 of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. All advertising materials mentioning features or use of this
*    software must display the following acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For written permission, please contact
*    openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*    nor may "OpenSSL" appear in their names without
 prior written
*    permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
```

* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ===
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the
holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the

* documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
* must display the following acknowledgement:
* "This product includes cryptographic software written by
* Eric Young (eay@cryptsoft.com)"
* The word 'cryptographic' can be left out if the rouines from the library
* being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
* the apps directory (application code) you must include an acknowledgement:
* "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

1.441 databases 0.5.5

1.441.1 Available under license :

BSD-style without advertising clause

1.442 motor 2.5.1

1.442.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.443 loguru 0.6.0

1.443.1 Available under license :

MIT
MIT License

Copyright (c) 2017

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

1.444 systemd 231

1.444.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the

program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based
on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your

cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each

time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates

the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License,
or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w'
and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your

school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

1.445 libnetfilter-conntrack 1.0.5

1.445.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid

anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work
which contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program

is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim
copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably
considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based

on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free
redistribution of the Program by
all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through
any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c'
should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.446 apache-http-server 2.4.53

1.446.1 Available under license :

Apache HTTP Server
Copyright 2022 The Apache Software Foundation.

This product includes software developed at

The Apache Software Foundation (https://www.apache.org/).

Portions of this software were developed at the National Center
for Supercomputing Applications (NCSA) at the University of
Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security
Inc. MD5 Message-Digest Algorithm, including various
modifications by Spyglass Inc., Carnegie Mellon University, and
Bell Communications Research, Inc (Bellcore).

This software contains code derived from the PCRE library pcreposix.c
source code, written by Philip Hazel, Copyright 1997-2004
by the University of Cambridge, England.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity, whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership
of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their

Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under this License for that Work shall terminate
as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without
modifications, and in Source or Object form, provided that You
meet the following conditions:

(a) You must give any other recipients of the Work or
Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices
stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,
excluding those notices that do not pertain to any part of
the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,
any Contribution intentionally submitted for inclusion in the Work
by You to the Licensor shall be under the terms and conditions of
this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include
the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

APACHE HTTP SERVER SUBCOMPONENTS:

The Apache HTTP Server includes a number of subcomponents with
separate copyright notices and license terms. Your use of the source
code for the these subcomponents is subject to the terms and
conditions of the following licenses.

For the mod_mime_magic component:

```
/*
* mod_mime_magic: MIME type lookup via file magic numbers
* Copyright (c) 1996-1997 Cisco Systems, Inc.
*
* This software was submitted by Cisco Systems to the Apache Group in July
```

* 1997. Future revisions and derivatives of this source code must
* acknowledge Cisco Systems as the original contributor of this module.
* All other
 licensing and usage conditions are those of the Apache Group.
*
* Some of this code is derived from the free version of the file command
* originally posted to comp.sources.unix. Copyright info for that program
* is included below as required.
* ---
* - Copyright (c) Ian F. Darwin, 1987. Written by Ian F. Darwin.
*
* This software is not subject to any license of the American Telephone and
* Telegraph Company or of the Regents of the University of California.
*
* Permission is granted to anyone to use this software for any purpose on any
* computer system, and to alter it and redistribute it freely, subject to
* the following restrictions:
*
* 1. The author is not responsible for the consequences of use of this
* software, no matter how awful, even if they arise from flaws in it.
*
* 2. The origin of this software must not be misrepresented, either by
* explicit claim or by omission. Since
 few users ever read sources, credits
* must appear in the documentation.
*
* 3. Altered versions must be plainly marked as such, and must not be
* misrepresented as being the original software. Since few users ever read
* sources, credits must appear in the documentation.
*
* 4. This notice may not be removed or altered.
* ---
*
*/

For the modules\mappers\mod_imagemap.c component:

 "macmartinized" polygon code copyright 1992 by Eric Haines, erich@eye.com

For the server\util_md5.c component:

/***
* NCSA HTTPd Server
* Software Development Group
* National Center for Supercomputing Applications
* University of Illinois at Urbana-Champaign
* 605 E. Springfield, Champaign, IL 61820

* httpd@ncsa.uiuc.edu
*
* Copyright (C) 1995, Board of Trustees of the University of Illinois
*
****
 *
* md5.c: NCSA HTTPd code which uses the md5c.c RSA Code
*
* Original Code Copyright (C) 1994, Jeff Hostetler, Spyglass, Inc.
* Portions of Content-MD5 code Copyright (C) 1993, 1994 by Carnegie Mellon
*   University (see Copyright below).
* Portions of Content-MD5 code Copyright (C) 1991 Bell Communications
*   Research, Inc. (Bellcore) (see Copyright below).
* Portions extracted from mpack, John G. Myers - jgm+@cmu.edu
* Content-MD5 Code contributed by Martin Hamilton (martin@net.lut.ac.uk)
*
*/

/* these portions extracted from mpack, John G. Myers - jgm+@cmu.edu */
/* (C) Copyright 1993,1994 by Carnegie Mellon University
* All Rights Reserved.
*
* Permission to use, copy, modify, distribute, and sell this software
* and its documentation for any purpose is hereby granted without
* fee, provided that the above copyright notice appear in all copies
* and that both that copyright notice and this permission notice
* appear in supporting
 documentation, and that the name of Carnegie
* Mellon University not be used in advertising or publicity
* pertaining to distribution of the software without specific,
* written prior permission. Carnegie Mellon University makes no
* representations about the suitability of this software for any
* purpose. It is provided "as is" without express or implied
* warranty.
*
* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
* THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
* AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
* FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
* AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
* OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
* SOFTWARE.
*/

/*
* Copyright (c) 1991 Bell Communications Research, Inc. (Bellcore)

*
* Permission to use, copy, modify,
and distribute this material
* for any purpose and without fee is hereby granted, provided
* that the above copyright notice and this permission notice
* appear in all copies, and that the name of Bellcore not be
* used in advertising or publicity pertaining to this
* material without the specific, prior written permission
* of an authorized representative of Bellcore. BELLCORE
* MAKES NO REPRESENTATIONS ABOUT THE ACCURACY OR SUITABILITY
* OF THIS MATERIAL FOR ANY PURPOSE. IT IS PROVIDED "AS IS",
* WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES.
*/

For the util_pcre.c and ap_regex.h components:

Copyright (c) 1997-2004 University of Cambridge

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions
and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

For the srclib\apr\include\apr_md5.h component:

```
/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
  rights reserved.

  License to copy and use this software is granted provided that it
  is identified as the "RSA Data Security, Inc. MD5 Message-Digest
  Algorithm" in all material mentioning or referencing this software
  or this function.

  License is also granted to make and
 use derivative works provided
  that such works are identified as "derived from the RSA Data
  Security, Inc. MD5 Message-Digest Algorithm" in all material
  mentioning or referencing the derived work.

  RSA Data Security, Inc. makes no representations concerning either
  the merchantability of this software or the suitability of this
  software for any particular purpose. It is provided "as is"
  without express or implied warranty of any kind.

  These notices must be retained in any copies of any part of this
  documentation and/or software.
*/
```

For the srclib\apr\passwd\apr_md5.c component:

```
/*
* This is work is derived from material Copyright RSA Data Security, Inc.
*
* The RSA copyright statement and Licence for that original material is
* included below. This is followed by the Apache copyright statement and
* licence for the modifications made to that material.
*/

/* MD5C.C - RSA Data Security, Inc., MD5 message-digest algorithm
*/

/* Copyright (C) 1991-2,
```

RSA Data Security, Inc. Created 1991. All
rights reserved.

License to copy and use this software is granted provided that it
is identified as the "RSA Data Security, Inc. MD5 Message-Digest
Algorithm" in all material mentioning or referencing this software
or this function.

License is also granted to make and use derivative works provided
that such works are identified as "derived from the RSA Data
Security, Inc. MD5 Message-Digest Algorithm" in all material
mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either
the merchantability of this software or the suitability of this
software for any particular purpose. It is provided "as is"
without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this
documentation and/or software.
*/
/*
* The apr_md5_encode() routine uses much code obtained from the FreeBSD 3.0
* MD5 crypt() function,
which is licenced as follows:
* --
* "THE BEER-WARE LICENSE" (Revision 42):
* <phk@login.dknet.dk> wrote this file. As long as you retain this notice you
* can do whatever you want with this stuff. If we meet some day, and you think
* this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp
* --
*/

For the srclib\apr-util\crypto\apr_md4.c component:

* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it
* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm" in all material mentioning or referencing this software
* or this function.
*
* License is also granted

to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the srclib\apr-util\include\apr_md4.h component:

*
* This is derived from material copyright RSA Data Security, Inc.
* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
* rights reserved.
*
* License to copy and use this software is granted provided that it
* is identified as the "RSA Data Security, Inc. MD4 Message-Digest
* Algorithm"
in all material mentioning or referencing this software
* or this function.
*
* License is also granted to make and use derivative works provided
* that such works are identified as "derived from the RSA Data
* Security, Inc. MD4 Message-Digest Algorithm" in all material
* mentioning or referencing the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the srclib\apr-util\test\testmd4.c component:

*
* This is derived from material copyright RSA Data Security, Inc.

* Their notice is reproduced below in its entirety.
*
* Copyright (C) 1990-2, RSA Data Security, Inc. Created 1990. All
* rights reserved.
*
* RSA Data Security, Inc. makes no representations
 concerning either
* the merchantability of this software or the suitability of this
* software for any particular purpose. It is provided "as is"
* without express or implied warranty of any kind.
*
* These notices must be retained in any copies of any part of this
* documentation and/or software.
*/

For the test\zb.c component:

/*   ZeusBench V1.01
     ===============

This program is Copyright (C) Zeus Technology Limited 1996.

This program may be used and copied freely providing this copyright notice
is not removed.

This software is provided "as is" and any express or implied warranties,
including but not limited to, the implied warranties of merchantability and
fitness for a particular purpose are disclaimed. In no event shall
Zeus Technology Ltd. be liable for any direct, indirect, incidental, special,
exemplary, or consequential damaged (including, but not limited to,
procurement of substitute good or services; loss of use, data,
 or profits;
or business interruption) however caused and on theory of liability. Whether
in contract, strict liability or tort (including negligence or otherwise)
arising in any way out of the use of this software, even if advised of the
possibility of such damage.

   Written by Adam Twiss (adam@zeus.co.uk). March 1996

Thanks to the following people for their input:
 Mike Belshe (mbelshe@netscape.com)
 Michael Campanella (campanella@stevms.enet.dec.com)

*/
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en"><head>

<meta content="text/html; charset=UTF-8" http-equiv="Content-Type" />
<!--
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X
This file is generated from xml source: DO NOT EDIT
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X
-->
<title>The Apache License, Version 2.0 - Apache HTTP Server Version 2.4</title>
<link href="./style/css/manual.css" rel="stylesheet" media="all" type="text/css" title="Main stylesheet" />
<link href="./style/css/manual-loose-100pc.css" rel="alternate stylesheet" media="all" type="text/css" title="No Sidebar - Default font size" />
<link href="./style/css/manual-print.css" rel="stylesheet" media="print" type="text/css" /><link rel="stylesheet" type="text/css" href="./style/css/prettify.css"
/>
<script src="./style/scripts/prettify.min.js" type="text/javascript">
</script>

<link href="./images/favicon.ico" rel="shortcut icon" /></head>
<body id="manual-page" class="no-sidebar">
Modules | Directives | FAQ | Glossary | Sitemap
Apache HTTP Server Version 2.4

<img title="<-" alt="<-" src="./images/left.gif" />

Apache > HTTP Server > Documentation > Version 2.4 <h1>The Apache License, Version 2.0</h1>

Available
Languages: en

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

Definitions

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by

the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the
direction or management of such entity,
whether by contract or
otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,
including but not limited to software source code, documentation
source, and configuration files.

"Object" form shall mean any form resulting from mechanical
transformation or translation of a Source form, including but
not limited to compiled object code, generated documentation,
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or
Object form, made available under the License, as indicated by a
copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative
Works" shall mean any work, whether in Source or Object
form, that is based on (or derived from) the Work and for which the
editorial revisions, annotations, elaborations, or other modifications
represent, as a whole, an original work of authorship. For the purposes
of this License, Derivative Works shall not include works that remain
separable from, or merely link (or bind by name) to the interfaces of,
the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including
the original version of the Work and any modifications or additions
to that Work or Derivative Works thereof, that is intentionally
submitted to Licensor for inclusion in the Work by the copyright owner
or by an individual or Legal Entity authorized to submit on behalf of
the copyright owner. For the purposes of this definition, "submitted"
means any form of electronic, verbal, or written communication sent
to the Licensor
or its representatives, including but not limited to
communication on electronic mailing lists, source code control systems,
and issue tracking systems that are managed by, or on behalf of, the

Licensor for the purpose of discussing and improving the Work, but
excluding communication that is conspicuously marked or otherwise
designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity
on behalf of whom a Contribution has been received by Licensor and
subsequently incorporated within the Work.

Grant of Copyright License. Subject to the terms
and conditions of this License, each Contributor hereby grants to You
a perpetual, worldwide, non-exclusive, no-charge, royalty-free,
irrevocable copyright license to reproduce, prepare Derivative Works of,
publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

Grant of Patent License. Subject to the terms
and conditions of this License, each Contributor hereby grants to You a
perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable
(except as stated in this section) patent license to make, have made,
use, offer to sell, sell, import, and otherwise transfer the Work,
where such license applies only to those patent claims licensable
by such Contributor that are necessarily infringed by their
Contribution(s) alone or by combination of their Contribution(s)
with the Work to which such Contribution(s) was submitted. If You
institute patent litigation against any entity (including a
cross-claim or counterclaim in a lawsuit) alleging that the Work
or a Contribution incorporated within the Work constitutes direct
or contributory patent infringement, then any patent licenses
granted to You under
this License for that Work shall terminate
as of the date such litigation is filed.

Redistribution. You may reproduce and distribute
copies of the Work or Derivative Works thereof in any medium, with or
without modifications, and in Source or Object form, provided that You
meet the following conditions:

<ol class="lo-A">
You must give any other recipients of the Work or
Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices
stating that You changed the files; and

You must retain, in the Source form of any Derivative Works
that You distribute, all copyright, patent, trademark, and
attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of
the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its
distribution, then any Derivative Works that You distribute must
include a readable copy of the attribution notices contained
within such NOTICE file, excluding those notices that do not
pertain to any part of the Derivative Works, in at least one
of the following places: within a NOTICE text file distributed
as part of the Derivative Works; within the Source form or
documentation, if provided along with the Derivative Works; or,
within a display generated by the Derivative Works, if and
wherever such third-party notices normally appear. The contents
of the NOTICE file are for informational purposes only and
do not modify the License. You may add Your own attribution
notices within Derivative Works that You distribute, alongside
or as an addendum to the NOTICE text from the Work, provided
that such additional attribution notices cannot be construed
as modifying the License.

You may add Your own copyright statement to Your modifications and
may provide additional or different license terms and conditions
for use, reproduction, or distribution of Your modifications, or
for any such Derivative Works as a whole, provided Your use,
reproduction, and distribution of the Work otherwise complies with
the conditions stated in this License.

Submission of Contributions. Unless You explicitly
state otherwise, any Contribution intentionally submitted for inclusion
in the Work by You to the Licensor shall be under the terms and
conditions of this License, without any additional terms or conditions.
Notwithstanding the above, nothing herein shall supersede or modify
the terms of any separate license agreement you may have executed
with Licensor regarding such Contributions.

Trademarks. This License does not grant permission
to use
the trade names, trademarks, service marks, or product names of
the Licensor, except as required for reasonable and customary use in
describing the origin of the Work and reproducing the content of the
NOTICE file.

Disclaimer of Warranty. Unless required by
applicable law or agreed to in writing, Licensor provides the Work (and
each Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

Limitation of Liability. In no event and under no legal theory, whether in tort (including
negligence), contract, or
otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations,
You may act only
on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification
within third-party archives.

<pre>Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.</pre>

Available Languages: en
 <div
class="section"><h2>Comments</h2><div
class="warning">Notice:
This is not a Q&A section. Comments placed here should be pointed towards suggestions on improving the documentation or server, and may be removed by our moderators if they are either implemented or considered invalid/off-topic. Questions on how to manage the Apache HTTP Server should be directed at either our IRC channel, #httpd, on Libera.chat, or sent to our mailing lists.
<script type="text/javascript"><!--//--><![CDATA[//><!--
var comments_shortname = 'httpd';
var comments_identifier = 'http://httpd.apache.org/docs/2.4/license.html';
(function(w, d) {
  if (w.location.hostname.toLowerCase() == "httpd.apache.org") {
    d.write(' <\/div>');
    var s = d.createElement('script');
    s.type = 'text/javascript';
    s.async = true;
    s.src = 'https://comments.apache.org/show_comments.lua?site=' + comments_shortname + '&page=' +
comments_identifier;
     (d.getElementsByTagName('head')[0] || d.getElementsByTagName('body')[0]).appendChild(s);
  }
  else {
    d.write(' Comments are disabled for this page at the moment.<\/div>');
  }
})(window, document);
//--><!]]></script>
Copyright 2022 The Apache Software Foundation.
Licensed under the <a
href="http://www.apache.org/licenses/LICENSE-2.0">Apache License, Version 2.0.
Modules | Directives | <a
href="http://wiki.apache.org/httpd/FAQ">FAQ | Glossary | <a
href="./sitemap.html">Sitemap <script type="text/javascript"><!--//--><![CDATA[//><!--
if (typeof(prettyPrint) !== 'undefined') {
  prettyPrint();
}

//--><![]></script>
</body></html>

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without

modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade
names, trademarks, service marks, or product names of the Licensor,
except as required for reasonable and customary use in describing the
origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following
boilerplate notice, with the fields enclosed by brackets "[]"
replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate
comment syntax for the file format. We also recommend that a
file or class name and description of purpose be included on the
same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

1.447 fribidi v1.0.11

1.447.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it. You
can use it too, but we

suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the
recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software patents pose a constant threat to the existence
of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and

is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination
fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we
use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library

with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License
to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be
distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered
by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any
executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the
user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed

under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying
or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any

particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing

and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either

version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You
should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.448 openssl 1.1.1n

1.448.1 Available under license :

LICENSE ISSUES
==============

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

/* ==
* Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*

```
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in
*    the documentation and/or other materials provided with the
*    distribution.
*
* 3. All advertising materials mentioning features or use
 of this
*    software must display the following acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*    endorse or promote products derived from this software without
*    prior written permission. For written permission, please contact
*    openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*    nor may "OpenSSL" appear in their names without prior written
*    permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*    acknowledgment:
*    "This product includes software developed by the OpenSSL Project
*    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
 TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ====================================================================
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com).  This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/
```

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include
 an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE

* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
 code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that
you distribute or publish, that in
whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived
from the Program,
and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest

your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even

though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying
the
Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if
a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY

FOR THE PROGRAM,
TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE
PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free
Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c'
for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public
License instead of this License.

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a
Package may be copied, such that the Copyright Holder maintains some
semblance of artistic control over the development of the package,
while giving the users of the package the right to use and distribute

the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis
of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent
notice in each changed file stating how and
when you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive

site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable
form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided
that you do not advertise this Package as a
product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as output from the programs of this Package do not automatically fall under the copyright of this Package, but belong to whoever generated them, and may be sold commercially, and may be aggregated with this Package. If such scripts or library files are aggregated with this Package via the so-called "undump" or "unexec" methods of producing a binary executable image, then distribution of such an image shall

neither be construed as a distribution of this Package nor shall it
fall under the restrictions of Paragraphs 3 and 4, provided that you do
not represent such an executable image as a Standard Version of this
Package.

7. C subroutines
(or comparably compiled subroutines in other
languages) supplied by you and linked into this Package in order to
emulate subroutines and variables of the language defined by this
Package shall not be considered part of this Package, but are the
equivalent of input as in Paragraph 6, provided these subroutines do
not change the language in any way that would cause it to fail the
regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always
permitted provided that the use of this Package is embedded; that is,
when no overt attempt is made to make this Package's interfaces visible
to the end user of the commercial distribution. Such use shall not be
construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote
products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR
IMPLIED WARRANTIES, INCLUDING, WITHOUT
LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

1.449 pcre 8.39-12build1

1.449.1 Available under license :

This is Debian GNU/Linux's prepackaged version of the PCRE regular
expression library and associated pgrep utility.

This package was put together by me, Mark Baker <mbaker@iee.org> from the
original sources obtained from ftp.csx.cam.ac.uk:/pub/software/programming/pcre.

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax
and semantics are as close as possible to those of the Perl 5 language.

Release 7 of PCRE is distributed under the terms of the "BSD" licence, as
specified below. The documentation for PCRE, supplied in the "doc"

directory, is distributed under the same terms as the software itself.

The basic library functions are written in C and are freestanding. Also
included in the distribution is a set of C++ wrapper functions.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

Copyright
(c) 1997-2007 University of Cambridge
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007, Google Inc.
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
  this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the name of Google
  Inc. nor the names of their contributors may be used to endorse or
  promote products derived from this software without specific prior
  written permission.

THIS
 SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

End

1.450 expat 2.2.6-2+deb10u3

1.450.1 Available under license :

Copyright (c) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001-2017 Expat maintainers

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
 ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: Expat
Upstream-Contact: Sebastian Pipping <sebastian@pipping.org>
Source: https://github.com/libexpat/libexpat
Copyright: Copyright (C) Expat maintainers

Files: *

Copyright:
Copyright (C) 1998-2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (C) 2001-2017 Expat maintainers
License: MIT

Files: debian/*
Copyright:
Copyright (C) 1998-2000 Adam Di Carlo <aph@debian.org>
Copyright (C) 2000-2007 Ardo van Rangelrooij <ardo@debian.org>
Copyright (C) 2008-2009 Daniel Leidert (dale) <daniel.leidert@wgdd.de>
Copyright (C) 2013- Laszlo Boszormenyi (GCS) <gcs@debian.org>
License: MIT

License: MIT
Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to
deal in the Software without restriction, including without limitation the
rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or
sell copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:
.
The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.
.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS
IN THE SOFTWARE.

1.451 glibc 2.31-0ubuntu9.7

1.451.1 Available under license :

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.

Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License

along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of

a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under

this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to

decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing
version number. If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE,
THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR
THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some

specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The

former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to

exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that

uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood

that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to

refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our

decision
will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
UNICODE, INC. LICENSE AGREEMENT - DATA FILES AND SOFTWARE

Unicode Data Files include all data files under the directories
http://www.unicode.org/Public/, http://www.unicode.org/reports/, and
http://www.unicode.org/cldr/data/. Unicode Data Files do not include PDF
online code charts under the directory http://www.unicode.org/Public/.
Software includes any source code published in the Unicode Standard or under
the directories http://www.unicode.org/Public/,
http://www.unicode.org/reports/, and http://www.unicode.org/cldr/data/.

NOTICE TO USER: Carefully read the following legal agreement. BY
DOWNLOADING, INSTALLING, COPYING OR OTHERWISE USING UNICODE INC.'S DATA FILES
("DATA FILES"), AND/OR SOFTWARE ("SOFTWARE"), YOU UNEQUIVOCALLY ACCEPT, AND
AGREE TO BE BOUND BY, ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF
YOU DO NOT AGREE, DO NOT DOWNLOAD, INSTALL, COPY, DISTRIBUTE OR USE THE DATA
FILES OR SOFTWARE.

COPYRIGHT AND PERMISSION NOTICE

Copyright 1991-2013 Unicode,

Inc. All rights reserved. Distributed under
the Terms of Use in http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that (a) the above copyright notice(s) and this permission notice appear with all copies of the Data Files or Software, (b) both the above copyright notice(s) and this permission notice appear in associated documentation, and (c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.
This file contains the copying permission notices for various files in the GNU C Library distribution that have copyright owners other than the Free Software Foundation. These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions

are met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in
the
documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF
SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted by UC
Berkeley, by Digital Equipment Corporation and by Internet Software
Consortium. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies, and
that the name of Digital Equipment Corporation not be used in
advertising or publicity pertaining to distribution of the document or
software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS'' AND DIGITAL EQUIPMENT CORP.
DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL
DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES
OR ANY DAMAGES WHATSOEVER RESULTING
FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION
WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The ISC portions are under the following license:

Portions Copyright (c) 1996-1999 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following
license:

Copyright (c) 2010, Oracle America, Inc.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided with the distribution.
* Neither the name of the "Oracle America, Inc." nor the names of its
contributors may be used to endorse or promote products derived
from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY
EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,

WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following CMU license covers some of the support code for Mach,
derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its
documentation is hereby granted, provided that
both the copyright
notice and this permission notice appear in all copies of the
software, derivative works or modified versions, and any portions
thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS''
CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR
ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

Software Distribution Coordinator
School of Computer Science
Carnegie Mellon University
Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or
extensions that they make and grant Carnegie Mellon the rights to
redistribute these changes.

The file if_ppp.h is under the following CMU license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the
above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's "Highly Optimized Mathematical Functions for Itanium" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* The name of Intel Corporation may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright (C) by Craig Metz and are distributed under the following license:

/* The Inner Net License,
Version 2.00

The author(s) grant permission for redistribution and use in source and binary forms, with or without modification, of the software and documentation provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled as not being for redistribution (check the version message and/or README), you are not permitted to redistribute that version of the software in any way or form.
1. All terms of the all other applicable copyrights and licenses must be followed.
2. Redistributions of source code must retain the authors' copyright notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright notice(s), this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s)
of the author(s) nor the names of its contributors
may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */

The file sunrpc/des_impl.c
is copyright Eric Young:

Copyright (C) 1992 Eric Young

Collected from libdes and modified for SECURE RPC by Martin Kuck 1994
This file is distributed under the terms of the GNU Lesser General
Public License, version 2.1 or later - see the file COPYING.LIB for details.
If you did not receive a copy of the license with this program, please
see <https://www.gnu.org/licenses/> to obtain a copy.

The file inet/rcmd.c is under a UCB copyright and the following:

Copyright (C) 1998 WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with
 the distribution.
3. Neither the name of the project nor the names of its contributors
  may be used to endorse or promote products derived from this software
  without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

The file posix/runtests.c is copyright Tom Lord:

Copyright
 1995 by Tom Lord

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the name of the copyright holder not be

used in advertising or publicity pertaining to distribution of the
software without specific, written prior permission.

Tom Lord DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL TOM LORD BE LIABLE FOR ANY SPECIAL, INDIRECT OR
CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR
OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

The posix/rxspencer tests
are copyright Henry Spencer:

Copyright 1992, 1993, 1994, 1997 Henry Spencer. All rights reserved.
This software is not subject to any license of the American Telephone
and Telegraph Company or of the Regents of the University of California.

Permission is granted to anyone to use this software for any purpose on
any computer system, and to alter it and redistribute it, subject
to the following restrictions:

1. The author is not responsible for the consequences of use of this
software, no matter how awful, even if they arise from flaws in it.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. Since few users ever read sources,
credits must appear in the documentation.

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software. Since few users
ever read sources, credits must appear in the documentation.

4. This notice may not be removed or altered.

The file posix/PCRE.tests
is copyright University of Cambridge:

Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any
computer system, and to redistribute it freely, subject to the following
restrictions:

1. This software is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

2. The origin of this software must not be misrepresented, either by
explicit claim or by omission. In practice, this means that if you use
PCRE in software that you distribute to others, commercially or
otherwise, you must put a sentence like this

Regular expression support is provided by the PCRE library package,
which is open source software, written by Philip Hazel, and copyright
by the University of Cambridge, England.

somewhere reasonably visible in your documentation and in any relevant
files or online
help data or similar. A reference to the ftp site for
the source, that is, to

ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/

should also be given in the documentation. However, this condition is not
intended to apply to whole chains of software. If package A includes PCRE,
it must acknowledge it, but if package B is software that includes package
A, the condition is not imposed on package B (unless it uses PCRE
independently).

3. Altered versions must be plainly marked as such, and must not be
misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU
General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL),
then the terms of that licence shall supersede any condition above with
which it is incompatible.

Files from Sun fdlibm are copyright Sun Microsystems, Inc.:

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems,
Inc. business.
Permission to use, copy, modify, and distribute this
software is freely granted, provided that this notice
is preserved.

Various long double libm functions are copyright Stephen L. Moshier:

Copyright 2001 by Stephen L. Moshier <moshier@na-net.ornl.gov>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, see
<https://www.gnu.org/licenses/>. */

1.452 activation 1.2.2

1.452.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS
IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Notices for Jakarta Activation

This content is produced and maintained by Jakarta Activation project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaf

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Distribution License v. 1.0,
which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaf

Third-party Content

This project leverages the following third party content.

JUnit (4.12)

* License: Eclipse Public License

1.453 activation-api 1.2.2

1.453.1 Available under license :

Copyright (c) 2018 Oracle and/or its affiliates. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:

- Redistributions of source code must retain the above copyright
  notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.

- Neither the name of the Eclipse Foundation, Inc. nor the names of its
  contributors may be used to endorse or promote products derived
  from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Eclipse Distribution License - v 1.0

Copyright (c) 2007, Eclipse Foundation, Inc. and its licensors.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Notices for Jakarta Activation

This content is produced and maintained by Jakarta Activation project.

* Project home: https://projects.eclipse.org/projects/ee4j.jaf

Copyright

All content is the property of the respective authors or their employers. For
more information regarding authorship of content, please consult the listed
source code repository logs.

Declared Project Licenses

This program and the accompanying materials are made available under the terms
of the Eclipse Distribution License v. 1.0,
which is available at http://www.eclipse.org/org/documents/edl-v10.php.

SPDX-License-Identifier: BSD-3-Clause

Source Code

The project maintains the following source code repositories:

* https://github.com/eclipse-ee4j/jaf

Third-party Content

This project leverages the following third party content.

JUnit (4.12)

* License: Eclipse Public License

1.454 zlib 1.2.11

1.454.1 Available under license :

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization
obtaining a copy of the software and accompanying documentation covered by
this license (the "Software") to use, reproduce, display, distribute,
execute, and transmit the Software, and to prepare derivative works of the
Software, and to permit third-parties to whom the Software is furnished to
do so, all subject to the following:

The copyright notices in the Software and this entire statement, including
the above license grant, this restriction and the following disclaimer,
must be included in all copies of the Software, in whole or in part, and
all derivative works of the Software, unless such copies or derivative
works are solely in the form of machine-executable object code generated by
a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,

FITNESS
FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT
SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE
FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.

/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.11, January 15th, 2017

Copyright (C) 1995-2017 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied
warranty. In no event will the authors be held liable for any damages
arising from the use of this software.

Permission is granted to anyone to use this software for any purpose,
including commercial applications, and to alter it and redistribute it
freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not
claim that you wrote the original software. If you use this software
in a product, an acknowledgment in the product documentation would be
appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be
misrepresented as being the original software.
3. This notice may not be removed or altered from any source
distribution.

Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for
Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950
(zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).
*/

1.455 chardet 4.0.0

1.455.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest
you first think carefully about whether
this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients
all the rights that we gave
you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is

modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of

free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based

on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library,

and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to
a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to

distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference

directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license

restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute
so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people
have made
generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public
License from time to time.
Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library

specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of
all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting

redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line
and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should
also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.456 packaging 20.4

1.456.1 Available under license :

Apache License
Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this
License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the
content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or
agreed to in writing, Licensor provides the Work (and each
Contributor provides its Contributions) on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or
implied, including, without limitation, any warranties or conditions
of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A
PARTICULAR PURPOSE. You are solely responsible for determining the
appropriateness of using or redistributing the Work and assume any
risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,
whether in tort (including negligence), contract, or otherwise,
unless required by applicable law (such as deliberate and grossly
negligent acts) or agreed to in writing, shall any Contributor be
liable to You for damages, including any direct,
indirect, special,
incidental, or consequential damages of any character arising as a
result of this License or out of the use or inability to use the
Work (including but not limited to damages for loss of goodwill,
work stoppage, computer failure or malfunction, or any and all
other commercial damages or losses), even if such Contributor
has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing
the Work or Derivative Works thereof, You may choose to offer,
and charge a fee for, acceptance of support, warranty, indemnity,
or other liability obligations and/or rights consistent with this
License. However, in accepting such obligations, You may act only
on Your own behalf and on Your sole responsibility, not on behalf
of any other Contributor, and only if You agree to indemnify,
defend, and hold each Contributor harmless for any liability
incurred by, or claims asserted against, such Contributor by reason
of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS
This software is made available under the terms of *either* of the licenses
found in LICENSE.APACHE or LICENSE.BSD. Contributions to this software is made
under the terms of *both* these licenses.
Copyright (c) Donald Stufft and individual contributors.
All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,

this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.457 openssl 1.1.1l

1.457.1 Available under license :

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a double license, i.e. both the conditions of
the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts.

OpenSSL License

/* ==
* Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in
*   the documentation and/or other materials provided with the
*   distribution.
*

* 3. All advertising materials mentioning features or use
 of this
*   software must display the following acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For written permission, please contact
*   openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL"
*   nor may "OpenSSL" appear in their names without prior written
*   permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by the OpenSSL Project
*   for use in the OpenSSL Toolkit (http://www.openssl.org/)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
 TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
* ==
*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
*
* This package is an SSL implementation written

* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
 *
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
*   "This product includes cryptographic software written by
*   Eric Young (eay@cryptsoft.com)"
*   The word 'cryptographic' can be left out if the rouines from the library
*   being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
*   the apps directory (application code) you must include
 an acknowledgement:
*   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*

* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this
 code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price.
Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which

gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and
modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This
License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language. (Hereinafter, translation is included without limitation in
the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope. The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may
copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete
machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial distribution and only if
you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even
though third parties are not
compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License. Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the
Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if
a patent
license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he

or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number.
If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM,
TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c'
for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public
License instead of this License.

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been
modified, or has been modified in accordance with the wishes
of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or
copyrights for the package.

"You" is you, if you're thinking about copying or distributing
this Package.

"Reasonable copying fee" is whatever you can justify on the
basis
of media cost, duplication charges, time of people involved,
and so on. (You will not be required to justify it to the
Copyright Holder, but only to the computing community at large
as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item
itself, though there may be fees involved in handling the item.
It also means that recipients of the item may redistribute it
under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the
Standard Version of this Package without restriction, provided that you
duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications
derived from the Public Domain or from the Copyright Holder. A Package
modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided
that you insert a prominent
notice in each changed file stating how and
when you changed that file, and provided that you do at least ONE of the
following:

a) place your modifications in the Public Domain or otherwise make them
Freely Available, such as by posting said modifications to Usenet or
an equivalent medium, or placing the modifications on a major archive
site such as uunet.uu.net, or by allowing the Copyright Holder to include
your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict
with standard executables, which must also be provided, and provide
a separate manual page for each non-standard executable that clearly

documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable
form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided
that you do not advertise this Package as a
product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as output from the programs of this Package do not automatically fall under the copyright of this Package, but belong to whoever generated them, and may be sold commercially, and may be aggregated with this Package. If such scripts or library files are aggregated with this Package via the so-called "undump" or "unexec" methods of producing a binary executable image, then distribution of such an image shall neither be construed as a distribution of this Package nor shall it fall under the restrictions of Paragraphs 3 and 4, provided that you do not represent such an executable image as a Standard Version of this Package.

7. C subroutines
(or comparably compiled subroutines in other
languages) supplied by you and linked into this Package in order to

emulate subroutines and variables of the language defined by this Package shall not be considered part of this Package, but are the equivalent of input as in Paragraph 6, provided these subroutines do not change the language in any way that would cause it to fail the regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always permitted provided that the use of this Package is embedded; that is, when no overt attempt is made to make this Package's interfaces visible to the end user of the commercial distribution. Such use shall not be construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT
LIMITATION, THE IMPLIED
WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

1.458 cglib 3.3.0

1.458.1 Available under license :

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership

of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial
revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License,
each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute
copies of the
Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding
those notices that do not
pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct,

indirect, special,
incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
This product includes software developed by
The Apache Software Foundation (http://www.apache.org/).

1.459 audit 2.8.5-2ubuntu6

1.459.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors
who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,

whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.
^L
Finally,
software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore
permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many

libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library
in order to run.
^L
GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under

copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly
into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation
and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it,
in any medium, provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and
can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms
of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.
^L
Once this change is made in a given copy, it is irreversible for

that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the
complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a
"work that uses the
library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may

distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

a) Accompany the work with the complete corresponding
machine-readable source code for the Library including whatever
changes were used in the work (which must be distributed under
Sections 1 and 2 above); and, if the work is an executable linked
with the Library, with the complete machine-readable "work that
uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the
Library. A suitable mechanism is one that (1) uses at run time a
copy of the library already present on the user's computer system,
rather than copying library functions into the executable, and (2)

will operate properly with a modified version of the library, if
the user installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at
least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy

from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not

signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License,
they do not
excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software
distribution system which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License
may add an explicit geographical distribution limitation excluding those
countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

13. The Free Software Foundation
may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN

WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS
PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source
file to most
effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor,
Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which
contains
a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies
of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices
stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in
whole
or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as

distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

1.460 util-linux 2.34-0.1ubuntu9.3

1.460.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the

program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause

any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who
decide to use it. You
can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with

the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data

prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the

ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that
uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object

file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the
object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany
the work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
properly with a modified version of the library, if
the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at

least three years, to give the same user the materials
specified in Subsection 6a, above, for a charge no more
than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy
from a designated place, offer equivalent access to copy the above
specified materials from the same place.

e) Verify that the user has already received a copy of these
materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally
distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work
based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the
Sections above.

b) Give prominent notice with the combined library of the fact
that part of it is a work based on the Library, and explaining
where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License. Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your

rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if
you do not accept this License. Therefore, by
modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse
you from the conditions of this License. If you cannot
distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system
which is
implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that

system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE

LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE,
BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey
the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301

USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
  notice, and the entire permission notice in its entirety,
  including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
  notice, this list of conditions and the following disclaimer in the
  documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
  products derived from this software without specific prior
  written permission.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF
WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL
 DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
This library is free software; you can redistribute it and/or
modify it under the terms of the Modified BSD License.

The complete text of the license is available in the
../Documentation/licenses/COPYING.BSD-3-Clause file.
Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above

copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later
This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later
version.

The complete text of the license is available in the
../Documentation/licenses/COPYING.LGPL-2.1-or-later file.
/*
* Copyright (c) 1989 The Regents of the University of California.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in the
*   documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*   must display the following acknowledgement:
* This product includes software developed by the University of
* California, Berkeley and its contributors.
* 4. Neither the name of the University nor the names of its contributors
*   may be used to endorse or promote products derived from this software
*
 without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE

* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*/

1.461 libidn 2.0.5-1+deb10u1

1.461.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users. We, the Free Software Foundation, use the
GNU General Public License for most of our software; it applies also to
any other work released this way by its authors. You can apply it to
your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
them if you wish), that you receive source code or can get it if you
want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you
these rights or asking you to surrender the rights. Therefore, you have
certain responsibilities if you distribute copies of the software, or if
you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The

"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with

the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified

it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years

and valid for as
long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user

actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions

apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does

not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or

modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For
purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that

contain the covered work, unless you entered into that arrangement,
or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting
any implied license or other defenses to infringement that may
otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License. If you cannot convey a
covered work so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you may
not convey it at all. For example, if you agree to terms that obligate you
to collect a royalty for further conveying from those to whom you convey
the Program, the only way you could satisfy both those terms and this
License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have
permission to link or combine any covered work with a work licensed
under version 3 of the GNU Affero General Public License into a single
combined work, and to convey the resulting work. The terms of this
License will continue to apply to the part which is the covered work,
but the special requirements of the GNU Affero General Public License,
section 13, concerning interaction through a network will apply to the
combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of
the GNU General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the
Program specifies that a certain numbered version of the GNU General
Public License "or any later version" applies to it, you
have the
option of following the terms and conditions either of that numbered
version or of any later version published by the Free Software
Foundation. If the Program does not specify a version number of the
GNU General Public License, you may choose any version ever published
by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY
OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you

may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
 do, use the GNU Lesser General
Public License instead of this License. But first, please read
<http://www.gnu.org/philosophy/why-not-lgpl.html>.
Format: http://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: Libidn2
Upstream-Contact: Simon Josefsson <simon@josefsson.org>
Source: https://www.gnu.org/software/libidn/#libidn2

Files: *
Copyright: Copyright (C) 2011-2014 Simon Josefsson
License: GPL-3+

Files: *.c *.h
Copyright: Copyright (C) 2011-2014 Simon Josefsson
License: LGPL-3+ or GPL-2+

Files: build-aux/* lib/* GNUmakefile maint.mk
Copyright: Copyright (C) 2001-2011 Free Software Foundation, Inc.
License: GPL-3+

Files: doc/gdoc
Copyright: Copyright (c) 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 Simon Josefsson
        Copyright (c) 2001, 2002 Nikos Mavrogiannopoulos
        Copyright (c) 1998 Michael Zucchi
License: GPL-3+

Files: lib/IdnaMappingTable.txt lib/DerivedNormalizationProps.txt tests/IdnaTest.txt
Copyright: Copyright (c) 1991-2010 Unicode, Inc.
License: Unicode

License: GPL-3+
This program is free software: you can redistribute it and/or modify
it under the terms
 of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
.
On Debian GNU/Linux systems, the complete text of the GNU General Public

License version 3 can be found in /usr/share/common-licenses/GPL-3.

License: GPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will
be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
.
On Debian GNU/Linux systems, the complete text of the GNU General Public
License version 2 can be found in /usr/share/common-licenses/GPL-2.

License: LGPL-3+
This program is free software: you can redistribute it and/or modify
it under the terms of the GNU Lesser General Public License as published
by the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have
received a copy of the GNU Lesser General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
.
On Debian GNU/Linux systems, the complete text of the GNU Lesser General
Public License version 3 can be found in /usr/share/common-licenses/LGPL-3.

License: Unicode
For terms of use, see http://www.unicode.org/terms_of_use.html
Copyright Â© 1991-2011 Unicode, Inc. All rights reserved. Distributed
under the Terms of Use in http://www.unicode.org/copyright.html.
.
Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated
documentation (the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,

copy, modify, merge, publish, distribute, and/or sell copies of the
Data Files or Software, and to permit persons to whom the Data Files
or Software are
furnished to do so, provided that (a) the above
copyright notice(s) and this permission notice appear with all copies
of the Data Files or Software, (b) both the above copyright notice(s)
and this permission notice appear in associated documentation, and
(c) there is clear notice in each modified Data File or in the
Software as well as in the documentation associated with the Data
File(s) or Software that the data or software has been modified.
.
THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE
COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY
CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY
DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE
OF THE DATA FILES OR SOFTWARE.
.
Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

1.462 libunistring 0.9.10-1

1.462.1 Available under license :

Format: http://svn.debian.org/wsvn/dep/web/deps/dep5.mdwn?op=file&rev=202
Upstream-Name: libunistring
Upstream-Contact: Bruno Haible <bruno@clisp.org>
Source: http://ftp.gnu.org/gnu/libunistring/

Files: *
Copyright: 1995-2017 Free Software Foundation, Inc.
License: LGPL-3+ or GPL-2+

Files: gnulib-m4/* m4/*.m4
Copyright: 1995-2017 Free Software Foundation, Inc.
License: FreeSoftware
This file is free software; the Free Software Foundation
gives unlimited permission to copy and/or distribute it,
with or without modifications, as long as this notice is preserved.

Files: m4/init-package-version.m4
build-aux/ltmain.sh
Copyright: 1992-2009, Free Software Foundation, Inc.
License: GPL-2+ with distribution exception
This file is free software, distributed under the terms of the GNU
General Public License. As a special exception to the GNU General
Public License, this file may be distributed as part of a program
that contains a configuration script generated by Autoconf, under
the same distribution terms as the rest of that program.

Files: doc/*
Copyright: 2001-2017 Free Software Foundation, Inc.
License: GPL-3+ or GFDL-1.2+

Files: tests/* woe32dll/* autogen.sh
Copyright: 1990-2017 Free Software Foundation, Inc.
License: GPL-3+

Files: build-aux/*
Copyright: 1995-2017 Free Software Foundation, Inc.
License: GPL-2+

Files: build-aux/texi2html
Copyright: 1999-2005 Patrice Dumas <dumas@centre-cired.fr>,
1999-2005 Derek Price <derek@ximbiot.com>,
1999-2005 Adrian Aichner <adrian@xemacs.org>
License: GPL-2+

Files: build-aux/install-sh
Copyright: 1994, X Consortium
License: MIT

Files: debian/*
Copyright: 2009-2011 Andreas Rottmann <rotty@debian.org>
2017 Jrg Frings-Frst <debian@jff.email>
License: GPL-3+

License: LGPL-3+
This program is free software: you can redistribute it and/or modify it
under the terms of the GNU Lesser General Public License as published
by the Free Software Foundation; either version 3 of the License,
or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

.
You should have received a copy of the GNU Lesser General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
.
On Debian systems the full text of the GNU Lesser General Public
License version 3 can be found in the file
`/usr/share/common-licenses/LGPL-3'.

License: GPL-3+
This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 3 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY
 or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program. If not, see <http://www.gnu.org/licenses/>.
.
On Debian systems the full text of the GNU General Public License
version 3 can be found in the file
`/usr/share/common-licenses/GPL-3'.

License: GPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2, or (at your option)
any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
 Foundation, Inc., 51 Franklin Street, Fifth Floor,
Boston, MA 02110-1301, USA.
.
On Debian systems the full text of the GNU General Public License
version 2 can be found in the file
`/usr/share/common-licenses/GPL-2'.

License: GFDL-1.2+

This manual is covered by the GNU FDL. Permission is granted to
copy, distribute and/or modify this document under the terms of the
GNU Free Documentation License (FDL), either version 1.2 of the
License, or (at your option) any later version published by the Free
Software Foundation (FSF); with no Invariant Sections, with no
Front-Cover Text, and with no Back-Cover Texts.
.
On Debian systems the full text of the GNU Free Documentation License
version 1.2 can be found in the file
`/usr/share/common-licenses/GFDL-1.2'.

License: MIT
Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to
deal in the Software without restriction, including without
 limitation the
rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
sell copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:
.
The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.
.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN
AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNEC-
TION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
.
Except as contained in this notice, the name of the X Consortium shall not
be used in advertising or otherwise to promote the sale, use or other deal-
ings in this Software
 without prior written authorization from the X Consor-
tium.

1.463 libpkit 0.23.15-2+deb10u1

1.463.1 Available under license :

Format: http://dep.debian.net/deps/dep5
Upstream-Name: p11-kit
Source: https://p11-glue.github.io/p11-glue/p11-kit.html

Files: *
Copyright: 2011 Collabora Ltd.
License: BSD-3-Clause

Files: p11-kit/conf.* p11-kit/proxy.c
common/dict.c common/dict.h
Copyright: 2011 Collabora Ltd.
2004 Stefan Walter
License: BSD-3-Clause

Files: p11-kit/modules.c
common/dict.c common/dict.h
Copyright: 2008 Stefan Walter
2011 Collabora Ltd.
2017 Red Hat, Inc.
License: BSD-3-Clause

Files: common/buffer.c common/buffer.h
Copyright: 2007, 2012 Stefan Walter
2013 Red Hat Inc.
License: BSD-3-Clause

Files: common/library.c common/library.h common/message.c
p11-kit/client-init.c p11-kit/proxy-init.c common/init.h
Copyright: 2011 Collabora Ltd.
2012 Stef Walter
License: BSD-3-Clause

Files: common/url.c common/url.h
Copyright: 2011 Collabora Ltd.
2013 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/log.c
Copyright: 2007, Stefan Walter
2013, Red Hat Inc.
License:
BSD-3-Clause

Files: common/pkcs11.h
Copyright: 2006, 2007 g10 Code GmbH
2006 Andreas Jellinghaus
Copyright 2017 Red Hat, Inc.
License: permissive-like-automake-output
This file is free software; as a special exception the author gives
unlimited permission to copy and/or distribute it, with or without
modifications, as long as this notice is preserved.
.
This file is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY, to the extent permitted by law; without even
the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. */

Files: common/argv.c common/argv.h common/hash.h
trust/oid.c trust/oid.h
trust/pem.c trust/pem.h common/argv.c common/argv.h common/pkcs11x.h
common/pkcs11i.h
common/test-constants.c common/test-hash.c
p11-kit/pkcs11.h p11-kit/test-managed.c
trust/builder.c trust/builder.h trust/digest.h trust/module.c
trust/module.h trust/module-init.c trust/pem.c
trust/pem.h trust/oid.c
trust/oid.h trust/parser.h
trust/session.c trust/session.h trust/frob-cert.c
trust/frob-eku.c trust/frob-token.c
trust/test-digest.c trust/test-enumerate.c
trust/test-index.c trust/test-module.c trust/test-oid.c
trust/test-parser.c trust/test-pem.c trust/test-token.c
trust/token.c trust/token.h trust/test-trust.c
trust/test-trust.h trust/x509.c trust/x509.h p11-kit/frob-setuid.c
Copyright: 2012 Red Hat Inc.
License: BSD-3-Clause

Files: common/attrs.c common/attrs.h
Copyright: 2012, Redhat Inc.
2011, Collabora Ltd.
License: BSD-3-Clause

Files: common/test-attrs.c common/test-buffer.c
trust/frob-ku.c trust/frob-oid.c trust/test-asn1.c
Copyright: 2012, Redhat Inc.
License: BSD-3-Clause

Files: p11-kit/test-modules.c
Copyright: 2012, 2015, 2016 Red Hat Inc
License: BSD-3-Clause

Files: common/constants.c common/constants.h common/test.c
common/test.h common/test-compat.c common/test-tests.c
common/tool.h p11-kit/deprecated.h
p11-kit/docs.h p11-kit/log.h p11-kit/modules.h
p11-kit/proxy.h
p11-kit/test-log.c trust/anchor.c trust/anchor.h
trust/enumerate.c trust/enumerate.h trust/extract.c
trust/extract-cer.c trust/extract.h
trust/extract-openssl.c trust/extract-pem.c trust/index.c
trust/index.h trust/list.c trust/list.h trust/persist.c

trust/persist.h trust/save.c trust/save.h trust/frob-bc.c
trust/frob-ext.c trust/frob-pow.c
trust/test-base64.c
trust/test-builder.c trust/test-save.c
trust/test-utf8.c trust/test-x509.c
trust/types.h trust/utf8.c trust/utf8.h
Copyright: 2013, Redhat Inc.
License: BSD-3-Clause

Files: p11-kit/remote.h common/frob-getenv.c
common/unix-peer.h
Copyright: 2014 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/server.c
common/unix-peer.h
Copyright: 2014 Red Hat Inc.
License: BSD-3-Clause
Comment: make_private_security_descriptor() and the helper functions were
* copied from putty/windows/winsecur.c in the PuTTY source code as of
* git commit 12bd5a6c722152aa27f24598785593e72b3284ea.
*
* PuTTY is copyright
1997-2017 Simon Tatham.
*
* Portions copyright Robert de Bath, Joris van Rantwijk, Delian
* Delchev, Andreas Schultz, Jeroen Massar, Wez Furlong, Nicolas Barry,
* Justin Bradford, Ben Harris, Malcolm Smith, Ahmad Khalifa, Markus
* Kuhn, Colin Watson, Christopher Staite, and CORE SDI S.A.
*
* Permission is hereby granted, free of charge, to any person
* obtaining a copy of this software and associated documentation files
* (the "Software"), to deal in the Software without restriction,
* including without limitation the rights to use, copy, modify, merge,
* publish, distribute, sublicense, and/or sell copies of the Software,
* and to permit persons to whom the Software is furnished to do so,
* subject to the following conditions:
*
* The above copyright notice and this permission notice shall be
* included in all copies or substantial portions of the Software.

Files: p11-kit/remote.c
Copyright: 2014,2016 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/test-mock.c
Copyright:
2012 Stefan Walter
2012-2013 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/test-virtual.c
Copyright: 2012 Stefan Walter
2012 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/test-transport.c
Copyright: 2012 Stefan Walter
2012-2017 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/test-rpc.c
Copyright: 2012 Stefan Walter
Copyright (C) 2012-2017 Red Hat Inc.
License: BSD-3-Clause

Files: common/runtime.* common/test-runtime.c p11-kit/test-server.*
trust/extract-edk2.c
Copyright: (C) 2018 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/mock-module-ep5.c
Copyright: 2012 Stefan Walter
2018 Red Hat Inc.
License: BSD-3-Clause

Files: trust/test-edk2.c
Copyright: 2011, Collabora Ltd.
2018 Red Hat Inc.
License: BSD-3-Clause

Files: trust/extract-jks.c trust/test-jks.c
Copyright: 2019, Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/rpc-transport.c
Copyright: 2012 Stefan Walter
2013 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/test-deprecated.c
Copyright:
2011, Collabora Ltd.
2012 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/virtual.c trust/asn1.c trust/asn1.h p11-kit/rpc-client.c
p11-kit/rpc-message.c p11-kit/rpc-message.h p11-kit/rpc-server.c
Copyright: 2008 Stefan Walter
2012 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/rpc.h
Copyright: 2012-2013 Stefan Walter
License: BSD-3-Clause

Files: trust/digest.c trust/digest.c common/hash.c
Copyright: 2004, 2005, 2007, 2011 Internet Systems Consortium, Inc. ("ISC")
2000, 2001, 2003 Internet Software Consortium.
License: ISC
Permission to use, copy, modify, and/or distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.
.
THE SOFTWARE IS PROVIDED "AS IS" AND ISC DISCLAIMS ALL WARRANTIES WITH
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS. IN NO EVENT SHALL ISC BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT,
OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.

Files: trust/base64.c trust/base64.h
Copyright: 1996, 1998 by Internet Software Consortium
Portions Copyright (c) 1995 by International Business Machines, Inc.
License: ISC+IBM
Copyright (c) 1996, 1998 by Internet Software Consortium.
.
Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.
.
THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS
ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE
CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL

DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

.

.

Portions Copyright (c) 1995 by International Business Machines, Inc.

.

International Business Machines, Inc. (hereinafter called IBM) grants permission under its copyrights to use, copy, modify, and distribute this Software with or without fee, provided that the above copyright notice and all paragraphs of this notice appear in all copies, and that the name of IBM not be used in connection with the marketing of any product incorporating the Software or modifications thereof, without specific, written prior permission.

.

To the extent it has a right to do so, IBM grants an immunity from suit under its patents, if any, for the use, sale or manufacture of products to the extent that such products are used for performing Domain Name System dynamic updates in TCP/IP networks by means of the Software. No immunity is granted for any product per se or for any other function of any product.

.

THE SOFTWARE IS PROVIDED "AS IS", AND IBM DISCLAIMS ALL WARRANTIES, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL IBM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE, EVEN IF IBM IS APPRISED OF THE POSSIBILITY OF SUCH DAMAGES.

Files: common/lexer.c common/lexer.h common/path.c
Copyright: 2005 Stefan Walter
2011 Collabora Ltd.
2013 Red Hat Inc.
License: BSD-3-Clause

Files: common/compat.c
Copyright: Copyright (c) 2011 Collabora Ltd.
Portions of this file are covered by the following copyright:
Copyright (c) 2001 Mike Barcroft <mike@FreeBSD.org>
Copyright (c) 1990, 1993
Copyright (c) 1987, 1993
The Regents of the University of
California.
Comment: This code is derived from software contributed to Berkeley by
Chris Torek.
License: BSD-3-Clause

Files: common/mock.h common/path.h common/frob-getauxval.c

common/test-lexer.c common/test-message.c
common/test-path.c common/test-url.c
p11-kit/test-proxy.c p11-kit/virtual.h p11-kit/test-util.c
trust/frob-nss-trust.c trust/test-parser.c
trust/test-persist.c p11-kit/client.h
Copyright: 2013 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/iter.c p11-kit/iter.h p11-kit/test-iter.c p11-kit/iter.gnu.c
Copyright: 2013,2016 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/client.c p11-kit/filter.c p11-kit/filter.h
p11-kit/test-filter.c p11-kit/virtual-fixed.h
Copyright: 2016 Red Hat Inc.
License: BSD-3-Clause

Files: common/test-argv.c
Copyright: 2017 Red Hat Inc.
License: BSD-3-Clause

Files: p11-kit/mock-module-ep.c p11-kit/test-progname.c
p11-kit/mock-module-ep3.c p11-kit/mock-module-ep4.c
Copyright: 2012 Stefan Walter
License: BSD-3-Clause

Files: common/unix-peer.c
Copyright:
2013 Nikos Mavrogiannopoulos
License: BSD-3-Clause

Files: debian/*
Copyright: 2011 Chris Coulson <chris.coulson@canonical.com>
2011-2013 Andreas Metzler <ametzler@debian.org>
License: BSD-3-Clause

Files: po/de.po
Copyright: 2011 Chris Leick
Comment: This file is distributed under the same license as the
debian files of the p11-kit package.
License: BSD-3-Clause

Files: po/fi.po
Copyright: 2012 Rosetta Contributors and Canonical Ltd 2012
Eerik Uusi-Illikainen https://launchpad.net/~ekiuusi-4, 2012
Timo Jyrinki <timo.jyrinki@iki.fi>, 2012
License: same-as-rest-of-p11kit
This file is distributed under the same license as the p11-kit
package.

License: BSD-3-Clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.
.
THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

1.464 libgpg-error 1.35-1

1.464.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed
to make sure that you
have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute
and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third

parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium

customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.
Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to

these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions

of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the
License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide
to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with

the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data

prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the

ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object

file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object
code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the
work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly
with a modified version of the library, if
the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least

three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your

rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed

through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public

License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or
your school, if any, to sign a "copyright disclaimer" for the library,
if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James
Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: libgpg-error
Upstream-Contact: gnupg-devel@gnupg.org
Source: https://gnupg.org/ftp/gcrypt/libgpg-error/

Files: *
Copyright: 2001-2004, 2010, 2012-2018, g10 Code GmbH
License: LGPL-2.1+

Files: src/b64dec.c
Copyright: 2008, 2011 Free Software Foundation, Inc.
2008, 2011, 2016 g10 Code GmbH
License: LGPL-2.1+

Files: src/estream-printf.h src/estream-printf.c src/estream.c
Copyright: 2004-2012, 2014-2017 g10 Code GmbH
License: LGPL-2.1+ or BSD-3-clause

Files: src/w32-estream.c
Copyright: 2000 Werner Koch (dd9jn)
2001, 2002, 2003, 2004, 2007, 2010, 2016 g10 Code GmbH
License: LGPL-2.1+

Files: src/gettext.h
Copyright: 1995-1998, 2000-2002 Free Software Foundation, Inc.
License: LGPL-2.1+

Files: src/gpg-error-config.in
Copyright: 1999, 2002, 2003 Free Software Foundation, Inc.
License: g10-permissive

Files: src/mkheader.c
Copyright: 2010 Free Software Foundation, Inc.
2014 g10 Code GmbH
License:
g10-permissive

Files: src/posix-lock.c
Copyright: 2005-2009 Free Software Foundation, Inc.
2014 g10 Code GmbH
License: LGPL-2.1+

Files: src/w32-gettext.c
Copyright: 1995, 1996, 1997, 1999, 2005, 2007, 2008, 2010 Free Software Foundation, Inc.
License: LGPL-2.1+

Files: doc/yat2m.c
Copyright: 2005, 2013, 2015, 2016 g10 Code GmbH
2006, 2008, 2011 Free Software Foundation, Inc.
License: GPL-3+

Files: potomo
Copyright: 2008 g10 Code GmbH
2010 Free Software Foundation, Inc.
License: g10-permissive

License: g10-permissive
This file is free software; as a special exception the author gives
unlimited permission to copy and/or distribute it, with or without
modifications, as long as this notice is preserved.
.
This file is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY, to the extent permitted by law; without even the
implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

License: LGPL-2.1+
This program is free software; you can redistribute
it and/or modify
it under the terms of the GNU Lesser General Public License as
published by the Free Software Foundation; either version 2.1
of the License, or (at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU Lesser General Public License for more details.
.
You should have received a copy of the GNU Lesser General Public

License along with this program; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.
.
On Debian systems, the complete text of the GNU Lesser General Public License
version 2.1 can be found in /usr/share/common-licenses/LGPL-2.1.

License: GPL-3+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation;
 either version 3 of the License, or
(at your option) any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License
along with this program; if not, see <https://www.gnu.org/licenses/>.
.
On Debian systems, the complete text of the GNU General Public License
version 3 can be found in /usr/share/common-licenses/GPL-3.

License: BSD-3-clause
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions
are met:
1. Redistributions of source code must retain the above copyright
   notice, and the entire permission notice in its entirety,
   including the disclaimer of warranties.
2. Redistributions in binary form must reproduce the above copyright
    notice, this list of conditions and the following disclaimer in the
   documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote
   products derived from this software without specific prior
   written permission.
.
THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED

OF THE POSSIBILITY OF SUCH
DAMAGE.

1.465 libffi 3.2.1-9

1.465.1 Available under license :

This package was debianized by Matthias Klose <doko@debian.org>
on Mon, 10 Mar 2008 05:46:40 +0000.

It was downloaded from ftp://sourceware.org/pub/libffi/

Upstream Authors:

Anthony Green <green@redhat.com>
GCC developers
See the README and below in the list of copyright holders for a more
complete list.

Copyright:
Copyright (c) 1996-2011 Red Hat, Inc.
Copyright (C) 1996-2011 Anthony Green
Copyright (C) 1996-2010 Free Software Foundation, Inc
Copyright (c) 2003, 2004, 2006, 2007, 2008 Kaz Kojima
Copyright (c) 2010, 2011, Plausible Labs Cooperative , Inc.
Copyright (c) 2010 CodeSourcery
Copyright (c) 1998 Andreas Schwab
Copyright (c) 2000 Hewlett Packard Company
Copyright (c) 2009 Bradley Smith
Copyright (c) 2008 David Daney
Copyright (c) 2004 Simon Posnjak
Copyright (c) 2005 Axis Communications AB
Copyright (c) 1998 Cygnus Solutions
Copyright (c) 2004 Renesas Technology
Copyright (c) 2002, 2007 Bo Thorsen
<bo@suse.de>
Copyright (c) 2002 Ranjit Mathew
Copyright (c) 2002 Roger Sayle
Copyright (c) 2000, 2007 Software AG
Copyright (c) 2003 Jakub Jelinek
Copyright (c) 2000, 2001 John Hornkvist
Copyright (c) 1998 Geoffrey Keating
Copyright (c) 2008 Bjrn Knig

License:

libffi - Copyright (c) 1996-2010 Red Hat, Inc and others.
See source files for details.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
``Software''), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE
IS PROVIDED ``AS IS'', WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Documentation:
Permission is granted to copy, distribute and/or modify this document
under the terms of the GNU General Public License as published by the
Free Software Foundation; either version 2, or (at your option) any
later version. A copy of the license is included in the
section entitled ``GNU General Public License''.

doc/*:
Permission is granted to copy, distribute and/or modify this document
under the terms of the GNU General Public License as published by the
Free Software
Foundation; either version 2, or (at your option) any
later version. A copy of the license is included in the
section entitled ``GNU General Public License''.

On Debian GNU/Linux systems, the complete text of the GNU General
Public License is in `/usr/share/common-licenses/GPL'.

The Debian packaging is (C) 2008, 2011 Matthias Klose <doko@debian.org>
and is licensed under the GPL, see `/usr/share/common-licenses/GPL'.
libffi - Copyright (c) 1996-2014 Anthony Green, Red Hat, Inc and others.
See source files for details.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
``Software''), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,

distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ``AS IS'', WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF
 CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

1.466 xz 5.2.4-1

1.466.1 Available under license :

Format: https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/
Upstream-Name: XZ Utils
Upstream-Contact:
Lasse Collin <lasse.collin@tukaani.org>
https://tukaani.org/xz/lists.html
Source:
https://tukaani.org/xz
https://git.tukaani.org/xz.git
Comment:
XZ Utils is developed and maintained upstream by Lasse Collin. Major
portions are based on code by other authors; see AUTHORS for details.
Most of the source has been put into the public domain, but some files
have not (details below).
.
This file describes the source package. The binary packages contain
some files derived from other works: for example, images in the API
documentation come from Doxygen.
License:
Different licenses apply to different files in this package. Here
is a rough summary of which licenses apply to which parts of this
package (but check the individual files to be sure!):
.
 - liblzma is in the public domain.
.
 - xz, xzdec, and lzmadec command line tools are in the public
   domain
unless GNU getopt_long had to be compiled and linked
   in from the lib directory. The getopt_long code is under

GNU LGPLv2.1+.

.

- The scripts to grep, diff, and view compressed files have been
adapted from gzip. These scripts and their documentation are
under GNU GPLv2+.

.

- All the documentation in the doc directory and most of the
XZ Utils specific documentation files in other directories
are in the public domain.

.

- Translated messages are in the public domain.

.

- The build system contains public domain files, and files that
are under GNU GPLv2+ or GNU GPLv3+. None of these files end up
in the binaries being built.

.

- Test files and test code in the tests directory, and debugging
utilities in the debug directory are in the public domain.

.

- The extra directory may contain public domain files, and files
that are under various free software licenses.

.

You can do whatever you want with the files that have
been put into
the public domain. If you find public domain legally problematic,
take the previous sentence as a license grant. If you still find
the lack of copyright legally problematic, you have too many
lawyers.

.

As usual, this software is provided "as is", without any warranty.

.

If you copy significant amounts of public domain code from XZ Utils
into your project, acknowledging this somewhere in your software is
polite (especially if it is proprietary, non-free software), but
naturally it is not legally required. Here is an example of a good
notice to put into "about box" or into documentation:

.

This software includes code from XZ Utils <http://tukaani.org/xz/>.

.

The following license texts are included in the following files:

- COPYING.LGPLv2.1: GNU Lesser General Public License version 2.1
- COPYING.GPLv2: GNU General Public License version 2
- COPYING.GPLv3: GNU General Public License version 3

.

Note that the toolchain (compiler, linker etc.)
may add some code
pieces that are copyrighted. Thus, it is possible that e.g. liblzma
binary wouldn't actually be in the public domain in its entirety

even though it contains no copyrighted code from the XZ Utils source
package.
.
If you have questions, don't hesitate to ask the author(s) for more
information.

Files: *
Copyright: 2006-2018, Lasse Collin
1999-2008, Igor Pavlov
2006, Ville Koskinen
1998, Steve Reid
2000, Wei Dai
2003, Kevin Springle
2009, Jonathan Nieder
2010, Anders F Bjrklund
License: PD
This file has been put in the public domain.
You can do whatever you want with this file.
Comment:
From: Lasse Collin <lasse.collin@tukaani.org>
To: Jonathan Nieder <jrnieder@gmail.com>
Subject: Re: XZ utils for Debian
Date: Sun, 19 Jul 2009 13:28:23 +0300
Message-Id: <200907191328.23816.lasse.collin@tukaani.org>
.
[...]
.
> AUTHORS, ChangeLog, COPYING, README, THANKS, TODO,
> dos/README,
windows/README
.
COPYING says that most docs are in the public domain. Maybe that's not
clear enough, but on the other hand it looks a bit stupid to put
copyright information in tiny and relatively small docs like README.
.
I don't dare to say that _all_ XZ Utils specific docs are in the public
domain unless otherwise mentioned in the file. I'm including PDF files
generated by groff + ps2pdf, and some day I might include Doxygen-
generated HTML docs too. Those don't include any copyright notices, but
it seems likely that groff + ps2pdf or at least Doxygen put some
copyrighted content into the generated files.

Files: INSTALL NEWS PACKAGERS
windows/README-Windows.txt
windows/INSTALL-MinGW.txt
Copyright: 2009-2010, Lasse Collin
License: probably-PD
See the note on AUTHORS, README, and so on above.

Files: src/scripts/* lib/* extra/scanlzma/scanlzma.c
Copyright: 1993, Jean-loup Gailly
1989-1994, 1996-1999, 2001-2007, Free Software Foundation, Inc.
2006 Timo Lindfors
2005, Charles Levert
2005, 2009, Lasse Collin
2009, Andrew Dudman
Other-Authors: Paul Eggert, Ulrich Drepper
License: GPL-2+

Files: src/scripts/Makefile.am src/scripts/xzless.1
Copyright: 2009, Andrew Dudman
2009, Lasse Collin
License: PD
This file has been put in the public domain.
You can do whatever you want with this file.

Files: doc/examples/xz_pipe_comp.c doc/examples/xz_pipe_decomp.c
Copyright: 2010, Daniel Mealha Cabrita
License: PD
Not copyrighted -- provided to the public domain.

Files: lib/getopt.c lib/getopt1.c lib/getopt.in.h
Copyright: 1987-2007 Free Software Foundation, Inc.
Other-Authors: Ulrich Drepper
License: LGPL-2.1+

Files: m4/getopt.m4 m4/posix-shell.m4
Copyright: 2002-2006, 2008 Free Software Foundation, Inc.
2007-2008 Free Software Foundation, Inc.
Other-Authors: Bruno Haible, Paul Eggert
License: permissive-fsf

Files: m4/acx_pthread.m4
Copyright: 2008, Steven G. Johnson
<stevenj@alum.mit.edu>
License: Autoconf

files: m4/ax_check_capsicum.m4
Copyright: 2014, Google Inc.
2015, Lasse Collin <lasse.collin@tukaani.org>
License: permissive-nowarranty

Files: Doxyfile.in
Copyright: 1997-2007 by Dimitri van Heesch
Origin: Doxygen 1.4.7
License: GPL-2

Files: src/liblzma/check/crc32_table_?e.h
src/liblzma/check/crc64_table_?e.h
src/liblzma/lzma/fastpos_table.c
src/liblzma/rangecoder/price_table.c
Copyright: none, automatically generated data
Generated-With:
src/liblzma/check/crc32_tablegen.c
src/liblzma/check/crc64_tablegen.c
src/liblzma/lzma/fastpos_tablegen.c
src/liblzma/rangecoder/price_tablegen.c
License: none
No copyright to license.

Files: .gitignore m4/.gitignore po/.gitignore po/LINGUAS po/POTFILES.in
Copyright: none; these are just short lists.
License: none
No copyright to license.

Files: tests/compress_prepared_bcj_*
Copyright: 2008-2009, Lasse Collin
Source-Code: tests/bcj_test.c
License: PD
This file has been put
into the public domain.
You can do whatever you want with this file.
Comment:
changelog.gz (commit 975d8fd) explains:
.
Recreated the BCJ test files for x86 and SPARC. The old files
were linked with crt*.o, which are copyrighted, and thus the
old test files were not in the public domain as a whole. They
are freely distributable though, but it is better to be careful
and avoid including any copyrighted pieces in the test files.
The new files are just compiled and assembled object files,
and thus don't contain any copyrighted code.

Files: po/cs.po po/de.po po/fr.po
Copyright: 2010, Marek ernock
2010, Andre Noll
2011, Adrien Nader
License: PD
This file is put in the public domain.

Files: po/it.po po/pl.po
Copyright: 2009, 2010, Gruppo traduzione italiano di Ubuntu-it
2010, Lorenzo De Liso
2009, 2010, 2011, Milo Casagrande

2011, Jakub Bogusz
License: PD
This file is in the public domain

Files: INSTALL.generic
Copyright:
1994, 1995, 1996, 1999, 2000, 2001, 2002, 2004, 2005,
2006, 2007, 2008, 2009, 2010 Free Software Foundation, Inc.
License: permissive-nowarranty

Files: dos/config.h
Copyright: 1992, 1993, 1994, 1999, 2000, 2001, 2002, 2005
Free Software Foundation, Inc.
2007-2010, Lasse Collin
Other-Authors: Roland McGrath, Akim Demaille, Paul Eggert,
David Mackenzie, Bruno Haible, and many others.
Origin: configure.ac from XZ Utils,
visibility.m4 serial 1 (gettext-0.15),
Autoconf 2.52g
License: config-h
configure.ac:
.
Author: Lasse Collin
#
This file has been put into the public domain.
You can do whatever you want with this file.
.
visibility.m4:
.
dnl Copyright (C) 2005 Free Software Foundation, Inc.
dnl This file is free software; the Free Software Foundation
dnl gives unlimited permission to copy and/or distribute it,
dnl with or without modifications, as long as this notice is preserved.
.
dnl From
Bruno Haible.
.
comments from Autoconf 2.52g:
.
Copyright 1992, 1993, 1994, 1999, 2000, 2001, 2002
Free Software Foundation, Inc.
.
[...]
.
As a special exception, the Free Software Foundation gives unlimited
permission to copy, distribute and modify the configure scripts that
are the output of Autoconf. You need not follow the terms of the GNU
General Public License when using or distributing such scripts, even

though portions of the text of Autoconf appear in them. The GNU
General Public License (GPL) does govern all other use of the material
that constitutes the Autoconf program.
.
On Debian systems, the complete text of the GNU General Public
License version 2 can be found in /usr/share/common-licenses/GPL-2.
dos/config.h was generated with autoheader, which tells Autoconf to
output a script to generate a config.h file and then runs it.

Files: po/Makevars
Origin: gettext-runtime/po/Makevars (gettext-0.12)
Copyright: 2003 Free Software
 Foundation, Inc.
Authors: Bruno Haible
License: LGPL-2.1+
The gettext-runtime package is under the LGPL, see files intl/COPYING.LIB-2.0
and intl/COPYING.LIB-2.1.
.
On Debian systems, the complete text of intl/COPYING.LIB-2.0 from
gettext-runtime 0.12 can be found in /usr/share/common-licenses/LGPL-2
and the text of intl/COPYING.LIB-2.1 can be found in
/usr/share/common-licenses/LGPL-2.1.
.
po/Makevars consists mostly of helpful comments and does not contain a
copyright and license notice.

Files: COPYING.GPLv2 COPYING.GPLv3 COPYING.LGPLv2.1
Copyright: 1989, 1991, 1999, 2007 Free Software Foundation, Inc.
License: noderivs
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Files: debian/*
Copyright: 2009-2012, Jonathan Nieder
License: PD-debian
The Debian packaging files are in the public domain.
You may freely use, modify, distribute, and relicense them.

License: LGPL-2.1+
This program is free software;
 you can redistribute it and/or modify
it under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1, or (at your option)
any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the

GNU Lesser General Public License for more details.
.
You should have received a copy of the GNU Lesser General Public License along
with this program; if not, write to the Free Software Foundation,
Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
.
On Debian systems, the complete text of the GNU Lesser General Public
License version 2.1 can be found in /usr/share/common-licenses/LGPL-2.1.

License: GPL-2
Permission to use, copy, modify, and distribute this software and its
documentation under the terms of the GNU General Public License is
hereby granted.
No representations are made about the suitability of
this software for any purpose. It is provided "as is" without express
or implied warranty. See the GNU General Public License for more
details.
.
Documents produced by doxygen are derivative works derived from the
input used in their production; they are not affected by this license.
.
On Debian systems, the complete text of the version of the GNU General
Public License distributed with Doxygen can be found in
/usr/share/common-licenses/GPL-2.

License: GPL-2+
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2, or (at your option)
any later version.
.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.
.
You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation,
Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
.
On Debian systems, the complete text of the GNU General Public License
version 2 can be found in /usr/share/common-licenses/GPL-2.

License: Autoconf
This program is free software: you can redistribute it and/or modify it
under the terms of the GNU General Public License as published by the
Free Software Foundation, either version 3 of the License, or (at your
option) any later version.

.
This program is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General
Public License for more details.
.
You should have received a copy of the GNU General Public License along
with this program. If not, see <http://www.gnu.org/licenses/>.
.
As a special
 exception, the respective Autoconf Macro's copyright owner
gives unlimited permission to copy, distribute and modify the configure
scripts that are the output of Autoconf when processing the Macro. You
need not follow the terms of the GNU General Public License when using
or distributing such scripts, even though portions of the text of the
Macro appear in them. The GNU General Public License (GPL) does govern
all other use of the material that constitutes the Autoconf Macro.
.
This special exception to the GPL applies to versions of the Autoconf
Macro released by the Autoconf Archive. When you make and distribute a
modified version of the Autoconf Macro, you may extend this special
exception to the GPL to apply to your modified version as well.
.
On Debian systems, the complete text of the GNU General Public
License version 3 can be found in /usr/share/common-licenses/GPL-3.

License: permissive-fsf
This file is free software; the Free Software Foundation
gives unlimited
 permission to copy and/or distribute it,
with or without modifications, as long as this notice is preserved.

License: permissive-nowarranty
Copying and distribution of this file, with or without modification,
are permitted in any medium without royalty provided the copyright
notice and this notice are preserved. This file is offered as-is,
without warranty of any kind.

1.467 libcap-ng 0.7.9-2

1.467.1 Available under license :

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors
who decide to use it. You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations
below.

When we speak of free software, we are referring to freedom of use,
not price. Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights. These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave
you. You must make sure that they, too, receive or can get the source
code. If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that
there is no warranty for the free library. Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.
^L
Finally,
software patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder. Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License. This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License. We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore
permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it
becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting

the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library
in order to run.
^L
GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly
into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control

compilation
and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it,
in any medium, provided that
you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the

application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work are not derived from the Library,
and
can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may opt to apply the terms
of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.
^L
Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the

complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse

engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2)

will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything

that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined
with any other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited
by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the

Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
^L
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation
may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.
^L
14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for
this. Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS
PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

END OF TERMS AND CONDITIONS

^L

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James

Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute

and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole
or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered
independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or
executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the
source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through

any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time. Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number. If the Program
specifies a version number
of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation. If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission. For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this. Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN
IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and
`show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Library General
Public License instead of this License.
This package was debianized by Pierre Chifflier <pollux@debian.org> on
Mon, 22 Jun 2009 21:47:25 +0200.

It was downloaded from http://people.redhat.com/sgrubb/libcap-ng/

Upstream Author: Steve Grubb <sgrubb@redhat.com>

Copyright 2009 Red Hat Inc.

License:

This library is free software; you can redistribute it and/or
modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston,
MA 02110-1301,
USA.

see `/usr/share/common-licenses/LGPL-2.1'.

Files in the 'utils/' directory, Makefile.am and doc/Makefile.am are
licensed under the GNU General Public License version 2 or above
See `/usr/share/common-licenses/GPL-2'.

The Debian packaging is:

Copyright (C) 2009 Pierre Chifflier <pollux@debian.org>

and is licensed under the GPL version 3,
see `/usr/share/common-licenses/GPL-3'.

1.468 dash 0.5.10.2-5

1.468.1 Available under license :

Copyright jQuery Foundation and other contributors <https://jquery.org/>

Based on Underscore.js, copyright Jeremy Ashkenas,
DocumentCloud and Investigative Reporters & Editors <http://underscorejs.org/>

This software consists of voluntary contributions made by many
individuals. For exact contribution history, see the revision history
available at https://github.com/lodash/lodash

The following license applies to all parts of this software except as
documented below:

====

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be
included in all copies or

substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

====

Copyright and related rights for sample code are waived via CC0. Sample code is defined as all source code displayed within the prose of the documentation.

CC0: http://creativecommons.org/publicdomain/zero/1.0/

====

Files located in the node_modules and vendor directories are externally maintained libraries used by this software which have their own licenses; we recommend you read them, as their terms may differ from the terms above.

1.469 gzip 1.9-3

1.469.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to

your programs, too.

When we speak of free software, we are referring to
freedom, not
price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:
(1)
assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could

make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of

copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any
non-permissive terms added in accord with section 7 apply to the code;

keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms

of sections 4 and 5, provided that you also convey the
machine-readable Corresponding Source under the terms of this License,
in one of these ways:

a) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years
and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the
written offer to provide the Corresponding Source. This
alternative is allowed only occasionally and noncommercially, and
only if you received the object code with such an offer, in accord
with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the
Corresponding Source in
the same way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the
Corresponding Source. Regardless of what server hosts the
Corresponding Source, you remain obligated to ensure that it is
available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided
you inform other peers where the object code and Corresponding
Source of the work are being offered to the general public at no
charge under subsection 6d.

A separable portion of the object code, whose source code is excluded

from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly

documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for

any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the

licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or
that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.

Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it

under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.

1.470 tzdata 2021a-0+deb10u3

1.470.1 Available under license :

This is the Debian prepackaged version of the Time Zone and Daylight Saving Time Data.

It was downloaded from http://www.iana.org/time-zones

Upstream Author: The Internet Assigned Numbers Authority (IANA) Commentary should be addressed to tz@iana.org

Copyright: This database is in the public domain. Unless specified below, all files in the tz code and data (including this LICENSE file) are in the public domain.

If the files date.c, newstrftime.3, and strftime.c are present, they contain material derived from BSD and use the BSD 3-clause license.

1.471 libpkit 0.23.20-1ubuntu0.1

1.471.1 Available under license :

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the

following disclaimer.
* Redistributions in binary form must reproduce the
above copyright notice, this list of conditions and
the following disclaimer in the documentation and/or
other materials provided with the distribution.
* The names of contributors to this software may not be
used to endorse or promote products derived from this
software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS
OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.

1.472 swagger-annotations 2.1.9

1.472.1 Available under license :

No license file was found, but licenses were detected in source scan.

/**
* Copyright 2017 SmartBear Software
* <p>
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
* <p>
* http://www.apache.org/licenses/LICENSE-2.0
* <p>
* Unless required by applicable law or agreed to in writing, software
* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*/

Found in path(s):
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/callbacks/Callbacks.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/responses/ApiResponses.java

* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/OAuthScope.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/headers/Header.java
*
 /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/media/Content.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/SecurityRequirements.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/OAuthFlows.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/media/Schema.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/servers/Servers.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/servers/Server.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/tags/Tag.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/callbacks/Callback.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/links/Link.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/SecurityRequirement.java
*
 /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/Parameters.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/extensions/Extensions.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/OAuthFlow.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/SecurityScheme.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/media/ExampleObject.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/media/Encoding.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/Parameter.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/ExternalDocumentation.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/parameters/RequestBody.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/Operation.java
*
 /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/info/License.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/servers/ServerVariable.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/security/SecuritySchemes.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/links/LinkParameter.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/responses/ApiResponse.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/info/Contact.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/OpenAPIDefinition.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/media/DiscriminatorMapping.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/tags/Tags.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/Hidden.java
* /swagger-annotations-2-1-9-sources-1-jar/io/swagger/v3/oas/annotations/info/Info.java

1.473 libgpg-error 1.37-1

1.473.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any

patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code
or executable form with such
an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy
the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6.

Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates

the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You
can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get

it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits

such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the
free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to
run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License").

Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms
of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably
considered independent and separate works in
themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary
GNU General Public
License instead of this License to a given copy of the Library. To do

this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License. (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.) Do not make any other change in
these notices.

Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding
machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses
the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object
code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the
work with the complete corresponding
machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly
with a modified version of the library, if
the user installs one, as long as the modified version is

interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally
distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any
other library
facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute

the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system

which is
implemented by public license practices. Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License
may add an explicit geographical distribution limitation excluding those
countries, so that distribution is permitted only in or among
countries not thus excluded. In such case, this License incorporates
the limitation as if written in the body of this License.

13. The Free Software Foundation may publish
revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation. If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission. For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this. Our
decision will
be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR

OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU

Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public
License along with this library; if not, write to the Free Software
Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or
your school, if any, to sign a "copyright disclaimer" for the library,
if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the
library `Frob' (a library for tweaking knobs) written by James
Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.474 zstd 1.4.4

1.474.1 Available under license :

BSD License

For Zstandard software

Copyright (c) 2016-present, Facebook, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
  this list of conditions and the following disclaimer in the documentation
  and/or other materials provided with the distribution.

* Neither the name Facebook nor the names of its contributors may be used to
  endorse or promote products derived from this software without specific
  prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
Simplified BSD License

Copyright (c) 2016, Datadog <info@datadoghq.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1.475 nettle 3.5.1+really3.5.1-2ubuntu0.2

1.475.1 Available under license :

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies

of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which
gives you legal permission to copy,
distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the

program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause

any work that you distribute or publish, that in
whole or in part contains or is derived from the Program or any
part thereof, to be licensed as a whole at no charge to all third
parties under the terms of this License.

c) If the modified program normally reads commands interactively
when run, you must cause it, when started running for such
interactive use in the most ordinary way, to print or display an
announcement including an appropriate copyright notice and a
notice that there is no warranty (or else, saying that you provide
a warranty) and that users may redistribute the program under
these conditions, and telling the user how to view a copy of this
License. (Exception: if the Program itself is interactive but
does not normally print such an announcement, your work based on
the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If
identifiable sections of that work
are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works. But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

3. You may copy and distribute the Program (or a work based on it,
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable
source code, which must be distributed under the terms of Sections
1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your
cost of physically performing source distribution, a complete

machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the

Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU
General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if

necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this
is what you want to do, use the GNU Lesser General
Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

"The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is
deemed a mode
of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code

for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying
Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data
structure
layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL

for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of

protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand
ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees"
and
"recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require,

such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered
by this License only if the output, given its
content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed;
section 10
makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to

the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately
publish on each copy an appropriate copyright notice;
keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent

works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source

may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the
Corresponding Source. Regardless of what server hosts the
Corresponding Source, you remain obligated to ensure that it is
available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided
you inform other peers where the object code and Corresponding
Source of the work are being offered to the general public at no
charge under subsection 6d.

A separable portion of the object code, whose source code is excluded
from the Corresponding Source
as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any
tangible personal property which is normally used for personal, family,
or household purposes, or (2) anything designed or sold for incorporation
into a dwelling. In determining whether a product is a consumer product,
doubtful cases shall be resolved in favor of coverage. For a particular
product received by a particular user, "normally used" refers to a
typical or common use of that class of product, regardless of the status
of the particular user or of the way in which the particular user
actually uses, or expects or is expected to use, the product. A product
is a consumer product regardless of whether the product has substantial
commercial, industrial or non-consumer uses, unless such uses represent
the only significant mode of use of the product.

"Installation Information" for a User Product means any methods,
procedures, authorization
keys, or other information required to install
and execute modified versions of a covered work in that User Product from
a modified version of its Corresponding Source. The information must
suffice to ensure that the continued functioning of the modified object
code is in no case prevented or interfered with solely because
modification has been made.

If you convey an object code work under this section in, or with, or
specifically for use in, a User Product, and the conveying occurs as
part of a transaction in which the right of possession and use of the
User Product is transferred to the recipient in perpetuity or for a
fixed term (regardless of how the transaction is characterized), the
Corresponding Source conveyed under this section must be accompanied
by the Installation Information. But this requirement does not apply
if neither you nor any third party retains the ability to install
modified object code on the User Product (for example, the work has

been installed in
ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the
entire Program shall
be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or
limiting liability differently from the
terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or
requiring that modified versions of such material be marked in
reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or
authors of the material; or

e) Declining to grant rights under trademark law for use of some
trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that
material by anyone who conveys the material (or modified versions of
it) with contractual assumptions of liability to the recipient, for
any liability that these contractual assumptions directly impose on

those licensors and authors.

All other non-permissive additional terms are considered "further
restrictions" within the meaning of section 10. If the Program as you
received it, or any part of it, contains a notice stating that it is
governed by this License along with a term that is a further
restriction, you may remove that term. If a license document contains
a further restriction but permits relicensing or conveying under this
License, you may add to a covered work material governed by the terms
of that license document, provided that the further restriction does
not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you
must place, in the relevant source files, a statement of the
additional terms that apply to those files, or a notice indicating
where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the
form of a separately written license, or stated as exceptions;
the above
requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly
provided under this License. Any attempt otherwise to propagate or
modify it is void, and will automatically terminate your rights under
this License (including any patent licenses granted under the third
paragraph of section 11).

However, if you cease all violation of this License, then your
license from a particular copyright holder is reinstated (a)
provisionally, unless and until the copyright holder explicitly and

finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright
holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the

rights
granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the

covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17.
Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short
notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, your program's commands
might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school,
if any, to sign a "copyright disclaimer" for the program, if necessary.
For more information on this, and how to apply and follow the GNU GPL, see
<https://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program
into proprietary programs. If your program is a subroutine library, you
may consider it more useful to permit linking proprietary applications with
the library. If this is what you want to
do, use the GNU Lesser General
Public License instead of this License. But first, please read
<https://www.gnu.org/philosophy/why-not-lgpl.html>.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries.To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

©2025 Cisco Systems, Inc. All rights reserved.